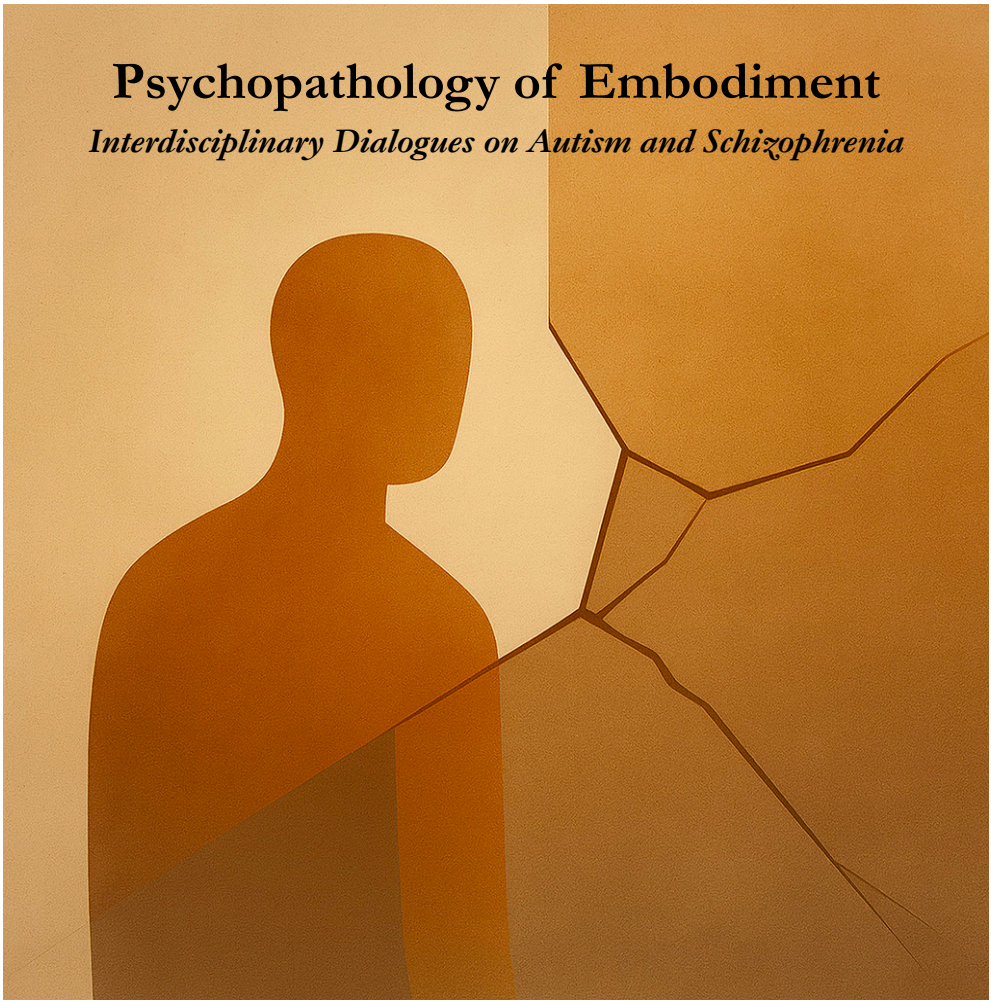
I LINGUAGGI DELLE SCIENZE COGNITIVE

GIOVANNI PENNISI (ED.)

Psychopathology of Embodiment

Interdisciplinary Dialogues on Autism and Schizophrenia



(corisco)

I LINGUAGGI DELLE SCIENZE COGNITIVE

I LINGUAGGI DELLE SCIENZE COGNITIVE

Finito di stampare nel mese di settembre 2025 da Edas s.a.s. di Domenica Vicidomini & C. via S. Giovanni Bosco, 17, 98122, Messina

In copertina:
Elaborazione AI textual prompt

ISBN: 978-88-98138-49-4

Giovanni Pennisi (Ed.)

Psychopathology of Embodiment
Interdisciplinary Dialogues on Autism and Schizophrenia

(corisco)

Giovanni Pennisi (Ed.)

Psychopathology of Embodiment

Interdisciplinary Dialogues on Autism and Schizophrenia

Giovanni Pennisi (Ed.)

Psychopathology of Embodiment
Interdisciplinary Dialogues on Autism and Schizophrenia

Table of Contents

Luigi Lobaccaro

Delusion as Narrative Regulation of Perception: Integrating Phenomenology, Predictive Coding, and Cognitive Semiotics

Abstract

Delusion is traditionally framed, since Jaspers, as an *incomprehensible* mutation of experiential meaning. This lack of meaning can be filled up by integrating phenomenological psychopathology with cognitive semiotics and current predictive-coding accounts. Aberrant-salience models capture the threshold between *Wahnstimmung* and delusional perception, but they do not explain how anomalous significance is *structured* into a stable theme. Drawing on Gerrans's DMN-based account while rejecting reductionism, the Default Mode Network is reconceived not as an inner storyteller that manufactures propositional content, but as a *sense-making* integrator: a system that schematises experience across intrinsic/extrinsic and social inputs. Using Paolucci's semiotic theory of perception, it is shown how imaginative simulation organizes perceptual fields and affords the passage from pre-delusional atmosphere to thematic delusion without collapsing belief and perception through the semiotic concept of *narrativity*. On this view, delusions are non-doxastic, narratively regimented schemes of action that stabilize a crisis of perception. The account preserves the strengths of predictive processing (hierarchical error dynamics) within an enactivist and semiotic framework in which meaning emerges from organism–world coupling. Finally, clinical implications are sketched: DMN alterations (e.g., hyperactivity in schizophrenia; hypoactivity in autism) can be read as disruptions of semiotic *narrativization* rather than mere neural glitches, reframing delusional experience as a maladaptive mode of *sense-making* at the interface of perception, imagination, and action.

Keywords
Delusion; Narrativity; Cognitive Semiotics; Phenomenological Psychopathology; Predictive Coding

1. Introduction

In contemporary culture, delusions are widely seen as the hallmark of madness. Clinically, they appear across a range of psychopathologies, but they are above all a defining feature of schizophrenia, long considered a key diagnostic criterion for the disturbance (Kraus 2014). Delusions are typically defined by their irrationality, senselessness, and the unshakeable certainty with which they are maintained (APA 2015): patients hold on to beliefs that remain fixed and resistant to any acceptable interpretation. Even with the vast literature on the topic, delusions remain a matter of debate, and an integrated account of delusional experience is still lacking (Radden 2011).

Drawing on phenomenological psychopathology, the present discussion explores how a cognitive semiotic perspective may enrich the understanding of delusional phenomena. The analysis begins by showing how Jaspers had already opened a path for a semiotic perspective on delusions (§2). It then identifies the limits of a purely phenomenological account (§3) and argues for its integration with semiotic and cognitive approaches. The discussion subsequently turns to predictive coding as a neuroscientific model that attempts to capture insights from psychopathology (§4), with specific attention to Gerrans's (2014) theory on the role of the Default Mode Network (DMN) in delusional experience (§5). Next, it highlights how the strengths of predictive coding are undermined by reductionist tendencies that ignore the complexity of human organisms-in-the-world, and reframes Gerrans's ideas within an enactivist and semiotic-cognitive account (§6). Finally, drawing on the semiotic concept of narrativity and on Paolucci's (2021) theories of perception, which link predictive coding with an embodied dimension, the analysis aims to clarify the DMN's role in the emergence of delusional experience (§7) and in shaping the transformation of meaning within delusions (§8).

2. Delusion and Meaning

Phenomenological psychopathology has consistently emphasized that the study of delusions should not focus only on the fixed delusional belief, but on the process that gives rise to them. For many psychopathologists, this process has its roots in a disturbance of the experience. Already in Jaspers's *General Psychopathology* (1963), the founding work of phenomenological psychopathology, we find a crucial distinction: between a delusional belief articulated through a linguistic judgment, called *secondary delusion*, and a *primary delusion*, which is marked by a shift in the meaning of perceptual experience. On this point Jaspers was clear, and his suggestion is now widely accepted within the psychopathological community: the experience of primary delusion arises from a combination of fundamental experiential disturbances and a mutation of experiential meaning (Feyaerts *et al.* 2021). For Jaspers (1963), «all primary experience of delusion is an experience of meaning» (103). By "experience of meaning", Jaspers did not refer to a change at the level of belief or perception, but rather to the attribution of meaning to perceived reality, in which «a new and special significance» suddenly intrude (ivi, 103), enabling a new way of «perception of meaning» (ivi, 99).

It is worth noting that, from its very founding text, psychopathology grounded the distinctive feature of schizophrenia (*primary delusion*) in a mutation of meaning, a psychic transformation that does not concern beliefs, perceptions, intentions, or affects, but the very sense of experience and its operability. This intrusion of meaning, as identified by Jaspers, can readily be considered semiotic in nature, since it consists in the (albeit unconscious) attribution of a meaning not yet expressed linguistically (that is, not yet articulated in a judgment of reality) to experience, a meaning that later serves as the basis for the conceptual construction of the secondary delusion. When this new meaning enters the experiential field, it fractures and idiosyncratically reconstructs the links among perception, language, and reality. The idea that meaning constitutes the dimension binding perception, action, language, and world together is a central principle of cognitive

semiotics (Paolucci 2021; Lobaccaro 2022). In this sense, if we accept Jaspers's view, delusion understood as the irruption of an incomprehensible experiential meaning represents a genuine challenge for any approach, like Semiotics, that aims to stand at the crossroads of experience and reasoning, belief and lived reality, meaning and world, a challenge that must, in one way or another, be addressed and confronted (Lobaccaro *forthcoming*).

3. The Impossible Understanding of Delusional Meaning and New Attempts at Explanation

In the psychopathological literature, two alterations of experiential meaning can be distinguished in the onset and in the development of schizophrenic delusions.

A) In some cases, a pre-delusional mood (*Wahnstimmung*) emerges: reality acquires an uncanny atmosphere, the relation between words and things loosens, and new meanings appear to invade the field of experience.

B) This mood is often followed by what Jaspers (1963) and Schneider (1959) defined as *delusional perception*: a sudden, unexpected, and intrusive «*delusional significance*» (Jaspers 1963, 100), experienced by the patient as an immediate and automatic revelation of the real meaning of lived experience. When delusional perception occurs, it is often accompanied by surprise and even euphoria, yet at the same time may remain incomprehensible to the patient (Conrad 1958). Delusional perception is the moment when the delusion acquires thematic consistency. A classic example is that of a patient who, upon entering a café and noticing three marble tables in the corner, suddenly realizes that the world is about to end.

