Phenom Cogn Sci (2016) 15:489–515
DOI 10.1007/s11097-015-9428-9

Eidetic results in transcendental phenomenology: Against naturalization

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Published online: 16 June 2015

Abstract In this paper I contrast Husserlian transcendental eidetic phenomenology with some other views of what phenomenology is supposed to be and argue that, as eidetic, it does not admit of being 'naturalized' in accordance with standard accounts of naturalization. The paper indicates what some of the eidetic results in phenomenology are and it links these to the employment of reason in philosophical investigation, as distinct from introspection, emotion or empirical observation. Eidetic phenomenology, unlike cognitive science, should issue in a 'logic' of consciousness. Instead of being derived from empirical investigations its results should consist of high-level background conditions that are necessary for cognitive science to be possible in the first place. To negate these conditions is to be faced with certain types of 'material' contradictions. Some analogies with science – *mathematical* science – are used to develop the argument.

Keywords Essences · Naturalization · Transcendental phenomenology · Constituted platonism · Idealities · Object-directedness

In this paper I want to highlight aspects of the eidetic nature of Husserlian transcendental phenomenology. Part of the motivation for this is to speak to issues about 'naturalizing' phenomenology and about the relationship of cognitive science to phenomenology, but also just to attempt to set out clearly and simply what some of the eidetic results are supposed to be. It has seemed to me in recent years that it would be useful to do this since this dimension of phenomenology is often overlooked, minimalized or even ignored. Instead, the term 'phenomenology' is often used to refer in a loose way to any of a number of different philosophical views. In so-called 'Continental' philosophy it might refer to views of Husserl, Heidegger, Sartre, Merleau-Ponty, or others, some of which may abandon essences altogether or which

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can be quite different from one another in various ways. On the other hand, after philosophers in analytic philosophy of mind started to talk again about cognition and consciousness the term 'phenomenology' has often referred to little more than first-person or introspective reports, to qualia, to 'subjectivity' in some loose sense, or to appeals to 'what it is like' to be this or that sort of thing.

Since it is *eidetic* transcendental phenomenology that is under consideration, I want to open the paper by recalling Plato's injunction that philosophers study some mathematics before embarking on philosophical investigations. Plato thought that by this means we would cultivate our ability to grasp essences or eidetic truths:

> What would be the study that would draw the soul away from the world of becoming to the world of being? … Geometry and arithmetic would be among the studies we are seeking … a philosopher must learn them because he must arise out of the region of generation and lay hold on essence or he can never become a true reckoner … they facilitate the conversion of the soul itself from the world of generation to essence and truth … they are knowledge of that which always is and not of something which at some time comes into being and passes away. (Plato 1960, *The Republic*, Book VII)

It can be argued that in his transcendental eidetic phenomenology Husserl is not a classical platonist but that, rather, he is a 'constituted platonist'.[1] Plato's view in this passage, however, recognizes what I would take to be a distinct and unique type of directedness in our thinking or consciousness that is crucial for epistemology and that gets us into the vicinity of the constitution of the meaning of being of objects such as essences. In accordance with Plato's outlook, I will in the first section of the paper set out some simple examples of what can be regarded as *Wesensshau* in mathematics. This will prepare the way for comparison with examples in transcendental phenomenology. In subsequent sections I turn to what are supposed to be eidetic results in phenomenology itself. It is this possibility of obtaining eidetic results in philosophy that made Husserl's transcendental phenomenology so attractive to the great logician Kurt Gödel, who began to study Husserl's philosophy in 1959. I will argue that there is a mode of thinking or of consciousness in both the mathematical and phenomenological examples that is quite different from what we find in the empirical sciences, cognitive science included. Later sections of the paper draw out a few morals for (i) what it is that is supposed to set eidetic phenomenology apart from cognitive science and (ii) for efforts to naturalize phenomenology.

1 Following Plato's advice: a brief mathematical excursion

Let us consider a simple problem on which to reflect. One could choose many different kinds of examples but let us suppose, say, that an investigator is doing research on the gender of zebras and she asks the following question: Is it the case that at least two out of every three zebras are of the same sex? It is important to note that we immediately take this question to be *meaningful*, even without knowing whether the answer to it is

[1] See Tieszen 2010 and 2011. See also section 5 below.

yes or no. It is not meaningless syntax, not ungrammatical, and so on. The question directs our thinking and behavior in a certain way and not in other ways, and we can then go on to try to solve the problem.

