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„The Sense of Ownership in Pre-reflective Self-awareness and its Diminishment in Schizophrenia“

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1. Introduction

“...the life of consciousness—cognitive life, the life of desire or perceptual life—is subtended by an ‘intentional arc’ which projects round about us our past, our future, our human setting, our physical, ideological and moral situation, or rather which results in our being situated in all these respects. It is this intentional arc which brings about the unity of the senses, of intelligence, of sensibility and motility. And it is this which ‘goes limp’ in illness.” (Merleau-Ponty 1962, 157)

1.1 Schizophrenia and self-awareness

The main hypothesis of this thesis is that schizophrenia is not merely a disorder of the sense of agency. Moreover, it is set up as a criticism of the broadly established claim that the sense of ownership remains intact in schizophrenia. That is to say, schizophrenia is a *holistic* disorder of our most intimate, non-observational sense of self rather than only affecting a single dissociable aspect of selfhood. In line with this, I will not refer to the self as a *representation* or metarepresentation of our body or of our stream of consciousness. In the thesis at hand the self is considered to be *pre-reflective* rather than being an intellectual faculty (Gallagher and Zahavi 2008; Zahavi 2005). Self-awareness, in this sense, is neither a transcendental ego, nor is it a narrative or intellectual achievement. It is neither a disembodied mind, nor a story we use to tell ourselves. Simply put, we are aware of ourselves not unlike we are aware of a pair of glasses. We look through them. We grasp the world in its clarity because they are *transparent* and because we can “surpass” them. Yet even though this is an insufficient metaphor, it points to a crucial feature of the self. We do not observe the self just like we do not look *at* a pair of glasses. We observe *through* it. Yet, by grasping the world in its clarity we are implicitly aware of that which makes it clearly detailed, like for example our optical glasses. When we perceive the world through glasses, the world is not projected on them as a representation, a secondary picture without primary worldly properties. We experience a world that lies beyond. What is striking in this picture is that the world has an experiential status that is distinct from the body, which makes it visible, audible, touchable and so forth. First and foremost, we experience a world and not merely ourselves experiencing a world. We do not think about the processes of seeing, hearing, touching. Simply speaking, we are

already in the world. This is not meant as a metaphysical statement. This is simply how we naturally experience it. Yet even if our experience is transparent and seems to transcend itself towards the world, we are directly, without thinking about it, aware of our experience. Even though it points beyond itself our experience entails an implicit self-reference that is referred to as *non-observational or pre-reflective self-awareness*. Hence, for any phenomenally conscious being it is impossible to *not* have a pre-reflective self-awareness. That is to say, the non-observational self is a necessary and sufficient condition for experience, or in other words, the pre-reflective self is the first-person perspective of the world. Consequently, it is also a *sine qua non* for self-reflection and a narrative self.

It is relatively undisputed that schizophrenia involves a disorder of self-awareness, yet the particular nature of the disorder, the type of awareness and its underpinnings are still debated. For example, Firth (1992) argued that a second-order, meta-representational self-consciousness is dysfunctional in schizophrenia. While the first-order level of experience remains unaltered, the second order access to these experiences is disturbed. Others argue for the exact opposite, i.e. that first-order experience is affected by schizophrenia. Any aberration of higher-order faculties are therefore derived from a first-order disruption of the self (e.g. Sass and Parnas 2003). Accordingly, schizophrenia consists in a diminishment of pre-reflective self-awareness. The non-observational self entails the feeling of “mineness” of experience that is typical of the first-person perspective and which is also called *ipseity* (from the Latin *ipse*, meaning “self” or “itself”). From this it follows in a nutshell, that cognitive disruptions—in the sense of intellectual, representational or computational dysfunctions—are secondary to and derived from the diminishment of the non-observational self. However, the primary diminishment of non-observational self-awareness can be explained in two ways. Either the disruption comprises (1) the *overall structure* of the non-observational self-awareness, or (2) a *particular disruption of an unnecessary component* of non-observational self-awareness.

At this point, it should be noted that our pre-reflective self-awareness includes a sense of agency and a sense of ownership which naturally coincide in everyday-life action (Gallagher 2000b; Gallagher 2000a; Gallagher 2005). While this is first and foremost a conceptual distinction, the particular symptomatology and phenomenology of schizophrenia renders agency and ownership empirically *separable*. Schizophrenia

can be understood as an instance of a *disrupted sense of agency*. The sense of ownership, however, might remain intact and is thus dissociable from the sense of agency (Gallagher 2000a). In short, schizophrenics experience delusions and hallucinations on account of not being able to experience that they are the agents of their bodily movements, actions or thoughts. They thus experience an alien agency, which is an experience we consider delusional from the third-person perspective. Yet these pathological experiences occur in the patient's field of awareness for which the schizophrenic retains a sense of ownership. Note that this model is consistent with (2) a particular disruption of an unnecessary component of non-observational self-awareness.

In opposition to Gallagher's model, I claim that the schizophrenic suffers from a diminishment of the sense of agency *and* of the sense of ownership. In contrast to the aforesaid, this hypothesis is in line with (1) a disruption of the over-all structure of non-observational self-awareness. First of all, my hypothesis states that the sense of ownership is *sufficient* for a sense of agency. I am going to argue that hypothesis (2) is based on ambiguities in the concept of "sense of ownership". It is yet to be defined whether a sense of ownership is dependent on intentional states directed to the body as-object (Legrand 2007) or not. Consequently, it needs to be clarified whether the sense of ownership is a homogenous notion, for it can refer to the body (as a whole and to body parts), to thoughts or to consciousness in general (i.e. the possession of a first-person perspective). Still, all these modes of ownership are profoundly intricate. It is, on the one hand, problematic that the sense of ownership can be exclusively directed towards the body. This presupposes an explicit or thematic consciousness of the body *as-object*. But pre-reflective self-awareness is not thematic. It does not posit the body as-object. On the other hand, the sense of ownership might be inherent to the stream of consciousness. That is, it might be considered as a sense of ownership with respect to experience in general; a feeling of "mineness" of experience. Although this is an enticing alternative, it has to be treated with caution. It is important not to conceive the self as the sole self-presence of the stream of consciousness. Pre-reflective self-awareness is neither a compound of "sensational data" nor a self-engrossed intellect nor the sum of both. In particular, how can mere self-presence account for the *diaphanousness* or *transparency* of experience (e.g. Harman 1990; Moore 1903)? That is, even if we admit that the self *is* the entire field of awareness

this does not necessarily explain why experience is diaphanous or transparent, why it is not a solipsistic self-presence and why it transcends itself towards the world in the first place. The self, as it were, can only know itself by being-in-the-world. It is a self only inasmuch as it opposes a non-self.

The notion of the sense of ownership thus faces a conceptual crisis. It can either be apprehended as (1) a transitive consciousness *of* the body, thoughts or introspective access to the entire field of awareness, or (2) as the quality of mineness of experience—the quality of “what it is like” to undergo an experience (Nagel 1974). From an enactive perspective, the sense of ownership rests upon a *third ground* that lies between the dichotomy of subject and object (Varela, Thompson, and Rosch 1991).

I am going to address these issues by arguing that schizophrenia discloses that the sense of ownership is sufficient for the sense of agency. In order to illustrate this claim one might ask the following question: What is the body if not the vehicle of our being-in-the-world (Merleau-Ponty 1962, 94)? By pointing at the vehicle I mean nothing more or less than the self, that is, an *agent-self* that *enacts* its subjectivity rather than merely possessing it; a bodily self that remains in the background, something that is “never really in front of me” (Merleau-Ponty 1962, 104). This can be understood in a twofold sense. It is neither an object nor the sum of our sensations. If the sense of ownership is understood accordingly it can be shown that schizophrenia is a disorder of the sense of agency *and* ownership.

1.2 What is schizophrenia?

One of the most common symptoms of schizophrenia is the hearing of voices that directly talk to patients or comment on their actions. Patients sometimes exhibit delusional beliefs or paranoid delusions. They might feel controlled by an alien or some other external force. For example, their thoughts can feel “inserted”, as if they did not belong to the patient. Some patients also exhibit thought disorder and experience a flattening of emotional life. They are, at times, incapable of attending to normal life (e.g. attending to everyday chores or going to work). However, schizophrenia can differ strikingly from one case to another. In fact, there is no symptom in schizophrenia that is quintessentially “schizophrenic”. The illness can manifest itself differently from one instance to another. It is quite possible that the

symptoms of two individual incidences of schizophrenia might be entirely different. According to the DSM-V, it is even possible that two patients do not share a single symptom. Technically, the major symptoms include lack of insight, third-person and second-person auditory hallucinations, delusions of reference, delusions of control, paranoid delusions, thought insertion, thought broadcast, thoughts spoken aloud, thought withdrawal, disorganized behavior and catatonia. The aforementioned symptoms are sometimes called positive symptoms as opposed to negative symptoms, which consist of a *lack* of something formerly present. Negative symptoms include athymia, alogia, abulia and anhedonia-asociality (Frith 1992). I shall explain both categories in greater detail.

Positive symptoms

1. *Third or second person auditory hallucinations*: Patients claim that they are hearing voices that are talking about them (in third person), for example, by commenting on their actions. Second person hallucinations also occur; patients with these hallucinations hear voices talking to them directly.
2. *Thought insertion*: Patients experience their thoughts as alien, as if they were coming from an external source.
3. *Thought broadcast*: Patients experience their thoughts transcending their minds and entering the minds of others.
4. *Thoughts spoken aloud*: Patients hear their thoughts spoken aloud, at times, right after they thought them.
5. *Thought withdrawal*: Patients experience that their thoughts are being removed from their heads.
6. *Delusions of control*: Patients experience that their actions are carried out by an external force.
7. *Delusions of reference*: Patients believe that the actions of strangers are directed particularly at them.
8. *Paranoid delusions*: Patients believe that people attempt to harm them.

Negative symptoms

1. *Athymia*: Patients exhibit unchanging facial expressions, decreased spontaneous movement, lack of expressive gestures and vocal inflections.

2. *Alogia*: Patients speak rarely, express sparse content and exhibit decreased response latency.
3. *Abulia*: Patients lack energy, persistence at work and exhibit poor grooming and hygiene.
4. *Anhedonia-Asociality*: Patients lose interest in recreation, sex and are unable to feel intimacy and form friendships.

It must be noted that the division of positive and negative symptoms is arbitrary and questionable¹. I am going to readdress this issue in the course of the introduction. The scheme above is taken from Frith (1992) and is only one possible way of distinguishing negative from positive features. Other psychiatric traditions reject the distinction in general (e.g. Sass 2003).

Today's psychiatry falls back on a clear-cut diagnostic guideline. These diagnostic criteria tally with third-person assessments of symptoms and are largely criticized for neglecting the rich phenomenology of the patient and the existential relevance of symptomatology for their lives (e.g. Parnas, Sass, and Zahavi 2012). For the sake of completion, I am going to provide a short overview of the current criteria implemented in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders*.

Schizophrenia in the DSM-V

The DSM-V enumerates six diagnostic criteria. The first criterion A consists of symptoms or clusters of symptoms including (1) delusions, (2) hallucinations, (3) disorganized speech, (4) grossly disorganized or catatonic behavior and (5) negative symptoms. The DSM-V formally requires that at least two of these five symptoms must be present for a significant duration within a one-month period, given that the patient does not receive any (successful) treatment. Furthermore, one of the symptoms must correspond to the first, second or the third group.

Following criterion B, a patient has to be impaired in at least one of the “major areas of functioning” (American Psychiatric Association 2013, 100), while the dysfunction must not be an effect of a single feature of the disorder. Criterion C states

¹ For example flattening of affect can be considered a positive symptom rather than a negative feature (e.g. Picchioni and Murray 2007).

that some signs of the disorder must persist continuously over a period of six months. Prodromal symptoms such as negative symptoms or sub-threshold hallucinations or delusions can precede the onset of a severe clinical picture. The DSM-V also notes that negative symptoms are frequent in prodromal and residual (i.e. resting) phases of schizophrenia.

Criteria D-F ought to prevent misdiagnosis by demarcating schizophrenia, for example, from depressive or bipolar disorder with psychotic features (criterion D), physiological effects of substances such as drugs or medication, or another medical condition (criterion E) and from autism spectrum disorders.

1.3 The Self-disorder model of schizophrenia, hyperreflexivity and diminished self-affection

Sass and Parnas (2003) propose that schizophrenia can be explained by a single condition, the so-called *ipseity-disturbance*. The idea that schizophrenia includes a transformation of the self is not their own and draws on the long-standing tradition of phenomenological psychiatry². However, the authors note that these traditions are virtually unknown in the English-speaking world. Moreover, their considerations are much needed so as to restore a unified understanding of the disorder. Although schizophrenia is a heterogeneous disease it has an underlying “core Gestalt” (Parnas 2012) that can account for positive and negative symptoms and the disorganization syndrome in a unified manner.

The self-disorder consists of two complementary aspects that can only be understood in their mutual elucidation. The first is *hyperreflexivity* and refers to a form of “exaggerated self-consciousness” (Sass and Parnas 2003, 428). More precisely, it denotes the shift of what has been a formerly automatic or tacit aspect of experience into reflective, thematic consciousness. Patients hereby no longer inhabit what was previously a part of their self and experience themselves as an external object. Complementary to hyperreflexivity a diminishment of *self-affection* occurs. Self-affection refers to the basal pre-reflective self-manifestation of consciousness. “Affection”, in this sense, has nothing to do with liking or keenness, denoting instead that consciousness affects *itself*: It is “manifesting itself to itself in a way that involves no distinction between a subject and an object.” (Sass and Parnas 2003, 428)

² Minkowski, Blankenburg and Binswanger, etc.

Sass and Parnas argue that schizophrenics are deprived of an optimal “grip” or “hold” on their experience as a consequence of diminished ipseity³. In other words, patients are having difficulties in experiencing figures or meanings against the backdrop from which they emerge.

Merging positive, negative and disorganization features

Hallucinations, thought insertions and delusions are also called *positive symptoms*, for they are considered an excess of something. That is, patients are having experiences that they did not have before the onset of the positive syndrome. The latter is opposed to the negative syndrome or negative symptoms, which are characterized by a lack. Avolition, apathy, alogia and asociality are symptomatic features that deprive patients of their motivation, will, communicativeness and social skill. Sass and Parnas note:

“One strictly logical issue concerns a certain arbitrariness that seems inherent in classifying something as positive or negative. The absence of one thing will, after all, inevitably allow for, indeed necessitate, the presence of something else [...]” (Sass and Parnas 2003, 431)

But the positive-negative distinction does not only collapse by means of logical necessity. It is also empirically unsustainable. For example, negative symptoms elicit positive aspects when asocial patients show “strange or socially inappropriate, self-directed behavior” (Sass and Parnas 2003, 431).

³ “According to Merleau-Ponty, higher animals and human beings are always tending towards getting a *maximal grip* on their situation. Merleau-Ponty’s notion of maximal grip comes from perception and manipulation. When we are looking at something, we tend, without thinking about it, to find the best distance for taking in both the thing as a whole and its different parts. When grasping something, we tend to grab it in such a way as to get the best grip on it.” (Dreyfus 2002, 378)

“For each object, as for each picture in an art gallery, there is an optimum distance from which it requires to be seen, a direction viewed from which it vouchsafes most of itself: at a shorter or greater distance we have merely a perception blurred through excess or deficiency. We therefore tend towards the maximum of visibility, and seek a better focus as with a microscope.” (Merleau-Ponty 1962, 352)

Sass also noted that the difference between exaggerated self-consciousness and diminished sense of self must not be mapped on the positive-negative dichotomy (Sass 2003). After all, exaggerated self-awareness and diminishment of ipseity are two different aspects of the same underlying core: We can understand the difference between positive and negative symptoms as corresponding to the difference of diminished ipseity and hyperreflexivity: The exaggeration of *reflective* awareness necessarily corresponds to a withdrawal of the pre-reflective self. Hyperreflexivity can explain positive symptoms such as auditory hallucinations, for the pre-reflective operations of consciousness gain an unusual and alien thematic presence. On the other hand, hyperreflexivity can also account for negative symptoms. Patients with schizophrenia often tend to amplify and exaggerate “analytic, sequential, conscious and quasi-voluntary cognitive procedures” (Sass and Parnas 2003, 434) at the expense of close-to-automatic processes that do not require attention. Since the patient’s actions become, as it seems, mathematical or computational endeavors, they are carried out with unusual effort. Negative symptoms can thus be explained as an effect of avoiding the effort of monitoring every day life action in all its detail.

That is not to say that an exaggerated form of awareness is a primary cause of the diminishment. Schizophrenics often report strange bodily feelings called *cenesthesias*: thermic, vestibular sensations, sensations of movement, pulling or pressure, electric, migrating sensations, but also sensations of diminution or enlargement of the body and its parts (Sass and Parnas 2003). Healthy subjects are also capable of reporting these bodily sensations to which we usually do not pay strong attention to and which we, if we do attend to them, find strange and alienating. However, peculiar cenesthesias might direct the subject’s attention to them in the first place, thus resulting in hyperreflexivity. In schizophrenia cenesthesias are “frequently accompanied by feelings of declining vital energy, physical awkwardness, or motoric blockage [...]” (Sass and Parnas 2003, 434). Hence they can even be understood as directly corresponding to negative features.

Disorganization syndrome

The disorganization syndrome in schizophrenia includes grossly disorganized and catatonic behavior, disorganized speech (frequent derailment or incoherence and pressure of speech, poverty of content of speech), disorganized thought, attention and

distractibility (cf. American Psychiatric Association 2013; Sass and Parnas 2003). A significant feature of the disorganization syndrome is the inability to blank out alternatives for all kinds of action. This “perspectival abridgment” is necessary for everyday life practical endeavors for which we do not need to apprehend an extensive array of possibilities (Sass and Parnas 2003, 435). The disorganization syndrome can be understood in the light of hyperreflexivity and diminished self-affection as well. Disorganization does not primarily occur due to a *confused* state of mind, in which the subject is incapable of staying focused, but rather because there is an exaggerated awareness or, moreover, a loss of a *single frame of reference*. The self provides us with a frame of reference or a first-person perspective. Normally, we experience the world from a certain point of view and by virtue of having a certain orientation. We therefore experience worldly entities with a certain unambiguous relevance. Objects gain their affordances (Gibson 1986) by virtue of appearing to a subject for which they have a particular relevance.

Hyperreflexivity also explains *disturbances of language*. Patients with schizophrenia converse without projecting their utterances against a backdrop of common sense in such a way that nothing is taken for granted or as self-evident. In short, they thematize what the “healthy” subject presupposes in normal conversation.

According to Sass and Parnas, schizophrenia cannot be understood unless we consider it a disorder of consciousness or more precisely, an ipseity-disturbance. Exaggerated reflective self-consciousness and the diminishment of self-affection are the complementary and inseparable expressions of the self-disorder.

1.4 Gallagher’s account

Shaun Gallagher’s approach to schizophrenia includes both phenomenological and neuro-cognitive elements. In particular, Gallagher argues that cognitive neuroscience and neuropsychology can explain abnormalities in the experience of action (Gallagher 2004). However, when it comes to *thought*, phenomenology provides the most parsimonious explanation. One needs to consider Frith’s neuropsychological model (Frith 1992) before one can understand Gallagher’s proposal. In a nutshell, Frith claims that people with schizophrenia are incapable of identifying the source of their self-initiated actions and thoughts. Even though the first-order experience of patients is normal, they lack the metacognitive access to these experiences. That is, even

though patients experience their actions and thoughts they do not *recognize* them as theirs. The principle that explains how, for example, self-initiated bodily movement is experienced as self-initiated is that of “efference copy” or “corollary discharge” and its role in the forward modeling of movement and thought.

Let me explain the principle briefly. Simply speaking, Frith (1992, 74) derived the function of forward modeling from Helmholtz’ model of visuomotor coordination. The model works as follows: When the eye moves to the left the perceiver does not experience the world as static. This is achieved by a corollary discharge or efference copy (sometimes referred to as efferent copy), which is sent to “some monitor system” while it is also sent to the eye muscle. Based on this message movement of the retinal image is anticipated. The comparison between the intention to move and the actual experience of movement is achieved by a comparator mechanism called “forward comparator” and the anticipatory modeling of movement called “forward modeling”. In summary, environmental change is anticipated prior to the actual movement. This provides me with the experience that I caused certain changes in the environment. In Frith’s opinion, efference copy can therefore be understood as the physiological basis for the experience of agency and self-awareness. In particular, if the forward comparator is disrupted it cannot match the intention to move with actual movement. Movement is thus experienced as affected by an external source. In addition, efference copy and forward modeling are the neurophysiological underpinnings of a more general cognitive phenomenon. In Frith’s opinion it is the cognitive mechanism of *metarepresentation* that can explain the heterogeneous symptomatology.

