

Thought insertion, ownership, and affective framing

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Abstract. Stephens and Graham maintain that in cases of thought insertion, the sense of ownership is preserved, but there is a defect in the sense of agency (i.e. the sense that one is the author or initiator of the thought). However, these theorists overlook the possibility that subjectivity might be preserved despite a defect in the sense of ownership. The claim that schizophrenia centers upon a loss of a sense of ownership is supported by an examination of some of the other notable disownership symptoms of the disorder, such as bodily alienation and experiences of “unworlding.” Is there a way to make sense of the “underlying characteristic modification” that ties together the various symptoms of schizophrenia and disrupts subjects’ “hold” on their own bodies and surroundings? I will argue that what accounts for subjects’ usual sense of ownership are fully embodied processes of causal-contextual information integration, which are made possible by subjects’ *affective framing* patterns.

1 INTRODUCTION

In acute phases of schizophrenia, subjects sometimes describe various thoughts as alien despite their recognition that these thoughts occur within their own minds. They characterize these thoughts as ones that have been inserted in their minds by some outside source. Stephens and Graham [1] maintain that in cases of thought insertion, the sense of ownership is preserved, but there is a defect in the sense of agency (i.e. the sense that one is the author or initiator of the thought). When a subject says that a thought that occurs in her mind is not her own, what she means is that she experiences that thought as “*subjectively*, but not *agentically*” her own” [1, p. 153]. However, these theorists overlook the possibility that subjectivity might be preserved despite a defect in the sense of ownership. By ‘subjectivity,’ I mean the distinct “how” of experience, namely its for-me-ness and first-personal presence; and by the ‘sense of ownership,’ I mean the feeling of “mine-ness,” or the impression that a mental state belongs to oneself. Perhaps inserted thoughts are first-personally presented to the subject (and thus subjectively experienced), but are not presented as *hers* (i.e. as belonging to her). The claim that schizophrenia does indeed center upon a loss of a sense of ownership is supported by an examination of some of the other notable disownership symptoms of the disorder, such as bodily alienation and experiences of “unworlding.” Is there a way to make sense of the “underlying characteristic modification” that ties together the various symptoms of schizophrenia and disrupts subjects’ “hold” on their own bodies and surroundings? I will argue that what accounts for subjects’ usual sense of ownership are fully embodied processes of causal-contextual information integration, which are made possible by subjects’ *affective framing* patterns. For a mental state to be owned fully, subjectivity is not sufficient. Also required is causal

integration: the mental state must occur against the backdrop of a subject’s *desiderative bodily feelings*. Attenuated affective framings lead to a loss of a sense of ownership and cause subjects to lose their “grip” on bodily sensations and mental states, which ultimately can result in delusions such as thought insertion. I will conclude with some brief remarks about implications for treatment.

2 AGENCY VS. OWNERSHIP

Stephens and Graham [1] maintain that the sense of subjectivity is not the problem in thought insertion, and make a crucial distinction between the sense of ownership and the sense of agency. Thinking, like action, normally is accompanied by a sense of effort and deliberate choice as we move from one thought to the next. Because the schizophrenic subject finds herself thinking without any awareness of the sense of effort that ordinarily accompanies thought, she has the impression that the thoughts were unintended and therefore alien. She experiences the thoughts as “done to” her by another. Stephens and Graham call this a “breakdown-in-the-experience-of-agency model” of alienation. But why would a subject feel that she is not the agent of a thought occurring in her stream of consciousness? Stephens and Graham maintain that a person denies that she is the agent of a thought because she finds she cannot explain its occurrence in terms of her theory or conception of her intentional psychology [1, p. 162]. We tend to explain particular mental episodes or behavior as expressions of our underlying, relatively persistent intentional states (e.g. our beliefs and desires). A subject’s sense of agency therefore might depend on her ability to integrate her thoughts into a larger picture of herself. In cases where a subject’s behavior does not seem appropriate to her and she has no conception of what she is doing or why she is doing it, she might conclude that what is happening is *none of her doing* [1, p. 165]. Indeed, if a subject finds the thoughts inexplicable by reference to her self-conception, she is unlikely to regard them as agentically her own.

