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Self-disturbance and schizophrenia: Structure, specificity, pathogenesis (Current issues, New directions)

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ABSTRACT

This paper offers an overview and clarification of the ipseity-disturbance or self-disorder hypothesis regarding schizophrenia, with focus on some recent and recommended research and theoretical refinements. There is need to expand research and theorizing in several directions—in order to: 1, specify more precisely what is truly distinctive in the schizophrenia spectrum, 2, explore internal structure and explanatory potential of this purported disturbance of minimal- or core-self experience, 3, generate testable hypotheses concerning pathogenic pathways and psychotherapeutic interventions.

Comparative studies can make a crucial scientific contribution. Some recent, exploratory studies are described: published reports were examined for alterations of self-experience in conditions outside the schizophrenia spectrum—mania, psychotic depression, and depersonalization disorder—and in one unusual attitudinal stance: intense introspection (as refined in early 20th century psychological research). Remarkable similarities (e.g., alienation/reification of thoughts and bodily experiences, fading of self and world) as well as some important differences (e.g., absence, outside schizophrenia, of severe erosion of minimal self-experience or real confusion of self and other) in *types* of self-anomalies were found. These support but also refine the ipseity-disturbance model. Future research should treat self-experience as an independent variable, manipulating and measuring this dimension (in both schizophrenic and non-schizophrenic populations) to study its associations with anomalies of cognition, affect, expression, and neural functioning already identified in schizophrenia.

The self-disorder model offers an integrative and dynamic view of schizophrenia congruent with recent trends in cognitive neuroscience and consistent with the heterogeneous, varying, and holistic nature of this enigmatic illness.

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1. Introduction

“Schizophrenia” has long been a controversial category, its boundaries uncertain, its essence ill-defined. This remains true more than a century after it was first conceived. Voices questioning its validity have been recently on the rise: some reject the category, claiming it conflates distinct illnesses and impedes research and treatment. Other, more cognizant of psychiatric history, are less sanguine about discarding it, but seek refinements. “Schizophrenia” is the worst of all diagnostic concepts, so it may seem—at least until one considers the alternatives (Jaspers, 1963 p. 568).

Prominent among recent attempts to define schizophrenia is the ipseity-disturbance or self-disorder hypothesis (Sass and Parnas, 2003; Sass, 2010), a contemporary formulation of something long recognized: the presence of difficult-to-define yet distinctive alterations of consciousness or the sense of subjectivity. Jaspers, Schneider, and Conrad were among those who emphasized a “radical qualitative change

in the thought processes” that involved diminished first personal givenness and mineness of experience (*Meinhaftigkeit*) (Schneider, 1959, p. 100). This paper clarifies the contemporary self-disorder hypothesis and its current status, then focuses on lacunae in current understanding and on some recent and future research that might further its investigation.

With all its flaws, the construct “schizophrenia” does seem to indicate some subtle but underlying factor at the core of a psychiatric condition that is perhaps best conceived as a syndrome (and probably represents a final common pathway with diverse etiological origins). But how best to characterize this condition, given its protean and ephemeral manifestations and varied definitions? Jasper's criterion of incomprehensibility and Rümke's of recalcitrance to empathy (*praecox-feeling*) may best *identify* the prototypical instances of this strange Gestalt (Parnas, 2012). Both criteria seem largely intuitive, however, and neither offers an orienting theoretical account. The ipseity-disturbance hypothesis seeks an account flexible enough to encompass the diverse and varying symptoms yet specific enough to be clinically useful and relevant for research, neurocognitive and otherwise.

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2. Self-disorder model: current status

2.1. Theory

According to the contemporary self-disorder model (Sass and Parnas, 2003), the essential disturbance of schizophrenia is grounded in a two-faceted disturbance of core or minimal self, also known as ipseity, that is normally implicit in each act of awareness. *Ipsēity* derives from *ipse*, Latin for “self” or “itself”; it refers to the most basic sense of selfhood or self-presence: a crucial sense of self-sameness, a fundamental (thus nearly indescribable) sense of existing as a vital and self-identical *subject* of experience or *agent* of action (Ricoeur, 1992; Zahavi, 2005). This “central nucleus of the Self” (William James, 1981), grounded in the lived body (Merleau-Ponty, 2012) and implicit temporality (Fuchs, 2013), is experienced not as an entity in one’s field of awareness, but as the unseen point of origin for experience, thought, and action, as a medium of awareness, source of activity, or general directedness towards the world (Sass, 1998). It grounds the first-person givenness or for-me-ness of subjective life.