The phenomenon of delusional perception is, without doubt, one of the most compelling objects of study for psychopathology, since it gave rise to the concept of *lack of understanding* or *incomprehensibility*, central to Jaspers and later developed within the phenomenological tradition. According to Jaspers, it is impossible to understand how this mutation of meaning takes hold in the patient's experience;

it appears as an originary phenomenon to which empathic access is closed. This position has gained consensus in subsequent years: delusion represents a sudden shift in experiential semantics (Minkowski 1927), and nothing in the shared psychic components can account for the unwavering certainty with which schizophrenic patients grasp entirely idiosyncratic meanings. Since this certainty cannot be traced to any transformation in the experiential field, *empathic understanding* collapses in the face of such a radical discrepancy of meaning. Nor can *eidetic understanding* (Stanghellini 2017) account for this sudden variation: no matter how far the psychopathologist extends their imaginative variations to reproduce the existential categories structuring the schizophrenic lifeworld, the intrusion of the delusional theme remains unjustified.

Hence Jaspers maintained that formation of delusional perception could only be *explained* through recourse to neurology, while *understanding* had to give way in the face of interpretative impossibility. This stance arose in opposition to paradigms that treated delusion primarily as a problem of belief content. Yet this opposition generated a theoretical framework that long kept apart the level of public signification, tied to discursive and predicative structures, from the individual level of experiential forms, where meaning is understood as a function of the constitutive operations of basic consciousness. Once delusion is divided into *primary* (experiential) and *secondary* (discursive), it becomes a phenomenon strictly dependent on the ante-predicative dimension.

From a classical phenomenological standpoint, it is the modes of self-constitution of consciousness that generate the eruption of delusional meaning, which emerges autonomously from what Husserl (1966) called *passive synthesis*. This is the domain of anonymous passivity, whose exploration, within the Husserlian framework, is indispensable for clarifying the genesis of predicative judgment and for accessing the original modes of constitution (Schwartz *et al*. 2005). On this view, conceiving primary delusion as a form of sensible intuition already entails incomprehensibility: a phenomenon arising from

a disturbed passive synthesis resists any *epoché* and lacks the intersubjective ground required for "scientific" analysis.

Classically, phenomenology can investigate the ante-predicative dimension because sensitivity, perception, and the lifeworld exhibit an intersubjectively shared order open to inquiry. Since delusion is a radical mutation of this order – marked by the intrusion of an idiosyncratic meaning – the phenomenon cannot be *understood*. For this reason, the feature of the *incomprehensibility* rests precisely on the unmotivated irruption of this new, special meaning into the field of experience that it is ungraspable.

This limit of comprehensibility rests on two distinct but closely connected separations. The first is the separation between delusional content (which language can grasp) and the form of experience. The second is the separation between *understanding* and *explanation*. Together, these distinctions leave the experiential form without a viable route to comprehensibility – neither top-down (via articulation of content) nor bottom-up (via measurable neurophysiological or bodily variations). In recent years, however, psychopathological literature has increasingly questioned these separations and moved toward their integration. As we will see, this development brings phenomenological psychopathology closer both to semiotics and to the cognitive sciences.

3.1. Delusional Meaning Between Expression and Content

One limitation of the classical psychopathological approach is its tendency to focus exclusively on the structures of experience that enable delusional content, while paying too little attention to how form and themes coalesce in the concrete manifestation of delusion. Too often, delusional perception has been treated as if it arose solely from experiential disturbance. Actually, it is always already embedded in a regime of signification. An experiential alteration alone does not suffice to produce a delusion; some degree of semiotization is required – a shaping of experience that adapts itself to a content (Eco 1976). Through such *forms of content*, things acquire meaning for the patient

in a particular way. The theme that emerges in perceptual experience thus has a *form* which, although shaped by disturbances of consciousness, cannot be *pure* or *intuitive*. It is always adjusted in relation to the patient's knowledge of the world, thereby creating a new nucleus of meaning within the experiential field (Gold and Gold 2014). The primary experiential catastrophe is therefore re-inscribed into a regime of significance through a thematic content (cf. Jaspers 1963, 98), which must eventually find expression in language. In primary delusion, experiential alterations function as expressions that are taken up into semiotic content through a reciprocal shaping of both the perceptual field (that function as a *form of expression*) and the meaning that invests it (that works as a *form of content*).

Several psychopathologists have made this same point: it is impossible to analyze forms (what semiotics calls forms of expression) without also considering contents (forms of content). As Rossi Monti observes:

> A radical distinction between form and content, which privileges the former at the expense of the latter, has proven to be an illusory alternative (Blankenburg 1988), a blunt weapon or a dead end (Bovet and Parnas 1993; Spitzer 1990). When Manfred Spitzer (1990) underlines the inevitability of turning to content in order to establish the so-called formal specificity of delusional perception, he reaffirms the insolubility of a knot that was once thought to be cut through with a stroke of the sword […]. Despite the attention drawn to its formal peculiarity (which largely explains its initial success), delusional perception is in fact the living proof of the inseparability of form and content. To ask whether the form or the content of experience is more important would be like asking whether the base or the height is more important in calculating the area of a square. The specificity of delusional perception lies not so much in its formal structure, nor in its thematic content, but in the peculiar, inextricable association between the two elements (Rossi Monti 2008, 23, author's translation).

Consider, for example, a persecutory delusion in which the patient believes that everyone else is pretending or lying, and that reality itself is illusory. This clearly relates to a weakened sense of bodily

agency, to a split between subject and self-generating constant self-observation in the form of hyper-reflexivity, and to a loss of shared intentionality with others, who then appear as sources of uncertainty (Van Duppen 2017; Gallagher 2013; Conrad 1958). Yet these experiential factors alone do not explain why the delusion might take the form of believing the world is like *The Matrix* or *The Truman Show* (Fuchs 2015). That step is possible only because the fragmented experiential form is reorganized through another form that restores coherence and generates delusional meaning. And this new form is not invented from scratch by the patient. It is drawn from the repertoire of forms to which they are exposed in everyday life and culture. For this reason, recent psychopathological and phenomenological research increasingly turns toward cultural, conceptual, and symbolic analyses of delusional themes, paying attention to the social and environmental conditions in which delusions arise (Ratcliffe 2017; Gallagher 2009; Stanghellini 2004; Rossi Monti and Piazzalunga 2010; Ballerini 2002). More and more, there is a need to understand how delusional meaning is anchored both in the patient's personal history and in the *cultural encyclopaedia* (Eco 1986) they inhabit[1].

The inseparability of experiential and cultural forms of delusion reflects the deeper entanglement of culture and nature in human life, and the coupling of body, brain, and world that underlies cognition itself (Fuchs 2018). Delusion emerges only once an individual has already been shaped by a culture that has been internalized and "naturalized" as embodied habits (Di Paolo *et al*. 2018; Gallagher 2024; Paolucci 2021). It therefore manifests in the constant interplay between experiential and cultural dimensions, which in adult life are

1 A striking example of this kind of analysis is offered by Rossi Monti and Piazzalunga (2010, 27-54) in their discussion of bizarre delusions centered on the figure of the machine and the theme of mechanization. Drawing on the cultural meanings of the machine in our society (often with reference to Umberto Eco) they explain how these meanings intersect with experiences of passivity, loss of subjectivity and agency, and derealization in schizophrenia. In doing so, they show how these elements provide a stabilizing framework for the patient's experience, allowing the patient to self-regulate precisely through the idiosyncratic significance that is attributed to them.

fused in what Stanghellini (2017) calls a *chiasm*, leaving little room for separation. In a way, Jaspers had already hinted at this inseparability between perceptual and cultural meaning when he wrote:

> Let us now try to imagine what the psychological significance is of this delusional experience of reality in which the environment offers a world of new meanings. All thinking is a thinking about meanings. If the meaning is perceived directly with the senses, if it is directly present in imagination and memory, the meaning has the character of reality. Perceptions are never mechanical responses to sense-stimuli; there is always at the same time a perception of meaning. […] We may not be explicitly conscious of the interpretations we make when we perceive but nevertheless they are always present. Now, the experiences of primary delusion are analogous to this seeing of meaning, but the awareness of meaning undergoes a radical transformation (Jaspers 1963, 99).

The delusional core should therefore be seen as a semiotic phenomenon, since it arises at the intersection of perception, belief, and action. The challenge, however, is that semiotics – at least in its cultural orientation – cannot move beyond discursive and thematic analysis. It can support phenomenological psychopathology only by enhancing *hermeneutic understanding* (Stanghellini 2017). To truly advance the understanding of delusion, semiotics (like phenomenology) must be integrated with a theory that explains how this fusion of forms takes place in perceptual and experiential meaning. For this reason, it is impossible to proceed without considering the most recent contributions from the cognitive sciences.

3.2. Explaining in Order to Understand

The problem of the *incomprehensibility* introduced by Jaspers, has generated ongoing debate. Over the years, many authors have tried to move beyond the strict opposition between explanation and understanding, searching for ways to account for the transformation of meaning that takes place in delusional experience (Henriksen 2013; Rossi Monti 2008; Van Duppen 2016; Stanghellini 2004). Critics have

argued that the main limitation of Jaspers's position is that his psychopathology is built on a largely descriptive foundation, while his notion of understanding refers to the immediacy of the clinical encounter. Contemporary psychopathology, by contrast, has been moving toward a notion of *genetic understanding,* an attempt to trace how delusional experiences emerge from a generative core and then spread across the patient's lived experience and symptoms (Sass 2010; Sass and Parnas 2007).

Alongside this intra-disciplinary development, many scholars have revisited the relationship between explanation and understanding. Their aim has been to show that these two modes of knowledge are far more connected than Jaspers allowed (cf. Fuchs 2014, 82–83; Ratcliffe 2013, 241–243; see also Broome 2004; Parnas and Sass 2008). This has opened the way to interdisciplinary approaches that bring together methods from neuroscience and embodied cognitive science (Mishara and Fusar-Poli 2013; Sass and Byrom 2015; Fuchs 2020; Gallagher 2009; Sass 1992). Thanks to these approaches, important progress has been made in understanding how delusional experiences takes shape, and the boundary between descriptive psychopathology and explanatory psychiatry has grown thinner (Fuchs 2014; Kendler and Campbell 2014). Explanation is increasingly seen as necessary for understanding, and understanding as indispensable for explanation.

Still, the problem of *comprehensibility* remains unresolved, and the distance between explanation and understanding is far from closed. Current integrative theories often try to connect a genetic understanding of delusion with underlying neurobiological changes, but they usually keep the two levels apart (Mishara and Fusar-Poli 2013; Sass and Byrom 2015). Our proposal is that introducing semiotic forms as a mediating layer can help bridge this gap. Semiotics, in our view, can connect the *molar level* of experiential structures with the *molecular level* of neurobiology, making it possible to see how one passes into

the other[2]. With this purpose in mind, we will next examine the main proposals for explaining delusional experience, before outlining our own semiotic integration.

4. Predictive Coding Between Aberrant Salience and the Surprisal Effect

Among the various neurocognitive theories that have attempted to explain delusion, the framework developed around predictive coding and Bayesian models of the mind appears the most promising—both for its closeness to psychopathological description and for its capacity to investigate delusion as a process unfolding between the perceptual and the discursive.