However, this account does not yet explain why subjects experience such thoughts as alien and controlled by some external agent, rather than merely as unintended or a matter of thought influence. What is needed is an account of “how the subject’s having the impression that she did not intend to think a certain thought leads her to the hypothesis that someone else thinks or causes her to think that thought” [1, p. 144]. There must be some reason why the subject takes her thoughts to be expressions of another’s mental agency rather than mere mental happenings. Stephens and Graham maintain that despite the subject’s conviction that the episode of thinking does not express her underlying psychology, “the episode may still impress her as intentional” [1, p. 172]. This is because although the thoughts “strike her as contextually unsuitable and personally uncharacteristic,” their coherence, saliency, and directedness make it seem as if some sort of agency or intelligence is responsible for them. Rather than concluding that they are

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random mental activities, the subject has a strong impression that someone else has produced these thoughts. Thus, according to Stephens and Graham, it is the apparent intelligence of the thoughts that provides the experiential or epistemic basis for attributing them to another agent.

One problem with this account is that it appears to be unable to make sense of the difference between thought insertion and other phenomena involving impairments in agency. Intrusive or unbidden thoughts, for example, are passive and enter the subject's stream of consciousness without her having a sense that she is the author or initiator of these thoughts. Indeed, this is relatively common in cases of obsessive compulsive disorder (OCD). However, subjects with OCD readily acknowledge that these unbidden thoughts are theirs. Thus, it is not clear that pointing to an impaired sense agency allows us to distinguish between inserted thoughts and unbidden thoughts and explain why subjects retain a sense of ownership in the latter case but not the former. Stephens and Graham maintain that the key difference between unbidden thoughts and inserted thoughts is that the subject with OCD takes herself to have beliefs and desires of the sort that explain these obsessive thoughts, and therefore experiences compulsive thoughts as her own; whereas the schizophrenic subject has no beliefs and desires that explain the inserted thoughts [1, p. 178]. However, it turns out that unbidden thoughts, like inserted thoughts, may seem not only truly surprising and unexpected, but also deeply inconsistent with subjects' overall self-view. Moreover, given that the experience of alienation likely arises prior to a subject's attempt to explain a thought's occurrence in terms of her theory or conception of her intentional psychology, their account seems overly intellectualistic. Rather than having to engage in explicit introspection, the subject more likely just has an immediate, non-observational sense that something is 'off.'

Another shortcoming of Stephens and Graham's account is that it overlooks the sensory distortions and bodily disturbances involved in schizophrenia and says little about how thought insertion is related to some of the other characteristic symptoms and signs of the disorder. These symptoms include not just delusions and hallucinations, but also bodily alienation and experiences of "unworlding." Phenomenological psychopathology assumes that there is some "underlying characteristic modification" of the world of experience that ties together the various symptoms into a meaningful whole [2, p. 164]. Rather than focusing isolated symptoms, such as delusions, we need to try to understand the "deeper" phenomena that are at work. But how are the various sorts of abnormal phenomena found in schizophrenia interconnected? Many theorists would agree that schizophrenia involves an altered sense of selfhood, but there is less agreement about whether this involves loss of subjectivity, loss of a sense of ownership, or loss of a sense of agency. In my view, Stephens and Graham are correct when they claim that the sense of subjectivity is preserved in schizophrenia. Available evidence suggests that patients are well aware of where the thoughts occur, and that they correctly regard them as occurring within their own minds by virtue of their being first-personally presented. However, although the thoughts are subjectively experienced, they are not experienced as "theirs." This suggests that while the sense of subjectivity is preserved in schizophrenia, subjects' ability to distinguish between "mine" and "not-mine" is diminished. There is a loss of overall bodily attunement, and subjects commonly report a sense of self-

detachment, as well as feelings of being a robot, or of observing their own mental processes from the outside. It is this loss of a sense of ownership that ultimately leads to a loss of a sense of agency.