The self or *ipseity* disturbance in schizophrenia is hypothesized to have two main aspects that may seem mutually contradictory but are in fact interdependent. “Hyper-reflexivity” refers to an exaggerated self-consciousness, a tendency (fundamentally non-volitional) for focal attention to be directed toward processes and phenomena that would normally be “inhabited” or experienced (tacitly) as part of oneself (Sass, 1992). “Diminished self-affection” refers to a decline in the (passively or automatically) experienced sense of existing as a subject of awareness or agent of action. Whereas “hyper-reflexivity” emphasizes that something normally tacit becomes focal and explicit, “diminished self-affection” emphasizes what is probably a complementary aspect of this same process—the fact that what once was “tacit is no longer being inhabited as a medium of taken-for-granted selfhood” (Sass, 2003, p. 170; Sass, 2010). Despite this interdependence, there are patients, and periods of illness, in which one facet or the other emerges as more prominent. It is difficult to determine whether hyper-reflexivity and diminished-self-affection are best conceived as complementary facets or tightly interacting processes; perhaps both conceptions are needed (Sass et al., in press).

A third, interrelated aspect is a concomitant disturbance of the *field* of awareness labeled “disturbed hold” or “grip” on the world (Sass and Parnas, 2003, 2007; Sass, 2004). Disturbances of spatiotemporal structuring of the world, and of such crucial experiential distinctions as perceived-vs-remembered-vs-imagined, are grounded in abnormalities of the embodied, vital, experiencing self. One writer with schizophrenia, Antonin Artaud (1976), brought these notions together by describing consciousness as “the essential illumination” or “phosphorescent point at which all reality is recovered,” around which everything “clusters”—the “very substance of... the soul.” He associated “dispossession [of this] vital substance” with what he experienced as “constant leakage of the normal level of reality” (pp. 82, 44; Sass, 2003). This disturbed hold or grip, typically involving perplexity or loss of common sense (Störriing, 1987; Stanghellini, 2000), is often associated with forms of *hyperconsciousness*. Thus Artaud (1976) described his “dispossession” and “disorganization” as compatible with a “lucidity” that was “total, keener than ever.” What declined was Artaud’s sense of engagement and vitality: he spoke of “emaciation of my self” and “sever[ing] of vital ties” (pp. 82–83, 169, 91–94).

The ipseity-disturbance model of schizophrenia synthesizes ideas from classic European psychopathologists—including Eugene Minkowski and Wolfgang Blankenburg (Sass, 2001) as well as Karl Jaspers and Klaus Conrad. Jaspers (1923/1963, p. 122) emphasized loss of the *cogito*, the very feeling of existing as a consciousness. Conrad (1997/1958, A, II,5,6,7 & A,III,2) described “anastrophe,” a “constant reflexive attention” or “stepping-back” from experience, and concomitant alterations of the field of awareness (*apophany*).

Most arguments for the non-specificity of “schizophrenic” features rely on research using structured interview techniques; these can be faulted for the superficiality of their symptom assays, which may miss subtler aspects of psychopathology perhaps better captured by a phenomenological approach (Nordgaard et al., 2013). The ipseity-disturbance hypothesis argues that apparently diverse symptomatic manifestations may mask underlying commonalities—as with (so-called) positive, negative, and disorganized syndromes, which, though superficially different, may share forms of disturbed ipseity (Sass and Parnas, 2003). The ipseity-disturbance model views both florid and “negative” psychotic symptoms as manifestations of subtle but profound alterations in the very foundations of subjectivity and selfhood. It addresses the complex mixing of “act and affliction” in schizophrenia (Sass, 1992, pp. 68–74), the interplay of passively determined, neurocognitive abnormalities with limited but important forms of agency on the patient’s part. Like any attempt to define a controversial category, the ipseity-disturbance model is not, incidentally, directed at a fixed and clearly delineated population, but is, in part, an attempt to *define* such a population by suggesting adequate criteria for inclusion.

