

DAVIDE PERROTTA

A Return to Pure Phenomenology to Discuss the Coherence of Phenomenological Data in Consciousness Studies and Its Relevance in Investigating Brain Functioning

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In this paper, I discuss the concept of phenomenological data by analyzing it in comparison with neurophenomenology and similar approaches that employ qualitative tools in empirical studies. I argue that although such data are often labeled as “phenomenological,” they do not meet the epistemological criteria of phenomenology properly understood. I distinguish the epistemological concept of consciousness (pure consciousness) from the psychological concept of the Self (empirical consciousness), and then suggest that neurophenomenology and related approaches are primarily focused on the Self. As a result, they fail to engage with consciousness as originally conceived by Husserl. After briefly introducing the core principles of phenomenology to demonstrate its focus on the universal structures of consciousness, I apply them to interpret two neurophenomenological experiments, so as to reveal the underlying epistemological difference. I identify contingent or empirical elements that are implicitly introduced into these experimental designs, which cannot be defined as universal or invariant. Based on these considerations, I propose that the pure level of analysis, characteristic of phenomenology, is more closely aligned with mainstream cognitive neuroscience than with neurophenomenology and qualitative methods. Finally, I will draw upon the previous discussions to propose an epistemological shift in experimental studies. New insights into the universal processing of consciousness are proposed as a more robust approach to investigating the universal brain processing.

Keywords: Essences, Cognitive Neuroscience, Phenomenology, Neurophenomenology, Subjective Data.

1. Introduction

In this paper, I will use the concept of “pureness”, as in pure phenomenology and pure consciousness, to differentiate the original Husserlian positions from any kind of naturalized phenomenology. The concept of “phenomenological psychology” will be avoided in this paper, as it can be

Davide Perrotta, Pegaso University; Department of Education and Sports Sciences, [postal address](mailto:davide.perrotta@unipegaso.it) davide.perrotta@unipegaso.it; <https://orcid.org/0000-0001-5426-734X>

confusing to discern the applications of phenomenology from its method. Whenever I mention the concept of “pureness”, I will denote the field of knowledge that phenomenology enables us to analyze, by grasping universals, structures, or essences of our experience. In other words, whenever I refer to pure phenomenology, necessary conditions of our experience are to be understood as structural and invariant for each person¹.

In the opening section, I clarify the importance of the distinction between pure and empirical consciousness for understanding the relations between consciousness and the brain in contemporary debates. Then I explain several key phenomenological principles, so as to emphasize the importance of introducing the concept of “essence” as an epistemological ground, allowing for the description of universal structures of our consciousness or experience, especially functions, objects, and experiential strata.

Such an insight prompts us to question the coherence of neurophenomenology and similar approaches that use subjective data and term them as “phenomenological data”. In empirical sciences, working with “real persons” during experiments unavoidably introduces complex subjective experiences, which is an approach that is not easily adaptable in a traditional phenomenological framework. I will analyze two neurophenomenological designs to reveal several “contingent” or “empirical” factors that cannot be defined as necessary or universal, making it hard to define them as phenomenological in the Husserlian sense.

After recognizing the difference between pure phenomenology and neurophenomenology, I discuss the same point in mainstream cognitive neuroscience. Instead of offering a new form of naturalized phenomenology, I suggest that the traditional phenomenological method can be directly applied to mainstream cognitive neuroscience, due to an implicit shared principle. I propose that the radical Husserlian position is closer to mainstream brain science compared to the contemporary qualitative approaches, since both possess a general aim to grasp structural knowledge, albeit in different domains and methods.

I conclude by saying that methodological discussions in neurophenomenology and qualitative approach are incredibly relevant to achieve a new phase of research, even though these very same instruments need to be further developed to get closer, or return, to pure phenomenology. However, despite the attention to empirical methodologies, my proposal for this paper is not properly methodological but primarily epistemological. If the real challenge is to discover the “neural correlates of consciousness”, then returning to a real analysis of (pure) consciousness can lead us to delve deeper into universal brain mechanisms.

¹ Since we are dealing with the psychological field of research, I prefer to use the concept of pure consciousness instead of transcendental consciousness, since the latter concept is more associated foundational philosophical inquiries (Zahavi, 2017; Zahavi, 2019).

2. Why Is the Distinction between Pure Consciousness and Empirical Consciousness still Significant?

This section centers on a traditional distinction within the Husserlian thought. In my opinion, discerning between the pure and the empirical levels of consciousness is paramount for comprehending the phenomenological method, or at least introducing for it.

By engaging in psychological research, we are not discussing consciousness in foundational (transcendental) or philosophical terms: we are introducing consciousness as the center of functions that are common to all human beings. Through the analysis of consciousness, we investigate our correlation to the world and its objects, discovering “eidetic laws” that are necessary to constitute our experience. On the contrary, the empirical domain refers to the “fulfillment” of pre-existing structures (empirical fulfillment in Husserlian terms). Put simply: empirical consciousness should be understood as a personal internal world, which can be translated into contemporary terms as the concepts of “Self” or “personal identity”.

From now on, I will refer to empirical consciousness by using the contemporary concept of Self, or related terms, like the “real person” or the existential level; while the concept of consciousness will denote the pure level of investigation, that is typical of phenomenology, where the necessary conditions of experience are disclosed.

Through the use of the phenomenological method, consciousness is revealed as the center of all our functions. Before it takes its empirical forms, belonging to a specific person (empirical consciousness or the Self), consciousness is our epistemological ground of inquiry, through which we uncover a universal functioning that is common to all human beings.