In brief: according to Bayesian theories, the mind is organized as a hierarchical system that uses internal representations of the world to control the agent's behavior. All Bayesian theories rely on the same principle: the mind builds a model of the external world with the aim of minimizing error, thereby reducing informational chaos and allocating cognitive resources more effectively in order to secure advantages. When the world-model succeeds in predicting future states, it is reinforced; when expectations are disconfirmed, it is updated.

At the heart of this theory lies error signaling: when a mismatch occurs at one level, it is passed to the immediately higher level, which either processes it or transmits it upward until the model is revised. From this perspective, cognition as a whole can be understood as a form of *inference to the best explanation*: there is no essential difference between perception and belief, between imagination and action, since all faculties operate by minimizing informational entropy through inferential updating (Frith and Friston 2013).

If Bayesian theory can be described as a general framework, predictive coding (or predictive processing; Piekarski 2021) is the

2 In *The Threshold and the Infinite*, Umberto Eco draws a distinction between molecular semiosis, the endless sub-perceptual and unconscious flux that pervades cognition in its minutest articulations, and molar semiosis, the phenomenological level at which a subject arrests this flux by stabilizing portions of it as shared units of meaning (cf. Eco 2014, 508-530).

specific neurocognitive account that models brain function as a Bayesian machine (Hohwy 2013), examining the interaction of different neural networks. Beyond offering explanations of standard cognition, predictive coding models are widely used to account for psychiatric disorders (Friston *et al*. 2014; Adams *et al*. 2013), with a particular focus on psychosis (Gerrans 2014; Fletcher and Frith 2009; Frith and Friston 2013).

Here, the central idea is that delusion results from a "false" prediction error in the cognitive system's processing of perceptual stimuli—an error mistakenly flagged to higher levels of cognition as a problem requiring resolution (bottom-up). In turn, higher-level cognition must generate a response to an input now marked as aberrant (top-down). On this view, delusion is the cognitive outcome of higher-order elaboration applied to a stimulus that appears salient due to erroneous error signaling. In short, delusion functions as a kind of belief, but one that stabilizes perception (Fletcher and Frith 2009; Hohwy 2004).

This theory has attracted strong interest among clinical phenomenologists, who have often drawn on predictive processing to illuminate what occurs during psychotic phases, even proposing refinements and extensions (Mishara and Fusar-Poli 2013; Nelson *et al*. 2014; Sass and Byrom 2015). At the same time, an increasing number of neuroscientists have turned toward phenomenology to reinforce their models (Gold and Hohwy 2000; Gerrans 2014). What makes this approach especially compelling is its apparent ability to explain both the dynamics of the pre-delusional mood (*Wahnstimmung*) and the sudden transformation whereby a world experienced as emotionally flat and affectively indifferent can abruptly demand urgent attention, prompting an obsessive search for meaning and a suspicious stance towards reality.

Human cognition, in these approaches, is conceived as an integration of different computational systems implemented across distinct neural networks. Many of these networks process information at an automatic and subconscious level, inaccessible to introspection, and are activated in response to stimuli on the basis of their activation

threshold, which depends on the weight of the connections between individual units. All subconscious systems are regarded as automatic and stimulus-dependent (*reflexive systems*); when confronted with an input, they necessarily produce cognitive processing in order to map an output. These networks are also inflexible, in the sense that they have no degrees of freedom or choice, since their informational memory is inscribed in the network itself through the system of weights. They therefore cannot appeal to models of the world not already encoded in their calibration system. This characteristic evolved to favor processing speed, but it also means that when faced with information that is difficult or impossible to elaborate in the hidden layers, a prediction error is generated in the output layer and sent to the immediately higher level in the computational hierarchy for further processing and correction. This error signal is technically defined as a *surprisal* signal.

The system that processes the error is often located at a higher level of the computational hierarchy, called the deliberative system (*reflective system*). This is distinguished from weight-based systems by its degree of independence from the stimulus, by the fact that it produces conscious states, by its greater freedom of choice and flexibility (linked to the fact that it draws on memory inscribed in other systems), and, of course, by its greater slowness. Deliberative systems can be activated on the basis of voluntary control of functions, and therefore do not need a stimulus at the input phase. Moreover, they can produce the activation of outputs in the lower hierarchical levels. This occurs, for example, in imagination: if I imagine an apple, the output of the visual system is activated, generating the image of an apple in the absence of any stimulus in the input layer of the visual network.

When informational states are not predicted by automatic systems, i.e., when there is a mismatch between the system's prediction and the incoming data, a prediction error is generated. This error can then be assigned a salience value by the system through the surprisal effect and sent to the deliberative systems, which have access to a broad database of potential solutions for its correction. The deliberative systems thus generate instructions to revise the error, eliminate

the surprise, and consequently update the system that produced the prediction error. When the surprisal signal reaches the higher centers of the hierarchy, it emerges with a conscious quality of surprise, interest, and salience, ready to be processed through explicit thought.

For predictive coding theories, delusion is located precisely at the level of the transition from subconscious thought to explicit thought, and is caused by an unjustified surprisal effect. That is, a prediction error is signaled where none actually exists, and the signal is transmitted to conscious states, marked by an absolute feeling of surprise that appears to the subject as wholly unjustifiable. Because the error is false, priors are not updated: the problem does not concern the adjustment between prior and input but the system's mislabelling of a correctly realized prediction as an error. The absence of updating allows the surprisal signal to reverberate throughout the computational hierarchy.

Alongside automatic and deliberative systems, computational neuroscience has hypothesized a further system to manage information flow between them, enabling higher centers to focus on tasks deemed most important by the organism's predictive models while disregarding less relevant aspects. This is the *salience system*, which regulates information traffic across the hierarchy by allocating cognitive resources via the surprisal effect. Evolved to promote and stabilize instrumental behaviors (habits functional to maintenance, rewards, and goals), it is identified with the dopaminergic system – rooted in the ventral tegmental area and basal ganglia, extending into posterior prefrontal and limbic areas – and thus linked to both automatic and deliberative networks. In short, it manages the affective value of environmental information: the brain assigns salience values (e.g., "danger", "pleasure") through dopamine production, which also supports prediction and learning.

On this picture, psychotic states appear as disturbances in the salience of perceptual error, cohering with one of the few robust neurological indicators of schizophrenia: excess dopamine (as shown in post-mortem studies Frith and Johnstone 2003). Unsurprisingly, a

leading – though debated – theory traces causal links between psychosis and dopaminergic dysregulation (Kendler 2014). Multiple lines of evidence bolster dopamine's role in the onset and course of psychosis – above all neuropharmacological: antipsychotics suppress dopamine; conversely, substances that induce delusion-like states enhance dopamine and inhibit its reuptake. Neuroimaging also shows dopaminergic dysregulation in schizophrenia: increased dopamine synthesis, greater stimulus-evoked release, and higher synaptic dopamine relative to controls (Davis *et al*. 1991; Reith *et al*. 1994).

Shitij Kapur (2003; 2004), one of the most renowned contemporary neuropsychiatrists, was among the first to demonstrate the strong correlation between dopamine levels, psychotic states, and the aberrant salience of perceptual stimuli. On his account, dopaminergic excess is the cause of aberrant salience processes in perception and the cause of malfunctions in the system of learning and reward.

For Kapur and other proponents of aberrant salience, dopaminergic excess renders normally insignificant stimuli hyper-salient, locking attention onto them and preventing resource reallocation to other tasks or new inputs. At the same time, this dopaminergic excess prevents the reduction of error, even at a top-down level, since it also influences possible predictions, completely monopolizing higher-order cognitive systems (Corlett *et al*. 2009; Corlett 2018). Metacognitive functions in psychosis are poorly allocated, and salience is directed toward wholly idiosyncratic stimuli. Moreover, repeated episodes recalibrate network weights so that even minimal mismatches yield further prediction errors that capture higher-level attention (Corlett 2018).

It is important to stress that this system is not conceived as a double-level process in which a stimulus elaborated at the perceptual level is referred upward to a conceptual level. Rather, it is part of a single system devoted to perception: in predictive coding, higher levels of cognition also intervene to regulate the automatic levels of perception, providing them with data and representations to correct errors. To believe is also to perceive (Fletcher and Frith 2009). Delu-

sion does not emerge as an error of reasoning or conceptualization, but as a problem of error reduction in perception by higher-order centers (Hohwy and Rajan 2012).

The aberrant salience theory seems able to explain many of the phenomena described by clinical phenomenology in the *Wahnstimmung* phase, above all the oscillation between hyper-reality and hypo-reality reported by schizophrenic subjects (Sass and Byrom 2015; Van Duppen 2016). Neutral or marginal stimuli acquire an intrusive, non-negotiable significance (Murray 2011); the environmental background, their own body, their own thoughts – stimuli that are normally kept in the background and not questioned by conscious reflection – emerge with force, monopolizing the attention of the psychotic subject.

This is precisely what we have identified as the threshold between *molar processes* and *molecular processes* underlying the basic semiotic operations. The frustrated attempts of higher-order systems to regulate an aberrant, hyper-salient perception are phenomenologically experienced as a lack of fit between meanings and percepts, as if words and concepts were insufficient to match the experience. Of course, many factors must be taken into account, and different models have been proposed to explain the emergence of delusion in relation to different kinds of irrational experience (Gold and Hohwy 2000): Kapur's model is more suited to explaining how delusion arises from aberrant perception, but other models have been developed for negative symptoms such as the loss of the sense of agency and delusions of control (Frith and Friston 2013), thought insertion (Gerrans 2014), delusions of identification, and paranoid delusions (Fletcher and Frith 2009; Corlett *et al*. 2009).

The aberrant salience theory thus seems perfectly capable of explaining, on a precise explanatory level, what happens in the brain during the prodromal phases of schizophrenia – from altered perception and cenesthesis to feelings of wonder, to the fragmentation of *Wahnstimmung*. Likewise, it helps us explain how delusional content emerges as a form of content functional to perception (Fletcher and

Frith 2009). Delusion, in this sense, is formulated in order to perceive; in semiotic terms, we might say that hyper-salient stimuli in the perceptual field demand stabilization through *a process aimed at producing a meaningful narrative that can regiment the entropy of meaning*.

5. The Role of Imagination and the Default Mode Network

In predictive-coding theories, the higher-level system responsible for perceptual regulation is usually identified as the system of beliefs (Fletcher and Frith 2009). Yet predictive-coding accounts differ markedly, and disagreements persist both at the level of general theory and in their application to psychosis[3]. Within this debate, Philip Gerrans (2014) advances a contrary view that conceives delusions as a non-doxastic phenomenon. Thoughts triggered by sensory processes, he argues, are not abductive hypotheses generated by a rational, law-governed procedure comparable to empirical theorizing. We tend to mistake delusions for beliefs because they are expressed linguistically and thus read through a truth-conditional semantics. But what looks like a belief need not be one. A delusion is better understood as a narration, a story that need not be true but functions as a schema for making sense of anomalous cognitive experience (cf. Gerrans 2014, chaps. 6–7).