2.2. Examination of Anomalous Self Experience (EASE)

The EASE (Parnas et al., 2005) is a qualitatively rich, 57-item semi-structured interview that operationalizes and quantifies the ipseity-disturbance model and is designed to detect sub-psychotic experiences (Parnas et al., 2005; also see Nelson et al., 2013). Many EASE items target diminished self-affection (e.g., 2.1: Diminished sense of basic self, 2.16: Diminished initiative), forms of hyper-reflexivity (1.7: Perceptualization of inner speech or thought, 2.6: Hyper-reflectivity), or disturbed “hold” or “grip” on the world (1.10: Inability to discriminate whether an experience is perception/fantasy/memory, 2.12: Loss of common sense/perplexity); others may involve two or more aspects (e.g., 4.1: Confusion with the other).

Studies using the EASE (or EASE-proxies) demonstrate that such self-disturbances discriminate schizophrenia or schizotypal patients from patients with psychotic bipolar disorder (Parnas et al., 2003; Haug et al., 2012) and from other heterogeneous samples (Parnas et al., 2005; Raballo and Parnas, 2011). Self-disorders aggregate selectively in those at risk for schizophrenia, either in genetic relatives (Raballo et al., 2011) or in prodromal individuals (Parnas et al., 2011; Nelson et al., 2012), broadly supporting the ipseity-disturbance hypothesis.

3. Theoretical clarifications

The intrinsic nature both of basic self-consciousness and of the schizophrenic anomalies resists definition by conventional discourse; while a lack of consensus for conceptualizing selfhood and subjectivity (one philosopher counts 21 notions of “self” in current literature (Strawson, 1999)) breeds conceptual confusion (Sass et al., 2011). Many neurobiological, behavioral, or commonsensical variables can be more reliably defined; these may, however, fail to capture the subtle experiential abnormalities that largely *define* psychopathology (Parnas et al., 2013). Ignoring subjectivity certainly places psychiatry at odds with contemporary neuroscience, where consciousness and self-experience have become defining concerns (McGilchrist, 2009; Damasio, 2010). Selfhood is perhaps akin to the black hole in cosmology: something we are forced to postulate and investigate, even while recognizing its enigmatic, even self-concealing nature.

Ipsēity (or its disturbance) is not a monolithic concept. It is neither a simple quantifiable dimension nor some mysterious x-factor that cannot be further analyzed. Ipsēity-disturbance does have a holistic, Gestalt-like quality; it may come in degrees. However, it is also necessary to consider its structure or component aspects in order to effectively explore its variability, pathogenesis, and neural correlates. This, in turn, requires considerable openness to theoretical or

philosophical speculation, to interviewing techniques capable of eliciting rich accounts of subjectivity (Nordgaard et al., 2013), and to some comparative and experimental approaches (see below). The ipseity notion is especially compatible with emerging approaches to brain/mind relationships that emphasize the “embodied” and “embedded” nature of subjectivity and bodily experience (Rowlands, 2010; Shapiro, 2011; Gallagher and Zahavi, 2012).

One crucial clarification concerns the various levels of selfhood or self-awareness. According to the ipseity-disturbance model, schizophrenia involves, first and foremost, a disturbance of *minimal* self-experience, a basic sense of existing as a consciousness in the world (ipseity). Disruptions of *autobiographical* self or *narrative* continuity, a less foundational level (Gallagher, 2011), certainly occur; but these are not distinctive of schizophrenia (also found in dissociative identity disorder and borderline personality) and not strongly pathogenetic (Parnas and Sass, 2011).

Diminished self-affection has nothing to do with a liking or approving of the self, but with a more basic sense of existing in the first-person perspective. This experience of one's own presence as a conscious, embodied subject is so fundamental that any description risks sounding empty or tautological; yet its absence can be acutely felt, as illuminated by a schizophrenia patient overwhelmed by “total emptiness...as if I ceased to exist” (Parnas et al., 2005).