One might respond to this question by observing a bunch of triples of zebras in order to see whether in each case at least two of them are of the same sex. In this case we would go out into the world and make the relevant observations. We would employ ordinary (outer) sense perception and the appropriate equipment and expertise, collecting data and noting in each case whether at least two of three zebras are of the same sex. This could involve a tremendous amount of time and energy, especially if we want to increase the sample size. Moreover, our observations will be limited in various ways. We will not be able to exhaust all of the triples of living zebras and even if we could we will not have data on all of the zebras who have ever lived or who will live. There would always be room for doubt for just this reason. Our conclusion could only be probabilistic. This is an empirical method, a classic case of what is regarded as a posteriori knowledge since one derives the conclusion from sense experience. I will refer to it below as an 'empirical mode' of consciousness. In the case at hand, however, this method is utterly pointless – a waste of time, and in fact rather dim-witted. Why? Compare the type of thinking or consciousness just described with the following mode of consciousness. Consider the *possible* gender combinations: they are FFF, FFM, FMM, MMM. Note that these are all the possibilities, and that in each case at least two zebras are of the same sex. Here we learn something from a little bit of pure *reasoning* and not from sense experience or introspection of our own private mental states. The directedness of our thinking, which is called 'intentionality', is in this case very different from the manner in which we are directed in the empirical mode of thinking. In fact, this latter kind of thinking is sufficient to *prove* what we might call the

Zebra gender theorem (ZGT) Given that any zebra is male (M) or female (F), at least two out of every three zebras are of the same sex.[2]

What we are doing here is considering all of the possibilities and determining a *necessity* relative to these possibilities. We can close off *in advance of all future experience* any other possibilities. We are not trading in probabilities at all. In this case there is no room for doubt of the kind that is possible in the empirical mode of consciousness. This is a very simple example of what has traditionally been called 'a priori' knowledge. As we said, it is not derived from sense experience but rather involves the human cognitive capacity for reasoning. We can be aware of things not only through outer sensory experience or inner experience (introspection) but also through a capacity for 'reason' and a related kind of imagination of possibilities. In short, it is eidetic seeing. Husserl calls it eidetic *intuition* because we come to *know* things by such means, not to merely conjecture, guess, feel it to be so, etc. Thus, in the

[2] A statement with this degree of specificity, given the generalizations possible, would typically not be regarded as a 'theorem' proper in mathematics, but what we want to emphasize is the mode of thinking that issues in proof. This is a version of a simple but instructive example, chosen especially for philosophers with little background in mathematics, due to Robert Tragesser (unpublished), who presents it as the 'Firefly Theorem' in his paper "Studying Mathematical Proof: Some Phenomenological Considerations Toward the Creation of a General Theory of Proof". Tragesser's interesting paper focuses on mathematics, but not on findings in eidetic transcendental phenomenology or on how, as eidetic, it is analogous to mathematics. Thanks to Robert for letting me use his example.

ZGT we are not merely *conceiving* or thinking of something without knowing whether it is true or not. As we said above, we understand the meaning of the sentence and this directs our thinking before we know whether the sentence is true or false. In Husserl's language, the sentence initially expresses an empty meaning-intention and in this case the meaning-intention is then fulfilled (not 'frustrated') upon seeing ('intuiting' in his sense) that the sentence is true. In this kind of example, Husserl says, we have grasped an eidetic truth. We have had an eidetic intuition. 'Intuition' here is a defined term. It is very important not to attach other meanings to the term 'intuition' in this context.

In the ZGT we have, as Plato says, knowledge of an unchanging truth, one which is not subject to generation and decay. Husserl, in a similar manner, distinguishes what is 'ideal' from what is 'real'. What is real is what occurs in time or in time and space, while what is ideal is atemporal (or omnitemporal) and unchanging. With the ZGT we have knowledge of what is *ideal*.[3]

Note that through all of the changes in the flow of my consciousness I can come back at will to the ZGT and the proof again and again and see the same thing. It is an invariant not only through the manifold of my subjective acts but others will also experience it as invariant in their mental lives. There is an intrasubjective and also an intersubjective dimension to the objectivity of these results. Many different subjects at different times and places can come to see the same thing. The eidetic results of transcendental phenomenology should be similar in this respect, but I will not go into details in this paper about the phenomenological analysis of intersubjectivity in connection with eidetic results.