“(1) without awareness of goals there is poverty of will. This leads to negative and positive behavioural abnormalities; (2) without awareness of intentions there is lack of high level self-monitoring. This leads to abnormalities in the experience of action; (3) with faulty awareness of the intentions of others there are delusions of persecution and delusions of reference.” (Frith 1992, 125)

The sense of agency and the sense of ownership

Gallagher argues that pre-reflective self-awareness contains a sense of agency and a sense of ownership which coincide naturally and which are indistinguishable in

healthy subjectivity (Gallagher 2000a). He nevertheless states that, under particular circumstances, they can be distinguished. For example, when someone is moving my arm I experience a sense of ownership over the movement but not a sense of agency. The sense of agency, in turn, is the pre-reflective experience that I am the author of my movement. The sense of ownership is the pre-reflective experience that I am the one who is moving, disregarding whether I am the initiator of that movement or not. The schizophrenic, Gallagher argues, lacks a sense of agency. This is at least partly in line with Frith's account. Frith also claims that patients are not aware that they are the authors of self-initiated movement. It is, however, important to note that Frith conceives self-awareness as a meta-representational capacity, a second-order awareness (1992). Gallagher, however, stresses the first-order status of the sense of agency and the sense of ownership and distinguishes them from (reflective-intentional) *attributions* of agency and ownership.

Gallagher even concedes that the disruption of efference copy and of forward modeling could in principle account for the schizophrenic experience of action, i.e. for delusions of control: patients lack the sense of agency for their movement and thus perceive that their movement is controlled by alien forces. He nonetheless raises several critical issues regarding schizophrenic thought. In his opinion, the disruption of efference copy cannot account for schizophrenic *thought*. Gallagher argues as follows (e.g. Gallagher 2005; Gallagher 2004; Gallagher 2000a):

(1) In motor control a comparator matches an intention to move with re-afferent sensory feedback, i.e. the expected sensory feedback of movement. Therefore, in motor control we can distinguish between the intention to move and the sensory effect of movement. Gallagher responds that such a thing as an "intention to think" presupposes thought. Is an intention to think not itself a thought and thus requires an intention to think again? The premise that there actually exists a *conscious* intention to think is threatened by an infinite regress, for a conscious intention to think is nothing less but a thought.

(2) How can we account for the sense of agency with respect to *unbidden thoughts*? It just happens that thoughts we did not intend pop up in our minds. One can also conceive of thoughts we attempt to avoid. We nevertheless experience these thoughts as *ours* and not that they are inserted.

(3) Gallagher thinks that efference copy fulfills a practical purpose in the case of sensorimotor control (cf. visuomotor control of eye movement) but that it would be redundant as a verificational mechanism for thought. In visuomotor control one system informs another in order to make adjustments. For example, efference copy can inform vestibular and visual systems that it is the organism and not the world that is moving. Frith, however, suggests that efference copy does not merely apply to sensorimotor control, but also to thought. Yet in the case of thought, consciousness would send *itself* messages. That is, it would verify that the very content of consciousness is actually part of one's own stream of consciousness. One could add that efference copy does not merely fulfill a verificational purpose but also keeps thoughts on a track semantically (Campbell 1999a). To this Gallagher objects that a subpersonal mechanism for semantic coherence will be redundant too, since (a first-order) awareness of the semantic track would be sufficient for this task: "It seems odd, however, to assign this task to a subpersonal, nonsemantic mechanism when, simply put, we are already consciously aware of our thoughts and can keep track of them, and keep them on track, at a conscious level" (Gallagher 2004, 12–13).

(4) Gallagher criticizes that the comparator process presupposes metarepresentation. That is, the efference copy received by the comparator and the thought captured by introspection are *matched*, thus giving rise to the sense of ownership over the according thought (cf. Campbell 1999a). Gallagher objects that this match presupposes yet a higher order meta-representation, that is, a meta-meta-representation. First, this does not appear to be the most parsimonious explanation. A first-order consciousness might be perfectly suited to do the job more parsimoniously. Secondly, this runs contrary to the clinical account of hyperreflexivity. Patients already complain about exaggerated self-monitoring and the *reflective* hyperreflexivity of their self-consciousness. Hyperreflexivity could be considered a meta-representational self-consciousness too. It therefore contradicts a second-order model of schizophrenia.

(5) Frith's model also has a *selectivity* problem. Patients report that some thoughts are inserted but, for instance, the very report itself is not based on an inserted thought:

"When a particular thought seems inserted, there are other aspects of conscious experience that do not seem inserted. Either simultaneously with, or immediately

after the thought that seems inserted, there is the sense or feeling or realization that it is inserted. But this sense or feeling or realization does not itself feel inserted. That is, the subject, in recognizing a thought as inserted, does not claim that his recognition of this fact is also inserted. He is rather speaking in his own voice when he complains about the inserted thought. That this is the case is clear, not only from empirical reports by patients, but by logical necessity. The subject's complaint that various thoughts are inserted depends on a necessary contrast between thoughts that seem inserted and those that do not seem inserted – and at a minimum, the thoughts that constitute the subject's complaint cannot seem inserted.“ (Gallagher 2004, 14)

(6) Frith's model does also have a *specificity* problem. Inserted thoughts or auditory hallucinations tend to have a specific theme, which can remain relatively stable. Hallucinations or inserted thought might concern a specific other or a particular recurring topic.

(7) Schizophrenia does not feature only problems with self-reference and movement but often includes a wide range of *global problems*, such as impaired working memory, autobiographical and episodic memory, movement and self-reference amongst others.

Disruption of protention

Gallagher's explanation of schizophrenic thought insertion draws on Husserl's model of inner time-consciousness (Husserl 1966). Roughly speaking, Husserl argued that in order for there to be a presence or in particular the present appearance of an object, the appearing object needs to be temporally extended. Otherwise there could be no consciousness of the object. It would be fragmented in particular moments. Since that is not the case it is possible to elucidate the temporal structure of intentional objects. The temporal structure of the object does not only comprise a punctual presence, but continuously phases out into an immediate past. The immediate past is called *retention* while the present moment is called *primal impression (Urimpression)*. Furthermore, we also experience an immediate future of the temporal object. This phase is called *protention*. That is to say, the present consciousness of an object implicitly anticipates its future—a future that is indefinite to a greater or lesser extent.

This becomes evident when all of a sudden something unexpected happens. That is, we can be surprised. Even if we would not *predict* the future, we were pre-reflectively directed towards the future of the temporal object. In a nutshell, a present moment of consciousness cannot be reduced to a single point in time but appears against the temporal horizon of protentions and retentions. If we conceive of reading a sentence there are always retentions of what we've *just* read, but there is also a sense of where the sentence is heading. That is not to say that we can determine the end of the sentence but the simple fact that we can be surprised, without having had any explicit expectations. This suggests that there is an implicit protention in the present percept. It is this aspect of inner time consciousness that Gallagher emphasizes above all with respect to schizophrenia.

Gallagher (2000a) proposes that protention is disrupted in schizophrenia. In other words, the schizophrenic lacks a *pre-reflective* sense of the immediate future. Hence the patient experiences the onset of a new thought as coming “out of nowhere” and as if thought was lacking a future horizon. Even if a given thought will be unbidden healthy subjects experience it in its “very making” (Gallagher 2000a, 226). We have a feeling where our thoughts are heading, although we might not necessarily intend them to go in that direction. If patients cannot implicitly anticipate (rather than predict) their track of thoughts then they might experience them as alien, detached, as if they were *inserted*. Consequently, protention might be necessary (but not sufficient) for providing a sense of agency for thought. Patients with schizophrenia thus lack the sense of agency due to the disruption of protention.

What about the problem of selectivity and the episodic nature of schizophrenia? Can Gallagher's alternative do justice to his own criticism? If protention is disrupted, it must happen *occasionally*. Furthermore, the lack of protention might not account for the specificity of the positive symptoms. As already mentioned, they often concern a specific other or a specific theme. However, it is not apparent why disrupted protention should not affect all kinds of content rather than specific kinds of content. Gallagher's speculation is that “affective content” can change the temporal structure of experience:

“As I have suggested above, content has an effect on the temporal structure of experience. Emotional content complicates both the phenomenological and

neurological pictures. So again, it is quite possible that in schizophrenia, in the presence of certain significant individuals, or in a certain kind of situation, or confronted with a certain object, or in rehearsing certain thoughts, unruly emotions, such as anxiety or fear, trigger a disruption in cognitive mechanisms, specifically a disruption of the protentional dynamic.” (Gallagher 2000a, 229)

The centerpiece of Gallagher’s original proposal (2000a) is a response to Campbell’s (1999) proposal that in schizophrenia there is a breakdown of the *immunity to error through misidentification (in first-person present-tense psychological judgments)*. In other words, if I truthfully utter: “I see a tree”, then this statement will be true by default. It is particularly true when it comes down to identifying the referent of the subject. If I faithfully say that *I* am seeing a tree then I am immune to the misidentification of myself as the one who sees the tree. The schizophrenic however is making first-person present-tense judgments that are obviously false. Gallagher concludes:

“When the schizophrenic reports that certain thoughts are not his thoughts, that someone else is generating these thoughts, he is also indicating that these thoughts are being manifested, not “over there” in someone else’s head, but within *his own* stream of consciousness, a stream of consciousness for which he claims ownership. In other words, his complaint with regard to inserted thoughts is not that he is suddenly telepathic, but that someone else has invaded his own mind. The sense of ownership is still intact, despite the feeling that he is no longer the agentive cause of the thoughts.²⁸ For that reason the schizophrenic should provide a positive answer to what he might rightly regard as a nonsensical question: Are you sure that *you* are the one who is experiencing these thoughts?” (Gallagher 2000a, 230, 231)

In schizophrenia, Gallagher argues, there is no instance of misidentification, for the sense of agency is not available for misidentification. If there were an intact sense of agency (as a component of pre-reflective self-awareness) in schizophrenia then it would be *non-observational* and thus necessarily immune to error through misidentification. Because subjects do not have non-observational access to their agency, they use the first personal pronoun *as object*.

1.5 Outline

In the course of this thesis I am going support my claim—i.e. that the sense of ownership is not intact in schizophrenia—by virtue of the following empirical findings and arguments:

i. *Access consciousness, phenomenal consciousness and temporality*

The second chapter is going to deal with the implicit neurophenomenological assertion that retention corresponds to working memory. This is not a far-fetched claim, since retention is a condition of possibility for reflection. However, the tripartite structure of time-consciousness pertains to (temporal) *objects* of reflection. On the other hand, *absolute time-constituting consciousness* is itself atemporal (Zahavi 2005; Husserl 1966, e.g. 112). I will take an excursion into Block's discussion of phenomenal consciousness (P-consciousness) without access consciousness (A-consciousness) in order to provide empirical evidence for the dissociation of these strata. I am eventually going to reject the distinction in line with the enactive view on perception and in particular by showing that pre-reflective and reflective strata of consciousness are not double-dissociable. That is, I agree with Block that there can be conscious awareness without working memory. On the other hand, this type of conscious awareness is A-conscious in a minimal sense. First, this *pre-reflective* stratum constitutes what was called—in response to Ned Block—"access to the world" (O'Regan and Noë 2001). Secondly, this openness to the world exhibits a sensorimotor structure that *is* the pre-reflective horizon that is a necessary condition for the secondary structure of reflective consciousness. Protention and retention are therefore abstract moments of reflection. Yet they can only be elucidated by explaining *how* they are ultimately brought about by subjectivity. The case of sensorimotor intentionality (Siewert 2005) exhibits in a straightforward and accessible way how intentionality operates *without representation*. An analysis of pathological inner time has to start with considering its effects on this pre-objective stratum of experience rather than the reflective one.

ii. *Ownership in-between the objective body and consciousness*

I am going to argue that the sense of ownership is a “mongrel concept”, for it is inconsistently applied to different domains, such as movement, thoughts, the body as a whole or body parts (de Haan and de Bruin 2010). It can be understood as a dissociable aspect of non-observational self-awareness or even as the first-person access to experience. Gallagher does not distinguish between these types of ownership. I am going to emphasize that the pre-reflective nature of ownership is necessary but *insufficient* for attributions of ownership. While attributions can be directed to a particular body part, the sense of ownership cannot. It is holistic and does not distinguish between world and self *explicitly*. However, ownership is the basis for the demarcation of world and self. Secondly, the sense of ownership is not simply the “sensory self” as opposed to the “acting self” (Tsakiris and Haggard 2005). It is not an inert compound of sense data but it necessarily exceeds the sensory self. The sense of ownership is the pre-reflective availability of the body’s possibilities to engage in the world. It is thus intrinsically agentic, active and never completely inert.

iii. *The sense of ownership in schizophrenia*

In the fourth chapter I am going to implement the findings from chapter two and three on schizophrenia. I am going to show that schizophrenia is a full-fledged ipseity-disturbance that comprises (1) the sense of ownership and agency and (2) protention and retention. The disruption of the schizophrenic’s entire field of consciousness is too severe to be explained by aberrant protention alone. The range of disorganization can be explained by the disruption of the thematic field and the loss of context (Sass 2004b). Context in this sense is nothing more than the possibility to organize the field of awareness according to a certain perspective and orientation. As a consequence this leads to a breakdown of the perceptual theme and marginal intrusions. I am also going to argue that schizophrenic thought insertion and in particular “thought withdrawal” can be explained by a disruption of retention. Patients experience that they get stuck in their thoughts and that they cannot stop thinking. Retention is not only the condition for the appearance of temporal objects but it implies their (phenomenological) *finiteness*. Retention is not just experience of the just-past but the pre-reflective experience of

ceasing. The experience of disappearance is implicit to the presence of an object and a logical complement to its becoming. We could say that it makes the object of thought temporally transparent by implying its end or, in other words, it lets time penetrate or affect temporal objects by rendering them finite. Since retention is disrupted in schizophrenia, the presence is experienced as an infinite repetition of content.

2. Access Consciousness, Phenomenal Consciousness and Temporality

2.1 Inner time

As already indicated, Gallagher's model of schizophrenia is based on Husserl's concept of inner time-consciousness, in particular on his diagrammatic depiction of temporality (Gallagher 2000a; Gallagher 2005, 189–205; Husserl 1966). In an enduring act of consciousness we can distinguish between three phases:

- i. *Primal impression*, which permits consciousness of an object that is simultaneous with the current phase of consciousness;
- ii. *Retention*, which retains previous phases of consciousness and their intentional content;
- iii. *Protention*, which anticipates experience that is just about to happen.

For example, it is more intuitive to imagine a melody, i.e. an array of notes: In order to perceive a melody, we have to perceive more than only the very current note but we also retain those we already heard and we maintain a sense of where the melody is heading. Only thus can we perceive its uninterrupted, harmonious flow, rather than fragmented occurrences of disconnected sounds. At the other extreme, if consciousness of a temporal object would not unfold itself in a continuum and thereby gain a certain temporal width, there would be simply nothing left to be conscious of.

Since there is not only retention of the primal impression but also retention of the preceding retentions (a tail of retentions), Husserl characterizes the successive structure of retention as *horizontal or longitudinal intentionality*. Longitudinal intentionality is directed to the horizontal flow of consciousness and thereby establishes the unity of consciousness across time. *Transverse intentionality*, on the

other hand, engenders the content of experience, i.e. the constituted object (Gallagher 2005, 191, 192; Husserl 1991, 80–83). We can think of longitudinal intentionality—in a very figurative manner—as the constant temporal alteration and flow of time-consciousness, or simply that it indicates the direction of the flow. Transverse intentionality, however, establishes the opposite: it constitutes the intentional object, which yields a certain endurance and which persists in the constantly changing flow.

The difference between transverse intentionality and longitudinal intentionality roughly—but not without reason—reminds of the double-sidedness of Gibson's ecological self-awareness. In seeing an object we are also implicitly aware of that which makes the appearance of the object possible, that is, our sight. We are, so to speak, implicitly aware of the practical accomplishment of *seeing* in addition to our awareness of the perceptual object.

Time as self

Husserl distinguishes between (1) objective time (empirical time), (2) subjective time and (3) the absolute time-constituting consciousness (Husserl 1966, 73). Subjective time corresponds to the experience of, for example, a melody as an intentional object. In this case, it is possible to distinguish between a primal impression and a tail of retentions, which enables the perception of the intentional object as a non-fragmented whole. However, the continuous experience of temporal objects is not merely a sequence of events. Paradoxically, one could say, we can only experience an enduring object if its temporal extension will be based on an extra-temporal unity, namely, that of absolute time-constituting consciousness. In other words, we can only perceive a sequence of events as an intentional object, for there is a unity of the flow of events. Thus, the temporal flow constitutes itself not as an intra-temporal object but it is that by which there can be temporal objects all along. The flow itself does not distinguish between past, present and future. It is that by which there can be protention, retention and primal impression in the first place. The flow is already self-acquainted before it constitutes the temporal object. It implies self-awareness prior to reflection or, in other words, it *affects itself* prior to reflection. In particular, one can also conceive of the self-temporization of subjectivity as enactment of a pre-reflective temporal horizon.

First, however, let us turn to the notion of “horizon” in general. Its meaning can be illustrated, for example, by imagining the perception of a spatial object, let’s say a house. That is, we are aware of the house not merely as a sense datum but we implicitly admit its spatial existence as being independent of our subjectivity. The perception of a house transcends perceptual consciousness towards the spatial object. Furthermore, we can only perceive the house because it disposes us to be explored as a house in all kinds of ways (cf. Merleau-Ponty 1962). With our perception comes a horizon of not yet explicit but implicitly feasible percepts, a primordial sensorimotor knowledge that presents the house as a worldly, approachable object. In order to perceive a house, we necessarily imply that, which we cannot see. Put another way, in order to grasp the existence of the house we implicitly acknowledge that we cannot grasp it at once and that it features an existence prior to our seeing it (Merleau-Ponty 1962, 79). Only therefore can we, by virtue of having an immanent consciousness, perceive a world that lies beyond it. The type of intentionality that denotes the pre-reflective feature of self-transcendence is called “operative intentionality” (Merleau-Ponty 1962, 486). That is, the house can only be an intentional object of perception, if we will be primordially and pre-reflectively situated in a spatial world, in which we find the house in the first place.

In a similar way, we can conceive of a *temporal horizon* as a condition of possibility for the appearance of temporal objects. Consciousness is not purely self-acquainted because its intentional object is temporally extended. Put differently, in order to perceive a temporal object there has to be a certain width of presence. In particular, the existence of the intentional object has to have a certain temporal width even *within* the present moment. Yet it would be wrong to assume that the object’s temporal extension is sufficient for consciousness to transcend itself towards the object—just like the “pure” sense datum of the forefront of a house is not sufficient for consciousness to transcend itself towards the house. What is required, from a phenomenological viewpoint, is that there is a more profound, i.e. primordial temporality that joins the sequential events in which the object is constituted in a continuum. This temporality is *absolute* in the sense that it is not *in* time or *atemporal*. Yet, it temporalizes the intentional object prior to reflection.

It is crucial to point at this primordial, self-transcending feature of absolute consciousness in order to avoid solipsism. Before consciousness can posit an

intentional object, we are directed to, and spatiotemporally embedded in a world: In short, operative intentionality subsists as primordial transcendence (Merleau-Ponty 1962, 486, 498). Again, this is not to say that the self exists only as being-for-itself. The self grasps itself or affects itself implicitly in intentional consciousness. Only in being directed to something other than itself, can the self be affected by itself (Zahavi 2003a; Husserl 1966, 89, 90). From this follows that *pre-reflective self-awareness* is a necessary condition for retention and protention. The crucial question, however, is whether protention and retention necessarily arise together. In particular, I will inquire whether *ipseity can grasp itself in reflection without a future horizon*. As indicated in the introduction, I am going to answer in the negative. Protention and retention engender one another reciprocally and under closer examination they appear as the inseparable constituents of subjective time. To put it into the words of Merleau-Ponty:

“‘In’ my present, if I grasp it while it is still living and with all that it implies, there is an *ek-stase* towards the future and towards the past which reveals the dimensions of time not as conflicting, but as inseparable: to be now is to be from always and for ever. Subjectivity is not in time, because it takes up or lives time, and merges with the cohesion of a life” (Merleau-Ponty 1962, 491).