The concept of “hyper-reflexivity” is especially prone to be misunderstood (see Seigel, 2005, re “reflexivity/reflection”). Hyper-reflexivity cannot be reduced to an exaggeration of “reflective,” “introspective,” or “top-down” awareness of an essentially intellectual or volitional nature (Sass et al., 2011). Hyper-reflexivity includes such processes of “reflection”; but more central to this concept (and more pathogenetically primary) is “operative hyper-reflexivity,” which involves processes that are generated automatically and passively experienced. This spontaneous “popping-out” of phenomena (e.g., cenesthetic sensations, fragments of inner speech) engages attention, often motivating further, more intense forms of attentive scrutiny, including reflective and defensive forms (which may become quasi-automatized); these latter can, however, be counterproductive, exacerbating abnormal salience and associated fragmentation (Sass, 2003, 2010).

As is well known, symptoms of schizophrenia can fluctuate tremendously, often in association with the patient's personal attitude or orientation. Sometimes the variability seems *quasi-volitional*: a patient may speak in word salad to her mother, but be perfectly coherent when speaking with her doctor (Bleuler, 1982). At other times, the variability has a more random quality, termed *dialipsis* (Matthysse et al., 1999). In neither case does such variability seem consistent with current cognitive models of schizophrenia, whether modular or molar. For how, exactly, would a straightforward account of defects of working memory, executive functions, or corollary discharge, of reduced connectivity, or of generalized deficit, be consistent with such inconstancy, at least if such deficits are not integrated with dynamic motivational and other varying factors?

One advantage of the ipseity hypothesis is that it is more compatible with the fluctuating nature of schizophrenia symptoms, across time and situation. “Self-affection” is akin to an affect-state in which the sense of vital existence may wax or wane in conjunction with one's perspective, orientation, or attitude toward the world. The diverse forms of self-consciousness captured by “hyper-reflexivity” would be similarly variable, given they involve forms of attention, which obviously shift and transform. The self is not, after all, something one just *happens* to be aware of: its existence is inextricable from processes of self-awareness (implicit and otherwise) *by which* it is constituted. It is understandable, then, that ipseity might be unstable in schizophrenia, turning “wobbly” in the words of one patient, whose “vantage point,” the “solid center from which one experiences reality,” would, she said, become “fuzzy” at times, “break[ing] up like a bad radio signal” or

eroding “like a sand castle ... sliding away in the receding surf” (Saks, 2007).

4. Recent comparative research

An obvious issue concerns the *specificity* of ipseity-disturbance to the schizophrenia-spectrum. To date, bipolar illness is the only *specific* diagnostic group, outside schizophrenia, to which the EASE has been applied. Although research with heterogeneous non-schizophrenic populations shows EASE anomalies to be generally rare outside of the schizophrenia-spectrum (e.g., Raballo et al., 2011; Nelson et al., 2013), there may be some exceptions. These might include Depersonalization Disorder, in which altered sense of subjective existence is, after all, the key symptom, and also *normal* individuals under certain abnormal circumstances, especially introspection, meditation, or sensory deprivation. Related issues concern how theoretical distinctions between basic (operative), consequential, and compensatory forms of ipseity disturbance (Sass, 2010) may be validated or further tested. Several recent studies address these overlapping issues.

4.1. Depersonalization, introspection, and schizophrenia

We examined the extent to which experiential abnormalities characteristic of schizophrenic self-disturbances (as defined by the EASE) also occur in certain conditions or mental states that are *non-schizophrenic* yet manifest clear and dominant alteration of a basic aspect of ipseity. Significant experiential overlap might suggest that ipseity-disturbance is indeed a (or *the*) *trouble générateur* in schizophrenia, and also help clarify the structure of ipseity and its associated pathogenetic pathways.