There can be more than one kind of (eidetic) proof of the ZGT. This is another important feature to note about distinctively mathematical thinking. So we have, as already noted,

Proof 1 Consider all of the possible gender combinations: FFF, FFM, FMM, MMM. Note that these are all the possibilities, and that in each case at least two zebras are of the same sex. For someone who is not quite sure of having all of the possibilities at hand we can indicate a proof in which we systematically generate them:

Proof 2

			M	F			
		MF	MM	FF	FM		
MFF	MFM	MMF	MMM	FFM	FFF	FMF	FMM

In each of the triples on the lowest line at least two out of three are of the same sex.

The proof could also be indirect:

Proof 3 (*Reductio Ad Absurdum*). Assume there is a collection of three zebras no two of which are of the same sex. But then the three zebras must be of three different sexes.

[3] We should also note that some idealities are obtained by 'idealization', such as the objects of Euclidean geometry which are idealized points, lines, planes, triangles, spheres and such, but that not all idealities involve 'idealization' in this sense. What Husserl calls 'morphological essences' (see below) are idealities that do not involve this kind of idealization.

This contradicts the supposition that there are only two zebra sexes. In this latter case we seek and find a contradiction, not a mere improbability but an *impossibility*. This is another way – common in mathematics and logic – to obtain an eidetic result. Now we want to keep the two modes of consciousness in this example – what I will call the empirical and the rational modes – clearly in mind. We are directed in our thinking in different ways in these two modes and the practical consequences are of course also quite different. The rational mode closes off in advance all of the time, energy, money, and so on that would be expended in the empirical mode. (Pragmatists should be happy with this.) It completely overrides the empirical mode. This is in fact typical in cases where genuinely eidetic results are possible. It gives us a glimpse of the potential power of mathematics that has impressed many generations of researchers.

Some other features that are very common in mathematical thinking are types of generalization (or abstraction) and formalization. The ZGT is quite specific but we can quickly *generalize* it by *varying* its content. It could be about other objects of outer sensory perception, such as gorillas, fireflies, horses, elephants, and so on. Indeed, to realize this is different from realizing its truth only in the case of zebras. We can continue in this manner and replace all of the empirical content positions in the sentence by *variables* and ask whether the resulting statement still holds: given that any x is either φ or ψ, at least two of every three x's are φ or are ψ. Now the result need not be about objects of ordinary sensory perception at all. It need not be about only 'real' objects. It could be about fictional objects or ideal mathematical objects that are not the kinds of things one could perceive with the five senses. In arriving at such a generalization our awareness is again directed in a different way from how it was directed before such a realization. It is not as though consciousness now ceases to be directed. It is simply directed at a more abstract level. The ZGT then appears as just a particular application of this form. It would be typical to also try variations on the places in the statement referring to numbers, and also in the case where we start with more than just the two properties we called M and F in the ZGT. As we continue, abstraction and formalization will play more of a role, and eventually we build up a whole web of eidetic results. Here we would be developing mathematics more seriously in the area of combinatorics. We would, that is, be advancing into the eidetics, determining when the variations hold and when they do not, when we obtain necessities or impossibilities and when we do not, noting our results and moving on and building from there. The basic claims here all seem quite simple and obvious in the case of our mathematical example but we will want to see what the parallels are supposed to be in transcendental phenomenology.

It is important to note that the ZGT is what Husserl would call a *formal eidetic truth*, as distinct from a *material eidetic truth*. It is not a truth that depends on the 'essences' of the two genders or the contents of the corresponding concepts. Indeed, it will hold for many different substitutions for M and F in the form. While there will be various analogies between eidetic phenomenology and mathematics, eidetic phenomenology should consist of 'material' eidetic truths. Phenomenology in this sense is supposed to be an a priori *material* 'science' with its own subject matter, distinct from the subject matter of mathematics. Among other things, this means that *formalization* will not play the same role in phenomenology proper that it plays in mathematics. In *Ideas I* and other works Husserl says we need to distinguish formalization from generalization (in the sense, for example, of determining genus/species relations). The claim, furthermore,

is that logic and mathematics are concerned with exact essences while phenomenological philosophy is concerned with inexact ('morphological') essences.[4] The fact that morphological essences are inexact does not prohibit us from determining certain necessary conditions with respect to these essences.