To support the non-doxastic thesis, Gerrans draws on neuroimaging studies showing that, during cognitive tasks, patients with schizophrenia exhibit hypoactivation in the dorsolateral prefrontal cortex (DLPFC) and hyperactivation in the ventromedial prefrontal

3 Fletcher and Frith (2009), and Frith and Friston (2013), argue that delusions arise because prediction errors occur not only in automatic perceptual and proprioceptive systems but also in higher-level networks. The mismatch propagates up the computational hierarchy to supervisory stages that fail to constrain it; beliefs are then issued by highest order systems, which fix them as indubitable certainties. By contrast, Corlett (2018) explains the persistence of delusional belief in terms of cognitive biases, especially the *jumping-to-conclusions bias* (Bentall 2018). Hohwy and Rosenberg (2005), emphasizing the experiential basis of delusion, propose that a *prepotent doxastic* response escapes inhibition: the delusional stance carries affective–interoceptive qualities akin to beliefs about one's emotional states and biological needs, which lends it the character of indubitability.

cortex (VMPFC) relative to controls (Whitfield-Gabrieli *et al*. 2009). The DLPFC is typically associated with concentration and executive control: the more abstract and logical the task, the stronger its activation. Normally the DLPFC is anticorrelated with the VMPFC, such that activation of one inhibits the other. In schizophrenia this anticorrelation is reduced: the DLPFC – usually engaged by attention-demanding tasks – is underactive, while the VMPFC – usually active when the system is not engaged in stimulus-driven tasks – is overactive (Whitfield-Gabrieli and Ford 2012).

Further findings indicate that (a) even at rest, VMPFC regions show greater functional connectivity in schizophrenia, and (b) VMPFC hyperconnectivity correlates with psychotic-symptom severity (Whitfield-Gabrieli and Ford 2012).

In the broader literature, these networks are grouped into larger systems. The DLPFC belongs to what Gerrans calls the Decontextualized Processing System (DPS), recruited for high-level, evaluative reasoning about abstract, decontextualized content. The VMPFC is a core component of the Default Mode Network (DMN), which is normally anticorrelated with the DPS. The label "default mode" derives from the view, current at the time of its identification (Raichle *et al*. 2001), that the DMN was active when the brain was "at rest", supporting activities such as daydreaming and mind-wandering, functioning like a mental screensaver (Buckner *et al*. 2008).

This view has changed. The DMN is also recruited by certain goal-directed conceptual tasks, with a special role in action planning, and it is essential for autobiographical memory, reflexivity, appraisal of one's emotions, narrative comprehension, prospection, and episodic recall (Andrews-Hanna 2012). In short, the DMN activates with imagination, both for fictional scenarios (mind-wandering, daydreaming, understanding stories and films, imagining the future) and for first-person life experience (autobiography, episodic memory, emotions, action planning) (Abraham 2016).

Gerrans's central claim concerns the DMN's position in the predictive mind: the DMN supervises lower, automatic levels, while

itself being supervised by higher-level DPS circuits that evaluate its imaginative products. Put simply – and bracketing feedback loops – the DMN generates imaginative simulations, based on past experience and general knowledge, in response to inputs from automatic systems (perception, proprioception, interoception). It elaborates these into narrative formats that are not guaranteed to be accurate, publicly acceptable, or true. These outputs are then passed to the DPS as hypotheses about the world or the causes of experience. The DPS may confirm them either because they are good enough for action or because they appear plausible under abstract, logical evaluation against semantic memory. Once confirmed, the individual can adopt the perspective and act accordingly.

Confirmation and adoption are cognitively costly: the DPS must decontextualize the narrative fragment and compare it with stored knowledge. This requires resource reallocation: salience shifts, dopamine is released, the DPS is activated, and the DMN is inhibited. Anticorrelation, on this picture, reflects efficient resource management.

In summary, the DMN (a) supports imaginative simulation; (b) contributes to the personal, autobiographical narratives; (c) shapes perception by supplying higher-order predictions to correct lower-level errors; and (d) is supervised by – and anticorrelated with – decontextualized processing circuits.

With respect to schizophrenia, studies reviewed by Whitfield-Gabrieli and Ford (2012) indicate an abnormal allocation of resources favoring the DMN, with a consequent inhibition of the DPS. Gerrans explains this by claiming that, in delusion, the DMN is monopolized by the salience of prediction error. It therefore explores every imaginative variation to address problems arising in automatic processing tied to specific perceptual and proprioceptive stimuli (cf. Gerrans 2014, chap. 7). At the same time, hyperactivation of the DMN minimizes activity in its anticorrelate, the DPS, which would otherwise evaluate imaginative products; as a result, the DMN is free to generate narratives that are implausible and at odds with the domain of belief.

Delusions arise when default cognitive processing, unsupervised by decontextualized processing, is monopolized by hypersalient information (Gerrans 2014, 38).

In sum, schizophrenia presents a chronic hyperactivity of imaginative centers while deliberative control is relatively inhibited; default processing produces vivid, under-contextualized interpretations that appear compelling to the subject, yet overall implausible – hence their non-doxastic status. On this view, the psychotic brain is hyper-imaginative and hypo-evaluative. The theory is fascinating for us because it offers neuroscientific explanations for phenomena described by phenomenological psychopathology without invoking the concept of belief [4]. Delusion appears as a narrative construction aimed at resolving a perceptual problem – a recalibration of experiential meaning driven by a disturbance in the salience structure of the perceptual field. Framed this way, the theory is a strong candidate for grounding the "special significance" identified by phenomenological analyses; the remaining task is to integrate it into a theory of delusion without reducing the phenomenon to mere prediction-error glitches in the brain.

6. Predictive Mind, Meaning and Narrativity: A Cognitive Semiotic Theory of Perception

At first glance, Gerrans's theory adopts a thoroughly internalist stance: disorders of perceptual salience and of the dopaminergic system are treated as the cause of delusion. Delusional experience is caused by neurological problems. At the root of experiential alteration and changes in meaning lies the brain as a representational system that generates cognition. Such a framework is first of all theoretically incompatible with both a cognitive semiotic approach (Paolucci 2021)

4 Gerrans himself emphasizes the convergence of his account with Sass' (cf. Gerrans 2014, chap. 9), and Sass has likewise argued that Gerrans's theory may be of value to psychopathology (Sass and Byrom 2015). Moreover, in their review, Feyaerts and colleagues (2021) classify Gerrans's proposal among phenomenological approaches to delusion.

and a phenomenological one (Fuchs 2018; Gallagher 2024). Perceptual meaning (whether in the general population or in psychotic disorders) is conceived essentially as an internal representation linked to a sequence of functional stages. This is far from the idea, shared by semiotics and psychopathology, that meaning is the emergent result of a relation between body and environment, a way in which the human animal inhabits the world. We therefore need to place Gerrans's theory within a non-reductionist framework able to account for delusional meaning as a product emerging from multiple factors, where the brain performs only part of the work of sense-making. The aim is not to use his account as an all-purpose explanation, but to consider the brain in its dynamic interaction with body and world, from an enactive perspective. On this view, the brain does not create a world and does not represent an external model for action; it is a mediating organ in the causal interaction between body and world (Varela *et al*. 1991; Fuchs 2018). The brain should be understood as one of the biological conditions for the emergence of cognition, not as its cause. It bears the traces of our interactions with the world and stands in a dynamic relation to our internal bodily states and to the environment we inhabit. It is a site where meaning condenses and is transformed, not the mechanism that generates it. Enactivism does not treat the mind as a closed system of representations, but as the dynamic result of an organism's interactions with its physical, social, and cultural environment.

For these reasons, predictive coding and enactivism have long been seen as hard to link. In recent years, however, debate within the enactivist tradition has explored points of contact. The goal is not to adopt predictive coding wholesale, but to reformulate some of its principles within a non-reductionist outlook that holds together predictive dynamics and the idea of cognition as a distributed process (Bruinenberg *et al*. 2018). In this context, Gallagher and Allen (2018) introduced the notion of *predictive engagement*, a dynamic adjustment in which the brain, as part of and together with the whole organism, responds actively in ways that enable continuous attunement to the environment – an environment that is physical as well as social and

cultural (Gallagher and Allen 2018, 2634). It is not an internal process aimed at error correction; it is an enactive involvement distributed across body and world. From this perspective, predictive activity is not reducible to representational calculation, but to a cycle of anticipations and corrections that takes shape in embodied action and perceptual practice. Recently Bacaro (2025) has identified four theoretical points at which predictive coding and predictive engagement diverge, which are useful for reintegrating Gerrans's theory into a broader framework:

a) *Prediction error*. In the computationalist model, minimizing error is the brain's primary aim. For predictive engagement, the very notion of error must be rethought: it is not a discrepancy to be eliminated, but the dynamic of adjustment inherent in sense-making. The organism does not remove errors; it moves within a flow of expectations and evaluations that are always situated and pragmatic.

b) *View of the world*. Predictive coding tends to conceive the world as a sequence of discretizable states that the agent must recompose through internal models. Kirchhoff (2015) shows how this view reduces experience to already segmented data from which the mind must extract meaning. Enactivism rejects this approach (Varela *et al*. 1991): the world is brought forth with affordances, possibilities for action that are locally configured in relation to an organism's phylogenetic capacities and interactional history.

c) *Origin of meaning*. In predictive coding, perceptual meaning is produced by the inferential activity of internal models structured by Bayesian rules. Predictive engagement proposes a different reading: meaning is not added ex post to input but emerges on the way from embodied action. Sense-making both generates meaning and is shaped by it. Hence every perceptual moment is already meaningful for the agent – not as a conceptual representation, but as a practical orientation. As Bruinenberg and colleagues (2018) put it, action does the

work of minimizing surprise: actions change the organism's relation to the environment, thereby changing its sensory states.

d) *Role of priors*. In the computationalist framework, priors are conceived as propositional beliefs (cf. Hohwy 2020, 216), located at higher levels of the cognitive hierarchy and guiding input evaluation from above. In enactivism, by contrast, priors are ecological and embodied: not abstract representations, but bodily and sensorimotor dispositions sedimented in a subject's affective and interactional history. Gallagher and Allen (2018) speak of anatomically informed priors, explicitly including affects. Allen and Tsakiris (2018) emphasize that the body itself constitutes the first prior, shaping perception and action in a constitutive way.