Such a distinction may seem too philosophical for applications in psychology, yet it recalls several contemporary inquiries. Indeed, I will argue that the study of our existential dimension, or the Self, does not easily allow us to grasp invariant structures of consciousness, whereas the subjective dimension consists of components that are not invariant by definition, such as childhood experiences, personal memories, values, and so on. To elucidate the study of (pure) consciousness, we must analyze each of its components (e.g., memories and values) prior to their integration into a concrete individual experience. *The transition from the pure to the empirical level must be conceived as the empirical fulfillment of pre-existing structures.*

3. Where to Find Essences? A Brief Introduction to the Phenomenological Method and the Research of Essences

The concept of essences is traditionally philosophical and may appear misleading when applied to neuroscience or empirical studies. In contrast, it is important to specify that phenomenology differs from empirical science in terms of methodology. Hence, the concept of “essence” is more appropriate than others like “thesis” and “model”.

Although brief, this section provides an example of phenomenological description, without delving deeply into the details of the method. In a nutshell: phenomenology focuses on uncovering the essences of functions (*Erlebnisse*), objects, and experiential layers.

An essence cannot be modified or created, but only described. Of course, our descriptions can also be incorrect or imprecise, but the description of essences is achieved through the *epoché* or the phenomenological reduction (Moran, 2005; Moran, 2018), which allows us to enucleate “self-evident” descriptions of our experience. While I abstain from explaining the specifics of the method, I will now expose various universal conceptions of consciousness that need to be understood as universals or essences in phenomenology. Being universal or invariant properties of consciousness, they belong to every human experience prior to constituting the Self or the individual story. In the following descriptions, it is worth noting that the Self is excluded completely (suspended or bracketed in phenomenological terms), as the focus is on consciousness and its structures in their universal forms.

Since most of the research in neurophenomenology and qualitative approaches focuses on the importance of subjective experience, I will now specify that any kind of essential research is not subjective in the sense of personal or historical experience, but subjective in the sense of first-person perspective as a methodological starting point (Zahavi, 2019). Such a claim is important to prevent subjective data from being conflated with phenomenological analysis.

To clarify, I will briefly introduce the concept of intentionality, also known as aboutness or directness (Moran, 2018). Its importance lies in analyzing the essences of mental processes (*Erlebnisse*), or lived experiences, in their universal structures, as well as their correlation with specific kinds of objects (Perrotta and Meloni, 2024; Perrotta, 2025). Through this type of analysis, it is possible to enucleate the essence of things by describing how they are experienced through specialized cognitive and psychical processes, as well as through their components and interrelations. It follows that this level of analysis is not subjective or personal: these essences are not specific to any person, but rather invariant structures of our consciousness. To put it simply: beliefs, judgments, desires, and others are all cognitive

or psychical processes that organize our internal life or our Self, but they also possess universal structures that are invariant. Moreover, these mental processes take different forms in relation to different categories or types of objectivity. When we work on this level of analysis, where a function (*Noesis*) is analyzed in relation to its intentional content (*Noema*), we find ourselves within pure phenomenology, which is the study of the structure of consciousness (Husserl, 1982; Perrotta, 2021).

This level of analysis is defined as research of essences, whereas we are not analyzing a specific occurrence, an individual, but the general laws of manifestations (appearances), or eidetic laws of a particular species. In other words, a personal belief is obviously not universal, as our beliefs are already interwoven with desires, values, and so on in our stream of consciousness. Once integrated with other functions and components, a belief becomes a component of the Self. Nonetheless, beliefs, like every other function, have their universal properties that are invariant in each human being. Intentionality is a key concept in understanding this point, as we uncover the properties of belief by examining their relation to various kinds of objects or specific components (Perrotta, in press).

Not surprisingly, the same approach is required when analyzing the direct counterpart of functions, namely objects. Indeed, objects must be understood broadly when discussed in phenomenology. Although consciousness is primarily correlated with the world, the world is not just a general category: within the world, diverse kinds of objectivities exist, each with unique modalities of being experienced, embedded within distinct experiential layers.

Again, even at this level, it is necessary to focus on the impersonal features of these analyses. We are discussing the essential features required to experience each typology of object, not personal objects like childhood memories. In other words, this kind of analysis cannot apply to personal stories (Self) yet, since it focuses on the essences of different categories of objects, which are conditions without which they cannot be experienced whatsoever.

I now propose some examples of analyses of intentionality useful for clarifying the necessary relation between mental processes, or *Noesis*, and objects or contents, or *Noemata*. The main point of phenomenological research is the description of essences, which should be understood by referring to the intentional properties of each function, or better, their directness to specific classes of objects. Not by chance, objects themselves are not merely stimuli (Albertazzi, 2021), instead they are entities with inherent structures that are organized through various experiential layers and components (Husserl, 1960; Ramstead, 2015).

In greater detail, we are correlated to the world in various ways: with sensorial objects (e.g., apples, fruits, tables), with ideal objects (e.g., values,

rules), and also with ourselves, our own story, or our community. These various categories or species of objects are necessarily explained in terms of distinct eidetic laws: for instance, the way we experience sensorial objects is necessarily different from how we experience abstract or propositional ones; thus, distinct typologies require different phenomenological descriptions. Phenomenology analyzes how these categories or classes of objects can be experienced, so as to describe the necessary conditions, which cannot rely on subjective features or psychological associations. In simpler terms, to understand how an abstract object, such as a rule, can be experienced, we must describe each of its components, like functions and layers, without which this kind of entity cannot acquire meaning or be manifested.