The crucial phenomenological finding is that “[u]ltimate subjectivity is not temporal” (490). In the first place, it is that by which there can be a succession of temporal events. It is not itself a compound of past, present and future: “We may say that ultimate consciousness is ‘timeless’ (*zeitlose*) in the sense that it is not intratemporal.” (491)

I am going to show that these phenomenological considerations support and are supported by the case of schizophrenia. The self-disorder model is simply speaking the most parsimonious account for explaining a heterogeneous aggregate of symptoms. In this thesis I am going to show that working memory dysfunctions in schizophrenia can be explained by a disruption of retention. However, it might also be redundant to stress the role of retention and protention as separate facilitators of the disorder. It is indeed more parsimonious to stress an over-all diminishment of the intentional arc, of ipseity or of pre-reflective self-awareness. Note that I do not

suggest that these notions should be used interchangeably as they are, strictly speaking, not equivalent. Nevertheless, they are closely related.

2.2 Access consciousness and phenomenal consciousness

My criticism stems from the distinguishability of A-consciousness and P-consciousness. A-conscious mental content is available for rational control of action, speech and reasoning (Block 1995). For example, we do not notice the sound of the refrigerator when we are absorbed in a puzzling conversation in the kitchen. However, we become fully aware of it, when it will stop making noise. “Becoming consciously aware of the sound” can be translated into “gaining cognitive access to or A-consciousness of” the sound. What is the crucial point in the example? While we were absorbed in our conversation we would have been consciously aware of the sound all along, even though we did not have any cognitive access to it. Block refers to this type of consciousness as P-consciousness without A-consciousness. Is the distinction merely conceptual or can cognitive access and phenomenality be empirically dissociated? Block would say so (Block 1995; Block 2007): In particular, phenomenality can be dissociated from “working memory”. For now it suffices to note that Block considers working memory as an instance of A-consciousness—I am going to return to this issue later.

Block refers to an important experiment by George Sperling (1960). Sperling was simply raising the question, how much of a stimulus “can be seen in a single brief exposure?” (Sperling 1960, 1). The study consisted of seven experiments. It is going to be useful to render at least three of them here.

In the first experiment subjects were presented with different arrays of letters that were cued in single or multiple lines. Subjects were exposed to the visual stimuli for 50 msec in the first experiment. The result showed that the average *immediate-memory-span* is practically independent of the stimulus type. Subjects, in average, remember 4.3 items. In a follow-up experiment it was tested whether the immediate-memory-span was sensitive to stimulus duration. Subjects were exposed to the stimuli for .015, .050, .150, .200 and .500 seconds while the stimulus was constant for all subjects (3 letters cued in 2 lines). The result was that the time of exposure was not an important parameter for determining the immediate-memory-span.

Sperling introduced a crucial manipulation in the third experiment. Immediately after the stimulus was presented (3 letters cued in 2 or 3 lines/4 letters cued in 2 or 3 lines) the subject was presented with a high-pitched, a middle-pitched or a lower-pitched tone for 0.5 seconds. The subjects were told to note down the first row when they hear the higher tone, the second row when they hear the middle tone and the last row when they hear the lowest tone. After 3 days of trials subjects were capable of reporting almost all letters in the row indicated by the tone. If there had been only one iconic memory system with a capacity for 4 items in average, then we would have expected a much worse performance of the subjects. That is, if subjects are presented with a 3-letters-2-lines-cues, then we expect them to recall no more than 4 letters. However, if subjects get to know which line they have to report and if they get the hint *after* the stimulus-presentation, then their memory span increases. For example, if there are three lines containing 4 letters, subjects can report on 4 of 12 items in average. When they hear a cue after the stimulus, they have to report a specific line. Yet they can report on 4 letters, that is, the entire row. By asking subjects for a partial report of only 4 letters, one can sample the information available after stimulus termination. This suggests that immediately after stimulus presentation, subjects were “storing” more than only 4 items. In other words, immediately after the stimulus presentation, significantly more information is available for the subject. This suggests that subjects draw upon two different sources of information: Sperling comes to the conclusion that

“[...] at the time of exposure, and for a few tenths of a second thereafter, observers have two or three times as much information available as they can later report. The availability of this information declines rapidly, and within one second after the exposure the available information no longer exceeds the memory span.” (Sperling 1960, 26)

The crucial point is that “phenomenal memory” is not yet another memory system *but* the plain, “rapidly fading, visual image of the stimulus” (Sperling 1960, 26). It was Block’s insight that we have to distinguish between two possible kinds of persistence: (1) phenomenal persistence and (2) persistence of cognitive access to the stimulus (Block 2007, 487). Based on that conclusion, Block suggests that a

phenomenal-visual-memory system has a greater storage capacity than working memory (Block 2007). Note that this does not entail that there are two different storages in two different brain areas. Cognitive access might as well prolong phenomenal persistence without storing information in a different location in the brain. This is indeed the way Block conceives representation. For example, in visual perception, proto-representations are *stored* in the occipital lobe, while the dorsolateral prefrontal cortex is only necessary for their maintenance: “It appears that this prefrontal area does not itself store sensory signals, but rather, is the main factor in maintaining representations in sensory, sensorimotor, and spatial centers in the back of the head” (Block 2007, 496).

One might justifiably argue that Block’s framework is, to a large extent, incommensurable with a phenomenological or enactive account. Why should his account shed light on an enactive account of time? The point is, I do not want to argue in line with Block here and I agree with the criticism provided by Clark and Kieverstein that “any putative conscious experience should be the experience *of an agent*” (Clark and Kieverstein 2007, 502). Isolated islands of P-consciousness would not be puzzling *per se*, or to put it differently, what is puzzling about consciousness is not its phenomenal character. What is enigmatic about consciousness is that someone accesses these experiences (Zahavi 2003b). Experience presupposes a *dative*. That is, there is experience *for* someone, i.e. an agent.

I nonetheless think that an enactive account of time-experience can profit from Block’s analysis. Even though Block might be wrong with regard to A-consciousness, he is right with respect to working memory: Phenomenal persistence has a greater capacity than working memory and also different temporal constraints. These results are not surprising at all. Our perceptual world is apparently much too rich so as to be fully captured in representational working memory. However, that is not to say that it is captured in all its detail in a dissociable “phenomenal storage”. In my view, the Sperling experiment does not entail that there is a more detailed picture stored independently of working memory. It simply shows that at some point more features of the stimulus are *accessible*. But is the mode of presentation of cognitively inaccessible phenomenality really non-intentional, as Block argues (1995)? From the viewpoint of the enactive approach to perception Block’s P-consciousness can be understood as a type of *access to the world without representation*.

2.3 Access without representation

How does Block conceive of “working memory” as the facility of cognitive access? Which notion of working memory does he use? In general, the term “working memory” renders a multi-component system that comprises an *episodic buffer* that is capable of *chunking* items and capacitates about 4 items (Baddeley 2010). Working memory must not to be *equated* with short-term memory although it is related to, and descends from, the concept of short-term memory. Moreover, working memory is also fed with information from long-term-memory and perception in general.

Are we really permitted to explain the connection between A-consciousness and working memory by asserting that we have cognitive access to what is stored in working memory? In this case, Block’s rationale is sufficiently fine-grained insofar as he pays attention to different notions of working memory. For example, he distinguishes between “iconic memory” and “fragile visual short term memory” (fragile VSTM) and “visual working memory”⁴ with respect to visual perception. The overflow argument states in particular that the capacities of iconic memory and fragile visual short term memory overflow that of cognitive access, i.e. visual working memory (Block 2011). Furthermore, standard working memory is a generic mechanism that works supra-modally (i.e. not only on the visual channel). As mentioned above, visual icons are not stored in working memory as such. However, Block argues that iconic memory and fragile VSTM might be neural realizers of phenomenal content. It is also needless to mention that they are, as their names imply, modality specific. The supra-modal nature of generic working memory, however, entitles us to treat them as relatively independent of sensory processes and therefore supplements the claim that they are representations of the latter. That is to say, working memory treats phenomenal memory or iconic memory *as* representations.

Again, at first sight, this is grossly incommensurable with a theory of embodied cognition. Block’s position is, to put it in his own words, an internalist type of “phenomenism” (Block 2003) and it is based on the idea that a non-intentional layer

⁴ *Visual iconic memory* refers to the persistence of visual information after the disappearance of the stimulus. It lasts less than a second and is based on retinal persistence. *Fragile VSTM* is, regarding its capacity, an intermediate between visual working memory and iconic memory. Based on cortical activation, it can last up to 5 seconds. As we have already seen, *Visual working memory* has a smaller storage capacity than any type of iconic memory, although it lasts longer (Block 2011).

of consciousness exists. The enactive approach opposes that P-consciousness can be intentional, although it can lack content. Its basic idea is juxtaposed in opposition to Block's conclusion. It rejects the conception that, first and foremost, the world shows itself (in phenomenal consciousness) as a full-fledged, yet non-intentional image—an image to which we can attend to or not. (Noë 2004, 49–55; O'Regan and Noë 2001). On the enactive view, we merely retain a *virtual* awareness of anything that is outside of the focus of attention; a virtual awareness that constitutes our access to the surrounding scene. It is indeed a type of access but not in the cognitive, representational sense. The “content” that lies outside the theme is *sparse, indistinct* (and even does not deserve to be called “content”), and rather than instantiating inaccessible sensational data, it establishes access to the world.

Distinguishing “broad” cognitive access from sensorimotor intentionality

P-conscious content is A-conscious if it is used in reasoning, the rational control of speech and the rational control of action (Block 1995). I, on the other hand, propose that there is content that is not available for reasoning and the rational control of speech but nevertheless *available for the control of action*. This must not be confused with a “broad” notion of cognitive access. P-conscious content is A-conscious in a broad sense, if it *can*, but does not have to be used in reasoning, the rational control of speech and the rational control of action. Narrow A-consciousness refers to P-conscious content that is currently being used by cognitive systems (Block 2007, 492).

Even if our *cognitive* access is limited to representations we can still *act* according to cognitively inaccessible content, as I am going to show. Note that this must not be confused with the weaker proposal that perception is *for* guiding action but that sensorimotor skill constitutes our ability to perceive (Noë 2004, 12). For instance, the subjects in Sperling's (1960) experiment were not capable of reporting all the letters they actually saw. They were, as Block argues, phenomenally conscious of all the letters but they only had cognitive access to some of them. In this case, I propose, subjects had *access to all the letters* they saw but the episodic buffer only chunked a few of them. The episodic buffer might be sufficient but is not necessary for access.

How does non-representational access look in particular? For example, when we are absorbed in a conversation, we might not have A-consciousness of a background

noise. The noise is nonetheless P-conscious. P-consciousness in this context simply suggests the execution of certain sensorimotor skills, in that case “auditory tracking” (O’Regan and Noë 2001, 964). O’Regan and Noë challenge Block’s rationale:

“Consider a slightly different but familiar example. A bell is chiming. All of a sudden you notice not only that there is a bell chiming, but that there were six chimes in all. Surely this shows that you heard the chimes even before you noticed it? Indeed, what this would show, as Chalmers has argued, is that there is a sense in which one *was* in fact *poised* to make use of the unnoticed sounds one was hearing even as one failed to notice them. That is, according to this line of reasoning, one was A-conscious of the unexperienced sounds (contrary to what Block would say).” (O’Regan and Noë 2001, 946)

Sensorimotor intentionality

That is, *before* we became A-conscious of the sound we were poised to act according to it. However, that we were poised to use it for action does not mean that we *could* have had access, but that we had access all along. It is crucial to discern between actual access and accessibility. The sensorimotor access that we have to a P-conscious but not A-conscious sound, is not merely *broad* cognitive access. That is, it does not merely refer to the *possibility* of A-consciousness. It is, in the words of Alva Noë, “virtual” access to yet indistinct content.

Merleau-Ponty realized that there is a stratum of consciousness that is not “thetic” or “positing an object” but nevertheless sufficient for movement. He identified this pre-objective intentionality as *motor intentionality* (Merleau-Ponty 1962, 127). Motor intentionality refers to the background of a movement, in which the world is already given: For instance, in so-called “concrete movement” one can reach for a cup before we posit its position in objective space. We simply do not think about the distance and the exact location of the cup, yet we can reach out for it. Movement, so to speak, anticipates properties of space before we attend to them reflectively or before we thematize them. That is, space is already embodied before there is consciousness *of* space as a physical property. Also, it makes a difference if we carry out an actual grasping movement or whether we attempt to make an abstract demonstration without

being situated; i.e. try to make an “abstract movement”, in which there is no cup to grasp.

“Abstract” and “concrete” are ideal types of movements and Merleau-Ponty proposes their distinguishability in pathological cases (119, 120). He discusses his notion of motor-intentionality in the case of Johan Schneider, a veteran suffering from apperceptive visual agnosia (Merleau-Ponty 1962). Schneider can perform only “concrete movement” and is incapable of demonstrating movement without acting out the context of a situation in which the movement is appropriate. For example, Schneider could only perform a military salute by circumstantially throwing himself into the concrete situation. He does so by acting out additional details that belong to the context of the situation. Strikingly, the whole body is involved in the demonstration. He cannot cut down the movement into a sufficient representation, for example, by using only his hands. If I am asked to act out a military salute, I can do so without mentally placing myself in the actual situation. The upshot is, that concrete movement preserves a species of intentionality that is non-thetic and which Merleau-Ponty, as already mentioned above, terms “motor intentionality”⁵. For the body, the world exists prior to reflection. It is directed to it by means of the motor significance of concrete situations.

Schneider is, at times, depicted as a case of pure motor intentionality. Sometimes it is argued that motor intentionality is disrupted and Schneider elicits merely its remnants (Jensen 2009). The debate has a life of its own, and for this reason, I am going to disregard the Schneider case and turn to a less controversial presentation of sensorimotor intentionality.

Siewert (2005) claims that we are directed to the background of a visual scene without *representing* it. In his opinion, this can be put to the test by showing that we can anticipate things pertaining to the non-thematic background of our experience without being aware of them explicitly. Siewert emphasizes an example originally given by Merleau-Ponty. Imagine yourself walking through a wood close to the shore.

⁵ It is important to distinguish motor intentionality from what Gallagher has termed the “body schema” (Gallagher 1986). In short, motor intentionality is not merely the *accomplishment* of movement. It is a form of directedness without objective-content. The body schema, however, *is* the accomplishment of movement as opposed to the “body image”, which corresponds to the perception of movement (e.g. Gallagher 2005, 24).

You do not know that a ship has run aground close by. While passing by the trees you do not recognize the masts of the ship at first and taking a closer look, you will be surprised that there are masts in-between the tree trunks. That is to say, even if you did not explicitly see the trees or masts in the periphery of your field of awareness you can prove yourself wrong, when you see a mast although you were anticipating a tree. Thus, “in our sensorimotor activity we ‘anticipate’ something without *representing* what we anticipate” (Siewert 2005, 274). More precisely, the phenomenal character of our experiences can differ in ways that cannot be articulated by attributing distinct representational content to these experiences. Yet we have access to these experiences such that we can distinguish between illusory or accurate experiences—the according experiences are thus having intentionality (276). Why is this type of non-positing awareness called *sensorimotor intentionality*? Simply put, one can only have this non-representational type of intentional experiences by virtue of having the appropriate sensorimotor skills. In order to get a closer look at the non-thematic background of a visual scene, we need to *do* something for that to happen—or more precisely, one needs to know *what to do* in order to satisfy the indistinct or “open” referent that one anticipates prior to having representational access to it. The formation of a theme is thus contingent on motor skills—although movement is not sufficient for motor intentionality, as I am going to show. The upshot is that our awareness of the unattended background is a brand of intentional consciousness that does not *posit* an explicit object. It embodies the anticipatory awareness that is inherent to our movement.

Let me summarize: Broad cognitive access is the possibility of (non-intentional) P-consciousness to become A-conscious. “Access to the world” does not posit an object. It does not presuppose representation. It is nevertheless a form of directedness, a *sensorimotor intentionality*.

Broad A-consciousness and P-consciousness: A case of redundancy

Yet a mere revision of the notion of cognitive access and especially A-consciousness does not do justice to the enactive approach to perception. I do not only reject the notion of narrow cognitive access or narrow A-consciousness but I assert that cognitive access and phenomenality interact in such a manner that P-conscious content is not merely *for* action or the guidance of action but an instance of

sensorimotor knowledge that is intrinsic to action or the disposition to act (Noë 2004, 12). Sensorimotor intentionality does not *pick up* a certain P-conscious content and uses it for movement. Alva Noë notes that we skillfully exercise sensorimotor knowledge. We do not merely access P-conscious content and act according to it. We literally *enact* sensorimotor intentionality. Using a notion of Alva Noë: Perception is something we *do*. It does not merely affect us passively. Sensorimotor intentionality has a *self-affective* structure, so to speak.

I should like to add another remark. It is important to distinguish between the enactive approach to perception and representational externalism (e.g. Lycan, Tye and Dretske). The latter presupposes that the phenomenal character of an experience can be exhausted by its intentional content (Block 2005). It is *content externalism* (cf. Block's review of "Action in Perception" 2005). Enaction entertains a type of "*vehicle externalism*" (Noë and Thompson 2004, 94). The body *is* the vehicle for access to the world. The decisive difference between enaction and representational externalism lies in the rejection or approval of *representation*, respectively. An enactive account discards that intentionality presupposes explicit content and thus rejects external representationalism.

Regarding phenomenalism, the enactive approach discards the existence of qualia *sui generis*. O'Regan and Noë reject Block's distinction between access and P-consciousness because perception requires access *to the world* and not to one's *internal states*. That is, our access to the world is not an active exploration of internal qualitative states but rather concerned with the practical application of the laws of "sensorimotor contingency". Our access to the world consists in knowledge of how to actively reveal the world. O'Regan and Noë state

"that it is confused to think of the qualitative character of experience in terms of the *occurrence* of something (whether in the mind or brain). Experience is something we do and its qualitative features are aspects of this activity." (O'Regan and Noë 2001, 960)

"Visual experience is a matter of access, but access to the world, and to one's activity of tracking and interacting with the surrounding scene, not to one's

internal information-bearing states. The felt or qualitative character of seeing is to be explained in terms of this active conception.” (O'Regan and Noë 2001, 964)

The upshot of this section is that sensorimotor intentionality could be said to be “open” with respect to its referent although it is nevertheless intentional. It is this feature of *openness* that renders the world indistinct, unexplored and pregnant with possibilities. In other words, we enact our openness to the world and thereby grant it an independent existence. It is important to keep this in mind, when we return to the temporal structure of experience.

Our openness to the world by means of sensorimotor intentionality can also be called “sensorimotor anticipation” (Siewert 2005, 287), for we expect the world to be there, before we attend to it and thematize it. How can this non-representational anticipation take place, if it will not draw on the body's history, i.e. the history of its capacities? Sensorimotor intentionality is not a sole anticipation. It disposes the body by virtue of having certain capacities, which had already been established in the course of its history. Thereby it bridges the temporal gap between past and future. I am going to return to this particular issue later in the discussion.

2.4 Working memory in schizophrenia

Can disrupted protention account for the working memory deficits in schizophrenia? It is broadly accepted that schizophrenia is subject to working memory dysfunctions (Aleman et al. 1999; Barch 2005; Gold et al. 1997; Gold et al. 2003; Goldman-Rakic 1994; Lee and Park 2005). In a meta-analysis of 124 empirical studies Lee and Park defined exclusion criteria such that working memory functions as a system that *represents*, *maintains* and *updates* information for a short period of time. Furthermore, they emphasize the maintenance of representations for attentional focus. Lee and Park stress the importance of conscious awareness and attention in working memory, i.e. their notion of working memory activity presupposes consciousness and attention.