A first study focused on the purest instance of diminished self-affection in psychopathology: Depersonalization Disorder (Sass et al., 2013). A sister study (Sass et al., *in press*) focused on an experiential stance that is a pure instance of hyper-reflexivity (or, at least, of *hyper-reflexivity*): the method of self-observation adopted by “introspectionist” psychologists of the early twentieth century such as Titchener (1912). These exploratory studies applied EASE categories to published descriptions of depersonalization experiences (case reports, autobiographical accounts) or of introspectionism (experiments recorded by trained introspective observers).

These studies make no claims of providing *quantitative* ratings of *average* levels of self-disturbance in these populations. Results show, however, that the majority of EASE items were fairly easily found in both Depersonalization Disorder (72%) and the Introspection accounts (77%), thus indicating considerable experiential overlap with the schizophrenia-spectrum. Some of the EASE items found in these two studies were not very surprising: diminished sense of self is an obvious aspect of depersonalization; alienating self-reflection might be expected in the introspectionist stance. There was, however, also considerable crossover: items indicating hyper-reflexivity in depersonalization patients or diminished self-affection in introspectionist subjects; this crossover is consistent with the interdependence of hyper-reflexivity and diminished-self-affection according to the ipseity-disturbance model. Also noteworthy was the presence in both groups of disturbed cognitive or perceptual “hold” or “grip” on the world.

Equally important are discrepancies: EASE items *not* endorsed in depersonalization or introspection. As discussed, the ipseity-disturbance hypothesis postulates several *types* of disturbances, some more fundamental and neurobiologically determined, others consequential or compensatory, sometimes having a quasi-intentional flavor. The self-reflection of introspectionism is volitionally initiated and intentionally driven (*reflective* hyper-reflexivity, primarily); the loss-of-self in depersonalization is generally assumed to involve an unconsciously goal-directed process of psychological defense (Simeon and Abugiel, 2006). We would expect significant differences between persons whose self-anomalies derive largely from such quasi-intentional

factors, versus those whose abnormalities are largely involuntary. EASE items indicating feelings of passivity and alienation or fading of self and world were prominent in depersonalization and introspection as well as in schizophrenia. By contrast, items suggesting more severe and distinctive *dislocation*, erosion, or dissolution of first-person perspective, such that self and other can seem fused or confused—tended to occur only in schizophrenia. The former (overlapping) experiences are perhaps not inconsistent with the paradoxical nature of the *normal* self or subject, at least as analyzed by Kant (whose “transcendental ego” lacks phenomenal manifestation) or Sartre (normal subjectivity as “nothingness”) (Žižek, 2005, pp.215f). The latter experiences (discrepancies), however, suggest collapse of “transcendental” or constituting structures of experience—e.g., of the very polarity of subject-vs-object/other, or the most foundational sense of existing as a distinct subject of experience.

4.2. Psychotic depression, mania, and schizophrenia

The classic psychopathological distinction between schizophrenia and affective psychosis is largely supported by EASE results. Haug et al. (2012) reported that EASE scores are significantly (and dramatically) lower in bipolar disorder and in non-schizophrenic psychotic syndromes than in schizophrenia (also Parnas et al., 2003). Still, affective psychosis is often difficult to distinguish from schizophrenia, and many affect-disorder patients *do* manifest some forms of self-disturbance, including (it is claimed) apparent “first rank symptoms” and other mood-incongruent features (Peralta and Cuesta, 1999). It seems worthwhile, therefore, to look beyond the quantitative EASE findings to determine what *kinds* of self-disturbance might be found in affective disorders.

In an exploratory study, published accounts of schizophrenia, mania, and psychotic depression were examined with respect to the five EASE dimensions: cognition and stream of consciousness, self-awareness and presence, bodily experiences, demarcation/transitivity, and existential reorientation (Sass and Pienkos, in press-a). The methodology has a tripartite/dialectical structure: After considering more obvious *differences* between schizophrenia and affective disorders, we considered some striking *similarities* between the two conditions, including self anomalies. Finally, more subtle but fundamental *differences* between schizophrenia and mood disorders were explored. Although there were important self-related anomalies in mania and psychotic depression (e.g., “feeling of having no feeling” in melancholia), more severe dislocations of self or self/world boundaries were not observed (e.g., confusion with the other, solipsistic experiences, some radically self-alienating forms of mental reflexivity). This supports earlier attempts to refine the “first rank symptoms of schizophrenia” in more precise, even perhaps pathognomonic terms (Koehler, 1979).