Of course, a thorough phenomenological investigation would be necessary for each of these concepts. However, this paper has the limited task of highlighting the main features of pure phenomenology, so as to emphasize the difference from any kind of “empirical psychology”².

The concept of “layers” is crucial in phenomenology as well. Experiential layers are not objects, but dimensions or strata where we encounter diverse categories of objects, specialized functions, and distinct laws of manifestations (Perrotta and Meloni, 2024; Perrotta, 2025). Moreover, these layers imply asymmetric relations between them. For instance, sensorial-perceptive and sensorimotor layers are the most fundamental or primordial levels of our experience. Within them, we encounter objects with sensorial properties, offering tactile or visual information as well as affordances: we apprehend how to interact with material objects through our bodies, anticipate complex movements or actions, develop perceptual schemata (Husserl, 1989), and so on. Moreover, this level is also characterized by specific functions that follow particular modalities: perceptions that directly manifest the things themselves, and anticipations that form sensorial representations or perceptive schemata. There are various layers that necessitate detailed descriptions, both in terms of eidetic laws and in terms of genesis, considering processes of sedimentation or stratification³.

In seeking essences that belong to the consciousness or human experience in general, it becomes apparent that (pure) consciousness is not

² For Husserl empirical psychology refers to any discipline that concentrates on contingent aspects of experience (Husserl, 2001). In my view, neurophenomenology and qualitative approaches fall within this category.

³ We can analyze this elementary level by “bracketing” the higher ones, as is typical in the phenomenological method. For instance, when analyzing the logical-linguistic or the emotional levels, the lower ones cannot be eliminated, since we need a material basis of interactions (Hyle) upon which logical-cognitive or affective processes can be expressed. In other words, the underlying levels are necessary but not sufficient conditions for the higher ones, as they constitute our material basis of interactions in the world, yet they cannot be explained by the upper levels, where we encounter different kinds of essences and laws.

primarily an internal or personal dimension, but rather an “interface” that allows us to be correlated with the world, through very different modalities.

Such an introduction is important for contextualizing the contemporary debate on the relation between the brain and consciousness. In my opinion, empirical studies of neurophenomenology and similar naturalistic approaches employ the opposite principle: they begin from personal experience to enucleate general structures. In other words, if neurophenomenology aims to uncover the neural correlates of consciousness, it is pursuing the opposite approach. Within the Self, or the personal story, the structures of consciousness are already fulfilled and organized in the personal stream of consciousness, rendering access to a pure level of analysis highly challenging.

4. Why Do Qualitative Methods Need Pure Phenomenology?

The aforementioned premises were necessary to discuss neurophenomenology and similar attempts to apply phenomenology to empirical research, in order to argue for their significant divergence from the Husserlian phenomenology, pointing out that this very difference becomes more apparent when considering empirical designs.

First, it is worth specifying that various forms of neurophenomenology and naturalistic interpretations of phenomenology exist (Petimengin, 2006; Petitmengin *et al.*, 2019; Yoshimi, 2011; Pokropski, 2019; Casper and Haueis, 2023; Colelli *et al.*, in press; Colelli, in press). While I refrain from delving into the details of these interpretations, I analyze only their methodological principles, interpreting them from a pure phenomenological perspective.

If we begin from the theoretical ground, it is undeniable that several coherent conceptions are commonly used to introduce neurophenomenology. For instance, it is very common to discuss invariant structures, essences, and universals of consciousness (Gallagher, 2003; Gallagher and Sørensen, 2006; Bockelman *et al.*, 2013; Bitbol and Petitmengin, 2017; Høffding *et al.*, 2022; Heinmann *et al.*, 2023). I also agree with conceptions that emphasize how phenomenology focuses on the modalities of experience independently of their contents.

Up to this point, I agree that such general conceptions align with the phenomenological methodology. However, a main challenge arises when these premises about the research of essences are subsequently applied in brain science experiments. Indeed, involving “real persons” experiments, these studies aim to discover the neural correlates of consciousness: “the phenomenological data may be correlated with other objective measurements generated in the experimental condition, e.g., the data of brain imaging, EEG, behavioral response, etc.” (Gallagher and Sørensen, 2006).

The latter statement does not necessarily contradict pure phenomenology, but it raises questions regarding the concept of “phenomenological

data”. Whenever neurophenomenological-oriented experiments are conducted, data is collected from “real persons”, and the use of this concept is not arbitrary: it refers to the level we define as empirical consciousness in phenomenology, which denotes the Self, the personal story or identity, as previously discussed (Section 1).

From a broad perspective, working on real persons to enucleate essential descriptions entails investigating the personal components of the Self (namely, empirical occurrences) to understand consciousness structures (which are essence or universals). This framework coincides entirely with the traditional Husserlian critique of psychologism (Lopes, 2024), albeit within an entirely new context. Of course, every phenomenologist acknowledges the significance of personal experience; however, we cannot uncover the essences of consciousness by directly scrutinizing existential contingencies.