In reflecting on the ZGT we may need to add further features to a *definition* of what it is to be M or F, or to consider the possibility of sexual trisomy. If the antecedent of the ZGT does not in fact hold, however, that does not falsify the ZGT. The theorem, after all, is a conditional. Moreover, we can say that the theorem *applies* in cases where the supposition holds and otherwise does not apply. This shows us something about the *relation of the formal eidetic result to an application*. The lack of application or the limited range of application does not affect the formal eidetic result. There is a gap between the two. We do not make the truth or falsity of the formal eidetic result depend on the whether it has an application, as some empiricists are inclined to do. We do not derive the theorem from (sense) experience in the first place. The generalizations (or abstractions) and specifications at work in mathematical awareness are of a different type. They are eidetic generalizations and specifications, all within the domain of reason or of what the ancient Greeks called *Noûs*. This should also be the case in transcendental eidetic phenomenology. We lay out an eidetic network, a web of concepts and propositions (see section 3(θ) below). In phenomenology the web in the case of 'normal' consciousness will typically have application but there are variations, ranges with their own eidetic networks, as in forms of 'abnormal' consciousness. We can have a variety of eidetic webs and consider their relations to one another.

2 Basic eidetic results in transcendental phenomenology

Now let us shift attention from our little mathematical excursion to transcendental phenomenology. As eidetic, transcendental phenomenology should provide an analysis of structures of consciousness that, as in mathematics, is not derived from sensory experience. The mode of thinking in this case is also not probabilistic or statistical, not based on sample size, not governed by the goal of finding the best predictions, not based on measuring response times, not based on observing the brain, and so forth. Because we are now turning to consciousness and subjectivity, however, 'phenomenology' is often described as being concerned with the first-person perspective or with introspection instead of the third-person perspective. By itself, this has the potential to create serious misunderstandings. A lot of recent analytic philosophy of mind seems to fall prey to the misunderstandings. Thus, for example, Daniel Dennett portrays Husserl's phenomenology as an effort to find a new foundation for philosophy "based on a special technique of introspection" (Dennett 1991, p. 44). The phenomenologist on such a view is supposed to be someone who lamely describes the private inner things that swim by in the stream of consciousness. The first-person/third-person distinction, however, completely misses the distinction between the eidetic and the experimental, and thus misses the important role of *reason* in obtaining eidetic results that involve

[4] In *Ideas I* sections 71–75 Husserl discusses some of the ways in which mathematics differs from the eidetics of mental phenomena.

ideal particulars and ideal universals. What is missing in much of the analytic literature, which simply expresses without much reflection a form of empiricism or naturalism, is a place for the role and functions of reason. There are discussions, for example, of the outer sensory world, the inner world of thoughts, images, and the like, and perhaps of emotion or affect, but not of what might be learned or known on the basis of reason. Justification and evidence, I would argue, depend on our capacity for reason. Essences are ideal objects and nothing in the first-person/third-person distinction tracks the difference between the ideal and the real. Phenomenological *philosophy* is concerned with the 'logic' of the concepts involved, with conceptual analysis on the basis of reason, not with private inner feelings or reports. It should lead us to a 'transcendental logic', not a formal logic.[5] Its results are not to be derived from outer experience or inner experience or empirical generalizations from these. Rather, it seeks to determine a priori structures of human consciousness upon which outer and inner experience necessarily depend.

It could be argued that eidetic phenomenology is intended to use the resources of reason to ideate first-person phenomena in order to uncover their essential features. Phenomenological reflection would then not be identical to introspection but might be founded on it in the sense that introspection delivers particulars from which ideation proceeds, just as sense experience provides particulars from which the ideation of colors, shapes, and so on proceeds. One could go into this in much more detail but for now I simply want to note the important role that the notion of reason plays in Husserl's philosophy, a role that is frequently overlooked in many discussions of what goes by the name 'phenomenology'.

Although we will be concerned with the 'logic' of the concepts of consciousness, experience, belief, memory, imagination, knowledge, and so on, we cannot completely abstract away from the content or meaning of these concepts. As mentioned, this is supposed to be 'transcendental logic', not pure formal logic. The idea is to determine general, high-level eidetic invariants that do not depend on sensory experience but rather that sensory experience depends upon. They make sensory experience possible in the first place. Indeed, Husserl extends this kind of analysis to natural science as a whole: we are not after what depends upon abstractions from, or idealizations and mathematizations of outer sense experience but rather what all of this depends upon a priori. It is supposed to depend upon, among other things, the eidetic results noted below. Where it is not just basic sensory perception that is under consideration we will have to distinguish between founding and founded acts and structures, pre-reflective and reflective acts, acts of abstraction, idealization, formalization and material generalization, active and passive synthesis, and so on.