While above explorations are informative, full-scale EASE interview studies are needed to examine the differences and similarities among these diagnostic groups. In addition, richly descriptive case studies with semi-structured interviews (Nordgaard et al., 2013) could be immensely helpful.

5. Some future directions

Much of current schizophrenia research revolves around deficits of such key cognitive functions as working memory, executive functions, attention, or theory-of-mind. Some experts see evidence for a generalized dysfunction across all “higher-order cognitive functions” (Dickinson and Harvey, 2009). Neurocognitive impairments have in fact shown a greater discriminating power than any biological measures (Heinrichs, 2005). However, several important limitations exist. Although schizophrenia patients show reliable cognitive deficits, their scores overlap significantly with those of healthy controls. Also, correlations between cognitive deficits and clinical symptoms (especially

positive symptoms) tend to be low. Lastly, the sheer ubiquity and apparent nonspecificity of these deficits are problematic (Heinrichs, 2001). Other studies have focused on the neural correlates of *particular* schizophrenic symptoms, such as the role of fronto-temporal disconnection in auditory hallucination or of impaired corollary discharge in first-rank symptoms. The main goal of all these studies is to uncover core underlying neural dysfunctions that could account for schizophrenic disturbance.

The ipseity-disturbance hypothesis suggests the value of looking elsewhere for the crucial neural and neurocognitive correlates. Surprisingly, we know very little about the effects of attitude, orientation, or self-state on cognitive, perceptual, and emotional processes in schizophrenia. Our research on Depersonalization Disorder and introspection indicates, however, that changes of either self-affection or hyper-reflexivity can be associated with some of the most characteristic anomalies of schizophrenic experience. Future research could examine the neurocognitive correlates of altered basic-self experience by inducing mental states of passivity, detachment, withdrawal and introversion. Such direction might enrich our understanding of the more dynamic and complex forms of mind-brain interaction in schizophrenia.

Various methods for altering self-experience are possible. Diminished self-affection might be induced through meditative techniques designed to bring on loss-of-self experience; hyper-reflexivity can be achieved by introspective processes. In addition, neuropharmacological manipulations involving ketamine (i.e., diminish self affection) or psilocybin (increase hyper-reflexivity) might also be informative (Moore et al., 2013; Carhart-Harris et al., in press)—(though these psychological correlates are complex and debatable).

In a ground-breaking study, Hunt and Chefurka (1976) subjected healthy people to a state of isolation and inactivity and, using methods modeled on classical introspectionism (e.g., Titchener, 1912), directed them to attend to “immediate subjective state,” thereby inducing reflective hyper-reflexivity. Resulting experiences closely resembled psychedelic phenomena as well as schizophrenic symptoms. The subjects reported sensory hypersensitivity, depersonalization and derealization, perceptual anomalies with “felt portentousness,” feeling watched by a room that seemed somehow alive, aloneness and detachment, and ideas of reference, together with “mental daze” involving “cognitive disorganization” or “blank empty awareness.” More recently, Petitmengin et al. (2009) showed that a reflective focus on normally pre-reflective levels of awareness is associated with diminished agency and body ownership, permeable ego boundaries, and ineffability. Sass (1992, 1994) showed that the hyper-reflexivity and “alienation” (the latter akin to the depersonalization/derealization of diminished self-affection) of literary and artistic modernism parallel virtually every key symptom of schizophrenia. These are *experiential* anomalies induced by changes of self-state or ipseity. Can the cognitive abnormalities, behavior patterns, and neural anomalies typical of schizophrenia also be induced by changes of self-state?