These differences show that the notion of prediction changes substantially. It is no longer an inferential mechanism for reducing discrepancies, but an embodied disposition that orients interaction pragmatically. Expectations do not derive from conceptual models, but from embodied habits activated in concrete situations, laying out tried-and-tested courses of action and giving the agent pragmatic, normative criteria for evaluating the effectiveness of interaction. In short, predictive engagement does not abandon the vocabulary of prediction; it transforms it. Prediction is not an internal brain computation but an embodied, distributed, action-oriented activity. It describes how living organisms maintain a precarious equilibrium with their environment, generating meaning through concrete practices of sense. Framed this way, the theory offers an alternative to computationalist versions of predictive coding while retaining the idea that cognition is a process of anticipation and continuous adjustment, rooted in embodiment and in real interactions that make a cognitive organism what it is.

Within this framework lies Paolucci's semiotic theory (2021), grounded in Koenderink's (2010) Goethean account of perception. Paolucci's core claim is that perception is never a predictive elaboration on optical data, but the productive operation of our organism at

a microgenetic level, thanks to perceptual *Gestalten*. For Paolucci's cognitive semiotics there is no already-given data; there is a starting point that depends on the organism's interaction with its environment. Sensory data should not be understood as raw inputs on which to unleash the predictive power of the cognitive system; they are already the result of a meaningful encounter with the environment, guided by the imaginative function that produces *figurations* through interaction with the world. It is as if our perceptual system continuously produced imaginative figurations of the surrounding environment, which are then mediated by encounter with reality: hence the terms "controlled figuration" or "controlled hallucination" (Koenderink 2010).

Perception is not a movement from outside to inside; it is a projective field of the organism that overlays its environment with endowments of sense. For Paolucci, perception is a form of hallucination[5], since it amounts to the control of the organism's imaginative capacity by a reality that offers pragmatic resistances to which the imaginative system adapts and conforms. This brings out the proactivity of organism and brain in *constructing*, *selecting*, and *making pertinent* the elements of the surrounding world - properties that emerge from the dynamism among body, brain, and world emphasized by enactivism. We do not perceive environmental data; we perceive how the world responds to our system of expectations, that is how our perceptual wagers, always projective thanks to imagination, meet a reality that either favors or blocks our projections of meaning. Our need to signify and make sense of the world drives the selection of stimuli from the microgenetic phases of perception onward, among all the signals striking

5 In this view the notion of hallucination is used metaphorically: «I mean the morphological activity of the production of forms by the imagination, which remains crucial both when it is not controlled by the world—as in the case of hallucination, imagination or dream— and when it is controlled by the world, as in the case of online perception. Maybe, the word "hallucination" can be misleading, since perceptual phenomena under the aegis of hallucination may seem to lose the concreteness that I want to characterize them as having. It is possible that "figuration" would fit better with the ideas I will develop here, since no Sartrean "derealization" is involved (see Matteucci 2019)» (Paolucci 2021, 127).

the retina, made tractable by the diagrammatic rules that structure our engagement with the world. There is thus a selection of worldly data that become *cues* for action.

For Paolucci, this selection interacts dynamically with the organism's history of environmental interaction and with its system of expectations: each organism looks in the environment for figures that answer to its goals and needs that he calls *clues*. Perception is this process in which environmental information is selected to provide figures and, in parallel, through imaginative capacity, the figures selected allow us to seek and construct the data we need. There is a continuous reciprocal transformation between *cues* and *clues*:

> The couple "cue" and "clue" is a key one for a cognitive semiotics perspective on perception. "Cue" often means "signal for action", or "a hint or indication about how to behave in particular circumstances" or "a piece of information or circumstance that aids the memory in retrieving details not recalled spontaneously". This latter meaning is related to that of "clue", "a piece of evidence or information used in the detection of a crime or solving of a mystery", or "a fact or idea that serves as a guide or aid in a task or problem". This meaning is of interest not only because it connects us to narratives and to semiotics, but because it hints at the fact that cues are selected. This is also true of perception, since in some way the organism "selects" certain cues and "ignores" others. […]. The observer selects optical structure and promotes it to cue status and then turns cues into clues, in order to build a coherent whole. This double action—a doing, a diagrammatic manipulation—turns optical structure into meaningful data […] We look for figures, so we create cues, but we create cues because we look for figures; it is a perfect autopoietic dynamical system. Brains cannot wait, they act before they know what to do and what they are doing is not to construct a correct image of the stimulus. What they are doing is trying to act efficaciously (Paolucci 2021, 151-152).

Such transformation, mediated by the faculty of imagination, is tied to a central concept in the semiotic tradition: *narrativity* (Greimas 1975; Brandt 2007). From a semiotic perspective, narrativity is a *gestalt*, a deep structure that schematizes experience so it can bear meaning. It is not the form of the story as such, though it can be traced

through narrative analysis; rather, it is the general mode by which a subject confers sense on experience. We encounter narrativity across texts, practices, and interactions wherever meaning is attributed. This is possible precisely because narrativity is the form that organizes *transformations of meaning* (Paolucci 2012). For this reason, semiotic narrativity should not be taken either as a property of linguistic stories or as the imaginative creation of a story. It is the cognitive function that enables both linguistic stories and story-like imaginings by establishing a form that can be endowed with meaning.

> Briefly, narrativity is a processual form of interrelated positions organised in a suitable and stable way beyond the superficial variations characterising any single story. According to semiotics, narrativity is not the story, but the structure of positions that gives shape to the story and embodies in it. [...] For semiotics, narrativity is a morphology with a regular pattern that structures meaning and experience (112-113).

In this view, narrativity functions as an *interface*: the form that shapes experience through meaning. It mediates between phenomena and meaning, providing the only route by which we can pick out patterns in phenomenological experience and interpret them as tokens of a given type. It is, in short, the form of all sense-making.

We can now see that the mediating function between cues and clues – between percepts and their placement within an action-oriented framework – which Paolucci's cognitive semiotics assigns to narrativity, closely resembles the imaginative function attributed to the DMN in Gerrans's theory. In both cases, a narrative form serves to limit prediction error by supplying schemata of intelligibility for a perceived situation. Yet the two accounts diverge on several fundamental points. For Gerrans, imagination is a cognitive capacity that combines representations drawn from episodic memory. By contrast, for Paolucci, narrative imagination is a capacity of the organism as such to project sensible action-schemata acquired in enactive engagement with the world. In Gerrans's model, it is, in a sense, a ready-made, pre-packaged narration that allows a perceptual token to be subsumed

under a type; in Paolucci's model, it is a form in continual revision that enables one experience (a token) to be read in light of the form of another experience previously lived (another token). The task now is to show how the experiments on which Gerrans bases his hypothesis can be reinterpreted in light of a semiotic theory.

7. Semiotizing the DMN

It is worth noting that Gerrans's notion of imagination already lends itself to an enactivist reading (cf. Hutto and Myin 2017, 182): the "representational" status he invokes is better described as a simulative reenactment of perception than as a representation with determinate semantic content. The point, however, is to clarify the precise role the DMN plays in this picture.

In the current literature, the predominant interpretation of the DMN is that it is a powerful system for producing mental simulations that organize past experience and anticipate future events in the absence of immediate environmental input (Buckner *et al*. 2008). These simulations take the form of self-projection into meaningful models of the self and its relations to the world (Buckner and Carroll 2007; Raichle 2015). This view is supported by evidence that the DMN is not only the largest neural network in the human brain, but is also present in other species, including monkeys, cats, rats, and mice. It is therefore plausible to assume that the DMN's cross-species function is to integrate sensory and affective information in order to generate behavioral simulations and plan actions for coping with future environmental change.

The DMN can thus be understood as a simulator that uses information from the past to predict the future (cf. Gerrans 2014, 70). Such simulations are not necessarily linguistic; they can also be construed as simulative reenactments of perceptions and actions (ivi). Even when they are not propositional, these DMN-related simulations are often described as imaginative forms with a narrative structure (Carroll 2020; Gerrans 2013; Corballis 2014). Approaches that frame the DMN in this way emphasize its central role in Mental Time Travel and

Mental Space Travel (Suddendorf *et al*. 2009; Carroll 2020; Ferretti 2022). These capacities are shared by many mammals but are especially developed in humans, who can project themselves into the future to plan context-sensitive decisions on the basis of past experience. The network is also strongly implicated in social cognition, including mindreading, reflection on others' emotional states, and the perception of social isolation (Spreng *et al*. 2020). It is therefore unsurprising that recent work highlights associations with mirror-neuron circuits in face-to-face interaction (Molnar-Szakacs and Uddin 2013; Li *et al*. 2014). On this basis, several theorists link the DMN not only to time travel and imaginative simulation but also to perspective-taking—the capacity to adopt another's point of view (Carroll 2020; Ferretti 2022). Overall, the DMN's predominance appears tied to a narrative mode of cognitive organization that integrates perception, memory, motivation, emotion, and social cognition (Sambuco *et al*. 2022).

This interpretation, however, raises problems that call for a broader philosophical framing. If the DMN subserves mental time travel, perspective-taking, and narrative simulation, what exactly is its cognitive status? What does a nonlinguistic narrative simulation amount to (Gerrans 2014; Hutto 2016)? What is meant by an imaginative representation with semantic content that precedes language (Corballis 2014; Ferretti 2022)? As commonly formulated, "narrative brain" theories risk over-locating narrative mechanisms in specific brain areas whose activation is said to construct representations in narrative format. The resulting picture is a network that gathers representational fragments stored elsewhere and composes scenarios for subsequent self-projection (Ferretti 2022). Is this the right path? In what follows, I argue that we can preserve the idea that the DMN contributes to the narrativization of experience without reducing narrativity to the imaginative internal production of stories.

A recent article by Yeshurun, Nguyen, and Hasson (2021) points in this direction. They propose that the DMN is a dynamic network integrating information across wide temporal scales. Research on its function during extrinsic (task-positive) activity has grown sub-

stantially. On their account, the DMN is not a purely intrinsic system active only during stimulus-independent tasks, but a network that helps regulate responses to external stimuli. Its subregions alternate between extrinsic and intrinsic modes, acting as a condensation space that integrates extended-timescale sensory inputs with stored intrinsic information. For example, the DMN is crucial for narrative comprehension—whether the narrative is written, seen, or heard—and appears to be activated independently of the expression plane. Its role is tied to interpretive work which, especially under narrative ambiguity, recruits other networks to regulate and facilitate the processing of extrinsic signals. This extrinsic role, in turn, reframes how the DMN operates intrinsically: rather than producing representations, it functions as an integrator through schematization. It supports the construction of situational schemas that are then deployed across cognitive functions. The DMN is activated, for instance, at plot twists or when new information changes an event's interpretation.