This investigation is also not just a matter of laying out transcendental arguments in the style of Kant because Husserl (e.g., Husserl 1970, section 30) holds that Kant did not subject the conclusions of transcendental arguments to the method of eidetic analysis. If we really have an essential structure of consciousness then this should be

[5] Husserl contrasts transcendental logic with formal logic in many places in his writings. See, for example, Husserl 1969. In Husserl 1982, formal ontology is distinguished from regional ontologies and phenomenology itself is referred to as a regional ontology pertaining to consciousness. Although I do not have space here to go into all of the details involved in this distinction, a number of the relevant points will emerge in the argument below.

apparent in the imaginative variations involved and in the 'material' contradiction or 'countersense' we discover if we try to deny in each case that there is such a truth.

Now let us proceed to some of the eidetic results and some of the accompanying terminology.

(α) Let us first contrast two assertions:

(i) There is experience of a cup *and* there is no cup, and
(ii) There is experience of a cup *and* there is no experience.

In (ii), unlike (i), there is a (material) *contradiction*. It is *possible* that there is experience of a cup and yet there is no cup, as in misperceptions or hallucinations, but it is not possible that there is experience of a cup and there is no experience. Here we have an *eidetic result*, a result that at face value appears to be a priori and apodictic, and yet (ii) is arguably not merely a formal logical contradiction. If it were a formal contradiction 'P and ¬ P' then it should read, for example, 'There is experience of a cup and it is not the case that there is experience of a cup', or 'Experience exists and it is not the case that experience exists'. But consider the conditional 'If experience does not exist then experience of a cup does not exist'. While this appears to be true, its converse is evidently false. One could read it in terms of a genus/species hierarchy. We *cannot* simply *substitute* the one expression for the other. (ii) is evidently a 'material' countersense.

This is not a result that is due to introspection or 'inner sense'. The capacity for detecting and thematizing *contradictions* is a capacity of *reason*. It is not a matter of a private, inner feeling, hidden from everyone but me. Paralleling our mathematical example, since I cannot hold (ii) without contradiction it follows that *doubt* plays a very different role with respect to (i) and (ii). I can doubt that there is a cup if I experience a cup. This is like the Cartesian method of doubt in some ways, except that with the so-called phenomenological *epoché* we will not assume there is a cup or that there isn't a cup. We will instead just 'bracket' or suspend judgment about the existence of the cup, and focus only on the experience of the cup. Now we can introduce some terminology. We will say that with the phenomenological *epoché* we 'bracket' the *transcendent* (e.g., the alleged existence of the cup) and restrict ourselves to experience, to how things *appear*. In other words, we restrict ourselves to *phenomena*. Husserl sometimes says we should restrict ourselves to the 'immanent' and bracket the transcendent, and that from this point of view the immanent is 'absolute' for our phenomenological investigations while the transcendent is instead 'relative' to consciousness.

(β) The cup in our example could be an illusion, but could it be an illusion that there is experience? It appears that there is experience and we are restricting ourselves to appearance, so there is no problem. Bringing it into the form of a contradiction, we cannot say that there *seems* to be experience *and* there is no experience because seeming *is* experience. It is absurd to say that it seems there is no experience. As Galen Strawson has recently put it, the is/seems distinction collapses in the case of experience.

(γ) Now let us engage in *variations* on the objects of experience x in the expression 'there is experience of x'. As in the methodology of *mathematics* and *logic*, we can *substitute* for x objects such as houses, cars, donkeys, waterfalls, and so on, and the result in (α) still holds. We obtain a generalization. It is an eidetic generalization, similar to the generalizations of the ZGT that are possible.

(δ) Also, carry out *variations* on the type of mental phenomenon. There are various types of consciousness of x, as in I remember x, I perceive x, I desire x, I imagine x, and so on. For all of these substitutions the results in (α), (β), and (γ) still hold, and we have another generalization. This means that we have the results in (α), (β), and (γ) for a whole range of possible experience.

(ε) Next, what is the nature of this experience or consciousness? We analyze 'there is consciousness of x' in (α) more deeply. Consciousness exhibits *intentionality*. By definition, intentionality just refers to the 'aboutness' or object-directedness of consciousness. This means that consciousness can be *object-directed even if there is no object* such as a cup, as in (α) (i) above.

Let us focus for a moment on the nature of belief and ask whether it is *possible* that there could be a *belief* that is not about something or other, as in

(i) I have a belief *and* it is not about something.