One testable hypothesis is that excessive hyper-reflexive awareness could overburden conscious capacity, resulting in diminished performance on various cognitive measures. In addition, diminished self-affection would reduce the overall goal-directedness that orients normal perception and thought. The detrimental effect on IQ and other neuro-cognitive tests would be considerable, though probably also variable and somewhat difficult to predict in specific terms. This would resonate with the enigmatic pattern, recognized since Kraepelin and Bleuler, of an illness strongly *manifested* in cognitive impairments (Heinrichs, 2005) yet that seems *other-than-purely-cognitive* in its essence or core (Urfer-Parnas et al., 2010).

To what extent might ipseity manipulations also produce analogs of schizophrenic symptoms, such as formal thought disorder (Sass, 1992, chapters 4, 5, and 6), a fluid perceptual style (Holzman et al., 1986), impairments of perceptual closure or organization (Doniger et al., 2001; Silverstein and Keane, 2011) or enhanced *accuracy* in identifying

atypical perceptual details (Schneider et al., 2002; Keane et al., 2013) or drawing certain accurate logical inferences that context or practical concerns would normally obscure (Owen et al., 2007)?

To what extent might changes in self-state produce neurophysiological analogs? Consider reduced fronto-temporal functional connectivity in schizophrenia. During speech, there is increased EEG coherence between frontal and temporal cortex language areas in healthy people, which is diminished in schizophrenia. Such diminished connectivity may then contribute to misattribution of inner thoughts to external voices, resulting in auditory hallucinations (Ford et al., 2002, 2005). The reduced connectivity, however, need not be conceived as the underlying *cause* of auditory hallucinations. It could as well result from an unusual orientation: a passive, hyper-reflexive stance toward one's own thoughts or speech. This is perfectly consistent with the finding that healthy people *also* show such decreased fronto-temporal coherence when they are listening to recordings of their own voice.

Psychological alterations of ipseity might also increase proneness to the “rubber-hand illusion” in normal subjects, together with changes of hand temperature and “proprioceptive drift”, thus bringing their mental state closer to what is typical of schizophrenia (Thakkar et al., 2011).

Such effects need not achieve pathological levels to be of interest for schizophrenia research. These induced states, which involve a disengaged and withdrawn stance involving hyper-reflexivity and/or diminished-self-affection are obviously not *identical* to schizophrenia. The point is that schizophrenia may well involve analogous kinds of ipseity-alteration, and that a patient's symptoms and general functioning might correlate more highly with such ipseity-alterations than with the more purely cognitive factors typically studied (where correlations are low; Heinrichs, 2001) (this is not to say, of course, that the ipseity-alteration in schizophrenia is equally intentional or defensive, nor that it may not have its own, strongly determining neural basis). Elucidating such pathogenetic pathways requires going beyond static comparisons between diagnostic groups.

Specific neural correlates and consequences of such a stance will obviously vary depending on whether speech, motoric action, emotion, or perception etc. is studied. However, many of these correlates may be, pathogenetically, downstream from a more core alteration of basic self-experience. Consider the well-studied phenomena of impaired corollary discharge and salience dysregulation (both discussed in Nelson et al., 2013–this issue, submitted for publication). The conventional interpretation is that a disturbance of neural pathways results in impaired efferent feedback or corollary discharge, leading to a diminished experience of agency over one's own bodily action. But it is equally possible that a passive and self-contemplative stance (hyper-reflexivity) might, to a significant extent, actually *bring on* the diminished feedback or altered corollary discharge, perhaps leading to a neurophenomenological disturbance/diminishment of innermost “mental proprioception” (Nasrallah, 2012). Similarly, it is true that a purely brain-based dysregulation of perceptual salience could encourage a passive contemplative stance toward random phenomena that emerge and seize one's attention. But it is equally possible that a certain disengagement (associated with diminished self-affection) might *bring on* the unpredictable and disconcerting saliencies (perhaps associated with hyperdopaminergia), since in the absence of a concerned orientation, stimuli will be deprived of their affordance-values, and less likely to be organized into patterns of meaning and relevance. These two explanations need not be mutually exclusive.