3 DISOWNERSHIP AND CONTEXT INTEGRATION

Experiences of bodily alienation indicate that schizophrenia does indeed center upon a loss of a sense of ownership. Here the tacit self-awareness normally present in experience is weakened or lost, leading to a felt scission between the schizophrenic subject and her body. This has led some theorists to characterize those who suffer from the disorder as "deanimated bodies" or "disembodied spirits." Fuchs [3], for example, argues that the relation of the schizophrenic subject to the world is deprived of its immediacy due to what may be described as a disembodied mind. Ordinarily subjects have a tacit, transparent knowledge of the body, and are not aware of their bodies as thematic, explicit, or focal objects of awareness. However, in schizophrenia, the body loses its transparency and begins to seem unfamiliar or artificial. Sass likewise describes how schizophrenic subjects experience "a fragmented and alienated sense of the lived body," which produces a sense of disharmony and artificiality that can disrupt the flow of motor activity [4, p.134]. Patients experience a variety of quasi-affective sensations and bodily states, including "sensations of movement or pulling or pressure inside the body or on its surfaces; electric or migrating sensations; awareness of kinaesthetic, vestibular, or thermic sensations; and sensations of diminution or enlargement of the body or its parts" [4, p. 135]. Other abnormal bodily sensations include stiffness, heaviness, and numbness. In addition to having a sense that the shape or structure of their body has been altered, schizophrenic subjects sometimes describe their own bodies as being falsely composed. Often these experiences are accompanied by disruption of motor activity and a diminution of automatic skills. Some patients also describe numbness or vertigo, and report losing a sense of contact with their arms and legs. However, these strange sensations often feel artificial, free-floating, and distant rather than being part of one's coherent and meaningful engagement with the world. As even these strange sensations lose their connection with the patient's sense of self, they become alienated and thing-like and begin to lose "their emotional aroma" [5, p. 370].

Similarly, Stanghellini and Ballerini [6] describe how subjects suffering from schizophrenic depersonalization experience a loss of ease in their actions, changes to body morphology, and an increasing sense of distance from their own bodies. Subjects report not feeling *fully or vitally* in touch with her bodily dynamics, movements, postures, and expressions. There is a feeling of vagueness and fogginess, and of being deprived of the certainty of what is one's own. Sometimes they also undergo "morbid objectification," which involves attributing "thingness" to one's own body and dismissing its emotional qualities [6, p. 263]. Schizophrenia appears to involve a disorder of *coenthesia*, or what might be described as an impairment of the "functional symphony" in which all of subject's various sensations are synthesized [7]. Because intermodal integration of signals begins to break down, integrated perception of one's surroundings becomes very difficult. Together with abnormal sensations, this disturbance of

the synthesis of sensations leads to a loss of a sense of self and sensory-motor disintegration. Subjects may experience a lack of contact between various parts of the body, and sometimes report that “they feel their limbs detached from the prime initiator” of movement and experience their actions as “detached from the energy that should spontaneously feed it” [7, p. 157]. As a result of this crisis of sensory self-consciousness, bodily states are experienced as somehow disconnected from the subject’s life, so that she begins to feel *deanimated* and *devitalized*. In addition, her immediate experience of thinking may be replaced by a second-order *noetic* awareness of *perceiving that* she is perceiving, acting, or thinking [7, p. 19], and she may begin to describe herself as a mere *spectator* or *scanner* of her own mental states. This objectification of thoughts and mental states can contribute to delusions such as thought insertion.

Such self-detachment also can lead to experiences of “unworlding.” When that which is typically a matter of automatic and spontaneous processing becomes explicit, it “can no longer perform the grounding, orienting, [and] constituting function that only what remains in the background can play” [8, p. 351]. As a result, the “ipseity disturbance” associated with bodily alienation also leads to an impaired capacity for cognitive engagement with one’s surroundings. Subjects experience not just an altered sense of selfhood, but also derealization and what some theorists have called ‘unworlding’: there is a sense of strangeness about external objects that ordinarily would seem familiar. Schizophrenic subjects find themselves less able to engage with and “grasp” their surrounding and there is a loss of a sense of attunement to the world. The cognitive or perceptual world undergoes a certain fragmentation and objects seem to lack their recognizable significance and relevance. In addition, people, actions or things may seem to be stripped of their recognizable ‘affordances,’ which can result in feelings of anxiety, wonderment, or awe. Patients feel somehow cut off from the external world and experience their surroundings as a distant spectacle rather than “as a terrain of personally relevant opportunity and risk” [5, p. 372]. Minkowski and Targowla [9] describe this phenomenon as “pragmatic weakening” and a loss of vital contact with reality. Similarly, Stanghellini maintains that schizophrenia involves a “loss of practical references to the world,” so that things do not “directly and immediately relate to [one’s] body as existentially relative utensils” [7, p. 194]. As a result, things appear devoid of meaning, and it becomes difficult for the subject to interact with them effectively. Once concrete objects lose their incarnated givenness, they may even transform into images, so that that world becomes *ghostly* in a sense.