Gallagher attempts to show that the disruption of the sense of agency is *due* to dysfunctional working memory. He claims that the “sense of agency for thought may depend on the anticipatory aspect of working memory, which is manifested in the prereflective structure of phenomenal experience” (Gallagher 2004, 16, 17). This is

not problematic *per se*, but note that, as a consequence, Gallagher's account faces two *explananda*. I have just mentioned the first one above: Gallagher has to explain *how* disrupted protention causes working memory dysfunction. The second explanandum concerns *retention*: retention is, on Gallagher's view, intact in schizophrenia. Yet we have already seen that working memory is also dysfunctional. Thus Gallagher has to explain *how*, or to which extent retention and working memory can be dissociated. This is crucial since retention is, at times, considered the phenomenological equivalent of working memory—but how can the first be intact while the second is disrupted? There are multiple explanations to consider.

Firstly, retention might be necessary but insufficient for working memory. However, an exclusive disruption of protention seems to be an unsatisfactory and insufficient explanation for working memory disruption. The aforementioned attempt by Gallagher is still an unsupported speculation. The last word has not yet been said, but if disrupted protention fails to account for working memory deficits, this will violate the account's parsimony, for working memory dysfunction will demand a separate explanation. On the other hand, protention and working memory might be disrupted due to primary disorder. Claiming that the overall structure of temporality is thwarted would be significantly more elegant, for working memory deficits can be derived from a primary ipseity-disturbance.

Secondly, retention might be identical to working memory or at least sufficient for it. In either case, we will be obliged to conclude that retention is disrupted in schizophrenia. However, this possibility treats retention as a type of representational faculty, or at least implies that retention entails representation. This is nonetheless even true under specific conditions. We can only describe the temporal structure of an *object* in terms of protention, primal impression and retention. In particular, the tripartite temporal configuration endows an intentional object with certain duration in the first place. However—and this is essential—if protention and retention were strictly intra-temporal, it would be inconsistent to assert that the tripartite structure of intentional consciousness is sufficient for the unity of the flow. Retention, primal impression and protention are, strictly speaking, not sufficient for the appearance of an intentional object, since they are “nothing but the flow's own *reflective* self-manifestation” (Zahavi 2003a, 91). Even though protention and retention happen

paradoxically simultaneously they become discernable in the seemingly sequential temporal structure of the appearance of objects.

The cognitive access established by means of working memory is necessary for the experience of concepts and representation. This is not necessarily false from a phenomenological viewpoint. However, an A-conscious but not P-conscious quasi-Zombie—Block indeed considers the conceptual possibility of an A-conscious quasi-Zombie or of “Super-blindsight” in (Block 1995)—is inconceivable for representational consciousness is the reflective self-manifestation of subjectivity. The self-disorder model can parsimoniously account for dysfunctional working memory in schizophrenia as a secondary aspect of a global condition. If the very foundation of subjectivity is diminished then the over-all tripartite structure of inner-time will be affected as a consequence.

Unconscious representation and retention

It is conceivable that, at times, representations remain consciously inaccessible and are maintained sub-personally. This type of non-conscious representation in working memory might as well be a requirement for retention, for it does not require conscious awareness and unconscious representation. Sub-threshold representations could govern retention and provide the subject with a non-explicit sense of the just-past phase. For example, when you were reading the last sentence, unconscious representations of the content could be maintained and thereby constrain your pre-reflective experience of content slipping into the past. Even though you can merely attend to a few letters simultaneously you maintain the entire contextual meaning of the sentence. Why should implicit, unconscious working memory not make this happen? Whatever the answer turns out to be, we still have to face Sperling’s findings. This is exactly where Block’s argument can help us to dissociate the strata of experience: *Phenomenality simply overflows the capacity of cognitive access*, i.e. the phenomenal world beyond the capacity of the global workspace and working memory is simply richer in content. Yet the difference between Block’s rationale and an enactive account is that the latter grants more to A-consciousness: The motor significance of P-consciousness suffices for access to the world. We might thus say, access to the world overflows the capacity of representation. Also, we might say that it *endows* representations with a spatiotemporal background *before* they gain their

explicit-reflective spatiotemporal configuration. In other words, the experience of time and space is, first of all, a transparent pre-reflective consciousness. The tripartite temporal structure is not simply built into “thetic”, representational consciousness. It is contingent on a stratum of consciousness in which temporality does not yield the explicit distinguishability of the just-past, the present and the future. It nevertheless prefigures it for reflection.

2.5 Summary

In this chapter I have argued that it is inadequate to conceive of retention as working memory. I was drawing on the findings of Ned Block, who argued that access consciousness is not sufficient for phenomenal consciousness. The concept of access consciousness is closely related to the notion of working memory or “global workspace”. Phenomenal consciousness, on the other hand, is understood as a purely sensational consciousness without intentional content. One might object that the analytical discussion of A-consciousness and P-consciousness is only vaguely and distantly connected to issues such as the phenomenology of temporality. I agree with this objection. However, I do not share Block’s understanding of P-consciousness without intentional properties. I do not claim that there is phenomenal character *sui generis*. My point is rather, that the cognitive and representational capacities of working memory could be dissociated from a more profound stratum of conscious awareness, which does not *store representations* and which *overflows* them (in virtue of having a greater capacity). Working memory is a highly conceptual system operating on “chunks” of items that are fed by information from long-term memory. Working memory might be important for an enduring act of intending to an object. However, from a phenomenological point of view, working memory is (1) *insufficient* for the occurrence of temporal objects and (2) *unnecessary* for the “absolute streaming”, which is a *sine qua non* for object-consciousness. To put it differently, retention is a condition of possibility for the endurance of temporal objects. Retention contributes to the *flow*-character of the present, while working memory does a *preservative* job, i.e. it *maintains objects*.

In the fifth chapter I shall also consider that retention is not only necessary for representation but might even be necessary for representations to *pass by*. (I am going to examine this possibility more closely in chapter four.) However, retention is not

merely “deleting items” from working memory. It is an inherent, only conceptually dissociable aspect of inner time. Objects can only occur against the background of retentions and protentions. Simply speaking, their accomplishment is similar to our experiencing the background of a house and thus its spatiality and its status as an actually existing object that can never be fully perceived from a first-person perspective (cf. Merleau-Ponty 1962, 79, 483). As aspects of the temporal background of object experience, the past, the present and the future are simultaneous and indistinguishable. Rather than being the property of temporal objects, time is not itself an *intra-temporal object*. It exists and affects itself prior to the sequential appearance of the temporal object. These operations of inner time are equivalent with the self-temporalizing nature of subjectivity (Zahavi 2003a): Time *is* self-affection, it is manifest to itself as itself (Merleau-Ponty 1962, 495). This self-affective structure of temporality establishes the possibility of reflection by passively synthesizing the temporal unity of objects. But in order to do so, “ultimate subjectivity” (Merleau-Ponty 1962, 490) or “absolute consciousness” (Zahavi 2003a) has to consist in an ever unchanged flow: “I am myself time, a time which ‘abides’ and does not ‘flow’ or ‘change’” (Merleau-Ponty 1962, 489).

“We are saying that time is someone, or that temporal dimensions, in so far as they perpetually overlap, bear each other out and ever confine themselves to making explicit what was implied in each, being collectively expressive of that one single explosion or thrust which is subjectivity itself. We must understand time as the subject and the subject as time.” (Merleau-Ponty 1962, 490)

However, the aforementioned does not entail that the tripartite structure of reflection and the temporal structure of ultimate subjectivity are different in kind (Zahavi 2003a). In Zahavi’s opinion, Husserl believed that the tripartite structure of retention-protention-primal impression occurs in the *reflective* self-manifestation of the temporal flow. That is, the temporal structure of reflection is *contingent on* (and inseparable from) a stratum of consciousness (i.e. ultimate subjectivity) in which past-present-future form an inseparable unity. The temporal unity of “ultimate subjectivity” is a necessary complement of the sequential structure of reflection. It, so to speak, passively synthesizes its continuity: “The past, therefore, is not past, nor the

future future. It exists only when a subjectivity is there to disrupt the plenitude of being in itself, to adumbrate a perspective, and introduce *non-being* into it” (Merleau-Ponty 1962, 489, emphasis mine). “Non-being” is a crucial aspect of the passive temporal synthesis. It is important to consider retention as the condition of the possibility for the occurrence of reflection. It is, however, equally important to emphasize that retention denotes the possibility of non-being, the possibility of *disappearance*. In an abstract manner, it refers to a “slipping into the past”. But isn’t that a plain contradiction⁶? How can retention be necessary for reflection, for thought and for the appearance of intentional objects if its “function” is to make it disappear, to dissolve it? I am going to show that especially schizophrenic thought illustrates that being and non-being are closely interconnected (or equiprimordial) and necessary for the theme-background structure of the “field of consciousness”. Schizophrenia, I will argue, is subject to a disruption of *retention* too. Moreover, the disruption of protention and retention are manifested in schizophrenic hyper-reflexive consciousness due to a more profound diminishment of (“ultimate”) subjectivity, that is, due to an ipseity-disturbance. In the end, this leads us back to the main statement of this thesis: If retention is disrupted in schizophrenia in addition to protention, then there will be a disruption of the sense of ownership.

Even if we put aside considerations regarding temporality and self-awareness, protention and retention, it is possible to re-unify the sense of agency and ownership. The latter will be the central point in the succeeding chapter, before I return to schizophrenia in particular.

I also argued that there are good reasons to believe that the stratum of consciousness that has been revealed by the Sperling experiment and Block’s argument turns out to be an intentional consciousness. It is not intentional in the sense that it presupposes an object. It is intentional by being directed to the “unattended background” (Siewert 2005). Siewert called this type of directedness “sensorimotor intentionality” (in reference to Merleau-Ponty’s “motor intentionality” and putatively inspired by Alva Noë’s “sensorimotor contingency”, as Siewert himself suggests).

⁶ “A passive synthesis is a contradiction in terms if the synthesis is a process of composition, and if the passivity consists in being the recipient of multiplicity instead of its composer.” (Merleau-Ponty 1962, 496)

Even though sensorimotor intentionality does not posit explicit content it enables us to anticipate *what to do* in order to “get a better look” at things. That is, when we are reading a book, working memory might be fully engaged in maintaining representations of what is being read. But still, beyond our attentional focus, and beyond the capacities of working memory we remain directed to the world by mastering the laws of “sensorimotor contingency”. That is to say, sensorimotor contingencies establish our “access to the world” (O’Regan and Noë 2001, 964). Even though we do not *explicitly* see aspects of the world to which we have no attentional access, we have *access* to them through sensorimotor intentionality. This type of intentionality is a constituent of what Merleau-Ponty termed the “intentional arc” that brings forth “the unity of the senses, of intelligence, of sensibility and motility” (Merleau-Ponty 1962, 157; Thompson 2005, 410). It is crucial to show that sensorimotor intentionality, also called “sensorimotor anticipation” features as a self-affective structure. It enables the tacit, non-representational anticipation of a percept by drawing on sensorimotor contingencies. That is to say, sensorimotor anticipation is contingent on the body’s capacities and thus *on its history*. It is the simultaneous enactive interlock of the body’s history and its commitment to a yet indistinct future.

3. Ownership

3.1 Previous findings

The view that the sense of ownership and the sense of agency are *distinguishable* has rarely been challenged and has so far only been a footnote in the debate. However, to my knowledge, the work of de Haan and de Bruin (2010) is currently the only attempt to systematically criticize the ownership-agency distinction. It is thus useful to discuss their proposal at length and to supplement it in light of what has been argued before.

De Haan’s and de Bruin’s idea is that there are at least four different types of ownership that can be distinguished in Gallagher’s work.

1. The pre-reflective experience that I am the subject of movement (Gallagher and Zahavi 2008, 161).
2. The proprioceptive awareness of bodily movement.

3. The implicit sense of “mineness”: The first-person appearance of experience (cf. Nagel 1974)⁷.
4. Second order, reflective attributions of ownership: However, the last type cannot be said to be a *sense* of ownership like (1-3).

These different types of ownership do not necessarily come about jointly. Upon a closer examination of several examples for a sense of ownership (SO) without the sense of agency (SA) one can see that SO 1-4 are unlikely to be disrupted altogether. De Haan and de Bruin appeal to three of Gallagher’s examples: involuntary movements, unbidden thoughts, and schizophrenic thought insertion and show that SO is intact in all of them.

Involuntary movements, sensations and reflexes

On the surface, it is not a big deal to distinguish between the sense of ownership and the sense of agency. Let us have a look at the following situation. Imagine being pushed from behind by surprise. The movement you experience is, of course, not self-initiated and you thus do not retain the sense of agency for the movement immediately. The sense of ownership is nevertheless preserved throughout the whole episode. However, de Haan and de Bruin argue that environmental influences of the kind mentioned above rather *reinforce* the sense of agency. For example: “When I am riding my bicycle and a sudden gust of wind throws me out of balance and forces me to shift my weight, I do not experience a loss of agency, but I in fact start to fully experience my agency at that very moment because of my ability to react effectively” (de Haan and de Bruin 2010, 377, 378).

The example above might suggest that the sense of agency is merely *reactive*. The authors nevertheless reject a stimulus-response model in which the sense of agency is

⁷ De Haan and de Bruin (2010) cite Gallagher and Zahavi where they assert that “[a]lthough there are different types of experiences (smelling hay, seeing a sunset, touching an ice cube, etc.), and although there are different types of experiential givenness (perceptual, imaginative, and recollective, etc.), there are common features as well. One such common feature is the quality of *mineness*” (Gallagher and Zahavi 2008, 204). However, Gallagher did not explicitly link the quality of mineness to the sense of ownership in the according example.

recruited only as a response to environmental forces or stimuli. Consider another example. My hand is moved by someone else so as to hit a third person. But is this really an instance of a sense of ownership without the sense of agency? Is there any sense of *ownership* involved in this case? Does it not feel as if my hand is used as an object? Here it might be useful to distinguish between a kinesthetic sense of ownership and a sense of ownership in terms of *mineness*: “If I do not experience this mineness but rather feel alienated, there still remains this weak form of SO in the sense that these estranging experiences are happening *to me*” (de Haan and de Bruin 2010, 379). Even though the hand does not feel as if it was mine, I have a proprioceptive awareness of the movement. (Yet it also stands to reason that there is a sense of agency in resisting the hitting movement.) Accordingly, we can distinguish between a *strong sense of ownership* (strong SO) and a *weak sense of ownership* (weak SO). The strong SO refers to proprioception or kinesthesia *plus* the subjective feeling of *mineness*. Weak SO refers to kinesthesia or proprioception only. Simply speaking, it is impossible *not* to have a weak SO while undergoing an experience (de Haan and de Bruin 2010, 379). In summary, De Haan and de Bruin conclude that in all the examples provided above, the subject does not only retain a sense of ownership but also a sense of agency:

“[I]n cases of *involuntary movement*, agency is not completely lacking. In the first example of falling, I experience both a strong SO (kinesthesia plus mineness) for the falling, plus an SA for adjusting and reacting. In the example of counter-voluntary hitting, I experience only a weak SO (kinesthesia without mineness) for the movements of my hand, plus a SA for my resistance.” (de Haan and de Bruin 2010, 382)

Although the sense of ownership and the sense of agency coincide in most of Gallagher’s examples under closer examination, de Haan and de Bruin admit that there are cases, in which the sense of agency is lacking whereas the sense of ownership is retained. Even though they claim that a sense of agency and the feeling of mineness coincide in the example above, weak SO can be dissociated from the sense of agency. While such cases are rare, we can experience a weak sense of ownership for *reflexes* without experiencing a sense of agency for the movement (de

Haan and de Bruin 2010, 381). In the course of the chapter I am going to show that the distinction between a strong and weak sense of ownership should be rejected in favor of the strong notion. *The experience of mineness*, as they use it, is the sine qua non for experience as such. It implicitly conditions our subjectivity and is thus necessarily a tacit feature of experience. While we are undergoing an experience, the feeling of mineness is, as it were, inescapable:

“When I think about Paris, smell crushed mint leaves, listen to Prokofiev’s *Romeo and Juliet* or move my left arm, all these various experiences seem to share a certain feature; they are all felt as *mine*; they carry a subtle presence of self. Phenomenal consciousness consequently entails a primitive form of self-referentiality or for-me-ness.” (Gallagher and Zahavi 2008, 204)

Simply put, *mineness* is a necessary condition for phenomenal consciousness. It would thus be intricate to distinguish between *mineness* and the proprioceptive awareness of movement, for proprioceptive awareness presupposes an I-pole, i.e. someone who undergoes the experience of proprioception. It is also not entirely clear whether it is impossible *not* to have an experience of weak SO. Consider the case of *deafferentation*: A patient, Ian Waterman, suffers from a loss of proprioception and his sense of touch below the neck due to a neuropathy of afferent fibers (Gallagher 2005, 43). At the onset of the disease Waterman lost not only its proprioception and his sense of touch but also the sense of ownership as much as the sense of agency (Gallagher 2005, 56, 57). Although the sense of ownership was re-established quickly, proprioception remained aberrant. However, the experience of *mineness* is a different issue here. Even if Waterman experienced feelings of alienation and disembodiment, the first-person appearance of his experiences is a requirement for reporting on disembodiment and alienation in the first place. Weak SO might therefore be at least insufficient for pre-reflective self-awareness. I am going to discuss this issue in more detail.

Furthermore, de Haan and de Bruin note that there are *different domains* to which ownership can refer to: (1) SO for *movement*, (2) SO for *thought*, (3) SO for the *body as a whole*, (4) for particular *body parts* (380). These four types of ownership, they argue, are often used interchangeably. Moreover, having a pre-reflective awareness of

something distinct and particular, like a *body part*, might be self-contradictory. SO for a body part might rather be an *attribution* of ownership and is therefore thematic rather than a tacit, pre-reflective experience. Here I agree with de Haan and de Bruin. The notion of “*sense of ownership*” is indeed not used consistently as a *pre-reflective* type of awareness. Gallagher, for example, proposes “that the body image is an important source for the sense of ownership” (Gallagher 2005, 56). He also states that the sense of ownership depends on non-observational awareness (Gallagher 2005, 29) or that “the sense of ownership is already included in the original stream of consciousness” (Gallagher 2005, 203). Why should the *body image* be an important source for a *pre-reflective* sense of ownership? The body image is defined as *perception of the body* in opposition to its pre-noetic accomplishments (the body schema). It makes sense to propose that the body image is the source for *attributions* of ownership⁸. For example, Hirjak et al. (2013) neglect the pre-reflective character of ownership. The subject simultaneously *lives* the body (*Leib*) and *has* a body (*Körper*). While in their opinion the sense of agency pertains to the lived body, the sense of ownership is rather part of the second (Hirjak et al. 2013, 3). This straightforwardly violates the definition of *a sense of ownership* as an aspect of pre-reflective self-awareness.

Unbidden thoughts

De Haan and de Bruin accuse Gallagher of exaggerating the lack of agency in unbidden thought:

“The absence of an intention to think, and hence, the lack of match at the comparator level do not explain anything more than a relatively normal lack of a sense of agency. It does not explain the misattribution of thought to another agent, or why some thought might seem inserted for the schizophrenic. [...] At best, in

⁸ It is not inconceivable to consider the perceptual body image as the source of the pre-reflective sense of ownership. For example, the body image might be necessary so as to instantiate the sense of ownership. However, ownership can only be *pre-reflective* if the body image in a way withdraws after the onset of the sense of ownership. Yet this possibility seems to be far-fetched and significantly less parsimonious than the account I present.

the absence of an intention to think we have unbidden thoughts, but not inserted thoughts.” (Gallagher 2005, 182)

This notion of a sense of agency is notably stronger than merely being a sense of the source of thought or movement. It implies a willful act of thinking and acting. Strong SA refers to the willful generation of thought. Weak SA, however, provides subjects with the sense that they are the *source* of their thoughts. This weak sense of agency remains intact in unbidden thought. Subjects can still witness thoughts in their becoming. Strong SA might accompany a deliberate act of movement, but interestingly, Gallagher himself notes that if thought is willfully instantiated *by thought* then this explanation will be threatened by an infinite regress (Gallagher 2000a; Gallagher 2004; Gallagher 2005, 180, 181). The initiation of thinking as willful act presupposes thought. The willful act is simply a token thought itself.

Inserted thoughts

“Thoughts are put into my mind like “Kill God”. It’s just like my mind working, but it isn’t. They come from this chap, Chris. They’re his thoughts. (Frith 1992, 66).”

Taking everything into account, de Haan and de Bruin (2010) claim that the sense of ownership and the sense of agency are both affected in schizophrenic thought insertion. Gallagher, they argue, again confuses (1) “sense” and “attribution” of ownership and that (2) he is shifting between two different explananda, namely, from *thoughts* in particular to *minds* in general.