Suppose someone tells me that they have a belief, that I ask them what it is about, and their response is that it is not about anything. This is also a (material) *contradiction* on the concept of belief. It is absurd. Could there have been a time when belief was not about something or could there be a time when belief will not be about something? Not without changing the meaning of the term 'belief' and therefore just changing the subject. Thus, intentionality is an essential feature of belief. We have another *eidetic* finding. Since it is an eidetic result it would be pointless to set up an experiment in cognitive science to determine whether belief exhibits intentionality. What experiment could possibly falsify this if (ε) (i) is already a contradiction? Any experiment would presuppose that the beliefs involved in setting up the experiment exhibit intentionality. One might attempt to 'naturalize' intentionality or phenomenology but this only succeeds in ignoring or forgetting about experience and consciousness. I argue below that naturalistic reductionism about consciousness is itself just a type of consciousness.

As per (δ), we can ask whether intentionality is an invariant through the substitutions we make for other types of mental phenomena, such as desiring, remembering, willing, knowing, and so on. It is. Philosophers such as Husserl and Heidegger, however, already pointed out that there are some forms of experience or behavior that are not object-directed. Certain types of skilled know-how or of understanding, for example, do not seem as we are immersed in them to be object-directed. Moods do not appear to be object-directed, nor does a generalized kind of angst. Heidegger gives examples of absorbed coping, as in equipment use. Certain types of meditation are also described as not being object-directed. I do not see these phenomena as posing a problem for the kind of view I am presenting. In fact, is Heidegger not claiming in effect that it is an eidetic truth that moods are not object-directed, or would he allow that at some point in the future, for example, moods could be object-directed? Presumably he would not want to say that this is just an empirical finding that could vary over time or that it is some kind of loose associationist claim.

This is a good place to mention another mental phenomenon that does not exhibit intentionality: sensation. If I perceive a red ball the perception is object-directed, but sensation is only a moment (i.e., a non-independent part) of the perception as a whole that is not itself directed. Sensations are raw givens. I live

through sensations but the sensations themselves are not my objects as I am directed toward the ball. The ball is my object. Husserl sometimes says that sensations are 'animated' by interpretations. A basic point can be seen in the case of Gestalt switches such as those involved in looking at a Necker cube or a duck/rabbit figure. In this case we see clearly how the sensory material remains the same while what is perceived varies. In a word, perception is underdetermined by sensation. I return to this below, where we will see that it is an eidetic result about object-directed consciousness.

(ζ) Given (α), is it *necessary* that there always be an object such as a cup when there is a belief about the object? No. But can there be a belief even if there is no object in these cases? Yes. Therefore, the aboutness of the belief must not always require that there be an object. The presence or absence of an object such as a cup, in other words, could not be what makes the 'aboutness' possible. What does make it possible? Something must. This is a feature of consciousness that Husserl calls the *noema* (see also (η) below). We just noted that sensation underdetermines perception, as in the case of the perception of a duck/rabbit image. What is it in the perception that adds determinateness to the experience, that adds an 'interpretation', so that what we perceive is either a duck or a rabbit? The claim is that it is the noema, e.g., the *Sinn* 'x is a duck', that determines the object-directedness of the perception. If an act is object-directed it can lack an object but it cannot lack a noema. Now we are starting to delve into the structure of intentionality. Here there are many details and fine points that I cannot go into, but the claim is that we can begin to uncover the *essential* noematic moments of consciousness that are required for object-directedness.

Next, we focus on some additional features of object-directedness of consciousness.

(η) In being directed toward an object we are not able to grasp everything about the object at once. It is not as though we discover this through empirical findings in cognitive science. Let us instead turn to the *logic* of the concepts involved. In classical extensional logic if an object denoted by a singular term 'a' has a property denoted by 'P', Pa, and a=b is true then Pb. Substitutivity *salva veritate* holds. This is also the case for predicates and sentences: substituting a predicate for another having the same extension or replacing a sentence with another having the same truth value does not affect the truth value of the resulting sentence. This pattern of inference, however, fails in the presence of intentional notions. For convenience, let 'B_s' be the operator 'S believes that'. If B_sPa and a=b then it does not follow that B_sPb. Similarly, let 'K_s' be the operator 'S knows that". If K_sPa and a=b then it does not follow that K_sPb. These forms of inference fail because consciousness in these cases is perspectival. To be a transcendent object of consciousness is to be experienced perspectivally or partially. We are not omniscient. If we could experience every object from every possible perspective then the inference would not break down. The logic of the concepts would be different. It is an eidetic truth that if c*onsciousness is object-directed then it is perspectival*.