Strikingly, Yeshurun and colleagues report that DMN activation patterns are shared among participants who converge on similar interpretations and diverge among those who do not. DMN activity varies not only with internal stimuli (prior beliefs, memories, behavioral and conceptual schemas, personal narratives, emotions, motivations, bodily states) and external stimuli (contextual cues, actions, narrative texts, salient environmental inputs), but also during social situations (group decision-making, dialogue, embodied interaction, storytelling and listening). Another key finding is that interlocutors' brains tend to synchronize in the DMN during social interaction, modulating one another's responses. Interaction with others and with the world thus plays a decisive role in DMN activation. On this view, the DMN is the locus where inputs from self, body, world, and others are dynamically integrated—the place where individual imagination meets the social world. It operates as a «sense-making network» (Yeshurun *et al*. 2021, 187): a neural space activated when prior knowledge meets external stimuli, whether by confirming or by violating expectations that the brain continuously generates and updates. This schematic characteri-

zation of DMN function brings it close to the semiotic notion of narrativity and its relation to imagination. In particular, the DMN appears to map activities linked to the semiotic functions that Eco, in *Kant and the Platypus*, called imagine1 and imagine2.

> Let us grant therefore that the Imagination, whatever faculty or activity it may be, provides the intellect with a schema, so that it can apply it to the intuition. Imagination is the capacity to represent an object even without its being present in the intuition (it is "reproductive" in the sense that we have called to imagine1), or it is synthesis speciosa, productive imagination of a species, figure [imagine2] (Eco 1999, 82).

For Eco, imagination is a schematizing capacity that operates both in non–task-oriented activities, such as mind-wandering, and in task-oriented ones, such as interpreting a plot twist, where the subject must imagine or figure new relations to make sense of a situation. The structure of this imagination is what semiotics calls *narrativity* (Paolucci 2010). The fact that the DMN shows comparable activation across identical situations presented in different expressive formats accords with the semiotic claim that narrativity, is the form of meaning independent of the formats in which it is expressed. Conceiving the DMN as an integrating mechanism that gathers intrinsic and extrinsic data and organizes them on a single temporal scale is therefore close to the semiotic notion of narrativity as a purely topological gestalt, whose positions are to be filled by meanings drawn from different domains of experience and knowledge. Finally, the fact that intersubjectivity modulates DMN activation during interactional exchanges also aligns with the semiotic perspective: narrative competence is present in very young children and enables them to shape interactions by taking up an actorial role within a positional field described as *actantial* (Violi 2012; Paolucci 2019). Because actantial positions can be occupied by different actors, humans develop the capacity to adopt others' perspectives, to engage in role and pretend play, and to deceive by constructing possible worlds (Paolucci 2021). If we attribute this cognitive skill to DMN activation, we may say, following Yeshurun and

colleagues (2021), that it is the sense-making network *par excellence*.

Moreover, the semiotic notion of narrativity converges with evolutionary approaches that ascribe narrativity to the DMN (Corballis 2014; Carroll 2020; Ferretti 2022), yet departs from them in virtue of its purely formal character and its independence from mental representations with determinate content. Semiotic narrativity is not defined by semantic content but by what semiotics calls a *form of content* (Eco 1973): a gestalt through which the human organism traces a pattern in experience that is eligible for semantic interpretation.

This view prevents us from taking narrativity to be an intracranial function located solely in the brain. It is an emergent property of human cognition, distributed across the interactions between organism and environment. Rather than a representational format, it is a mode of action (Paolucci 2021). Linking the DMN to this modality does not reduce narrativity to a brain function; it helps to identify one element that contributes to such activity. A semiotic approach to cognition treats the brain as one of the biological conditions for the emergence of cognition, not as its sole cause, which lies instead in the dynamic interaction among body, brain, and environment (ivi), or, if one prefers, among *Leib, Körper,* and *Umwelt* (Fuchs 2018). The DMN is a site where meaning condenses and is reworked. It should therefore be conceived not as the producer of narrativity, but as one element in the imaginative operation performed by embodied, encultured organisms. In sum, for cognitive semiotics, to study the DMN is to study how the brain contributes to the human form of sense-making.

The relationship between the DMN and semiotic narrativity, as sketched here, also reframes how we interpret DMN alterations in psychopathology. On this account, abnormal brain activity is not a mere dysfunction of internal mechanisms but a sign of a disturbed meaningful relation to the world (De Haan 2020). For example, Paolucci's semiotic theory, which frames autism spectrum disorders as a problem of intersubjective narrative organization (Paolucci 2019), could find solid experimental support in DMN studies showing hypoactivation in regions tied to social cognition (Harikumar *et al*. 2021; Bathelt and

Geurts 2021). Likewise, schizophrenic delusions may be understood by relating DMN disturbances in prefrontal areas during task-related activity (Whitfield-Gabrieli and Ford 2012) to an aberrant, crystallized narrativization of experience that blocks the individual's projects and condemns them to a single mode of sense-making. Let us now briefly outline what happens to the dimension of meaning in the development of delusional perception.

8. Delusion as a Semiotic Resolution

If we follow the phenomenological literature on the genesis of delusion, the first step into delusion is described as a change in experiential atmosphere, an interruption and discontinuity in the flow of meaning within ordinary experience. This phase has been labeled in many ways: *Wahnstimmung*, pre-delusional atmosphere, *trema*, experience of the end of the world, and so on. Patients' reports describe it as a kind of sacred terror, a trembling akin to stage fright.

> "Wherever you are looking, everything looks unreal".
> "People look confusing… they are almost like they're made up… People that I know… have masks on or they're disguising themselves. It's like a big play… like a big production story" (Fuchs 2005, 38).

The experiential field is traversed by feelings of unease, anxiety, surprise; everything seems to emanate strange, hidden meanings that cannot be coded. Fuchs calls this phase a loss of familiar meanings (Fuchs 2015), naming the loss of contact with the habitual layer that sustains experiential meaning. Everything appears new despite being already known. Alongside this disturbance in sign recognition, there is a liquefaction of the ways in which experiential sense is ordered and given form. For Jaspers, this is a phase in which meaning is interrupted, but Callieri (1998) already noted that the problem manifests itself in the impossibility of finding a narratological order for the ongoing experience: the pre-psychotic subject cannot frame experience within a linear, ordered development, while transformations of meaning proliferate without order. In semiotic terms, this does not mean that

sense disappears; rather, it is unleashed, without signifying processes capable of regimenting and stabilizing it (Basso Fossali 2009). What is missing is an ordering schema through which to read a hyper-salient world. This is the moment when the dopaminergic system produces a surprisal effect that no imaginative action manages to contain.

Experience is thus charged with affective tensions marked by anxiety, and the world takes on the hues of hypo-reality because it no longer rests on a stable background of domesticated meanings: the unquestioned background of experience invades the field with a secret allure (Conrad 1958). Within a cognitive semiotic approach (Paolucci 2021; Lobaccaro 2022), what emerges as new in the perceptual field usually becomes salient precisely because it detaches from a background of perceptual and action regularities. It is the unquestioned background of beliefs that allows the emergence of something new and its reintegration into a narrative schema of sense. If that background collapses, the perceptual field is occupied by events that are equally salient and marked as novel, generating a form of undecidability about paths of meaning within experience. The primary phase of schizophrenic experience thus appears to consist exactly in a crisis of salience: everything is new and doubt about reality is radical. There are no stable sense and no orienting narrative paths. In short, the background of habitual regularity no longer anchors the emergence of new meaning.

This leads to a second phase, in which imaginative components manage to bring the pre-delusional experience to a head. This is the phase in which DMN hyperactivation is observed. As a body within a now hyper-salient environment, the psychotic subject must find a meaning capable of domesticating his or her lived experience: the world seems to invade with mysterious meanings (Conrad 1958), and the subject finds themself in a body with a weakened sense of agency, experienced as object-like and mechanical (De Haan and Fuchs 2020). The background of perceptual habits no longer anchors perception; the subject cannot avoid the feeling of facing a riddle to be solved, and everything seems like a sign to be deciphered. It follows that only by

constructing a signifying surface—by electing a plane of expression that carries a plane of content—can the delusional subject address the perceptual problems at hand. At this juncture the lived experience is taken as the plane of expression of a sign whose form must be brought into proportion with other forms known and knowable within the subject's culture: a form capable of receiving a content that explains what is happening. The lived experience must become the sign of something else.

The outcome of this operation is indeed a delusional narrative, but above all a schematization that allows the schizophrenic subject to stabilize perception: through an abduction (Eco 1999), the diffuse unease with the world is stabilized by a delusional narrative that could describes reality in a certain way, even if implausible. In Conrad's analyses, this phase is called Apophany: the schizophrenic subject experiences it as a revelation. The subject undergoes the so-called Aha-Erlebnis (Conrad 1958), which bursts in with an abnormal consciousness of meaning (Jaspers 1963). The subject's entire world becomes privatized and closes in on a narrativization that views reality as referring to the subject. A rule must be found to domesticate the experience as it unfolds, through a perceptual judgment, a story that turns cues into clues and restores order of meaning where there seemed to be none. This is precisely the function of semiosis in perception as identified with narrativity by cognitive semiotics (Paolucci 2021; Basso Fossali 2009): the capacity to select environmental stimuli and organize them into meaningful patterns, an operation in which imagination transforms salient environmental stimuli into elements organized within a story that presents—or figures—a possible world. The delusional subject must find a plausible schematization of a wholly new experience that may encompass the entire experiential field. It stands to reason that the resulting belief is as bizarre as the experience that produces it—except that the former can frame the latter within a regime of sense.

In short, the delusional narrative should not be thought of as a form of elaboration upon perception, but as a form of organization of

perception. The narrative that takes shape is not functional to conceptualization but to what semiotics and aesthetics call the perceptualization of the field (Basso Fossali 2009; Matteucci 2019; Paolucci 2021). The result is the creation of a genuinely delusional reality in which the schizophrenic subject is immersed (Gallagher 2009), quasi-solipsistically (Sass 1994) and outside the horizon of common sense (Fuchs 2020).

Clearly, these processes cannot be seen as abrupt, clean-cut shifts; rather, they oscillate. The delusional atmosphere can persist for a long time in circumscribed episodes, while apophany can display varying degrees of intensity and depends closely on the type of delusion that takes hold. This phase also recurs over time, and the delusional belief is adjusted across episodes.

The final phase is the same, however: the delusion stabilizes and assumes a stereotyped form. The interpretive effort becomes autonomous and becomes part of the priors that enable the establishment of delusional perception—that is, it becomes a new interpretive habit. The reason is straightforward and can already be traced to Peirce's theory of the fixation of belief (CP 5.372–373): the state induced by hyper-salience is extremely dysphoric and disturbing, the very state of doubt; the delusional belief, by contrast, is strongly euphoric because it calms the flow of sense. Once experiential indeterminacy has been domesticated – once a key to the world has been found—the delusional subject can build a protective space, and does so by appealing to experiential judgment: the elaboration of a belief that passes through verbalization and the linguistic translation of a regularized experiential field. The recurrence of delusional experiences means that the delusional narrative becomes, in a sense, the background of habits that regulates psychotic episodes, so that they no longer appear as new and become, to some extent, manageable.