“First-onset schizophrenic patients often report that although they *know* that it is their body that is moving and *realize* that it must be their thought—after all, it is going on in their mind!—the utterly disturbing experience is that it just does not *feel* that way.” (de Haan and de Bruin 2010, 385)

Schizophrenic patients frequently report that they know that their thoughts belong to them but their report rests upon an attribution of ownership rather than on a feeling or pre-reflective experience. In other words,

“[t]he patient *knows* that the interfering thoughts are the products of her own mind (the reflective sense of *ownership* is undisturbed), but nonetheless these thoughts are not felt as being fully personal (and certainly not voluntary)—being somehow at an experiential distance from her own self.” (Cermolacce, Naudin, and Parnas 2007, 706)

Patients report a striking discrepancy between what they actually know and what they feel (de Haan and de Bruin 2010, 385, 386). This discrepancy is based on the lack of ownership for thought.

Also, as mentioned, Gallagher shifts his explanandum from *thoughts* to the *mind* in general. The sense of ownership is disrupted specifically with respect to thought whereas the sense of ownership for experience remains generally intact. Most importantly, de Haan and de Bruin claim that we have good reason to suppose that the sense of agency and ownership for *thought* are disrupted but intact with respect to the “mind”. This also explains why subjects are capable of recognizing alien thoughts. The sense of agency and ownership still function as a reference system that entitles the schizophrenic to distinguish inserted thoughts from their own thoughts: “[T]he SO and SA for their stream of consciousness (e.g., thinking) and their mind allow them to distinguish between their own thinking and alien thoughts that “occur” in their mind” (de Haan and de Bruin 2010, 387). Let me anticipate that I do not share this point of view. I am going to provide a different solution that is nevertheless consistent with the patients’ ability to identify inserted thoughts despite the diminishment of ownership over the *entire field of awareness*.

3.2 Redefining ownership

As described above, weak SO refers to the proprioceptive awareness of movement. For example, when I am undergoing the patellar reflex (knee-jerk) I am not having a feeling of mineness but I retain a weak, proprioceptive sense of ownership. De Haan and de Bruin admit that only under these exceptional circumstances there is a weak SO without agency. However, strong SO, they argue, always coincides with a sense of agency (de Haan and de Bruin 2010, 392). The distinction between a strong SO and a sense of agency must not be conflated with an active-passive dichotomy. The sense of

agency is not equivalent with *active* or *reactive* aspects of self-awareness, in opposition to *passive* aspects corresponding to ownership. The sense of ownership is not an inert sensational complex. Ownership is not merely stimulus driven and agency is not merely productive or active. De Haan and de Bruin make an important remark:

“[The sense of agency] can also be present in the form of a potential capacity, as a Husserlian “I can.” My sense of agency increases the more I actualize these potentialities.” (de Haan and de Bruin 2010, 392)

It is intricate to think of agency as something that occurs merely *in* action. Rather, it is a crucial feature of agency that it *precedes* action. If I was experiencing my agency only *after* the onset of actual action, how could I know that it was me who was initiating the action? An action would merely happen *to* me rather than being brought forth *by* my agency. On the other hand, how could the sense of ownership elicit the sense that an external force is moving my body? The feeling of ownership without agency might be based on a sense of agency as well. That is, we might experience the lack of agency just because we have a sense of agency. Agency might not only be a *positive* experience. We might as well experience agency *ex negativo*. Hence the type of experience that Gallagher would consider an example for ownership without agency might rather be a crucial example *for* the sense of agency rather than a case against it. We might therefore conclude that agency is *dispositional*, and not merely motion-dependent. Taking into account this dispositional feature clearly blurs the difference between agency and ownership. Accordingly, de Haan and de Bruin draw an important conclusion:

“Instead of two separate, categorical modalities of experience, we might rather appreciate the differences between volitional actions and habitual body movements as poles on one axis of more or less deliberate intentionality. Such an interactive understanding of agency and ownership enables us to perceive various blends of SO and SA and is thus phenomenologically more adequate. Besides, it offers a view on the minimal self that is less dualistic and thus even more minimal.” (de Haan and de Bruin 2010, 394)

That is to say, the difference between the sense of ownership and the sense of agency might not pertain to different types of experiences. Rather, they form two different *poles* of the “minimal self”. These poles are falsely reminiscent of the active-passive schema, which I rejected above. The difference between ownership and agency dissolves in the interaction of deliberate movement and habitual movement.

Ownership as dispositional agency

In the previous section I raised the question whether we lack a sense of agency when an external influence will be the cause of bodily movement. For example, is my sense of agency gone for a brief moment when I am being pushed from behind? After all, the body cannot adjust or react immediately. Yet even within this short period in which we lose control we might find the most important feature of agency: Doesn't the act of *re-gaining* agency presuppose a sense of agency? We simply require the disposition to act in the first place so as to initiate a reaction. One might object that this proposal is threatened by an infinite regress. However, I am not saying that agency is brought forth by another type of agency. I simply believe that the sense of agency pervades pre-reflective self-awareness even in phases of putative passivity. It is these primordial aspects of the pre-reflective sense of agency that enable us to regain deliberate control over our body, especially *because* they are inherent to the sense of ownership. Following this, we can also think of the sense of agency as the “active” and the sense of ownership as the “dispositional” pole of self-awareness and thereby supplement the two poles of deliberate action and habitual movement. Simply put, we can draw a two-dimensional field constituted by two axes; an active-dispositional and a deliberate-habitual axis. On this view, agency neither requires activity nor deliberate action. Moreover, it underpins these two-dimensions. It is not a strict correlate of deliberate action but intrinsic to dispositions for action. In this regard the sense of ownership should refer to the dispositional and habitual aspect of agency. Put differently, the sense of agency *entails* the sense of ownership.

The proposal above is juxtaposed in opposition to the difference between the “acting self” and the “sensory self” (Tsakiris and Haggard 2005). Accordingly, the minimal self consists of an afferent and an efferent pole that give rise to an afferent sense of ownership and efferent sense of agency: “The “acting” self is the author of an action and also the owner of the consequent bodily sensations. The “sensory” self is

solely the owner of bodily sensations that were not intentionally generated, but on the contrary were passively experienced” (Tsakiris and Haggard 2005, 389). In contrast, I do not consider movement or action as the translation of intention into physical movement. The *active* and *dispositional* poles are abstract limits that are never fully satisfied. That is, they limit degrees of activity. While the body is in a resting state, we might not feel prompted to *attribute* agency to ourselves, or experience willfulness and deliberation but we retain a sense of ownership. That does not mean that agency is not put into effect and that we are not pre-reflectively or non-observationally aware of it. The sense of ownership embodies the dispositional conditions and the primordial features of agency. But first of all, it is barely possible to conceive of a situation, in which someone is perfectly passive. One does at least always e.g. look to see, reach out to touch, breathe in to smell, move toward the sound source so as to hear, use one’s mouth in order to taste. Perception is an activity *per se* (Noë 2004; O’Regan and Noë 2001), or at least it can be said that action is causally necessary for sensation (Block 2005)—even though I consider this claim being too weak. It is only because perception *feels* effortless and tends to be *habitual* that we are at times tempted to disregard that perception is enactive.

3.3 Ownership of body parts

If there are different notions of ownership, which one is the one we ought to use? De Haan and de Bruin have shown that (1) there are different domains to which the sense of ownership applies, that (2) Gallagher conflates levels of explanation and (3) that there is a stronger and weaker notion of ownership. After all, we have to decide upon the referent of “sense of ownership”. Let us consider the candidates one by one.

Firstly, using the sense of ownership as *ownership of body parts* commits a category error. I argue, in line with de Haan and de Bruin, that the sense of ownership cannot be directed to particular *body parts*, for this presupposes an experience of the body as *object*. To put it into the words of Merleau-Ponty, the body is “never really in front of me” but rather “*with me*” (Merleau-Ponty 1962, 104). The awareness of a body part, be it inert-proprioceptive, be it perceptual or thetic, is not an aspect of the *pre-reflective* sense of ownership. It is nevertheless commonly the case that exactly this type of bodily awareness is understood as ownership *of* something, namely, the body as object. It is simply inconsistent to posit an “object” of pre-reflective

ownership since this object would be *explicit* all along. For example, Tsakiris claims that “body awareness refers to proprioceptive awareness, that is, the conscious experience of the location of a specific body-part (e.g., a finger or a hand) in space” (Tsakiris, Prabhu, and Haggard 2006, 424). How could such a type of awareness be pre-reflective or non-observational? I do not intend to argue that there is no feeling of what it is like to have my hand resting in a certain position in space. After all, this experience is not completely reflective. There might be in fact a feeling of mineness involved. But this is only the case because there is a pre-reflective layer that underpins the thematic experience of my hand. The sense of ownership is the *sine qua non* for such an objective judgment and not its result. I can identify the location of my hand in objective space only because the representation of my hand draws upon a holistic awareness of my body, i.e. a schema that by itself does not require transitive consciousness. Accordingly, the reflective awareness of my hand as *my* hand is standing out against the tacit background of the lived body. In general, it is not possible to separate the thetic consciousness of an act from operative intentionality, for the latter makes the former possible (Merleau-Ponty 1962, 486).

Just like there can be non-observational awareness of the body as object there can be no non-observational awareness of the body’s objective movements. De Haan and de Bruin argue that it is questionable whether there is such a thing as mere bodily movement (2010, 392). Yet bodily movement can be the objective of an intentional goal. In that case, bodily movement is not merely accompanied by a direct proprioceptive awareness but it forms an objective in intentional action.

Furthermore, we can reject the possibility of *a sense of ownership for bodily movement* simply as a consequence of rejecting a sense of ownership of body parts. The experience of movement can only be accompanied by a sense of ownership inasmuch as it is embedded in intentional action or the disposition for intentional action in which bodily movement is, as it were, a goal. In intentional action the sense of ownership is not directed to the body as object. It anticipates the possibilities *for action* rather than for bodily movement.

3.4 Ownership as sensory self

Secondly, there might still be a sense of ownership that is directed to the *entire field of awareness*. Can the sense of ownership be a purely inert sensory complex? The

sense of ownership might, indeed, be exactly this purely passive, sensory and *afferent* awareness of the body (Tsakiris and Haggard 2005). Moreover, the sensory self might be a sufficient constituent of pre-reflective self-awareness. As already indicated, three objections can be made at this point. (1) Purely sensory-driven perception is the result of a methodological distinction that does not do justice to the active nature of perception (Tsakiris and Haggard 2005, 389). In other words, passive body ownership falls prey to a deprecated stimulus-response schema—a sort of behaviorism. That is, an agent neither perceives passively nor is its activity merely reactive. (2) A global awareness of the body cannot be a reflective *body image* or a *body percept*. Thus, such a type of awareness cannot posit the body as a clearly demarcated perceptual object for the following reasons:

(2.1) The body percept (as an aspect of the reflective body image) is often directed to particular parts of the body, and does not capacitate an operable perception of the body as a whole (Gallagher 2005, 57)—putatively, due to cognitive constraints.

(2.2) Consciousness *of* (i.e. transitive consciousness of) the body *posits* the body as object and thus contradicts the premise that ownership is non-observational⁹.

(3) *Proprioception* is considered a *sense* modality and faces the problem of merely passive bodily awareness. However, we should challenge the possibility that (3.1) proprioception works in isolation from motor capacities and that (3.2) purely inert proprioception (as a conceptual possibility) is sufficient for pre-reflective self-awareness. That is, can a cognitive system distinguish between itself and its environment in only bearing upon *afferent* information? More importantly, can there be pre-reflective self-awareness that is merely self-contained and which does not grasp itself as opposed to an alterity? I am going to answer these questions in the negative in the following section.

3.5 Proprioception and self-awareness

As indicated in the previous section, it might be wrong to assume that a cognitive system could be capable of distinguishing between the self and world solely based on an inert type of perception. The motor system is a crucial component for making this distinction. Since subjects have access to their own volitional motor commands, self-initiated movement can be used in order to predict its effects in the environment. In

⁹ Note that transitive consciousness of the body *as a whole* cannot be pre-reflective either.

other words, action and dispositions for action help to discern between environmental changes that are caused by the subject (*reafference*) or by external causes (*exafference*). In terms of neurophysiology, this is achieved by means of efference copy. In order to anticipate the effect of eye movement the motor system does not only send an efferent signal (i.e. the motor command) to the eye muscle but it also sends an efference-copy, i.e. a copy of the signal, to an “internal monitor”, which then adjusts or attenuates the sensory effect of the movement. As a result we experience the world as resting and ourselves as moving (e.g. Frith 1992). But how does the agent distinguish between the moving environment and the *resting* agent? In this case, the motor system does not send efference copies. If the body was capable of distinguishing its own movement from the movement in the environment, could there be a sense of ownership without agency? First of all, such a case would be merely a conceptual possibility. For example, when the seemingly resting eyes are registering movement in the environment, then they are, in fact, moving too. Eyes are performing microsaccades multiple times in a second in order to maintain their receptive power (Noë 2004, 13). Furthermore, subjects who suffer from a paralysis of the eye muscles are compensating for microsaccadic movement by performing saccades with the head (Rolfes 2009, 2423). In order to perceive, the embodied agent must be continuously in motion, even in the case of a seemingly inert sense modality such as vision.

Proprioception might only involve pre-reflective, non-observational self-consciousness insofar as it presupposes an ecological sensorimotor system that can distinguish between self and non-self. Gallagher (2005, 106) outlines the ecological structure that is necessary for the distinction of the self and its environment:

1. Exteroception delivers information about movement in the environment and movement caused by the subject.
2. Such sensory input is integrated with (somatic) proprioception to “form a coordinated and intermodal sensory feedback.” (106)
3. Efferent copies match with the intermodal afferent feedback, thus evaluating whether either the subject or the environment is moving.

“Just to the extent that proprioception contributes to this sense that the subject, rather than the environment, is moving, it contributes to the differentiation between self and non-self.” (Gallagher 2005, 106)

In Gallagher’s opinion, proprioception has to draw the distinction between inside and outside, between self and non-self in order to give rise to pre-reflective self-awareness. That is not to say that proprioception performs a primitive intellectual operation to distinguish explicitly between self and world. It does not *proto-represent* the demarcation of self and non-self. Rather, proprioception is a form of self-awareness that consists in our sensorimotor access to the world.

Self-awareness and object perception

I just argued that inert proprioception might be insufficient for pre-reflective self-awareness. Yet non-observational self-awareness is not simply a correlate of object-perception either. Gallagher argues that in e.g. Gibsonian psychology the body is understood as proprioceptively co-perceived in object-perception. That is, when I am looking at a tree I am not merely seeing a perceptual object but I implicitly experience the tree’s ecological significance for my body. According to this, I experience my body *in* the tree. According to Gallagher such an understanding of non-observational awareness as strict correlate of object-perception leads to a regressus ad infinitum:

“[...] Gibsonian psychology contends that the body is proprioceptively co-*perceived* in every objective perception. This idea also finds its way into philosophical analyses that argue for the importance of nonconceptual, embodied content (e.g. Bermúdez 1998). It is possible to show, however, that to understand ecological, proprioceptive, or nonconceptual awareness as an instance of perception in the strict sense of object-perception, or as a juxtaposed co-perception, results in a certain kind of infinite regress.” (Gallagher 2005, 137)

For example, the fact that perception is perspectively spatial is based on an implicit reference to the body’s spatiality. However, if this implicit reference is based on perceptual awareness there will be an infinite regress (137).

First of all, we can conclude that the structure of pre-reflective self-awareness is (1) neither an inert type of proprioception nor (2) a correlate of object-perception; rather, it is the body's enactive self-evidence and the implicit grasp of its intrinsic possibilities. When it comes to explaining the phenomenology of schizophrenia, we have to pay attention to the aforesaid. If we cannot conceive of ownership as an instance of inert proprioception or object-perception then the sense of ownership will not necessarily be preserved in schizophrenia. In other words, if the sense of ownership is strictly non-observational we should not to jump to the conclusion that it is intact in schizophrenia.

3.6 Summary

In this chapter, I have argued that the sense of ownership can be neither a partial awareness of the body nor the inert presence of the field of awareness, i.e. a passive consciousness or "sensory self". First, partial awareness of the body can only *represent* the body *as* mine and it rather implies attributions of ownership, which can be based on, but are not equivalent with, an actual pre-reflective sense of ownership. Secondly, the conceptual possibility of a "sensory self" is a more delicate issue. Our consciousness is endowed with the power to distinguish between self and world. This feature precedes the onset of transitive consciousness and is a necessary condition for the possibility of its appearance. That is, without being diaphanous and self-transcendent, self-awareness would be inevitably centripetal, solipsistic and self-engrossed. The self can only be directed to the world if it can distinguish itself from it. However, it is not sufficient to conclude that I perceive my *self* implicitly in transitive consciousness. If pre-reflective self-awareness would be a co-perception, this would lead to an infinite regress. That is, non-observational self-awareness is not only a correlate of object-perception and reflection. As I have argued in chapter two, the pre-reflective operations of our body are also at work in the absence of representational awareness. Yet they should be considered intentional.

I conclude that the possibility to consider schizophrenia both a disturbance of agency and ownership is implicitly present in Gallagher's model of the self, for he notes that passive, afferent proprioception is not sufficient for pre-reflective self-awareness: The agent is constituted by the capacity to distinguish between self and world. The sense of ownership is a facet of this ability insofar as it entertains the

disposition for intentional endeavors of all kinds. It is therefore inherently agential and presupposes the sense of agency.

4. The sense of ownership in schizophrenia

The aim of this chapter is to show that schizophrenic patients suffer from a diminishment of the sense of ownership. Like the present thesis in general, it ought to be regarded as a specific response to Gallagher: In his opinion, patients with schizophrenia are subject to a disruption of *protention* and experience a disruption of the sense of agency as a consequence. However, patients are making this observation on the basis of their *own* field of awareness. In other words, “the sense of ownership is already included in the original stream of consciousness.” (Gallagher 2005, 203) Accordingly, it is the patients’ own thought that is controlled by an alien proxy. While people with schizophrenia retain ownership over their thought, they are at the same time not the source of thought.

First of all, I am going to address the hidden premises of the self-disorder model regarding the sense of ownership. Thereafter I am going to examine the field of awareness in schizophrenia so as to show its profound disruption, which comprises the entire structure of pre-reflective self-awareness. In particular, I am going to refer to a model from the analytical tradition (Martin and Pacherie 2013) and from Gestalt-psychology (Sass 2004b). I thereby attempt to show that a severe diminishment of the contextual organization of the field of consciousness occurs in schizophrenia—a diminishment that cannot be exclusively explained as a disruption of agency but rather as a disruption of ownership (in addition to agency).

Furthermore, I am going to discuss the role of retention in the symptom of thought withdrawal. Patients complain that they cannot stop thinking and that the content of thought meticulously adheres to certain themes but also that their thought is empty. Retention, I claim, is not merely a pre-reflective tail of the just-past but also the condition of possibility to change the line of thought and to spontaneously let go of content. The patient, however, is coerced to follow a track only by virtue of its internal logic. Schizophrenic thought is not motivated by a pre-reflective operation of subjectivity but in reference to its content.

In the end, I am going to discuss empirical evidence that supports my proposal—particularly the schizophrenic sense of ownership in the so called “rubber hand illusion”.

4.1 Hidden premises of the self-disorder model

Gradual diminishment versus complete disruption of ownership

The self-disorder model of schizophrenia faces a problem, especially since it implies that not only the sense of agency but also the sense of ownership is disrupted. It has been argued that the pre-reflective sense of self is a necessary condition for phenomenal consciousness (Zahavi 2003b; Gallagher and Zahavi 2008; Zahavi 2005). It is therefore absurd to consider pre-reflective self-awareness as *completely disrupted* for this would entail that schizophrenics lack consciousness. Moreover, it stands to reason that *attributions* of ownership and agency are contingent on an underlying pre-reflective self-awareness. Even schizophrenic attributions and misattributions of ownership and agency are therefore based on the non-observational self-awareness. Yet the self-disorder model considers non-observational self-awareness as being disrupted.