Bodily alienation, unworlding, and thought insertion all centrally involve a loss of a sense of ownership. However, this is not to deny that these phenomena involve first-order phenomenology and first-personal givenness (subjectivity). It’s just that their being subjective does not guarantee that these experiences involve a sense of ownership (i.e. a sense of their belonging to oneself), though of course subjectivity and a sense of ownership ordinarily go hand in hand. Whether a mental state is subjective depends on whether it is given in a first-personal mode of presentation. Whether a mental state is experienced as *one’s own*, on the other hand, depends on whether it is causally integrated with relevant contextual information [10, p. 113], which might include current perceptual conditions, current situational conditions, the subject’s background beliefs and knowledge, the content of preceding thoughts, memory

constraints, and/or the subject’s current emotional state. Due to all of these contextual constraints and modulating factors, our mental states ordinarily do not simply appear out of nowhere. However, it turns out that schizophrenic subjects have difficulty integrating contextual information in various cognitive domains. Because their Gestalt organizational processes are impaired, they experience “basic deficits in the perceptual organization processes that normally bind elements into a context-appropriate coherent whole” [10, p. 114]. In addition, they have difficulty processing contextual information related to linguistic stimuli, as well as information related to events to be stored in memory. To produce phenomenal causal coherence resulting in a sense of thought ownership, a system must integrate the causal causal-contextual information relevant to a subject’s thoughts with the thoughts themselves. When this integration process is disrupted, a thought occurs that is disconnected from its causal source, and therefore is experienced as coming out of nowhere. The link between causal context and thought is not dynamically maintained and relevant contextual information is not integrated or coordinated with their thoughts [10, p. 117]. This lack of causal integration leads directly to an experience of thought insertion.

Note that this account resonates with the one presented by Stephens and Graham, which says that thoughts seem alien in the event that the subject does not *attribute to herself* the sorts of intentional states that naturally would find expression in those thoughts [1, p. 173]. However, this new account is far less intellectualistic. It says that prior to a subject’s considering whether thoughts conform to her “theory” of what she is like and thus what she is likely to do as a person [1, pp. 163-4], she has some basic, pre-reflective sense of whether these thoughts “fit” with her surroundings and with the rest of her beliefs, desires, emotions, memories, and perceptions. This sense of “fit” has to do with causal coherence and the integration of causal-contextual information.

4 AFFECTIVE FRAMING AND THE SENSE OF OWNERSHIP

Martin and Pacherie [10] point to working memory impairments to explain why causal-contextual information is not effectively integrated with subjects’ thinking episodes. Working memory involves the ability to maintain, manipulate, and coordinate information for a short period of time. Schizophrenic subjects appear to have deficits in the various sub-processes that make up working memory, including encoding contextual information, inhibiting irrelevant information, and retrieving relevant information. While I do not deny that working memory plays a crucial role in linking features across time and producing coherent thinking episodes, I maintain that an even deeper explanation is needed. After all, as these authors readily acknowledge, schizophrenic subjects exhibit a wide range of information integration deficits that impact their ability to process linguistic stimuli, remember events, engage interpersonally with others, and exhibit executive control. Working memory impairments are just one aspect, it seems, of an overall inability to coordinate and integrate contextual information.

Executive functioning involves the ability to monitor the context of action, as well as current personal circumstances that might affect the accuracy of one’s perceptions or one’s ability to

complete the task at hand. Central to executive functioning is selective attention: it appears that “selection and intensity of arousal, based on the individual’s personal history, usually occurs as an aspect of perception” and is linked to “how this individual perceives any given stimulus or situation at a given moment” [11, p. 73]. But just how are relevant situational factors noticed, and how do individuals’ personal histories and background beliefs and desires shape their patterns of attention? It is clear that the world somehow shows up as *laden with value*, but it is not altogether clear how this occurs or how some segments and aspects of background context rather than others are deemed significant. It is possible that selective attention and the weighting of importance are achieved simply via circuits in the brain. However, the description that I have presented of some of the characteristic signs and symptoms of schizophrenia suggests that it is subjects’ *whole living bodies* that are affected. It appears that subjects have lost their “grip” on their own bodily sensations and mental states and that they display diminished levels of bodily attunement to their surroundings. It is reasonable to suppose that this loss of bodily attunement is at the core of their loss of a sense of ownership and agency, and also their inability to process contextual information.