This idea is strongly corroborated by interviews with schizophrenic patients showing that the development of the delusional belief is accompanied by relief, «a cleansing of the anguish that accompanies the pre-delusional experience» (Rossi Monti and Piazzalunga

2010, 16). Studies of cognitive performance in delusional patients point in the same direction: although delusions are typically cast as paradigms of irrational belief, they in fact confer substantial epistemic advantages for schizophrenic patients by providing cognitive offloading and learning rewards, while supporting emotional stability (Bortolotti 2020).

On this approach, the delusional narrative plays a decisive role in schizophrenic signification and enables the reconstruction of a universe of meaning that is falling apart. What at first glance appears to be a senseless narrative is in fact a fundamental semiotic dimension which, through a perceptual judgment, takes root within the subjects' original beliefs and can be expressed linguistically. However alien and isolated from the belief system it may be, such a narrative serves as a possible hinge for a sense that tends toward disintegration. It is the result of a mutation of meaning that involves, first of all, a mutation of the interaction among body, brain, and world, and that relies on the faculty of imagination and the narrative forms through which we make sense of chains of actions and passions, so as to serve as a «rule of reality» (Artaud 1956-1957, 208). To trace the trajectories of this special meaning, we must explain what happens to the living body, listen to what happens to the lived body, and examine the ways in which both acquire sense within a world of signs.

References

Abraham, A. (2016), *The imaginative mind*, in «Human Brain Mapping», 37(11), 4197-4211.

Adams, R. A., Stephan, K. E., Brown, H. R., Frith, C. D., Friston, K. J. (2013), *The computational anatomy of psychosis*, in «Frontiers in Psychiatry», 4, 47.

Allen, M., Tsakiris, M. (2018), *The body as first prior: Interoceptive predictive processing and the primacy*, in M. Tsakiris, H. De Preester (eds.), *The Interoceptive Mind: From Homeostasis to Awareness*, Oxford University Press, 27-45.

Andrews-Hanna, J. R. (2012), *The brain's default network and*

its adaptive role in internal mentation, in «The Neuroscientist», 18(3), 251-270.

American Psychiatric Association (2013), *Diagnostic and Statistical Manual of Mental Disorders*, American Psychiatric Publishing.

Artaud, A. (1956-1957), *Dossier de Artaud le momo (aliénation et magie noire)*, in *Œuvres Complètes*, vol. 12, Gallimard.

Bacaro, M. (2025), *Tu, Robot: Verso Nuovi Modelli di Interazione tra Umani e Robot*, Doctoral dissertation, PhD Program in Philosophy, Science, Cognition, and Semiotics, XXXVII cycle, Alma Mater Studiorum – University of Bologna, https://amsdottorato.unibo.it/id/eprint/10524/.

Ballerini, A. (2002), *Patologia di un Eremitaggio: Uno Studio sull'Autismo Schizofrenico*, Bollati Boringhieri.

Basso Fossali, P. (2009), *La Tenuta del Senso: Per una Semiotica della Percezione*, Aracne.

Bathelt, J., Geurts, H. M. (2021), *Difference in default mode network subsystems in autism across childhood and adolescence*, in «Autism», 25(2), 556-565.

Bentall, R. P. (2018), *Delusions and other beliefs*, in L. Bortolotti (ed.), *Delusions in Context*, Palgrave Macmillan, 67-96.

Bortolotti, L. (2020), *The Epistemic Innocence of Irrational Beliefs*, Oxford University Press.

Brandt, P. (2007), *On consciousness and semiosis*, in «Cognitive Semiotics», 1(1), 46-64.

Broome, M. R. (2004), *The rationality of psychosis and understanding the deluded*, in «Philosophy, Psychiatry, & Psychology», 11(1), 35-41.

Bruineberg, J., Kiverstein, J., Rietveld, E. (2018), *The anticipating brain is not a scientist: The free-energy principle from an ecological-enactive perspective*, in «Synthese», 195(6), 2417-2444.

Buckner, R. L., Andrews-Hanna, J. R., Schacter, D. L. (2008), *The brain's default network: Anatomy, function, and relevance to disease*, in «Annals of the New York Academy of Sciences», 1124(1),

1-38.

Buckner, R. L., Carroll, D. C. (2007), *Self-projection and the brain*, in «Trends in cognitive sciences», 11(2), 49-57.

Callieri, B. (1998), *"Wahnstimmung" e perplessità: la sospensione di significato tra gli esordi del delirare schizofrenico*, in G. Di Petta, B. Callieri (eds.), *Il Mondo Sospeso: Fenomenologia del Presagio Schizofrenico* (2ª ed.), Edizioni Universitarie Romane, 2017, 189-197.

Carroll, J. (2020), *Imagination, the brain's default mode network, and imaginative verbal artifacts*, in J. Carroll, M. Clasen, E. Jonsson (eds.), *Evolutionary Perspectives on Imaginative Culture*, Springer, 31-52.

Conrad, K. (1958), *Die Beginnende Schizophrenie*, Thieme.

Corballis, M. (2014), *The Wandering Mind: What the Brain Does When You're Not Looking*, University of Chicago Press.

Corlett, P. (2018), *Delusions and prediction error*, in L. Bortolotti (ed.), *Delusions in Context*, Palgrave Macmillan, 35-66.

Corlett, P. R., Frith, C. D., Fletcher, P. C. (2009), *From drugs to deprivation: A Bayesian framework for understanding models of psychosis*, in «Psychopharmacology», 206(4), 515-530.

Davis, K. L., Kahn, R. S., Ko, G., Davidson, M. (1991), *Dopamine in schizophrenia: A review and reconceptualization*, in «The American Journal of Psychiatry», 148(11), 1474-1486.

De Haan, S. (2020), *Enactive Psychiatry*, Cambridge University Press.

De Haan, S., Fuchs, T. (2010), *The ghost in the machine: Disembodiment in schizophrenia – two case studies*, in «Psychopathology», 43(5), 327-333.

Di Paolo, E., Buhrmann, T., Barandiaran, X. (2017), *Sensorimotor Life: An Enactive Proposal*, Oxford University Press.

Eco, U. (1973), *Il Segno*, ISEDI.

Eco, U. (1976), *A Theory of Semiotics*, Indiana University Press.

Eco, U. (1986), *Semiotics and the Philosophy of Language*, Indiana University Press.

Eco, U. (1999), *Kant and the Platypus: Essays on Language and Cognition*, Harcourt.

Eco, U. (2014), *From the Tree to the Labyrinth: Historical Studies on the Sign and Interpretation*, Harvard University Press.

Ferretti, F. (2022), *Narrative Persuasion: A Cognitive Perspective on Language Evolution*, Springer.

Feyaerts, J., Henriksen, M. G., Vanheule, S., Myin-Germeys, I., Sass, L. A. (2021), *Delusions beyond beliefs: A critical overview of diagnostic, aetiological, and therapeutic schizophrenia research from a clinical-phenomenological perspective*, in «The Lancet Psychiatry», 8(3), 237-249.

Fletcher, P. C., Frith, C. D. (2009), *Perceiving is believing: A Bayesian approach to explaining the positive symptoms of schizophrenia*, in «Nature Reviews Neuroscience», 10(1), 48-58.

Friston, K. J., Stephan, K. E., Montague, R., Dolan, R. J. (2014), *Computational psychiatry: The brain as a phantastic organ*, in «The Lancet Psychiatry», 1(2), 148-158.

Frith, C. D., Friston, K. J. (2013), *False perceptions and false beliefs: Understanding schizophrenia*, in A. Battro, S. Dehaene, W. Singer (eds.), *Neurosciences and the Human Person: New Perspectives on Human Activities*, Pontifical Academy of Sciences, 1-15.

Frith, C. D., Johnstone, E. (2003), *Schizophrenia: A Very Short Introduction*, Oxford University Press.

Fuchs, T. (2005), *Delusional mood and delusional perception: A phenomenological analysis*, in «Psychopathology», 38(3), 133-139.

Fuchs, T. (2014), *Brain mythologies: Jaspers' critique of reductionism from a current perspective*, in T. Fuchs, T. Breyer, C. Mundt (eds.), *Karl Jaspers' Philosophy and Psychopathology*, Springer, 75-85.

Fuchs, T. (2015), *The intersubjectivity of delusions*, in «World Psychiatry», 14(2), 178-179.

Fuchs, T. (2017), *The "as-if" function and its loss in schizophrenia*, in D. Lohmar, J. Brudzińska (eds.), *Imagination and Social Perspectives: Phenomenological Approaches*, Routledge, 15-34.

Fuchs, T. (2018), *Ecology of the Brain: The Phenomenology and Biology of the Embodied Mind*, Oxford University Press.

Fuchs, T. (2020), *Delusion, reality, and intersubjectivity: A phenomenological and enactive analysis*, in «Philosophy, Psychiatry, & Psychology», 27(1), 61-79.

Gallagher, S. (2009), *Delusional realities*, in M. Broome, L. Bortolotti (eds.), *Psychiatry as Cognitive Neuroscience: Philosophical Perspectives*, Oxford University Press, 245-268.

Gallagher, S. (2013), *Intersubjectivity and psychopathology*, in B. Fulford, M. Davies, G. Graham, J. Sadler, G. Stanghellini (eds.), *Oxford Handbook of Philosophy of Psychiatry*, Oxford University Press, 258-274.

Gallagher, S. (2024), *The Self and Its Disorders*, Oxford University Press.

Gallagher, S., Allen, M. (2018), *Active inference, enactivism and the hermeneutics of social cognition*, in «Synthese», 195(6), 2627-2648.

Gerrans, P. (2014), *The Measure of Madness: Philosophy of Mind, Cognitive Neuroscience, and Delusional Thought*, MIT Press.

Gold, I., Hohwy, J. (2000), *Rationality and schizophrenic delusion*, in «Mind & Language», 15(1), 146-167.

Gold, J., Gold, I. (2015), *Suspicious Minds: How Culture Shapes Madness*, Simon & Schuster.

Greimas, A. J. (1975), *Maupassant: La Sémiotique du Texte. Exercices Pratiques*, Seuil.

Harikumar, A., Evans, D. W., Dougherty, C. C., Carpenter, K. L., Michael, A. M. (2021), *A review of the default mode network in autism spectrum disorders and attention deficit hyperactivity disorder*, in «Brain Connectivity», 11(4), 253-263.

Henriksen, M. G. (2013), *On incomprehensibility in schizophrenia*, in «Phenomenology and the Cognitive Sciences», 12(1), 105-129.

Hohwy, J. (2004), *Top-down and bottom-up in delusion formation*, in «Philosophy, Psychiatry, & Psychology», 11(1), 65-70.

Hohwy, J., Rajan, V. (2012), *Delusions as forensically disturb-*

ing perceptual inferences, in «Neuroethics», 5(1), 5-11.

Hohwy, J., Rosenberg, R. (2005), *Unusual experiences, reality testing and delusions of alien control*, in «Mind & Language», 20(2), 141-162.