Another way to describe this is to say that object-directed consciousness is *conception –dependent*: it is perspectival if and only if it is conception-dependent. What makes it perspectival is that it is directed by a particular concept (or *noema*) and not others. Thus, it does not suffice to merely indicate the subject (monad), the type of

consciousness (e.g., belief, knowledge), and the object intended because we can be directed toward the same object under many different conceptions (*noemata*). Here is a standard kind of example:

S believes that the author of *Word and Object* is a philosopher.

The author of *Word and Object* = the creator of NF set theory.

Therefore, S believes that the creator of NF set theory is a philosopher.

The inference fails because our experience depends on *how* we refer to the object. We do not experience objects under every possible concept that has application to the object but only under particular conceptions of the object. (We note that not all concepts have applications to all objects. There must be categories of concepts, violations of which lead to 'category mistakes'.) In Husserl's work this conception-dependence of experience is another way of speaking about the dependence of the experience on the 'noema' or meaning of the act of consciousness.[6] The perspectival or concept-dependent nature of object-directed consciousness implies immediately that this type of consciousness at a given time is *finite* and *limited*. The converse also holds.

The kind of understanding involved in what is 'ready-to-hand', as emphasized by Heidegger, would not be perspectival in this way but it is also not object-directed. The subject-object duality would not be present in such cases. As some Heideggerians have put it, there would be no subject-noema-object structure in this kind of understanding or know-how. What I want to do, however, is to circumscribe concepts for which object-directedness does hold.

We have appealed to the logic of the concepts of belief and knowledge but we can also engage in *variations* to find that substitutivity *salva veritate* also fails in the context of other intentional notions. For the contrast with cognitive science as an empirical science we should ask whether there could possibly be an experiment that would refute the claim that object-directed consciousness is perspectival. How would the experiment go? We could ask cognitive scientists whether they would want to spend time or money on such an experiment. As in the ZGT, we might think of trying to confirm the statement case by particular case, i.e., this particular instance of object-directed consciousness is perspectival, and this instance of object-directed consciousness is perspectival, and so on, but this would be just as pointless as it was in the case of the ZGT. Instead, we have an eidetic invariant. Any experiment we could set up would presuppose that object-directed consciousness is perspectival. What might be of interest, however, would be to run fMRI studies to try to correlate brain activity with perspectival and non-perspectival forms of awareness (e.g., in certain forms of meditation or absorbed behavior).

The statement that object-directed consciousness is perspectival, conception-dependent, finite and limited is not the result of experiments in cognitive science but it is also not a mere formal eidetic truth such as $P \rightarrow P$. It is not completely empty of content. Rather, it tells us something about consciousness, a phenomenological fact of a

[6] See Smith and McIntyre 1982, Chapter 1, section 2, for good discussions on the perspectival and conception-dependent nature of consciousness. This book also contains excellent material on the noema and the notion of horizon.

distinctively *philosophical* character. Husserl would say it is a material a priori truth, the kind of finding that *philosophers* can contribute to the study of the mind. It is a mistake to try to force every statement into only two categories – either the formal, tautological 'apriori' or the material empirical 'a posteriori'. This is much too crude to do justice to our experience.

3 Some additional features of object-directed consciousness

Several additional consequences are immediately related to these facts. We can see how they are interrelated by engaging in a little bit of phenomenological description. It is possible to go into great detail about the following features of experience but here I just want to indicate what some of these features are in order to subsequently highlight their eidetic character. We can start with experience of a particular object, such as a cup, but it is very natural to generalize immediately to all object-directed experience. What the role of imaginative *variations* in all of this would be, linked to the service of reason, is often suppressed but we can make it explicit in order to see that we are not dealing with introspected particulars or mere empirical generalizations about our experience.

In the following we can assume the results we have already indicated above: that there is experience, that we will observe the *epoché* and restrict our investigation to the *consciousness of* objects, that we will focus on forms of consciousness that exhibit intentionality, that object-directed consciousness is perspectival, conception-dependent, finitary, and limited. In ordinary perception of an object such as a cup it is clear that we do not experience the cup with all of its possible properties and relations. We do not and cannot see everything about the cup all at once. We cannot have every possible perspective on the cup. Rather, the experience is *partial*. The back side of the cup from our current perspective is not given to us. If we were to move around the cup then further sensory complexes would be involved but sense data would not themselves be the objects of our perception. The cup would still be the object of perception and, as we noted above, the ongoing perception would be underdetermined by sensation.