An obvious parallel line of research might explore whether such psychological manipulations of self-experience or self-state can diminish or exacerbate symptoms, neurocognitive performance, or neural correlates in schizophrenia patients. Together with comparative findings on schizophrenia-like self-anomalies in Depersonalization Disorder and introspection, such studies might help to determine not only which features are more amenable to change via psychotherapy (the less “operative” or basic ones?), but also which psychological techniques have

therapeutic potential—and which might risk exacerbating core anomalies, perhaps by inducing pathogenic forms of self-consciousness (Nelson et al., 2009; Röhrlich et al., 2009; Skodlar et al., in press concerning body-oriented therapies).

6. Self, world, or presence?

I conclude with a theoretical issue: the appropriateness of identifying self-experience as the *key* factor in schizophrenia. The ipseity-disturbance hypothesis offers a holistic account that subsumes alterations in various experiential dimensions (time, space, lived body) and mental faculties (emotion, motivation, attention, thinking etc.) without raising one above the others. This accords with a classic observation about schizophrenia: “no psychic feature is definitely missing so that the central factor cannot be the disturbance of any one feature” (Jaspers, 1963, p 581). One might, however question the emphasis on self as opposed to something perhaps equally general: world.

The ipseity-disturbance hypothesis does address disturbed “grip” or “hold” on the world, and the EASE includes some world-related items. Still, the emphasis—as reflected in the terminology—is on *self*-experience. But from a strictly phenomenological standpoint, self and world are often seen as complementary or even “equiprimordial” poles of experience. Heidegger's (1962) “being-in-the-world” (*Dasein*) stresses the priority of the world-pole. Is it legitimate, then, to treat “grip” or “hold” on the world as somehow secondary to or constituted by a more foundational level of *self*-experience?

Consideration of the philosophical arguments lies beyond the scope of this article. Emphasis on self-experience does, however, conform to Husserl (1962) on the constituting role of the “transcendental ego.” But there is, admittedly, a certain arbitrariness in this emphasis, and it may well be that schizophrenia would more accurately be described as a *presence*-disturbance, in accord with philosopher Merleau-Ponty's (2012) statement: “subject and object [are] two abstract ‘moments’ of a unique structure, namely, *presence*.” Certainly there is no a priori reason to assume that self-related aspects are necessarily superior to more *world*-related ones (e.g., altered lived-space or confusion between perception/fantasy/memory), either in distinguishing or predicting schizophrenia-spectrum conditions.

A sister-interview to the EASE, focused on world-experience, is currently under development.¹ The EAWWE (Examination of Anomalous World Experience) targets five experiential dimensions: 1. Objects and Space, 2. Events and Time, 3. Persons, 4. Language, and 5. Atmosphere (feelings of altered familiarity, meaning, and reality). Three exploratory studies of these world-dimensions using published accounts, and following the above-mentioned tripartite/dialectical model have been completed (Sass and Pienkos, in press-b, submitted for publication-a,b). These highlight similarities in the experiential horizons typical of persons with schizophrenia, psychotic depression, or mania (e.g., alienation from social world and sense of uncanniness) as well as more subtle differences, such as the apparent rarity of radical experiences of meaninglessness and ineffable strangeness in affective psychoses.

7. Conclusion

The ipseity-disturbance model of schizophrenia puts crucial but elusive aspects of subjectivity at the very heart of psychopathological investigation. This paper emphasizes the need to examine this dimension in more detail, both to clarify its inherent structure (component aspects) and psychopathological specificity (differential association

¹ Under development by Louis Sass, Elizabeth Pienkos, Borut Skodlar, Josef Parnas, and Nev Jones.

with various conditions or mental states) and to explore its pathogenetic role.

Pursuing this dimension will require considerable openness to theoretical speculation (Sass, 1992) and use of interview techniques that are subtle and qualitatively rich (Nordgaard et al., 2013). But there seems no alternative for a field necessarily concerned not only with brain and behavior but also with human experience and expression (Parnas et al., 2013). Only by incorporating phenomenological concepts and methods in the larger research enterprise can one hope to cut psychopathology at the joints, rather than pounding away with more familiar concepts and tools that seem inadequate to the phenomena at issue.

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Conflict of interest

There are no conflicts of interest concerning this article.

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