The denial of ownership, however, might not rest upon the plain absence of the feeling of mineness or ipseity. A feeling of *diminished* rather than *absent* mineness might be sufficient for the patient to deny the sense of ownership. This is not to say that a diminishment of ipseity is not as serious as the complete lack of a single dissociable feature of self-awareness; i.e. protention and the sense agency. The opposite is the case. The self-disorder hypothesis explicitly suggests a “diminishment” of ipseity and it implicitly admits the conceivability of the loss of lived consciousness. For example, Fuchs notes that schizophrenics are deprived of *conation* (affective–conative momentum), that is, the energetic moment that endows consciousness with its vitality and the feeling of aliveness (Fuchs 2013):

“[Conation] is the root of spontaneity, affective directedness, attention and tenacious pursuit of a goal, which are characteristic of living beings generally, but it also lends the “intentional arc” the tension and energy it needs [...] Moreover, it contributes to pre-reflective self-awareness or ipseity, namely (1) as the *self-affection or sense of aliveness* which may be regarded as the essence of subjective

life, [...] and (2) in the way of *spontaneity* and *agency* in which our experience of being a self is also rooted.” (Fuchs 2013, 78)

The upshot might therefore be quite fatal if we assess the most extreme consequences. In fact, it had been shown that anomalous self-experience is reflected in a tendency towards suicide (Skodlar, Tomori, and Parnas 2008). However, by considering the utmost extreme—which is the complete loss of ipseity during the course of the illness—we are dealing with a conceptual issue, for apart from suicide, accidental death or the gross neglect of basic needs due to the illness, schizophrenia is not fatal.

Veridicality of verbal reports

If patients report that they are not the subjects of their experience they violate the so-called “immunity to error through misidentification” of the first person subject in present tense psychological statements, for short, “immunity principle” (Shoemaker 1968; Campbell 1999a; Gallagher 2000a). For example, if I see a tree and truthfully utter, “There! I see a tree!”, I might be wrong regarding the object of perception. However, I am by default right about the non-observational referent of the subject, which is *myself*. Patients with schizophrenia sometimes report that their thoughts are not theirs. That is, they do not claim ownership over the field of awareness (cf. de Haan’s and de Bruin’s criticism). Therefore schizophrenia might threaten the immunity principle. Yet Gallagher argues that this is not the case because the schizophrenic only lacks a sense of agency. Thus, patients report that it is exactly *they* who are the subjects of inserted thought—a judgment that is immune to error through misidentification. Although their judgment is wrong with respect to agency, the immunity principle remains intact since the patients are using the first-person pronouns *as object* and not *as subject*.

However, the immunity principle would not be threatened if schizophrenic patients would claim that they experience a *decline* rather than a complete loss of ownership. Similarly, I can report on a progressive loss of consciousness as long as I am still conscious so as to be able to report it. The bizarre experience of the diminishment of ownership is conceivably sufficient in order to call for bizarre *explanations*. It is important to take the patient’s report seriously. However, it is equally incautious to

read their reports both too literally and as subject to error through misidentification. For example, some patients suffering from *Cotard's syndrome* report that they are dead. Yet it would be absurd to consider them as philosophical zombies. On the other hand, it might be too strong to contend that they violate the immunity principle. Grossly unusual experiences of progressive disembodiment demand equally absurd interpretations (Sass 2004a).

4.2 The field of awareness in schizophrenia: Disintegration of contextual information and organization

Cermolacce, Naudin, and Parnas (2007, 709) argue that Gallagher's approach is merely a logical one, and that it does not take seriously the phenomenology of the patient with schizophrenia. It neglects that patients report an "increasing anonymity of the entire field of awareness". Furthermore, they note that the sense of agency is disrupted in other disorders as well, yet this does not result in schizophrenic symptoms.

The first objection requires a closer examination, which I am going to provide in the course of this chapter. The second objection is at least unwarranted with respect to the details of Gallagher's argument. Gallagher does not believe that schizophrenia is a disorder of the sense of agency *per se* but a disorder of *protention*; a disorder that affects agency only as a consequence. Following this, it is insufficient to criticize Gallagher's model of schizophrenia by arguing that the sense of agency is missing in other disorders such as obsession. A complete criticism of Gallagher's account has to take under consideration protention and not agency.

Moreover, how shall we conceive of an increasing anonymity of the entire field of awareness in schizophrenia? This can happen neither due to a loss of the intrinsic qualitative features of experience, nor due to the lack of cognitive access, as I have argued—at least not primarily.

For example, Martin and Pacherie (2013) suggested that the disruption of ownership occurs due to "a failure in the online integration of the contextual information related to a thought" (Martin and Pacherie 2013, 121). Even though we can, at times, identify the cause of a thought in retrospect, its source can occasionally remain inaccessible. Yet, the irretrievability or inaccessibility of the causal antecedent of a certain thought does not entail that there is no underlying causal coherence. I

might, all of a sudden, think of an important appointment, even though I have so far been following an entirely different line of thought. Recalling the appointment might seem to be completely out of context, yet the disruption of semantically coherent tracks of thoughts might rest upon a causally coherent yet inaccessible sequence of events. This causal coherence constitutes the sense of ownership for thought. For example, there could be an unnoticed connection between my current track of thought and the unbidden thought popping up in my mind although the causal connection might remain consciously inaccessible. That is, unbidden thought might not occur randomly but might be triggered by the current thought.

Three (not necessarily mutually exclusive) possible explanations are offered with respect to unbidden thought (Martin and Pacherie 2013, 120): The first possibility is the existence of a fallback mechanism that enables us to retrieve information *after* the occurrence of unbidden thought, thus revealing causal coherence as the basis for unbidden thought. Secondly, unbidden thought might deprive us of the sense of ownership, because the retrieval of causal-contextual information is possible only during the occurrence of unbidden thought. That is, by considering the (seemingly) decontextualized contents of thought in retrospect we might be incapable of regaining access to the cause of the thought at stake. Finally, the causal coherence of unbidden thought might be inaccessible in general. Causal-contextual information thus might be irretrievable all along, that is, during and after the occurrence of thought. As previously mentioned, these three possibilities are not mutually exclusive. It is crucial how we conceive irretrievability. If irretrievability is interpreted as “cognitively inaccessible” in the sense of Block, then causal-contextual information might still be pre-reflectively available. Just because causal-contextual information cannot be used for the rational control of thought it does not mean to say that it has no effect on thought and that we are conscious of it in a different way.

Martin and Pacherie suggest that causal coherence is disrupted in schizophrenic thought insertion (even though causal coherence might not always be present and a matter of degree in healthy subjects). For the sake of completeness it has to be noted that they, like Cermolacce et al., accuse Gallagher of considering schizophrenia a disorder of the sense of agency—however, without considering his claim regarding protention.

Causal coherence in unbidden thought

Martin's and Pacherie's model faces a particular problem when trying to explain how contextual information is integrated without cognitive access. In particular, how can inaccessible information make a difference in our experience of ownership over thought?

A similar inquiry was carried out by Gallagher (2004) concerning Campbell's idea of *unconscious efference copy* (Campbell 1999a). I shall briefly outline his rationale. In Frith's model (1992) of schizophrenia, thought is understood as an executive process in which we have access to both our intentions and their effect. In other words, we experience a match between our intention to think and thought itself. The schizophrenic cannot experience this match due to a disruption of a forward comparator based on efference copy. "Forward modeling" thus fulfills a verificational purpose. It verifies that thoughts pertain to the subject who thinks them. Gallagher emphasizes that such a verificational mechanism would be redundant since we are the source of our thought by default. Why should efference copy verify the ownership of thought if the latter is never at stake (Gallagher 2004, 12; Campbell 1999a, 616)? Furthermore, the existence of "intentions to think" is an intricate premise for efference copy. An intention to think seems to be a token thought itself and Frith's model therefore succumbs to an infinite regress.

Secondly, in unbidden thought there does not seem to be an "intention to think". We nevertheless do not experience unbidden thought as alien or lack ownership over them. (Gallagher 2000a; Gallagher 2004; Gallagher 2005). Also, Campbell suggests that if efference copy were consciously accessible then there would be a "double awareness" in which we know thought by both introspection and efference copy (Campbell 1999a, 618). Therefore, he proposes that efference copy is itself unconscious and fulfills the purpose of keeping thoughts on a semantic track. That is to say, it neither presupposes a conscious intention to think nor does it fulfill a verificational purpose. Gallagher rejects this idea as well. If efference copy were unconscious it would be redundant in order to keep thoughts semantically on track. Introspective access to thought is sufficient for that purpose. Campbell's proposal is thus not the most parsimonious model for schizophrenic thought insertion. Explaining it by a disruption of protention is, in Gallagher's opinion, more parsimonious. The Martin-Pacherie model falls prey to a similar objection.

While Gallagher stresses that introspective access is completely sufficient for keeping thought on track *semantically*, Martin and Pacherie suggest that there is a lack of (1) *causal coherence* in inserted thought but a lack of (2) *semantic coherence* in unbidden thought. However, unbidden thought might follow a perfectly coherent causal track. Causal-contextual information might simply be irretrievable or inaccessible. However, why should semantically coherent thought not be *sufficient* for a sense of ownership over that thought? In particular, we have to assess two objections: First, is semantic coherence sufficient for causal coherence? Secondly, is *inaccessible* causal-contextual information redundant in order to account for the sense of ownership over thought?

One might respond that causally coherent unbidden thought fulfills a behavioral-ecological purpose, for it helps to bring to the fore an important matter that is currently not subject to the semantic track of thought. Moreover, the current semantic track might be insufficient so as to turn towards another, more relevant one. If unbidden thoughts could not emerge, as it seems, out of nowhere, we might be perfectly stuck in a semantic track. Even though these thoughts might not fulfill any reflectively accessible purpose there might still be the chance that we remember something relevant, something that has significance for us. The opposite is conceivable too: We could follow a semantically coherent track although its content appeared to us as “ecologically” meaningless, without featuring practical relevance. Furthermore, the causal coherence of thought might not refer to an underlying stream of causal information that runs parallel to the semantic track. Rather, it might denote the causal, operative closure of the embodied agent. After all, an unbidden thought seems to have certain relevance *for* someone. It is familiar rather than alien even though it cannot be predicted and although it is semantically incoherent.

Unbidden thought simply feels as if it fulfills a natural purpose, as if it matters to us all along. If thought emerges in an entirely random fashion then it is quite conceivable that it will feel unintended to a larger extent, and therefore alien and not merely unbidden. Even Gallagher’s account of “pre-noetic constraints” (2005) does justice to this consideration. Our experience is conditioned by non-conscious bodily constraints before we *know* it. Yet there is an implicit experiential imprint of these constraints that might eventually remain unnoticed by reflective consciousness. Pre-noetic causal-contextual information could therefore constrain our reflective thought,

even without our explicit awareness of it. Note that this is not say that sub-personal mechanisms determine our thinking or that we cannot decide deliberately about what we think. We might, at times, be capable of consciously retrieving causal-contextual information and gain greater awareness of it and thus allow for its volitional modification.

The spontaneity of thought, on the other hand, is also a condition for the possibility to avert one line of thought and to turn to another. We can volitionally deflect a thought by drawing upon that which does not follow from the current semantic track. For this to work, thought has to remain open for the yet inexplicit. If thought was only intellectual, it could only revert to itself. For thought to be relevant to or *owned* by a subject, semantic coherence has to be based on a more basic type of coherence. Maturana and Varela called such a type of fundamental biological coherence “operational closure” (Maturana and Varela 1992), and it is not far-fetched to note that the operational closure of embodied cognitive systems is precisely a type of *self-affection*. Operational closure denotes the embodied agent’s self-coherence that is necessary for establishing a point of orientation, that is, a first-person perspective. Semantic coherence presupposes such a consistent point of view, a continuous dative of experience. The subject *is* and thus provides for the contextual backdrop against which the semantic track can distend. Even though we experience thought as a highly cognitive and representational operation, it is underpinned by a self-affective spontaneity. Therefore, it is possible to grasp (even semantically incoherent) future tracks of thought without representation.

In summary, Gallagher explains thought insertion through a disruption of protention, while Martin and Pacherie explain it in terms of disrupted integration of causal contextual information. Let me, for the sake of completion, note to what extent I agree with them.

Martin and Pacherie argue against the “inseparability thesis” (2013, 113), which claims that subjectivity collapses with the sense of ownership. Accordingly, one can have first-person access to one’s thought and yet lack the sense of ownership. I disagree with this rationale. In my opinion the non-observational self constitutes the “contextual” background against which semantically incoherent, unbidden thought appears as “owned”. Furthermore, I believe that the minimal self is a *conditio sine qua non* for phenomenal consciousness. The disruption of ownership and agency thus

entails a disruption of subjectivity. Here I agree with Gallagher. Pre-reflective self-awareness and subjectivity are inseparable. Yet I disagree with Gallagher insofar as I reject his model of a *complete disruption* of protention in schizophrenia. I instead opt for a (secondary) *diminishment* of retention and protention as a manifestation of a general self-disorder. Moreover, Gallagher's model delivers an unsatisfactory explanation for the breakdown of context in schizophrenia. At this point it is interesting to consider Martin's and Pacherie's proposal. In their opinion, the sense of ownership is disrupted, which is manifested in the breakdown of context. In particular, I consider the *operational closure* of the embodied agent as the basis of the contextual background against which a theme gains its relevance.

I am going to return to this issue in the following section. Taken altogether, the disruption of *context*, as suggested by Martin and Pacherie, reflects the diminishment of the entire structure of the minimal self inclusive of agency and ownership.

4.3 Disturbance of the thematic field

From the perspective of *Gestalt Psychology* schizophrenics suffer from a disturbance of the *thematic field* (Sass 2004b). Simply put, the thematic field organizes the orientation and perspective under which a theme is cognized. It organizes the *relevancy* of a perceptual object and thereby refers to the subject that establishes the first-person perspective on the object. The disruption of the thematic field is thus consistent with the self-disorder model of schizophrenia. More precisely, it supplements the claim that the sense of ownership is disrupted in the self-disorder. It is also consistent with the idea that the sense of ownership is not the relation between the cogito and its possessions but that by means of which we can distinguish between ownership and disownership, and attribute them to perceptual objects and objects of thought. Gallagher's model presupposes that the patient's field of consciousness is intact and judges the loss of agency on the basis of it. However, the self-disorder model suggests that a diminishment of ownership is a conceptual effect of a more general disruption of the entire field of consciousness.

Sass shows that, according to Gurwitsch, the field of consciousness comprises the theme, the margin and the thematic field. The theme is, in the words of Sass, "that which engrosses the subject, [and] stands in the central focus of his attention" (Sass 2004b, 60). The margin contains objects of awareness that are "simultaneously

present to consciousness” (60) but are not relevant for the theme. The margin includes, for example, one’s own “bodily existence” and the “perceptual surround” (61). The *thematic field*, however, organizes the perspective or the point of view under which the focal theme is perceived. Hence it establishes the theme’s significance for the subject. In other words, it represents the “attitude” of the perceiver (61). In establishing the focal theme of the field of consciousness, the thematic field also delineates the margin. Thus it distinguishes between relevancy and irrelevancy within the field of consciousness. Sass further asserts that when the thematic field has a “diffuse quality”

“the very distinction between thematic field and margin might be affected. This could have several possible consequences. One possibility is that elements that would normally remain in the margin would be more likely to intrude into the focus, where they would appear as alien elements. [...] A second possibility is that the very definition or significance of the thematic field would be affected, with marginal intrusions having the kaleidoscopic effect of shifting the thematic field itself toward some entirely different definition or perspective.” (Sass 2004b, 62)

Another crucial effect of a weakened thematic field consists in the *loss of perspective* or the deprivation of a point of view and the according consequences for the “wholeness” of the theme (62). The thematic field organizes the perspective from which the focal theme is perceived and it co-determines its significance. Furthermore, the thematic field enables a fluent motility, a smooth shift from one aspect of a thing to another. The pathological contra-part of this spontaneity is to *stare*. That is, a disruption of the thematic field results in a fixated staring, whereby the object of fixation will be deprived of its significance. Fixated staring “can, in a sense, bore through, fragment, and de-realize its focal or thematic object. As a result, the Gestalt unity of the thematic focus would be broken up into parts” (62). “Marginal intrusions” occur complementary to a Gestalt-breakdown. What was formerly marginal penetrates the theme and shatters its stability since the thematic field does not preserve the margin any longer. However, marginal intrusion or Gestalt breakdown are secondary to the loss of “organizing context, orientation or perspective” (Sass 2004b, 63).

Sass proposes that the thematic field is disrupted in schizophrenia thus causing a disintegration of the organizing context for the focal theme. Note that Gurwitsch's and Sass' notion of the thematic field reflects Martin's and Pacherie's model of schizophrenic thought insertion. Both proposals emphasize, in their own ways, the breakdown of context. Yet, Sass goes so far as to conclude that a diminishment of the thematic field corresponds to a diminishment of the *perspective* or *point of view* (2004b) and thus of subjectivity per se. Accordingly, we can expect the occurrence of islands of saliency that are not embedded in, and *relevant for*, a coherent whole—a coherent whole that is nothing less than the embodied subject. Accordingly, the subject is concerned with “meaningless details stripped of its usual behavioral significance” (Silverstein and Uhlhaas 2004, 265). It faces an explicit stream of “meaningless” thought (Cermolacce, Naudin, and Parnas 2007, 706). Take for example the quote of a patient complaining about the semantic rigidity concerning thought:

“My trouble is that I’ve got too many thoughts. You might think about something, let’s say that ashtray and just think, oh! yes, that’s for putting my cigarette in, but I would think of it and then I would think of a dozen different things connected with it at the same time.” (Sass 2004b, 68)

The disintegration of causal-contextual information might result in a disruption of the thematic field and consequently lead to marginal intrusions or “Gestalt-breakdown” within the focal theme. However, even though the patient’s reasoning might seem unusual it nevertheless sticks to a semantically coherent theme, which is the ashtray. Sass notes, however, that a disruption of the “thematic field” does not primarily

“[...] involve the total breakdown of significant form, nor the blooming buzzing confusion, that would be predicted by a breakdown of the basic capacity for Gestalt-perception or by an incapacity to exclude the irrelevant. The central factor seems, rather, to be a difficulty in determining, at any given moment and in a consistent way over time, what should *count* as relevant.” (Sass 2004b, 66)

Would the experience of isolated, ambiguous saliences count as an experience of disownership of thought? After all, it seems plausible that it would. It results from the loss of *perspective*, and the constitution of the first-person perspective is an achievement of non-observational self-awareness. In particular, the experience of a thematic Gestalt-breakdown or marginal intrusion is not equivalent to the experience of disownership. It is rather a consequence of the diminishment of ownership.

4.4 Retention in schizophrenia

I have argued that the self-disorder model implies both a disruption of agency and a disruption of ownership. Does this entail that there is a disruption of the overall tripartite structure of inner time-consciousness? I have already addressed this issue in the second chapter and I argued against the evidence that protention and retention are separable rather than conceptually distinguishable. I further argued that the separability of retention and protention is based on the identification of retention with working memory. Nonetheless, although retention is necessary for working memory it is not equivalent with it. Working memory, in turn, might be necessary yet insufficient for intentional-representational consciousness. Hence, representational-intentional consciousness presupposes the tripartite structure of inner time. In this section I am going to argue, by reference to the schizophrenic's phenomenology, that retention and protention are inseparable aspects of inner time. I am going to argue that a disruption of retention can account for phenomena such as thought withdrawal and the inability to *stop* thinking.

Retention and ownership in schizophrenic thought

If we presuppose that protention is disrupted in schizophrenia and that inner time is equivalent with *subjectivity*, retention establishes the last "place of retreat" for (reflective) consciousness. I, on the other hand, want to propose that schizophrenic experience can be explained in terms of a secondary diminishment of retention.