Most of us have an immediate, pre-theoretical, non-intellectual understanding of where to direct our attention in a given context. This ability to home in on salient features of our environment and make a cut from the stream of information is what cognitive scientists call ‘framing.’ What I call ‘affective framing’ is the process whereby we interpret persons, objects, facts, states of affairs, and situations in terms of *embodied desiderative feelings*. Just as a conceptual frame is a cognitive shortcut that people rely on in order to categorize features of their surroundings, an affective frame operates as a feeling-driven shortcut whose interpretive focus is targeted and contoured by an individual’s embodied desires and cares. Detection of which aspects of our surroundings are relevant typically occurs outside of reflective self-awareness or conceptual information processing, and is a matter of bodily attunement and feelings of subjective import. Affective framing patterns, developed over time, yield a *pre-reflective*, non-conceptual, fine-grained contouring of a subject’s surroundings, so that she immediately can target and focus her attention. The affective arousal involved in affective framing engages not just neural circuitry, but also metabolic systems and endocrine responses, and the impact of this arousal is spread throughout the body in muscles, increased blood flow, heart rate and blood pressure increases, and vascular constriction. Which contextual information is relevant to a subject’s thoughts is partly a function of her desires, concerns, and overall perspective, so that the bodily feelings of affective framing function as a structure-giving background to all experience and a presupposed context for all intellectual, practical, and social activity. This *caring-contoured map* of affective framings plays an important role, for example, in determining which information in working memory will be held onto, which will fade out, and which will be called into conscious attention when needed. Affectivity and bodily feeling thereby bias the competition for processing resources in favor of information we *feel* is important.

I maintain that attenuated affective framing explains experiences of bodily alienation, “unworlding,” and the disturbance in the combining of context-related stimuli across many domains. Among schizophrenic subjects there is a notable

discrepancy between the amount of attention something deserves and the amount that it receives. Subjects with attenuated affective framing processes find it difficult to focus their attention on what matters and to disregard things that are irrelevant or unimportant. They experience diminished bodily attunement, and have lost much of their “grip” on their own mental states and surroundings. Indeed, a disruption to affective framing is the “underlying characteristic modification” that ties together the various symptoms of schizophrenia and can help us to make sense of the “deep architecture of [the schizophrenic’s] disembodied and deanimated type of existence” [2, p. 165].

First, attenuated affective framing leads to the loss of personal relevance, the diminishment of ‘self-affection,’ and the seeming disruption of background bodily sensation that comprise bodily alienation. Ordinarily, affective framing allows a subject’s cares and concerns to serve as a backdrop for all of her experiences, including basic perceptual experiences and bodily sensations. In schizophrenia, however, the *desiderative bodily feelings* that undergird a sense of self are diminished. Without this framework of bodily attunement to help the subject make sense of things, intermodal binding and sensory integration begin to break down. The subject begins to experience sensations that are dissociated from her ongoing sense of self, lack a sense of personal relevance, and are experienced as free-floating rather than being meaningfully directed toward the world [4, p. 135]. Bodily feeling loses its intentionality, its desiderative tone, and its world-directedness. Without some framework in which bodily feelings can take on relevance and significance, sensations come to be experienced as distant and object-like, divorced from one’s sense of self. As bodily tensions and associated affective states lose their desiderative component, there is a diminished sense of immediate acquaintance with one’s own body and a breakdown in self-experience.