The reason why I discuss neurophenomenology and similar qualitative approaches together is due to the convergence between their empirical methods, which are totally different from pure phenomenology. Indeed, such a point applies to each empirical tool that collects data from individuals: cognitive tests, questionnaires, narratives, interviews, verbal reports, and so on. While cognitive tests encompass a somewhat distinct domain that falls beyond the scope of this discussion, the other tools operate on high-level mental products that result from complex historical and environmental interactions with the world, as components of a concrete subjective experience. For instance, when individuals respond to a single questionnaire item, only the resulting outcomes of their underlying thoughts, ideas, or feelings are “observable”. Nonetheless, this outcome is derived from a stream of thoughts, with the latter comprising the constitutive components of this response.

I will now analyze two experiments to clarify the latter point by maintaining the distinction between pureness and empirical occurrences. I will not discuss their empirical findings, as is typical in the research literature, but rather the methodological assumptions of the experimental designs. The latter point is accomplished by interpreting these elements from a phenomenological perspective.

I start by discussing the first and well-known neurophenomenological study that integrates both a cognitive task approach and verbal reports. This notable neurophenomenological experiment employed a perceptual task (Lutz, 2002; Lutz *et al.*, 2002)⁴. The presentation of a task is a main prerogative of cognitive neuroscience, with the only difference being that

⁴ Other approaches do not work directly on neural correlates of consciousness, such as experimental phenomenology Albertazzi (2021), computational modelling (Ramstead *et al.*, 2022), descriptive phenomenology (Giorgi and Giorgi, 2003). These approaches are closer to traditional phenomenology, but they need to be discussed elsewhere, since they rely on different assumptions compared to neurophenomenology.

the use of verbal reports is considered as “phenomenological”. In other words, this study is considered as phenomenological because it introduces new categories that differ from those of cognitive psychology and related fields. Even though this study presents an interesting novelty when compared to traditional cognitive research, I identify several challenges in defining it as phenomenological, in the Husserlian sense.

In a nutshell, during the experiment, subjects were asked to press a button as soon as a shape fully appeared on the computer screen. Verbal reports about this performance were collected during several trials. The iterative exposure to these trials was designed to collect “refined verbal reports” (Gallagher and Sørensen, 2006). The reference to preliminary trials is relevant to underscore the introduction of a “training session”, while the reference to training is important to introduce a phenomenological interpretation: indeed, through this training, subjects “defined their own descriptive categories” (Gallagher and Sørensen, 2006). Subsequently, three categories were operationalized to classify these verbal reports: steady readiness, fragmented readiness, and unreadiness, and termed as “phenomenological clusters”. The codifications of the collected verbal reports in these three clusters enabled the researcher to correlate them with reaction times (RTs). Correlations were observed among the three clusters and different RTs.

I recognize three issues in defining this experiment as phenomenological: 1) the involvement of a specific form of training; 2) the definition of these clusters, and 3) the resort of verbal reports defined as phenomenological.

The first issue to consider is the role of training. This type of training differs from others that explain how to solve a task, as is common in cognitive experiments. Authors rightly point out that this training was designed to teach subjects to concentrate on their performance rather than the content, to enhance their ability to provide accurate verbal reports. This distinction can be better understood by interpreting it through the distinction between weak and strong introspection. This training was aimed at eliciting more accurate and stronger introspections, meaning that subjects were learning to describe their subjective performance during a task.

In simpler terms, strong introspection refers to our capability to describe internal processing rather than the content we are experiencing (Gallagher and Sørensen, 2006). The reason I do not define such a point as phenomenological is due to its contingent factors, namely the subjective ability to perform a task as well as the possibility of improving this ability. To improve both forms of task performance (weak and strong introspection), we clearly introduce learning processes, which are well known to involve specific cognitive architectures and biological substrates.

The concept of learning introduces a challenge to defining strong introspection as phenomenological. Learning is widely recognized as a cognitive

function, extensively studied in terms of brain processing, involving synaptic plasticity and other processes. While our learning mechanisms share the same biological principles, the “products” of our learning processes are inevitably distinct and not invariant. In other words, each individual learns in unique ways for different reasons, and this is an empirical principle rather than a phenomenological one. The subjective capacity for learning through experience is crucial in understanding subjective performances as well as personality traits and other psychological categories. Not coincidentally, learning processes are influenced by brain conformations, clinical and psychological conditions, culture, and so on.

In my opinion, these factors are more related to psychology rather than phenomenology as they introduce subjective abilities to perform the same task. These abilities are subjective-personal components and not experiential structures.

Although the design is methodologically coherent, and phenomenological influences are undeniable, another issue in defining this approach as phenomenological arises in discussing the “clusters”, namely point (2). The three clusters were identified through subjective analysis of verbal reports during the training sessions. This is an inductive approach that, again, recalls “psychologism”, because we are trying to define essential processes by abstracting from particular instances. Thus, these categories are not derived from phenomenological analysis but are based on verbal reports collected from “real persons”, with their own stories and abilities. Furthermore, these categories should be meant as empirical states of the subject’s mind or brain. For instance, “steadiness” is, of course, a subjective state, but the reason for a subject to experience this state is contingent upon multiple factors that cannot be fully controlled.

Being steady or unsteady may depend on both psychological and biological factors: the interest of a person regarding the experiments, the educational background, the efficiency of their brain in sustaining attention, and so on. Each of these possible causal factors is contingent and changes between persons.

Finally, the third (3) crucial point concerns the verbal reports’ nature. Subjects expressing their utterance about their internal state (the verbal report) are to be considered again as subjective factors and not as “phenomenological data”.