Sass points out that schizophrenic thought exhibits a remarkable paradox. The writer and actor Antonin Artaud was suffering from schizophrenia and provided his afterworld with an extraordinarily meticulous record of his inner life. His writings are particularly valuable insofar as they are a rare example of an exceedingly thorough report on the "negative syndrome". Sass uses Artaud's example to show that the term

“negative” does not do justice to the rich experiential content that appears as a plain *lack or absence* from a third-person perspective (Sass 2003). Sass emphasizes Artaud’s complaint that his thought feels both *empty* (cf. the symptom of thought-withdrawal) but also strongly overstrained and at times completely oversaturated with content. At first sight, this proliferation of thought seems to be strikingly inconsistent with the complaint about a lack of thought. It is worth quoting Sass at length here:

“In these passages, from a letter written in 1932, Artaud speaks of his profound sense of exhaustion and burdensome fatigue, of his feelings of emptiness (what he calls “lack of nervous density”), and especially of his “inability to form or to develop thoughts.” He compares the latter inability, a kind of thought-blocking, to “the stammering which possesses my outward elocution almost every time I want to speak,” and explains it in the following way: “It is as if each time my thought tries to manifest itself it contracts, and it is this contraction that shuts off my thought from within, makes it rigid as in a spasm.” These may first appear to be negative symptoms, involving a deficit of both thought and energy. In the very next sentence, however, Artaud tells us that his stammering and thought-blocking actually result from a condition of excess -from too many thoughts at once, competing for attention: “The thought, the expression stops because the flow is too violent, because the brain wants to say too many things which it thinks of all at once, ten thoughts instead of one rush toward the exit” (p. 293). But a few lines later, Artaud reverses himself again, now stating that, at a more profound level, his mind really is too empty, and alluding to what sound like disorganization symptoms. “But if one really analyzes a state of this kind it is not by being too full that consciousness errs at these moments but by being too empty, for this prolific and above all unstable and shifting juxtaposition is an illusion.”” (Sass 2003, 173–174)

In summary, it would seem as if there was a blockage of thought due to the density of thoughts that intrude the focus of attention. That is, Artaud suggests that he experiences a bottleneck that is blocked by the amount of thoughts striving for attention. The impossibility to “form thought” reflects the lack of protention and, as a consequence, the lack of agency. Yet this is not a satisfactory account for the

proliferation of thought, that is, for the simultaneous presence of a plethora of thoughts. Why should there be *more* thought due to a lack of agency or protention? If anything, we should rather expect less of it.

Sass also notes that one of the central case examples is patient Anne, described by the psychiatrist Blankenburg. She describes what she refers to as being “hung up” (*hängen bleiben*) on thought. In addition, she complains that she cannot stop thinking (Sass 2003, 160). I propose that we can understand the nature of these symptoms by tracing them back to *retention*. A crucial accomplishment of inner time is to enable a transition from future to past. More precisely, it enables the *ceasing* of reflective content of thought. This could explain why schizophrenics experience a blockage of thought and also why they cannot stop thinking at the same time. Retention might be the necessary complement for protention in order to preserve the spontaneity of thought and its thematic flexibility. Inasmuch as protention enables us to change the semantic track of thought, retention clears off the content.

Protentional dispositions enable us to change track (1) without explicit prediction but (2) according to the practical relevance of potential thought for a subject. Still, the corresponding process demands retention as a process of remission. This is exactly what is missing in schizophrenic thought. If patients claim that they perceive the future as “a repetition of the past” (cf. Minkowski 1933, 277 cited by Gallagher 2005, 196) that does not mean that their experience is only retentional. The problem is that patients reflectively perceive, i.e. *represent* the past. Although retention is indeed necessary for representation it is nevertheless quite different from the experience *of* the past. It is that by means of which things *pass by*. The bottleneck reported by Artaud is therefore a bottleneck at the very “exit” of the stream of thought (cf. Sass 2003, 173–174). This is why Anne complains that she *got stuck* in thought. It might be simply due to the fact that the natural ceasing of thought is prohibited, a process which normally occurs complementary to a change of track. This also explains why the patient experiences that she cannot stop thinking. Even healthy subjects might report that they cannot stop thinking. The crucial difference, however, is that patients with schizophrenia are “hung up” on thoughts to which they *cannot relate* or which have no ecological significance for them. For example, I might be in love with a certain person who I think about constantly. Yet my feelings for the person I love are not exhausted by my thoughts alone. Rather, my thought emerges from the

background of my embodiment. These thoughts simply matter to me for I am the subject who is actually in love. That is not to say that my love cannot turn into a pathological obsession. However, schizophrenic patients get stuck in marginal details, which they consider irrelevant all along. For example, they might not perceive a door as a handy object but moreover as a plethora of objective details whereby one detail logically leads to another. “Getting stuck” refers to getting caught in a certain semantic track. The healthy subject might think about something obsessively, but obsessive thought does nevertheless imply the lived subjectivity of a person to whom these thoughts matter.

4.5 Experimenting with the sense of ownership in schizophrenia

Some philosophers and cognitive scientists believe that it is a crucial feature of the embodied self that it allows for the *incorporation* of exogenous tools (Clark and Chalmers 1998). For example, blind people can experience the world with the aid of a stick. Henceforth it stands to reason that they are experiencing the stick on the part of the lived body rather than on the part of the world. I am going to show that the capacity of incorporation is aberrant in schizophrenia. A number of studies have shown that schizophrenics have a stronger “rubber hand illusion” than healthy controls. Yet the illusion is significantly weaker in schizophrenics than in controls, when the experience of ownership is not based on sensation but on the mere anticipation of touch. Thereby, the sense of ownership is again revealed as being intrinsically agentive and dispositional. I am going to explain these conflicting findings and propose that the patient suffers from a diminishment of the sense of ownership due to a diminishment of the “acting self”. The patient is an example for a prevaillingly sensorial self, which, in being only sensational, lacks the dispositional sense of ownership in particular and pre-reflective self-awareness in general. The body is, after all, not something we encounter in the world but that by means of which we have access to the world in the first place.

Some studies on the sense of (body) ownership are centered around the so called *rubber hand illusion* (RHI) (Botvinick and Cohen 1998). In the original setting, the left arm of the subject is omitted and a life-sized rubber hand is placed next to the omitting screen so that only the artificial limb is visible. The experimenter uses two brushes to stroke the subject’s hand and the rubber hand simultaneously. Thereafter,

subjects feel that the brush is stroking the rubber hand, rather than their actual hand. Botvinick and Cohen speculated that the illusion occurs due to “intermodal perceptual correlation” (1998, 276). Thereupon, it was shown that the illusion is stronger when the hand and the rubber substitute are in motion (Dummer et al. 2009).

Furthermore, a quantitative measure of the intensity of the illusion is called “proprioceptive drift” and refers to the shift of the perceived location of the actual hand towards the rubber hand. Localized stimulation of a single digit elicited proprioceptive drift from the subject’s digit to the rubber digit. However, if the subject would move the digit (thus also moving the rubber digit), the result would consist in an expansion of the drift over the whole hand rather than of the digit only (Tsakiris, Prabhu, and Haggard 2006). Tsakiris concludes that

“self-generated movement produces a different kind of body awareness than purely afferent signals. The active body is experienced as more coherent and unified than the passive body (see also Gallagher, 2005). Since unity and coherence are key features of self-consciousness (Kant, 1881/1996), we suggest that action plays an important role in the sense of self, over and above that of proprioception.” (Tsakiris, Prabhu, and Haggard 2006, 431)

Interestingly, a subsequent study showed that the mere perception of the rubber hand does not suffice for the illusion. Anticipation of touch without final skin contact, on the other hand, was sufficient to elicit RHI (Ferri et al. 2013). The corresponding findings also imply that the multisensory perception is not a necessary condition for RHI, for vision was sufficient to cause the illusion.

How do schizophrenic patients experience RHI? Schizophrenics experience an *enhanced* RHI compared to controls (Peled et al. 2000; Thakkar et al. 2011). This does not entail that schizophrenics experience an enhancement of the sense of ownership. That is, stronger RHI might rather result from a disturbed sense of self in general and “body ownership” in particular. In this sense, Thakkar et al. conclude that schizophrenics could have more flexible body representations than healthy subjects (Thakkar et al. 2011).

Most importantly, schizophrenics experience a weaker RHI than healthy controls, when subjects merely *anticipate* touch (Ferri et al. 2014). That is to say, when

schizophrenics are touched they will experience the illusion more strongly than controls but when they merely anticipate touch they will experience a weaker illusion than controls.

How can we account for these differences? Ferri et al. (2014) explains her findings in the following way:

“[It] would be also possible that altered self experiences, that is, disturbed body ownership manifesting itself as lower susceptibility to RHI, could be differently related to symptomatology. In particular, it could be associated with negative symptoms, whereas higher susceptibility to RHI could be associated with positive symptoms.” (Ferri et al. 2014, 52)

Taken en masse, schizophrenics experience a weaker RHI than controls in the anticipation-paradigm. The aforementioned studies also suggest an influence of positive and negative symptoms. Positive symptoms are correlated with enhanced RHI and negative symptoms with lower susceptibility. However, this depends on the type of RHI paradigm that is used. In the original touch-paradigm strength of RHI was related to positive symptoms while in the anticipation paradigm stronger susceptibility was related to *anhedonia scores*.

In the following section, I attempt to explain the differences in susceptibility among the different paradigms. For this purpose I am going to put aside the findings regarding negative and positive symptomatology. This is an issue that clearly exceeds the limits of this thesis. Moreover, the distinction between positive and negative symptoms is in itself problematic and might deserve to be regarded as secondary to the “core Gestalt” (Parnas 2012) of schizophrenia. The holistic framework of the self-disorder hypothesis challenges the distinction between a negative and a positive syndrome. Sass states that “[h]yperreflexivity and disturbance of self-affection are two facets of a fundamental qualitative transformation of the structure of intentionality” (Sass 2003, 175). It has already been noted that hyperreflexivity refers to exaggerated self-consciousness and the appearance of formerly tacit, automatic aspects of the self in thematic consciousness. Diminished self-affection denotes the loss of a primordial self-manifestation, the capacity of the self to *affect* itself; “a loss of the sense of inhabiting one's own actions, thoughts, feelings, impulses, bodily

sensations, or perceptions, often to the point of feeling that these are actually in the possession or under the control of some alien being or force” (Sass and Parnas 2003, 431). These two aspects of the self-disorder hypothesis, hyperreflexivity and diminished self-affection, could therefore reflect the difference between positive and negative symptoms. When it comes down to it, hyperreflexivity entails a disturbing *gain* or emergence of content, whereas diminished self-affection denotes a similarly disturbing *loss*.

This is not in accordance with the original idea of the schizophrenic self-disorder or ipseity disturbance. In spite of its heterogeneous phenotype, the schizophrenic condition pertains to a “core Gestalt” (Parnas 2012). It is, as it were, (phenomenologically) reducible to a diminishment of pre-reflective self-awareness.

“It may sound as if the distinction between exaggerated reflexive awareness and diminished sense of self, parallels the positive-negative distinction. Actually, this is not the case. Positive and negative symptoms are usually treated as separate processes that may nevertheless interact. By contrast, I prefer to see hyperreflexivity and diminished self-affection (the two aspects of the disturbed ipseity), and their various manifestations, as aspects of a single whole. Although one or another of these aspects may be more prominent or obvious at a given moment, these features are equally important—equiprimordial, one might say (borrowing a term from Heidegger, 1962).” (Sass 2003, 156)

Differences in susceptibility to RHI might be related to different scores in negative or positive symptom-scales. However, given the possibility of a unitary schizophrenic core Gestalt, we are entitled to consider the overall picture. I want to suggest an explanation of different schizophrenic susceptibility to RHI in the touch and anticipation paradigm. Consider the following argument: We already saw that the “sensory self”—a concept that I regarded as insufficient for self-awareness—rests upon exafferent sensory access to one’s body. I want to propose that the difference in RHI susceptibility corresponds to the difference of the “sensory self” as opposed to the “acting self”. If there is actual touch, RHI will be strong, for subjects will experience their body as an aspect of the “sensory self”. If, however, there is no touch but only anticipation of touch, schizophrenic subjects will be unable to rely on a vital

“acting self”, thus resulting in weaker RHI. However, in the previous chapters it has been argued that the “sensory self” is not an aspect of pre-reflective or non-observational self-awareness. The aforementioned findings show that in schizophrenia, the sense of ownership is weakened due to a diminishment of the “acting self”. That is, the schizophrenic’s diminished sense of ownership occurs due to a diminishment of the sense of agency.

The argument is simple and is compatible with (Tsakiris, Prabhu, and Haggard 2006). Ferri’s (2013) experiment shows that the acting self can elicit a sense of ownership over the rubber hand. Since the sense of agency is weakened in schizophrenia, the patient cannot experience ownership over the rubber hand. However, the merely sensory-driven illusion of the touch paradigm suggests that schizophrenics have more flexible body *representations* (Thakkar et al. 2011). We are therefore entitled to speculate that body-representations cannot be brought about or based on the “acting self”. Both, cognitive faculties and sensation seem to be insufficient so as to compensate the diminishment of the “acting self”. That is, the strong *attributions* of ownership in the touch paradigm are based on a merely sensational awareness of the stroke due to a weakness of a more profound agential awareness.

The rubber hand illusion, the sense of ownership and the extended mind

Even though the sense of ownership in RHI eventually results in misidentification, the sense of ownership is perfectly intact. In a nutshell, healthy subjects undergo an RHI *because* they have a “normal” sense of ownership. It is important not to confuse the secondary object of ownership with the capacity to enact ownership. While attributions of ownership are non-veridical in RHI, the capacity to enact ownership is immune to error through misidentification (cf. Shoemaker 1968). That is, I can be wrong about seeing *my* hand, but I cannot be wrong about that it is myself who is having an experience of ownership.

The RHI demonstrates that the sense of ownership has the power to *incorporate* objects into the self. In other words, that we are dealing with an illusion in the case of the rubber hand might be plain sailing. But what about the blind person’s stick (Merleau-Ponty 1962, 165)? In Merleau-Ponty’s words:

“To get used to a hat, a car or a stick is to be transplanted into them, or conversely, to incorporate them into the bulk of our own body. Habit expresses our power of dilating our being-in-the-world, or changing our existence by appropriating fresh instruments.” (Merleau-Ponty 1962, 166)

Simply speaking, non-observational ownership can incorporate a stick in the case of a blind person. Yet we would not consider this phenomenon an illusion. What distinguishes the incorporation of the rubber hand from that of the blind man’s stick?

For a hand to be *mine* it does not have to be a permanent extension of my arm. For example, imagine that you are walking along the pavement. Ahead of you there is a puddle of water, which you consider surmountable at first sight. You jump and quite soon thereafter find yourself in the middle of the puddle. Your judgment was wrong. Yet everything seems to be fine regarding ownership and agency. It appears as if, these issues are simply not at stake here. But under closer examination, the matter is more delicate. First, there was an over-assessment regarding the capacity of my body; my legs were too small or my muscle-power too weak in order to achieve the goal. But the point is that the actual accomplishment of the body *does not interfere with the sense of ownership*. Similarly, we can consider the rubber hand as strongly *prone to the possibility of misjudgment*. Let me elaborate on this. The illusory availability of the rubber hand to the body schema effects what Siewert called “sensorimotor intentionality” or “sensorimotor anticipation” (2005). Roughly speaking, subjects are not primarily dealing with misattributions of ownership in RHI but rather, they cannot satisfy the laws of sensorimotor contingency. Let me speculate that this can work as follows: Visual proprioception can update the body schema, which in turn modulates the laws of sensorimotor contingency. Visual sensory information is not sufficient for RHI (Ferri et al. 2013). The “updated” body schema, however, can restructure sensorimotor intentionality and thus put new constraints on self-perception. This also explains why the anticipation of touch is sufficient in order to elicit RHI. The rubber hand illusion is not merely the transformation of the body’s sensory field, i.e. the transformation of the sensory self. It is the transformation of an “I can...” rather than of an “I own...”; the transformation of the *acting self*.

The rubber hand is not primarily an illusory extension of the body but it emerges from the sensorimotor contingencies that can be satisfied by virtue of deploying a

body *plus* the rubber hand (*minus* the actual hand). It is important to emphasize the particular sequence of events. First, there is unconscious visual proprioception of the rubber dummy, secondly, there occurs a restructuring of sensorimotor contingencies and ultimately there occurs ownership over the rubber hand—which is, as I argued, rather an attribution of ownership than a sense of ownership.

Note that the final experience of the illusion is a *partial* awareness of the body. But as we have seen in chapter 3, partial awareness of the body is not a sufficient condition for the sense of ownership. A partial awareness of the body posits an object of awareness and is thus not non-observational. Despite this, it is possible that a particular body part is experienced “against the background” of non-observational ownership. How is this possible? The answer is that the decisive feature of the sense of ownership does not consist in the final theme, for example a body part, but in the particular *movement* into an explicit awareness. The “sense” of ownership is ownership *in its making*. It is an *enactive momentum* that gives rise to the sense of ownership and not the subsequent transitive consciousness.

Rather, the sense of ownership (as a component of non-observational self-awareness) features the possibility to draw upon the body schema for the purpose of intentional action. The sense of ownership is not a sensory awareness of the body but a pre-reflective awareness of my possibilities. Perceptual access to my body is not equivalent to, or an aspect of pre-reflective self-awareness.

Anticipation

How does *anticipation* fit the picture that I was considering in the previous section? I argued that a restructuring of the laws of sensorimotor contingency results from an update of the body schema. Why does sensorimotor anticipation not occur, when subjects merely perceive the rubber hand? Why is the hand *not* at our disposal when there is no anticipation of touch? In other words, why does the subject’s practical field neglect the rubber hand, when there is neither touch nor anticipation of touch?

In the previous section I have argued that the sense of ownership is not a transitive consciousness of the body but the preceding “movement”, the “making-of” observational ownership. It is included in pre-reflective self-awareness, which is a *sine qua non* for phenomenal and transitive consciousness. Yet, the non-observational self is present to itself as such that it does not distinguish between subject and object.

This self-presence is what Sass and Parnas called “self-affection”: Self-affection “refers to subjectivity *affecting itself*—that is, manifesting itself to itself in a way that involves no distinction between a subject and an object” (Sass and Parnas 2003, 428). Because self-affection is a decisive feature of pre-reflective self-awareness, this must also hold true for the sense of ownership. After all, self-awareness involves a sense of ownership. It must therefore be true that the sense of ownership involves “no distinction between subject and object”, even though the former makes the latter possible in the first place. Self-affection also endows our consciousness with an “affective-conative momentum”, which “lends the “intentional arc” the tension and energy it needs.” (Fuchs 2013, 78). The crux of the matter is that the sense of ownership needs to be *in motion* or requires continuous *alteration* so as to give rise to perceptual change and vice versa: Perceptual change always accompanies the continuous self-affection of ipseity, in a reciprocal manner. That is, the perception of movement of the world is co-dependent on and afforded by the self, which thereby affects itself. Alteration of the practical field by means of changes in the world or motion of the body is necessary in order to give rise to the sense of ownership. For example, a passive “stare” would be insufficient. In the section on the thematic field I have emphasized that the Gestalt of a theme can only be stable and meaningful if it is ephemeral and impermanent too. Only the constant movement of the theme can preserve the theme’s relevancy for a subject. This can be achieved by both, movement occurring in the environment and self-induced movement. If we reconsider the anticipation-paradigm, movement on the part of the world might as well be sufficient to give rise to the sense of ownership. In the case of the anticipation-paradigm the experimenter’s approaching hand is enough in order to elicit a sense of ownership, simply because self-affection is not solipsistic—it does not merely occur on the subject’s part. The self is only affected by itself insofar as it is affected by the world. That is to say, even if healthy subjects have to stare on a rubber hand, this will be insufficient to give rise to the sense of ownership, simply because they are not disposed to use it. However, we could say that patients are disposed to use their hand in the touch-anticipation paradigm for multiple reasons. (1) The intrusion of the experimenter’s hand into the subject’s peripersonal space¹⁰ might simply dispose the subject to react to the experimenter’s approach thus resulting in the experience of

¹⁰ The *peripersonal space* denotes the region surrounding the body in which objects are within reach.

agency and ownership. (2) As indicated before, the embodied agent evaluates movement in the environment with respect to its *affordance*. In other words, any change in the environment results in a change of disposition. We might thus rather conclude that the healthy subject experiences the movement of conation or the “affective-conative momentum” in the anticipation-paradigm.

Furthermore, we are directed to the world by means of sensorimotor intentionality, which is profoundly anticipatory, as was argued in chapter two. The patient might thus only experience the rubber hand as a part of the “sensory self” in the touch-paradigm and consequently *attributes* ownership to it.

In summary, I have argued that healthy subjects experience the illusion as a result of *incorporation*, i.e. the integration of an environmental object into the body schema. Furthermore, I claimed that healthy subjects gain a practical field that *expects* the rubber hand to be at the subject’s disposal. The intrusion of the experimenter’s hand into the “practical field” disposes the subject to act accordingly. People with schizophrenia however might exhibit a diminished ability to incorporate the rubber dummy into their practical field.