Second, in the absence of “the targeted and temporal nature of ‘concern’” [4], the world as a whole begins to lose its practical significance. Ordinarily, we engage with the world in and through our bodily feelings of caring. It is the desiderative bodily feelings of affective framing that direct our attention, drive us to action, and give shape to our perceptual experience. Attenuated affective framing disrupts perception and cognition (insofar as it interferes with our focusing of attention) and leads to a disrupted perceptual or cognitive “hold” or “grip.” For the schizophrenic subject, things no longer are apprehended against the backdrop of desiderative bodily feelings, and as a result objects in the world lose their significance and appear as devoid of meaning. Without a perspective to ground meaning and value, subjects find it increasingly difficult to make sense of their surroundings. Like bodily alienation and disturbed self-experience, “unworlding” is a result of the schizophrenic subject’s inability to appreciate salience. As a result of this “unworlding,” the cognitive or perceptual world undergoes a certain fragmentation and objects seem to lack their recognizable significance and relevance. Some subjects experience deficits in perceptual grouping, so that objects do not stand together in an overall context and instead appear as meaningless details [5, p. 373]. They also have difficulty excluding distracting visual, auditory, and tactile input when trying to concentrate on selected parts of the environment [12, p. 14].

Interestingly, my proposed account also helps to make sense of the language disturbances commonly found in schizophrenia. Such disturbances include the repetition of phrases, frequent

uncompleted sentences, the production of neologisms, circumlocution, and sudden termination of an utterance before it is complete. Maher maintains that these disturbances are caused “by defective deployment of inhibitory activity necessary to exclude intrusions” [12, p. 19]. The ability to speak a sequence of words in a sentence is made possible by the ability to inhibit associations for each separate word, as well as the ability to screen out external sources such as the speech of others. In order to inhibit “irrelevant” input and screen out unneeded information, we must have some way of determining which input is salient and of subjective import. However, because schizophrenic subjects are deficient in these inhibition mechanisms and largely insensitive to context, they are highly susceptible to intrusions, internal and external distractions, and word associations that are not relevant to the case at hand. Due to their diminished bodily attunement, they find it difficult “feel” their way through a conversation and appreciate the salience of contextual features. Even the meaning of words may become abstract and divorced from context, which can result in so-called ‘word salad’ and the overall jumbling of speech.

Lastly, my account can help us to make sense of thought insertion. Thought ordinarily depends on a background of beliefs, desires, and interests, so that which trains of thought are opened up to a subject depends greatly on her particular background of cares and concerns. It is only when a thought appears against the backdrop of her beliefs, desires, and background bodily orientation that a subject will experience herself as the owner (and agent) of the thought. In schizophrenia, however, this background bodily orientation is severely attenuated. When thoughts do not arise against the structure-giving backdrop of a person’s desiderative feelings, her concerns about the future, or her current needs and desires, these thoughts seem *out of context*. Articulated in terms of the ‘mapping’ metaphor I have expressed previously, these are thoughts that are ‘off the map.’ In an effort to make sense of these thoughts that seem to have come out of nowhere, subjects attempt to *recontextualize* them by attributing them to some other source [10]. So what makes inserted thoughts different from unbidden thoughts that just spring spontaneously to mind? In cases of unbidden thought, affective framing allows for the integration of some relevant contextual information, and thus the sense of ownership is preserved. These unbidden thoughts occur against the backdrop of subjects’ beliefs, desires, or concerns, even if these thoughts are not ones the subjects wish to have, nor ones that mesh with their self-conception. Inserted thoughts, on the other hand, are not just unintended, but also *alien*. This alienness, and the subject’s sense that the inserted thoughts do not truly belong to her, results from a failure to integrate relevant contextual information; and this failure to integrate relevant contextual information, in turn, can be traced to attenuated affective framing.

5 CONCLUSION

Drawing upon the Daoist notion of wu-wei (naturalness) and John Dewey’s conception of “know-how,” Krueger [13] describes the “ethos of expertise” as an affective, skill-based capacity that enables subjects to navigate various domains. For example, the skilled swimmer coordinates her strokes with the flow of the water “through a deep ecological sensitivity—a *felt* union between body and environment” [13, p. 35]. This is a form

of nonrepresentational bodily intelligence that involves a feeling of contextual familiarity and a pre-reflective sense of one’s own body as the “possessor of certain capacities for action” [13, p. 40]. Certainly this “ethos of expertise,” which I have described in terms of affective framing, is a matter of the body being attuned and responsive to situational saliences of the environment. However, being attuned to one’s surroundings first requires that one be attuned and “in touch” with one’s own body. This is because we make sense of the world in-and-through our bodies, via the desiderative feelings of affective framing. Ordinarily there is a “felt union” between body and mind, but this appears to be disrupted in cases of schizophrenia.