This latter point is common to each method that uses subjective data in qualitative research, which is the main reason why I discuss neurophenomenology and naturalistic approaches together. Verbal reports and similar subjective data, like questionnaires or narratives, are inevitably products of a personal stream of consciousness, as well as of the individual brain functioning, although both are empirical components of experience and not necessary conditions of experience (see Sections 1 and 2).

The reference to “subjective factors”, regardless of whether psychological or biological, should advise that we are outside pure phenomenology, which instead focuses on the universal functioning of consciousness.

In each discussed point, the distinction from pure phenomenology lies in the inclusion of contingent principles, as contrary to necessary ones, since the introduction of contingencies is totally within the Self domain, whereas the personal experience and the individual brain conformations are the primary factors in explaining this data.

To summarize, the three points I have discussed introduce empirical factors that lead us beyond pure phenomenology, as research of the essences of consciousness. To further corroborate this discussion, I will now present a second empirical example that I interpret in the same way.

In a “neurophenomenological design” (Fingelkurts *et al.*, 2020), this study presents a very complex and interesting experimental methodology. An issue with defining this work as phenomenological arises from the use of meditation experts as subjects. The importance of meditation is recognized in neurophenomenology; nonetheless, I think that it may become a confounding factor in Husserl’s phenomenology. Husserl referred neither to meditation nor to hypnosis and similar techniques to explain his methodology.

It is important to note that the ability to meditate is highly subjective; it is influenced by personal attitudes, experience in this practice, as well as the individual’s brain functioning. Such an observation recalls point 1), regarding learning processes and personal abilities that, in my opinion, can still be interpreted as a form of strong introspection. Furthermore, subjects were trained to understand the task of the experiment, so there is a dual learning process: the ability to meditate and the personal capacity to perform the present task.

For instance, subjects were asked to concentrate on specific components of their meditation practice, such as sensations, internal speech, and others. They were then asked to rate their ability to adhere to the given instructions on a scale from 0 to 10 via retrospective self-reports.

As for the second point (2): defined clusters in the previous experiments can be recognized in the classification of the Self in this experiment: these distinctions are more coherent with the phenomenological conceptions since they introduce a stratification of the Self (albeit with a different terminology). Despite differences compared to the original Husserl conceptions, I focus on the way these categories are investigated and measured. Even in this case, meditators were asked to focus on specific categories of internal experience, which is, again, a personal performance rather than a necessary condition.

In other words, by speaking of “expert” meditators, we are introducing a very relevant factor that cannot be defined as universal. For instance,

these persons are presumably able to achieve internal states that are uncommon for other persons, so they depend on psychological performances characteristic of this group. I already said that this experiment introduces a stratified conception of the Self that is coherent with phenomenology, but this kind of study is not focusing on the structure of the person but on the ability of meditators to focus on specific aspects of their subjective experience. For instance, some persons can have a greater ability to focus on specific aspects of the Self compared to others.

Moreover, the empirical evaluation or measurement of these different levels is collected through self-report questionnaires, Likert scales, and similar measurements, recalling point (3). As I said, these tools are strongly related to the subjective ability of introspection, and they are not easily generalizable to phenomenological or consciousness structures.

Regardless of whether we are speaking of brain functioning or personal elements, in both cases, we are focusing on personal components that are, again, subjective or neurocognitive factors, which fully coincide with an empirical psychological approach.

I do not delve into details of the biometric data and their interpretation, since this article introduces a wide terminology that should be introduced in detail. What is worth noting is that different EEG signals were correlated to different internal states and specific cortical structures, like the frontal and posterior cortex, and so on. The methodology does not require criticism, but I think that such a study is revealing the neural correlates of a very specific group of persons along with their specific ability (the expertise in meditation); it follows that they cannot be understood as universal consciousness structures but as very distinct and uncommon subjective internal states.

In conclusion, I recognize that this kind of study is an important development compared to the preceding study of neurophenomenology, but it requires new epistemological investigations to be defined as phenomenological.

5. Does Pure Consciousness Have Something to Do with the Brain? Universal Processing between Consciousness and the Brain

In sections 1 and 2, I outlined how phenomenology primarily investigates universal processing by excluding (bracketing) existential analyses in the first phases of investigations; Section 3 showed how subjective factors are so numerous and intricate in neurophenomenological designs that a direct comparison with Husserl's proposals becomes challenging.

Even though it may seem counterintuitive, the following section argues

that mainstream cognitive neuroscience is more closely aligned with pure phenomenology than with neurophenomenology and other qualitative or naturalistic approaches. It is unclear how the traditional phenomenological approach can be applied to neuroscience, although I suggest that both methodologies share an epistemological principle: *the focus on impersonal components of psychological and cognitive processes*. In phenomenology, essences of our experience are the main target; such an aim converges with many of the approaches we use to investigate the brain functioning in mainstream neuroscience⁵.

In cognitive neuroscience, the brain is conventionally considered the center of elaboration that mediates every operation we can perform, like cognitive, motor, or autobiographical memory elaborations, to name a few. These cognitive functions are investigated by postulating models that describe their general functioning. Of course, being an empirical science, neuroscience requires us to corroborate our models through empirical observations, which is the main difference compared to phenomenology. Nonetheless, the primary objective of neuroscience is to discover universal mechanisms or processes of the brain, sharing a similarity to the approach phenomenology uses for investigating universal processes of consciousness (Section 2). *I suggest in this section that the focus on universal processing is a convergent feature between phenomenology and mainstream cognitive neuroscience, albeit in a distinct domain (experience and biology) and different methodology (epoché and scientific method)*.