Hohwy, J. (2013), *The Predictive Mind*, Oxford University Press.

Husserl, E. (1966), *Analysen zur Passiven Synthesis: Aus Vorlesungs- und Forschungsmanuskripten 1918-1926*, ed. by M. Fleischer, Martinus Nijhoff; trans. by A. Steinbock, *Analyses Concerning Passive and Active Synthesis: Lectures on Transcendental Logic*, Kluwer Academic, 2001.

Hutto, D. D. (2016), *A reconciliation for the future of psychiatry: Both folk psychology and cognitive science*, in «Frontiers in Psychiatry», 7, 12.

Hutto, D. D., Myin, E. (2017), *Evolving Enactivism: Basic Minds Meet Content*, MIT Press.

Jaspers, K. (1963), *General Psychopathology*, trad. di J. Hoenig, M. W. Hamilton, Manchester University Press.

Kapur, S. (2003), *Psychosis as a state of aberrant salience: A framework linking biology, phenomenology, and pharmacology in schizophrenia*, in «American Journal of Psychiatry», 160(1), 13-23.

Kapur, S. (2004), *How antipsychotics become anti-'psychotic': From dopamine to salience to psychosis*, in «Trends in Pharmacological Sciences», 25(8), 402-406.

Kendler, K. S. (2014), *The dopamine hypothesis of schizophrenia: An updated perspective*, in K. S. Kendler, J. Parnas (eds.), *Philosophical Issues in Psychiatry III: The Nature and Sources of Historical Change*, Oxford University Press, 283-294.

Kendler, K. S., Campbell, J. (2014), *Expanding the domain of the understandable in psychiatric illness: An updating of the Jasperian framework of explanation and understanding*, in «Psychological Medicine», 44(1), 1-7.

Kirchhoff, M. D. (2015), *Experiential fantasies, prediction, and enactive minds*, in «Journal of Consciousness Studies», 22(3-4), 68-92.

Koenderink, J. J. (2010), *Vision and information*, in L. Albertazzi, G. J. van Tonder, D. Vishvanath (eds.), *Perception Beyond Inference: The Information Content of Visual Processes*, MIT Press, 27-58.

Kraus, A. (2014), *Karl Jaspers on primary delusional experiences of schizophrenics: His concept of delusion compared to that of the DSM*, in T. Fuchs, T. Breyer, C. Mundt (eds.), *Karl Jaspers' Philosophy and Psychopathology*, Springer, 109-124.

Li, W., Mai, X., Liu, C. (2014), *The default mode network and social understanding of others: What do brain connectivity studies tell us*, in «Frontiers in Human Neuroscience», 8, 52017.

Lobaccaro, L. (2022), *Cognitive semiotics*, in «Zeitschrift für Semiotik», 44(3-4), 157-182.

Lobaccaro, L. (forthcoming), *Radure di senso: Per una semiotica cognitiva dei deliri schizofrenici*, in «Rivista di Filosofia del Linguaggio (RIFL)», Special Issue 2025.

Matteucci, G. (2019), *Estetica e Natura Umana: La Mente Estesa tra Percezione, Emozione ed Espressione*, Carocci.

Minkowski, E. (1927), *La Schizophrénie: Psychopathologie des Schizoïdes et des Schizophrènes*, Payot.

Mishara, A. L., Fusar-Poli, P. (2013), *The phenomenology and neurobiology of delusion formation during psychosis onset: Jaspers, Truman symptoms, and aberrant salience*, in «Schizophrenia Bulletin», 39(2), 278-286.

Molnar-Szakacs, I., Uddin, L. Q. (2013), *Self-processing and the default mode network: Interactions with the mirror neuron system*, in «Frontiers in Human Neuroscience», 7, 571.

Murray, G. K. (2011), *The emerging biology of delusions*, in «Psychological Medicine», 41(1), 7-13.

Nelson, B., Whitford, T. J., Lavoie, S., Sass, L. A. (2014), *What are the neurocognitive correlates of basic self-disturbance in schizophrenia? Integrating phenomenology and neurocognition. Part 1 and Part 2 (source monitoring deficits)*, in «Schizophrenia Research», 152(1), 12-27.

Paolucci, C. (2010), *Strutturalismo e Interpretazione*, Bompiani.

Paolucci, C. (2019), *Social cognition, mindreading and narratives: A cognitive semiotics perspective on narrative practices from early mindreading to autism spectrum disorders*, in «Phenomenology and the Cognitive Sciences», 18(2), 375-400.

Paolucci, C. (2021), *Cognitive Semiotics: Integrating Signs, Minds, Meaning and Cognition*, Springer.

Parnas, J., Sass, L. (2008), *Varieties of "phenomenology": On description, understanding, and explanation in psychiatry*, in K. Kendler, J. Parnas (eds.), *Philosophical Issues in Psychiatry: Explanation, Phenomenology and Nosology*, Johns Hopkins University Press, 239-277.

Peirce, C. S. (1931–1935), *Collected Papers of Charles Sanders Peirce*, vols. I–VI, C. Hartshorne, P. Weiss (eds.), 1958, vols. VII–VIII, A. W. Burks (ed.), Belknap Press.

Piekarski, M. (2021), *Understanding predictive processing: A review*, in «Avant», 12(1), 1-48.

Radden, J. (2011), *On Delusion*, Routledge.

Raichle, M. E. (2015), *The brain's default mode network*, in «Annual Review of Neuroscience», 38(1), 433-447.

Raichle, M. E., MacLeod, A. M., Snyder, A. Z., Powers, W. J., Gusnard, D. A., Shulman, G. L. (2001), *A default mode of brain function*, in «Proceedings of the National Academy of Sciences», 98(2), 676-682.

Ratcliffe, M. (2013), *Delusional atmosphere and the sense of unreality*, in G. Stanghellini, T. Fuchs (eds.), *One Century of Karl Jaspers' General Psychopathology*, Oxford University Press, 229-244.

Ratcliffe, M. (2017), *Selfhood, schizophrenia, and the interpersonal regulation of experience*, in C. Durt, T. Fuchs, C. Tewes (eds.), *Embodiment, Enaction, and Culture: Investigating the Constitution of the Shared World*, MIT Press, 149-171.

Reith, J., Benkelfat, C., Sherwin, A., Yasuhara, Y., Kuwabara, H., Andermann, F., Dyve, S. E. (1994), *Elevated dopa decarboxylase activity in living brain of patients with psychosis*, in «Proceedings of the National Academy of Sciences», 91(24), 11651-11654.

Rossi Monti, M. (2008), *Forme del Delirio e Psicopatologia*,

Raffaello Cortina.

Rossi Monti, M., Piazzalunga, F. (2010), *Macchine e Deliri Bizzarri: Psicopatologia dei Disturbi dei Confini dell'Io*, Giovanni Fioriti Editore.

Sambuco, N., Bradley, M. M., Lang, P. J. (2022), *Narrative imagery: Emotional modulation in the default mode network*, in «Neuropsychologia», 164, 108087.

Sass, L. (1992), *Madness and Modernism: Insanity in the Light of Modern Art, Literature, and Thought*, Harvard University Press.

Sass, L. (1994), *The Paradoxes of Delusion: Wittgenstein, Schreber, and the Schizophrenic Mind*, Cornell University Press.

Sass, L. (2010), *Phenomenology as description and as explanation: The case of schizophrenia*, in S. Gallagher, D. Schmicking (eds.), *Handbook of Phenomenology and Cognitive Science*, Springer, 635-654.

Sass, L., Byrom, G. (2015), *Phenomenological and neurocognitive perspectives on delusions: A critical overview*, in «World Psychiatry», 14(2), 164-173.

Sass, L., Parnas, J. (2007), *Explaining schizophrenia: The relevance of phenomenology*, in M. C. Chung, K. W. M. Fulford, G. Graham (eds.), *Reconceiving Schizophrenia*, Oxford University Press, 63-95.

Schwartz, M. A., Wiggins, O. P., Naudin, J., Spitzer, M. (2005), *Rebuilding reality: A phenomenology of aspects of chronic schizophrenia*, in «Phenomenology and the Cognitive Sciences», 4(1), 91-115.

Spreng, R. N., Dimas, E., Mwilambwe-Tshilobo, L., Dagher, A., Koellinger, P., Nave, G., Ong, A., Kernbach, J. M., Wiecki, T. V., Ge, T., Holmes, A. J., Yeo, B. T. T., Turner, G. R., Dunbar, R. I. M., Bzdok, D. (2020), *The default network of the human brain is associated with perceived social isolation*, in «Nature Communications», 11(1), 1-11.

Stanghellini, G. (2004), *Disembodied Spirits and Deanimated Bodies: The Psychopathology of Common Sense*, Oxford University Press.

Stanghellini, G. (2017), *Lost in Dialogue: Anthropology, Psychopathology, and Care*, Oxford University Press.

Suddendorf, T., Addis, D. R., Corballis, M. C. (2009), *Men-*

tal time travel and the shaping of the human mind, in «Philosophical Transactions of the Royal Society B: Biological Sciences», 364(1521), 1317-1324.

Van Duppen, Z. (2016), *The phenomenology of hypo- and hyperreality in psychopathology*, in «Phenomenology and the Cognitive Sciences», 15(3), 423-441.

Van Duppen, Z. (2017), *The intersubjective dimension of schizophrenia*, in «Philosophy, Psychiatry, & Psychology», 24(4), 399-418.

Varela, F., Thompson, E., Rosch, E. (1991), *The Embodied Mind: Cognitive Science and Human Experience*, MIT Press.

Violi, P. (2012), *How our bodies become us: embodiment, semiosis and intersubjectivity*, in «Cognitive Semiotics», 4(1), 57-75.

Whitfield-Gabrieli, S., Ford, J. M. (2012), *Default mode network activity and connectivity in psychopathology*, in «Annual Review of Clinical Psychology», 8(1), 49-76.

Whitfield-Gabrieli, S., Thermenos, H. W., Milanovic, S., Tsuang, M. T., Faraone, S. V., McCarley, R. W., Seidman, L. J. (2009), *Hyperactivity and hyperconnectivity of the default network in schizophrenia and in first-degree relatives of persons with schizophrenia*, in «Proceedings of the National Academy of Sciences», 106(4), 1279-1284.

Yeshurun, Y., Nguyen, M., Hasson, U. (2021), *The default mode network: Where the idiosyncratic self meets the shared social world*, in «Nature Reviews Neuroscience», 22(3), 181-192.

Acknowledgements

This contribution stems from research conducted within the project MICA – Mental Illness, Creativity and Arts: An Interdisciplinary Perspective on Psychopathological Artistic Creation, funded by the 2024 Young Researchers National Grant (SOE), promoted by the Italian Ministry of University and Research. Project Code: Prot. SOE2024_0000124 – CUP: J53C24004410001, P.I. Luigi Lobaccaro.