Since schizophrenia involves disruptions to bodily attunement and a diminished sense of ownership, treatment should involve interventions that seek to transform an individual’s overall bodily and neurobiological dynamics. We need to develop intensive, comprehensive, and holistic behavioral interventions, ones which minister to the whole living body, and not just the brain. Indeed, there is evidence that antipsychotic medications are not sufficiently effective in managing the debilitating symptoms of schizophrenia, such as delusions, hallucinations, and thought insertion. Many patients on medication continue to experience psychotic symptoms throughout their lifetimes, and it is generally acknowledged that pharmacological treatment alone is insufficient [14], and also that such medications may cause cerebral abnormalities [15] as well as negative side effects. This has led to the development of a cognitive-behavioural therapy (CBT) approach to the treatment of schizophrenia. By reflecting on and then modifying their patterns of thinking, subjects can learn to avoid self-destructive actions and beliefs. Some studies have found that CBT can be an effective treatment for schizophrenia even in cases where medication is not used, and that it reduces the frequency of hallucinations and delusional beliefs [16].

While I do not dispute the claim that cognitive behavioural therapy is a highly effective mode of treatment, I propose that bottom-up treatment methods also deserve some attention. By ‘bottom-up’ interventions, I mean those that center on bodily engagement that shifts bodily dynamics and feelings so as to allow for changes in cognition and patterns of thought. For example, there is some evidence that yoga can be an effective treatment for schizophrenia. Visceglia and Lewis [17] found that adults with schizophrenia who participated in an 8-week therapeutic yoga program showed significant improvements in psychopathology and quality of life compared with controls. One participant stated that “yoga makes me feel like my whole body is functioning as it should,” and many of the subjects reported that it made them feel calmer and more able to function [17, p. 603]. Likewise, the research of Rohricht et al. [18] showed that body oriented psychological interventions had a positive impact on subjects suffering from chronic schizophrenia. This intervention included dance movement psychotherapy, sensory awareness exercises, and tactile self-exploration. At the beginning of therapy, patients reported being unable to connect with themselves, and having a diminished or distorted sense of their bodies. Often their movements were disorganized and uncoordinated, without any energy. After therapy, there was a clearer differentiation of movement, feelings of lifelessness diminished, and their ability to verbally express their bodily sensations improved. In addition, there were significant improvements in “ego-pathology” (disturbed self-experience),

which Rohricht et al. characterize as a basic symptom of schizophrenia. In particular, subjects showed improvement with respect to 'ego-activity' (the ability to function as a self-directing, self-governing unity that intentionally directs one's thinking and action), 'ego-consistency' (the coherence and organization of self-experience), and 'ego-demarcation' (the ability to differentiate between ego and non-ego spheres). Such evidence suggests that through body oriented psychotherapy, subjects were able to engage directly with their bodies and also to begin to articulate some of their abnormal bodily sensations. As a result, their self-experience became more unified and coherent and they were better able to distinguish between self and non-self.

I hypothesize that yoga, dance, and other body oriented methods of psychotherapy provide a way for subjects to re-inhabit their bodies and increase bodily attunement, so that their sense of ownership begins to be reinstated. One might say that such modes of therapy serve to cultivate an "ethos of expertise." Through movement, bodily self-exploration, and enhanced sensory self-awareness, subjects are able to forge more of a felt connection with their bodies. Neurobiologically, this corresponds to the strengthening of existing affective framing patterns, or, in some cases, the formation of new ones. If my proposed account of affective framing is roughly correct, then this increased bodily attunement will, in turn, contribute to subjects' ability to appreciate the significance of features in their surroundings. In fact, the research of Rohricht et al. [18] bears this out: by the end of body oriented therapy, schizophrenic subjects became more positively engaged with objects in the room (e.g. balls), they were more interested in participating in group exercises, and they exhibited an improved ability to identify and express basic emotions. Such evidence suggests that these bodily-based treatment interventions have great potential to restore bodily attunement and strengthen subjects' sense of ownership, and thus merit greater attention

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