Of course, such a claim may provoke criticism. It is widely acknowledged in neuroscience that every brain is unique in some way. Nevertheless, the overarching objective of the field is to understand the general processing of the brain, achieved by generating models intended to describe its universal functioning⁶. In other words, while models endeavor to describe the general functioning of the brain, they are also exposed in empirical tests to individual variance and group differences. While individual variance refers to the personal experience of each subject and underlying biological and psychological factors, group differences introduce other experimental factors that go outside the basic functioning, since they relate to other fields, like clinical, cultural, and developmental.

⁵ Indeed, in cognitive neuroscience the concept of the subpersonal and cognitive unconscious are of central importance (Di Francesco and Marraffa, 2014).

⁶ Psychopathology and similar topics can be potentially misleading, and they need to be discussed elsewhere, since they fall outside the pure phenomenological domain. In any case, it should be noted that to introduce a cognitive explanation in clinical studies, we always begin by considering the general model of the brain functioning. For instance, a neurocognitive model of Working Memory is necessary to define its role in specific psychiatric conditions, and such a conception can be considered complementary to phenomenology (Perrotta, 2021).

The most common approach in cognitive neuroscience concerns the development of cognitive models that are used to describe and test a specific function. From a phenomenological perspective, it is interesting to note that the qualitative description of a function, like a cognitive model of episodic memory, should be understood as a universal process shared by all human beings, despite showing individual differences in how this cognitive function is implemented by each brain. Each cognitive function, such as episodic memory, has its structures as described by a model, comprising specific sub-functions, as well as anatomical regions, specialized neurotransmitters, and so on. We clearly know that each brain is different in some ways, but statistical analysis aims to grasp general principles of functioning, or differences due to group factors like psychopathology, culture, personality traits, and related factors (Northoff and Smith, 2023).

In other words: the cognitive model is not directly related to subjective experience, whereas subjective factors can be identified by analyzing individual performances, revealing various patterns of timing or accuracy. Indeed, statistical results from experiments are interpreted based on these individual factors that are dependent on brain conformations and other “contingent” principles.

I specify that the latter principles are defined as contingent in direct comparison with necessary or essential principles within the phenomenological lexicon (Sections 1 and 2). When taking into account processes like sociodemographic factors (e.g., age, culture) as well as biological factors such as learning, neural plasticity, anatomical and metabolic differences, we introduce subjective or individual variables that cannot be presented as necessary conditions of our experience. However, by analyzing subjective performances, individual factors (psychological or biological) are computed in statistical models to find significant differences between groups, treatments, and similar experimental designs. These statistical methods are the main means by which neuroscience can offer models of the brain functioning, despite the awareness that each brain is heavily shaped by processes like epigenetics and plasticity.

However, *what is very important to notice is that these empirical tests do not directly alter the structure of the cognitive or brain model*, like episodic memory, *but rather highlight its variance in terms of functioning among groups, conditions, treatments, and so forth*⁷. Notably, cognitive or brain models change over time, which is the main difference from phenomenology, as essences are gathered through the *epoché*, which is an a priori approach.

⁷ I am emphasizing this point to show a similarity with the phenomenological method. I fully recognize that such aspects are found in every empirical science: for instance, when we investigate synaptic transmission, protein synthesis, and other neurobiological mechanisms, we begin by defining their general functioning, albeit we know that anatomical, metabolic, and other processes vary across individuals (Kästner, 2017; Piccinini, 2018).

However, in spite of the methodological challenges, the general aim of neuroscience is to understand how the brain works in a very general sense. Such a brief discussion of the statistical methodology underlying neuroscience experiments is interesting to reveal a parallelism with phenomenology. *Although not entirely equivalent, the relation between the individual's brain and a general model of the brain functioning strongly resembles the phenomenological distinction between pure consciousness and empirical consciousness (the Self).* While consciousness encompasses the general structures that allow us to experience the world, the Self represents the personal fulfillment of those same structures, which delineate the personal story or the identity. Likewise, while the brain, for genetic and other factors, is the same in each individual, this does not preclude that each brain changes during experiential exposure to the environment.

It follows that the peculiarities of each individual brain fully belong to the domain of the Self, and this is the main issue in trying to investigate the necessary condition of our experience by studying “real persons”.

6. Are There Neural Correlates of Pure Consciousness?

Sections 1 and 2 explained the aim of phenomenology in investigating universal structures of our consciousness or experience; section 3 shows how such a radical position is very hard to achieve using traditional empirical tools for measurements and experimental designs; Section 4 suggests that the distinction between general functioning of the brain and the individual brain, strongly resembles the phenomenological distinction between pure consciousness and empirical consciousness (Self). In both cases, the distinction lies in the structural form and its singular or particular shaping.

Such a point is crucial for discussing, in this section, the concept of “neural correlates of consciousness” from a new perspective. If we aim to investigate what the neural correlates of consciousness are, as proposed by neurophenomenology, then I suggest that the crucial strategy involves returning to an analysis of the essences of pure consciousness. Such an epistemological thesis advises a return to pure phenomenology, so as to propose a comparison with the brain functioning, while excluding the Self as much as possible⁸.