4.6 Summary

The purpose of this chapter was to show that ownership is diminished in schizophrenia. In order to do so it is crucial to show that pre-reflective self-awareness is not reducible to a passive sensory complex. That is, the “sensory self” (Tsakiris and Haggard 2005) is not sufficient for non-observational, pre-reflective self-awareness. To conceive of such a passive sensory self is to conceive of a solipsistic self, which cannot gain “access to the world” (O’Regan and Noë 2001). Access in O’Regan’s and Noë’s sense means to embody and master the laws of sensorimotor contingency. Based on this premise, I presented the specific manifestation of diminished ownership in the case of thought insertion, the disorganization of perception (from the perspective of Gestalt-psychology) and in the empirical example of RHI. All these examples expose in which way self-awareness organizes the perceptual field and thought by exhibiting its disturbance in schizophrenia.

From the perspective of Gestalt-psychology, the schizophrenic is dealing with a disruption the thematic field. On the one hand, the thematic field contextualizes the theme and provides it with stability and on the other hand, it prevents a hyper-focused attendance that would cause a disruption of the theme. The breakdown of the thematic

field does not merely freeze the theme. It literally disrupts it. That is, there occurs a fragmentation of the theme, a “Gestalt-breakdown”. In summary, this amounts to a disintegration of *context* and the loss of perspective and orientation. This once more speaks in favor of a diminishment of ownership. After all, the sense of ownership entails the sense of “owning” a first-person perspective.

I was arguing that retention is disrupted in schizophrenia. Just like people with schizophrenia lack the pre-reflective sense of the yet undetermined future (i.e. protention), they cannot let go the content of thought either. The patient’s thought seems to persist ad infinitum and the past becomes a constant theme that prohibits any change of track, thematic flexibility and thereby the possibility to let go of the current content. Retention is not only the condition of possibility for the appearance of thought. It is just as well the condition of its disappearance.

Finally, I argued that the weaker susceptibility to RHI in the anticipation paradigm (Ferri et al. 2014) suggests that the sense of ownership is diminished due to a lack of the power of *incorporation*. The lived body is a pre-reflective complex of possibilities for the purpose of engaging in situations. These engagements are not achieved by the capacities of the objective body. That is, it is not the physical structure, our muscles, bones and so forth that form our practical field—at least not necessarily. Anything that will transform our practical field can be incorporated. That is, any tool that changes our possibilities for action and perception can satisfy the laws of sensorimotor contingency. The weakening of sensorimotor intentionality has deprived the schizophrenic of its capacity to incorporate.

5. Conclusion

I attempted to show that schizophrenia is a disorder of the sense of ownership in addition to being a disorder of agency. Moreover, there is an underlying condition to which these particular manifestations can be reduced to: Schizophrenia is a full-blown self-disorder, resulting from a diminishment of self-affection. Furthermore, the self-affective structure of ipseity *is* inner time and thus a condition of possibility for the duration of temporal objects. In particular, the latter exhibit a tripartite structure of retention-protention-primal impression. However, aspects of inner time, which are distinguishable in reflection, are neither separable from that which temporalizes them in the first place—that is, pre-reflective self-awareness or inner time-consciousness—

nor is the self-affective structure of time a compound of distinguishable elements. That is, “ultimate” subjectivity is not itself *in* time. It is itself not extended or has duration of the kind that is exhibited by temporal objects.

It is impossible, for a similar reason to separate the sense of ownership and the sense of agency. Firstly, agency and ownership cannot be distinguished due the separability of protention and retention, for protention and retention turn out to be inseparable. Secondly, agency and ownership rather reflect differences in degree. They adumbrate a habitual and a volitional (de Haan and de Bruin 2010) and furthermore a dispositional and active pole. Ownership renders the disposition to engage in a situation in the light of the agent’s possibilities. It keeps at our disposal the possibilities to act upon the world. Although these dispositions exhibit an intentional structure, they are no *representations* of our body or body parts. Partial awareness of the body is an awareness of the body as object and can thus not satisfy the pre-reflective condition of the sense ownership. The sense of ownership is not a *percept* of the body. Also, it is not merely ownership over the entire field of awareness. It is that by means of which the field of awareness transcends itself and by means of which it is already directed to the world. “Access to the world” (O’Regan and Noë 2001) is contingent on the body’s dispositions. The (lived) body’s “practical field” gives meaning to the world in the first place and endows its objects with their *affordances*. However, the body can only apprehend its possibilities by being open to the world and thereby constitute itself and the world as mutually enabling. Yet the body is always a moving body or, at least, it presupposes the possibility to move. Being in a resting state, it has an indistinct range of actions at its disposal. Therefore, the sense of ownership is intrinsic to the sense of agency. We are never inert perceivers, or “sensory selves”. We grasp the world as a possibility for action and in action. The upshot is that agency and ownership are intertwined not only by coincidence. They are, under closer examination, inseparable.

Yet even the possibility of a pathological dissociation turns out to be unwarranted. Even though agency and ownership, protention and retention might coincide in healthy subjectivity, the case of schizophrenia might indicate their separability, as Gallagher argues. But while protention and the sense of agency are disrupted the schizophrenic does not have a “normal” sense of ownership. The patients rather exhibit a hyper-reflexive consciousness due to the lack of self-affection. They do not

inhabit or *own* their consciousness since the *conation* (Fuchs 2013) of the entire field of awareness is diminished. Yet it seems contradictory that a diminishment of the entire structure of the minimal self coincides with hyper-reflective consciousness. After all, pre-reflective self-awareness is a *sine qua non* for subjectivity. This is only contradictory insofar as we presuppose a complete disruption of retention and protention. We can surpass this problem by emphasizing the *diminishment* of ipseity rather than a complete lack of ipseity. The sparsely remaining capacities of the patient are reflected in hyperreflexivity and hyper-automaticity. Hyper-reflexivity and hyper-automaticity are coping strategies, which merely reflect the pathological remains of lived subjectivity. While patients do not represent incarnations of a self-enclosed, world-less, solipsistic subjectivity, they at least reflect this, strictly speaking unattainable, condition on the verge of its becoming. The breakdown and fragmentation of the schizophrenic's perceptual world, on the other hand, reflects the elusiveness of a purely inert subjectivity.

In schizophrenic thought we can observe—admittedly from a third-person perspective—the breakdown of the tripartite structure of inner time. Not only protention is affected. Patients complain about getting stuck in thought or that they are “hung up” (Sass 2003). They report on repetitive thinking and everlasting, at times inescapably monothematic rumination. They simply cannot *stop thinking*. Yet it seems to be “healthy” to think unremittingly. Why should it be considered as pathological or why is it considered as disturbing by the patients? To explain the pathological experience of unceasing thought, we have to point to retention. Retention is not merely that which enables the occurrence of thought. It also enables its withdrawal into the temporal background. In other words, it is the exit gate for thought and engenders its natural flow from future to past. It thus occurs complementary to protention, which is also necessary for spontaneous changes of semantic tracks. One could thus say that protention and retention are *complementary and mutually enabling*. Future and past complete one another. The metaphor of the temporal “flow” is indeed well suited for an illustration. Retention is avoiding a *backlog* of the influx. That follows logically. If I want to think about something new I consequently stop thinking about the current content. Any change of direction implies a renunciation of the old path. Change simply implies *becoming* and *ceasing* as two inseparable aspects of the same. Retention might be understood as the pre-reflective

experience of ceasing, the “becoming of past”. But ultimately it reaches beyond itself. It *disposes* protention by unclosing the body’s past and by projecting it against an indistinct protentional background. Thereby retention forms the future according to the past. In that sense, retention and protention are intertwined reciprocally. Subjective time is not a divisible compound but a *sine qua non* for the appearance of temporal objects. Future, past and present are three different terms that embody the inseparable temporal structure of subjectivity. A disruption of protention is not possible unless there is a diminishment of the over-all structure of experiential time.

I was also bearing upon RHI-studies that suggest that patients exhibit a strong sensory self in the touch-paradigm and a weak acting self in the anticipation-paradigm. Since patients experience a stronger RHI than controls when there is actual touch, the patient’s stronger sensory self might be an exaggerated self-consciousness that posits the body as object and is thus not pre-reflective. I concluded that this is evidence for a weakening of the sense of ownership but also evidence for the agentive, non-inert character of ownership.

Finally, a diminishment of ownership is not inconsistent with pre-reflective self-awareness being necessary and sufficient for phenomenal consciousness. This can be explained by stressing the difference between a strong-discrete and a weak-gradual reading of the self-disorder model, in other words, by emphasizing the difference between *diminishment* and a *complete lack*. I have opted for the first and against the latter.

A significant part of my claims is derived from the self-disorder model. The hypothesis that agency and ownership are inseparable is not new either (cf. de Haan and de Bruin 2010). However, I supplemented de Haan’s and de Bruin’s claim in showing that ownership is not merely the habitual pole but also the dispositional pole of the self. What has not been discussed in particular before, at least to my knowledge, is the disruption of retention and its role in schizophrenic thought. The disruption of retention is particularly interesting, for it draws the attention to a seemingly paradoxical process, namely, that the present intentional consciousness is equally dependent on its ceasing as on its appearance. The temporal structure of intentional objects is equivalent to a spatial foreground-background structure. That is, we pre-reflectively experience the backside of a perceptual object yet it is literally invisible. This holds true for the temporal horizon as well. The temporal background

of a perceptual object or an intentional object of thought renders the object finite and forthcoming at the same time. The presence can only have significance insofar as it shifts into the past—just like a house can only be an actual house if it will not be a plane mockup and if its forefront will imply its entire spatial existence. In the same way, the phenomenal decay of temporal objects is a crucial component so as to retain access to the world.

However, it is important to take retention seriously not merely as the possibility for reflection but as the condition of possibility for the disappearance of content. This can explain why schizophrenia is not merely a surreal experience but the experience of the seemingly impossible: The breakdown of the self, which further exhibits the collapse of the perceptual world due to a loss of its tacit dimension.

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7. Appendix

7.1 Abstract

Pre-reflective self-awareness can include a sense of agency and a sense of ownership. The sense of agency is the feeling of being the author of one's actions or bodily movements. The sense of ownership refers to the feeling of being the owner of, for example, one's thoughts or body. While the sense of agency and the sense of ownership coincide under normal circumstances, they become separable in schizophrenia. Gallagher's model of schizophrenia (2000a) suggests that the sense of agency is disrupted due to the lack of protention. The sense of ownership however is still intact. The present thesis argues against the separability of the sense of agency and the sense of ownership and in particular against Gallagher's model of schizophrenia. Schizophrenia is more parsimoniously explained by the self-disorder model (Sass and Parnas 2003). The self-disorder model entails a disruption of both the sense of agency and the sense of ownership due to a primary disruption of the "minimal self".

(1) This thesis rejects Gallagher's model by arguing that retention is neither a strict correlate of working memory nor a necessary component of inner time-consciousness. However, working memory dysfunction in schizophrenia can be more parsimoniously explained by a disruption of retention. First, inner time is itself atemporal but nevertheless a necessary condition for the appearance of temporal, intentional objects and therefore for "mental representation". Secondly, inner time is equivalent to pre-reflective self-awareness (Zahavi 2005). An explanation of pathological inner time cannot stop at the level of reflection and should consistently consider its pre-reflective etiology. If the pre-reflective stratum is disturbed this will affect the entire temporal tripartite structure of reflection.

(2) I shall argue that the sense of ownership is neither a reflective consciousness nor inert proprioception. It is neither a correlate of object-perception nor the "sensory self" (Tsakiris and Haggard 2005). Ownership presupposes the experience of action or the disposition for action: It *anticipates* agency. It therefore cannot be based on retention exclusively.

(3) The phenomenology of schizophrenia and empirical findings support a disruption of the sense of ownership. The disruption of ownership is exposed as a

secondary feature of schizophrenia and as a symptom that occurs due to a primary disruption of the patient's entire field of awareness. The stream of consciousness yields a general anonymity due to a disruption of the "thematic field" (Sass 2004b). Although I argue that pre-reflective self-awareness is a necessary condition for phenomenal consciousness, I do not claim that people with schizophrenia are not phenomenally conscious. I argue for a diminishment rather than for a complete disruption of pre-reflective self-awareness in schizophrenia.

Patients with schizophrenia often experience thought withdrawal. Yet they report that they cannot stop thinking or that they get stuck in thought. I propose that reports of this kind can be best explained by a disruption of retention. Retention is not only a necessary condition for reflection but also for the sedimentation or ceasing of content.

Finally, I am going to argue that the schizophrenic sense of ownership is aberrant in the "rubber hand illusion" (Botvinick and Cohen 1998). In contrast to a healthy control group, people with schizophrenia experience a stronger illusion when there is visual-tactile feedback and a weaker illusion when there is only anticipation of touch concerning the rubber hand. Since this thesis rejects the "sensory self" as a primary instance of pre-reflective self-awareness, the aberrant sense of ownership can be best explained by a disruption of the "acting self": Pre-reflective self-awareness is primarily *agentive*.

7.2 German Abstract

Präreflektives Selbstbewusstsein kann ein Erleben der Handlungsfähigkeit (*sense of agency*) und Inhaber_innenschaft (*sense of ownership*) mit einschließen. Die erlebte Handlungsfähigkeit ist gleichbedeutend mit der Empfindung, Urheber_in eigener Handlungen und Körperbewegungen zu sein. Das Erleben der Inhaber_innenschaft bezieht sich auf das Gefühl, unter anderem Eigentümer_in eigener Gedanken oder des Körpers zu sein. Obwohl erlebte Handlungsfähigkeit und Inhaber_innenschaft unter herkömmlichen Begebenheiten konvergieren, sind sie in der Schizophrenie dissoziiert. Gallaghers Modell der Schizophrenie (2000a) beinhaltet den Entwurf eines durch fehlende Protention eintretenden Zusammenbruchs der erlebten Handlungsfähigkeit. Die erlebte Inhaber_innenschaft bleibt jedoch intakt. Die vorliegende Arbeit entwickelt ein Argument gegen die Trennbarkeit erlebter Handlungsfähigkeit und Inhaber_innenschaft; daher insbesondere gegen Gallaghers Modell der Schizophrenie. Eine dem Prinzip der Parsimonie getreuere Erklärung erfolgt durch das Modell der „Ich-Störung“ (*self disorder*) (Sass und Parnas 2003), welches einen Zusammenbruch der erlebten Handlungsfähigkeit und Inhaber_innenschaft aus einer primären Störung des „minimalen Selbst“ ableitet.

(1) Die vorliegende Arbeit verwirft Gallaghers Modell anhand des Arguments, dass Retention weder ein strenges Korrelat des Arbeitsgedächtnisses, noch ein notwendiger Bestandteil phänomenologischen inneren Zeitbewusstseins sei. Nichtsdestotrotz kann eine schizophrene Dysfunktion des Arbeitsgedächtnisses durch eine Störung der Retention sparsamer erklärt werden. Erstens ist inneres Zeitbewusstsein selbst atemporal und dennoch eine notwendige Bedingung für das Erscheinen temporaler, intentionaler Objekte und damit auch für „mentale Repräsentation“. Zweitens ist das innere Zeitbewusstsein ein Äquivalent des präreflektiven Selbstbewusstseins (Zahavi 2005). Eine Erklärung pathologischen inneren Zeitbewusstseins hat infolgedessen eine konsistente Erwägung seiner präreflektiven Ätiologie vorzunehmen und kann nicht auf dem Stratum der Reflektion zum Stehen kommen. Zudem wirkt die Beeinträchtigung des präreflektiven Stratoms auf die gesamte, zeitlich dreigliedrige Struktur der Reflektion.

(2) Ich argumentiere, dass die erlebte Inhaber_innenschaft weder ein reflektives Bewusstsein, noch inerte Propriozeption und daher weder ein Korrelat der Objektwahrnehmung, noch des „sensorischen Selbst“ (*sensory self*) darstelle

(Tsakiris und Haggard 2005). Inhaber_innenschaft setzt zuallererst eine Handlungserfahrung oder die Erfahrung einer Handlungsdisposition voraus. Sie leistet in diesem Sinne eine *Antizipation* der Handlungsfähigkeit und kann demzufolge nicht ausschließlich in Retention begründet liegen.

(3) Die Phänomenologie der Schizophrenie sowie auch empirische Befunde belegen eine Störung der Inhaber_innenschaft. Letztere manifestiert sich als ein sekundäres Merkmal der Schizophrenie, welchem eine primäre Störung des gesamten Wahrnehmungsfeldes vorangeht. Der Bewusstseinsstrom weist eine generelle Anonymität, bedingt durch eine Störung des „thematischen Feldes“ auf (Sass 2004b). Obwohl ich argumentiere, dass präreflexives Selbstbewusstsein eine notwendige Bedingung für phänomenales Bewusstsein sei, behaupte ich, dass schizophrene Patient_innen bewusst im phänomenalen Sinne seien. Ich plädiere auf eine Verminderung anstatt auf einen vollständigen Zusammenbruch des präreflexiven Selbstbewusstseins in der Schizophrenie.

Schizophrene Patienten erleben oft einen Gedankenentzug. Dennoch berichten sie, ihr Denken nicht einstellen zu können oder in ihren Gedanken steckenzubleiben. Ich schlage vor, entsprechende Berichte durch eine aberrante Retention zu erklären. Retention ist nicht nur eine notwendige Bedingung für Reflektion sondern auch für die Sedimentierung oder das Verschwinden von Inhalt.

Zuletzt werde ich argumentieren, dass das schizophrene Erleben der Inhaber_innenschaft in der „Gummihand-Illusion“ (*rubber hand illusion*) (Botvinick und Cohen 1998) aberrant sei. Patient_innen erfahren, im Vergleich zu Kontrollproband_innen, eine stärkere Illusion bei tatsächlichen Berührungen, dennoch eine schwächere, wenn sie eine schließlich nicht zustande kommende Berührung lediglich voraussehen. Da in der vorliegenden Arbeit die Möglichkeit eines „sensorischen Selbst“ als primäre Instanz des präreflexiven Selbstbewusstseins abgelehnt wird, ist die aberrante Inhaber_innenschaft als ein Zusammenbruch des „handelnden Selbst“ (*acting self*) (Tsakiris und Haggard 2005) zu erklären: Präreflexives Selbstbewusstsein setzt zuallererst ein *Agens* voraus.

7.3 Curriculum Vitae

Oliver Lukitsch, BSc

Date of Birth: February 3rd, 1988
Place of Birth: Vienna, Austria
Citizenship: Austrian

Education

2012– University of Vienna: Mei:CogSci, Master Programme in Cognitive Science

2013–2014 University of Ljubljana: Student exchange at the Faculty of Education

2012 Bachelor of Science (BSc) in Biology

2007–2012 University of Vienna: Bachelor Studies in
i. Biology
ii. Philosophy

2006 A-levels (Matura), pass with distinction

1998–2006 Secondary school (Realgymnasium)

1995–1998 Elementary school

Research experience

2013 Internee: Unit for Social, Cognitive and Affective Neuroscience (SCAN), Institute of Psychology, University of Vienna
Study on the effects of stress on empathy

Scholarships

Performance scholarships

2014 Performance Scholarship offered by the Federal Ministry for Science, Research and Economy
2013 Performance Scholarship offered by the former Federal Ministry for Science and Research
2010 Performance Scholarship offered by the former Federal Ministry for Science and Research

Conferences

Talks

MEiCogSci Conference 2014, Krakow:
Towards a Sensorimotor Account of Schizophrenic Self-disorders

Posters

MEiCogSci Conference 2013, Budapest:
Shared Neural Underpinnings of Anticipatory Processes and Theory of Mind

Publications (Conference Proceedings)

- Lukitsch, Oliver. 2013. “Shared Neural Underpinnings of Anticipatory Processes and Theory of Mind.” In *Proceedings of the MEi:CogSci Conference 2013*, 89. Budapest: Comenius University Bratislava.
- — —. 2014. “Towards a Sensorimotor Account of Schizophrenic Self-Disorders.” In *Proceedings of the MEi:CogSci Conference 2014*, 42. Krakow: Comenius University Bratislava.

Languages

- i. Native in German
- ii. Fluent in written and spoken English
- iii. Fair knowledge in written and spoken Italian