The pure level of analysis is concerned with research that must be considered universal to each individual, insofar as they possess impersonal

⁸ Of course, such a claim seems like a return to an old position, but this does not negate that personal experience is the most important target. My reply suggests that we cannot investigate such a topic in brain science without first thoroughly clarifying the underlying impersonal structures and functions of consciousness. Again, Husserl himself did not investigate the Self before clarifying the pure level of inquiry.

features of our experience⁹. It follows that investigating individual differences in narratives or verbal reports takes us beyond pure phenomenology, and the same statement applies to research with clinical, cultural, or other groups. These approaches collect empirical data that relates to individual stories, group factors, and their underlying brain functioning or conformation.

Moreover, it should also be noted that proposing an understanding of the Self through brain investigations is considerably more challenging than analyzing the general functioning of consciousness.

The constant reference to the universal functioning of consciousness is crucial for understanding this section. *This leads to the hypothesis that if it is possible to propose phenomenological investigations of our consciousness that are universal for every individual, then such universality may also be related to the brain functioning.*

Not by chance, every individual possesses a brain that shares fundamental biological mechanisms and anatomical structures, even though personal experience shapes and molds it. The way our experience modifies our brain can be interpreted as the effect of various empirical fulfillments that constitute our personal stories. In other words, the way our brain is shaped by various factors, influencing our personality, abilities, interests, and so on, entirely coincides with the Self. On the contrary, neural correlates of (pure) consciousness need to be investigated in those processes that are general for each individual, without which the experience is not possible whatsoever.

It follows that through the phenomenological sight, we need to apprehend the ability to bracket the latter contingent aspects, and such a procedure can be achieved utilizing the phenomenological method.

Although it must be recalled that consciousness and the brain are totally different domains of research, universal descriptions that phenomenology offers may still be linked to brain functioning. If such a universality exists within our experience (Sections 1 and 2), it is reasonable to assume the brain possesses underlying biological mechanisms that enable this universality to exist (or “neural conditions”, Bennett and Hacker, 2022).

In my opinion, this thesis totally aligns with mainstream neuroscience, but differs in its proposal to use detailed phenomenological investigations for advancing new theses about the brain functioning¹⁰. In section 1 and

⁹ The distinction of personal-subpersonal, as used in cognitive science (Di Francesco and Marraffa, 2014), is, in my opinion, clearer compared to others to clarify this point. Of course, Husserl did not use these terms, but they are useful to shift our attention to the Self understood as personal, individual, with a historical experience. It is also common to refer to this distinction as the dichotomy of first-person and third-person approaches. I do not follow this distinction because, in phenomenology, it could be confounding. Phenomenological studies follow a first-person approach, but they are not directly personal in the existential sense; but always structural.

¹⁰ Indeed, through this approach, we do not focus on first-person data, but phenomenological insights are used to develop new psychological constructs, experimental

2, I explained that phenomenology enables us to analyze consciousness processing in essential terms, both in terms of functions and objects, whereas the latter can also be considered as representation in neuroscience. From this perspective, I observe a greater convergence with mainstream neuroscience compared to qualitative methodologies (Section 3).

For instance, when investigating how sensorial objects are represented within the brain, along with their different modalities, it follows that we cannot distinguish where apples and oranges are represented (singulars), but fruits (essences) with their specific properties, like their tastes and morphology. These analyses are indeed related to classes of objects rather than singular instances. Therefore, it is reasonable to anticipate that biological mechanisms will differ for each class, such as perceptual or propositional entities, other persons, or normative components of our experience. The same conclusion can be extended to the functions that elaborate these classes of objects, such as memory, planning, and so on, which show differences with respect to the domain in which they are applied. In phenomenology, functions (*Erlebnisse*) change their modalities with respect to the class of objects they are directed at (intentionality). Albeit through a very different methodology, in neuroscience we find something similar: for instance, the functioning and neural substrate of Working Memory differ between the spatial and verbal domains.

In other words: both pure phenomenology and neuroscience aim to understand universals or species as opposed to singular or individual aspects. Despite operating in different domains (the experiential and the biological) both approaches share a focus on structural knowledge of the respective fields: the structure of the brain and consciousness.

To summarize: the analysis of pure consciousness, as the research of the necessary condition, or essences, of experience, is more likely to be applied in brain science, as we are dealing with processes that necessarily belong to every human being. Conversely, conceptions about ourselves inherently merge beliefs, desires, representations about our skills, plans, and their correlated feelings are inevitably situated within the empirical or personal domain. Within the empirical domain, complex representations and personal processes are combined together to constitute the Self, the personal story of a person or his identity.

design, psychological tasks, or questionnaires (Fuchs *et al.*, 2019), and so on. I think that phenomenological influences are undeniable in cognitive science, as evidenced by observing studies of embodiment, empathy (Gallese and Sinigaglia, 2011), sense of agency (Gallagher, 2012), social cognition (Frith and Frith, 2012), and many others. I agree on the importance of this approach, while I think that back-loaded phenomenology is a mistake.

7. Methodological Clarifications

The primary proposal of this paper is epistemological: I have argued that pure phenomenology, which is the study of the structures of consciousness, is more aligned with mainstream neuroscience than with qualitative approaches like neurophenomenology. I acknowledge the significance of neurophenomenology and related approaches in directing our focus toward qualitative methods instead of cognitive tasks alone. However, I suggest that these qualitative methods directly or indirectly focus on the Self, as they use verbal reports and narratives that measure personal experiences or abilities instead of pure consciousness processes.

In every empirical study, it is necessary to perform experiments on “real” subjects, with their unique stories, personalities, and so on. In phenomenological terms, it is not possible to investigate the pure level of experience when analyzing experimental groups, since in “real persons” essences are already fulfilled within the psychical dimensions of personal streams of consciousness (Husserl, 1989).

Of course, these limitations arise from the highly complex methodological issues that need to be addressed in empirical sciences. I acknowledge the impossibility of working directly on the pure level while developing empirical studies. Since the only way to conduct experiments is by collecting data from “real persons”, it follows that this strategy is also mandatory in studies with a pure phenomenological orientation. To solve such a methodological issue, I suggest that a return to pure phenomenology should not be meant as a further naturalization of phenomenology, but rather as a suggestion to employ phenomenological descriptions during the development of empirical instruments, designs, and so on.

Accordingly, *I propose that neurophenomenology and every qualitative approach defined as phenomenological should be designated as a methodological field concerning the applications of phenomenology, rather than being regarded as forms of naturalized phenomenology.*

Such a statement allows us to discuss methodological challenges about experimental designs further, but at the same time proposes a return to Husserl’s traditional method for interpreting and developing new experiments.

Correct phenomenological descriptions aim to identify the necessary conditions of experience that do not change across diverse groups of subjects or individuals. For instance, while the importance of training subjects is recognized, developing semi-structured interviews, specific tests, or questionnaires remains methodologically crucial, but phenomenological reexamination of these methods or empirical tools may be necessary to achieve analysis of pure consciousness, which may be used to investigate the general universal brain processing.

Although subjective experiences, cultural, and biological variables are

implied any time a person is asked to complete a task or respond to a questionnaire, pure phenomenology enables us to reduce (through bracketing) these subjective-existential factors, in order to emphasize the necessary condition of experience. The development of new methodological tools can be achieved through strong collaboration between traditional phenomenologists, who use the *epoché* or the reduction to propose analysis, and experts in empirical methodologies who all together use phenomenological descriptions to develop new strategies for investigating the brain.

Furthermore, introducing the original Husserlian conceptions does not address whether first-person or third-person approaches are more or less phenomenological. What makes my proposal different from front-loaded phenomenology (Gallagher, 2003) is that I suggest that both approaches offer distinct and relevant experimental perspectives: the difference lies in how we utilize phenomenological descriptions to conceptualize the experimental design in both cases. While such a claim in the third-person approach can be aligned with front-loaded phenomenology, I do not exclude that the very same approach can be applied in first-person studies. In both cases, what is crucial is not the reference to different naturalized phenomenology, but rather the use of the (pure) phenomenological method to implement empirical tests or develop new cognitive models to investigate the brain with customary experimental techniques.

The inclusion of subjective data is a significant proposal, but it is crucial to include phenomenological descriptions in order to focus on the universal processing in each person. Given the “evident” existence of this universality in phenomenological research, such a proposal may lead to the discovery of previously unknown brain mechanisms. Specifically, by exploring the existence of neural correlates of pure consciousness, we can ask if biological or neural conditions of this universality, as described in phenomenological research, can be discovered through brain science, with the possibility to shed new light on brain mechanisms that are universal in elaborating the world and the Self.

8. Conclusion

I stated that (pure) phenomenological descriptions are not concerned with subjective or phenomenological “data” but primarily with necessary conditions without which a specific class of objects (e.g., perceptual or normative) cannot be experienced whatsoever, and the same applies to our Self-experience and more complex strata of our experience, like culture. Pure phenomenology does not begin with an analysis of the personal or existential Self, but with the necessary conditions of our world experience, which must be conceived as universal, or essential, in each human being.

In this paper, I have not criticized theoretical discussions of neurophenomenology, since they share most of the principles of pure phenomenology, insofar as they emphasize the importance of essences or invariants. In any case, empirical applications open several issues, since working on subjects during experimentation is a great challenge to achieve coherent phenomenological descriptions. Each individual must be defined as a real person who already possesses an organized stream of consciousness that needs to be considered in singular terms. To avoid this problem, it can be recognized that training subjects to observe correlates with neurophysiological data is a valid strategy, but it requires further discussions to get closer to phenomenological analysis, in order to investigate universal processing rather than subjective states.

Although the only way to collect empirical data is to work on real persons, I think that traditional phenomenological analysis can help us modify the tools and models that are used in empirical research, in order to focus our analysis on essential structures that belong to each human being, and presumably to the general brain functioning, in the attempt to methodically exclude (by bracketing) the existential level or subjective factors. I emphasize the importance of the necessary, invariant, structural components of our experience since the source of this universality, as described by pure phenomenology, may also be related to brain functioning. Of course, to further corroborate this position, specialized studies on specific topics need to be developed. For this reason, I have limited myself to proposing a shift in our approach, where the original Husserlian positions ought to gain primacy when experimental applications are proposed or interpreted.

In other words, the thesis of this article is epistemological, but it proposes a new perspective to develop new empirical methodologies, through the proposal to shift our attention from the Self to processes and structures of consciousness in their universality, as described through the phenomenological method.

This paper has two main limitations. I introduced very different traditions that would require much more space to be fully reviewed and illustrated. In order to emphasize the relations between these different epistemologies, I enucleated those principles that I consider as most salient. The second limitation concerns the absence of detailed descriptions to explain how pure phenomenology can be applied to neuroscience. The main reason for the latter point is that such a proposal needs to be developed elsewhere, with reference to selected topics of research.

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