Depending on our previous experience, which forms the *background* of the perception and involves *memory*, our *expectations* about further possible experience of the cup will be more or less determinate. Only a certain range of possibilities, however, is consistent with the ongoing experience of a cup. There must be a *horizon* of possibilities associated with the experience of the cup. The horizon is intentionally predelineated by the content of the concept (or *noema*) 'x is a cup' of the act of perception. Upon moving around the cup our expectations may be either fulfilled or frustrated. Experiencing the other side of the cup is typically possible even if this possibility is not in practice always actualized. Experiencing the cup from *every possible perspective*, however, should be regarded as an *ideal*, that is, as an infinite task.

Objects are always given in a field of consciousness, a context of given and of possible objects. Objects are never perceived in isolation. In the field of consciousness some things are in the foreground and some things are in the background. The experience of an object has an *inner horizon*, that is, a range of possibilities related to the ongoing harmonious perception of the cup, and an *outer horizon*, which includes possible further relations of the cup to other objects.

Since perception at a given time is always partial we see that *time* is required to learn more about objects, to move around them, experience them in different sensory modalities, etc. T*emporality* is obviously required for this kind of consciousness. What is the nature of this temporality that is involved in all of our object-directed consciousness? The cup, as *the object perceived*, will have its own temporality in space and outer time, but the *perceiving* itself has a temporal character. We can thus distinguish 'outer' temporality from 'inner' temporality and investigate the nature of the temporality of this perceiving, of experiencing itself. Is this consciousness, for example, *confined to an isolated*, *independent* '*now*' *point*? Does this describe our experience? Is it punctuate, discrete, or atomistic, with the 'points' or phases having nothing to do with one another? No. There could be no experience of objects were this the case. If we investigate the matter in more depth we see that c*onsciousness must have a kind of temporal extension*, with forward-looking and overlapping backward moments of experience. What must be part (a moment) of every kind of object-directed act, perception included, is a type of r*etention* of the immediate past and *protention* of the immediate future. Retention must preserve in an appropriately modified way what was just perceived, as in a melody or the just perceived part(s) of an uttered sentence. This type of retention, which is automatic or passive in every experience, must be different from an *act* of *recollection*. This difference should itself be an eidetic finding. Recollection itself involves retention and protention. Recollecting has a temporal duration that must include retention of the immediate past of the recollection and some expectation, more or less determinate, of what is just about to be recollected. Recollection is also involved in the constitution of the consciousness of objects. Without memory of these types there would be no object-directed consciousness, i.e., no consciousness of invariants across time in the flow of subjective acts. This is also an eidetic result. There are also *acts* of expectation as would be associated, for example, with planning.

In all of this consciousness is experienced as *streamlike* and *continuous*. Since experience of objects is partial the (non-independent) parts (moments) of the stream must be *unified* or *synthesized* in a certain way in order for the experience to be possible. We can then analyze the nature of this unification or synthesis. One distinction that emerges is that between *passive* and *active synthesis*, that is, the type of synthesis in which moments of experience are automatically combined in a certain way and the kind of synthesis in which we have to actively combine moments of experience in order to constitute directedness toward an object. The most basic kind of sense perception involves passive synthesis but higher-level cognitive acts will, in their origins, require active synthesis. In a mathematics class, for example, I might illustrate the concept of set by (actively) forming some sets of perceptual individuals (which are themselves objects I do not need to actively constitute), and then form unions, intersections, Cartesian products, and power sets of such sets, and so on. As we build up our knowledge, what is constituted in active syntheses may become sedimented and not require activation again. Once I prove a theorem, for example, I can just use it to obtain other results without having to reactivate the procedure for obtaining it. There are syntheses of identity, of discrimination, and other types.

In a full study of the human mind we might look for neuroscientific correlates of all of this, although not for purposes of eliminative reductionism about consciousness. I will have more to say about this below.

There is a sense, furthermore, in which object-directed experience must have a *bearer* or owner. There are no free-floating experiences in the room, experiences that are not experiences of a meaning-constituting being. We do not need to say much about this subject of experience at the moment. Perhaps, without further analysis, we can just think of it, as Husserl says, as a formal pole of identity. The schema '*I* believe that Pa' then depicts the situation in which a subject is directed toward an object or state-of-affairs as a function of the content or *noema* expressed by 'Pa'. Variations to '*You* believe that Pa', '*We* believe that Pa', and so on, are forthcoming as we elicit and analyze invariant structures involved in making possible the intersubjective dimension of human experience. As mentioned above, we can also allow for the possibility that there are forms of conscious that do not have a subject-noema-object structure. We are considering, however, the eidetic features of object-directed consciousness.

(θ) We have referred above to various elements of experience with italicized terms and we can now lift out each of these and comment on their interdependent eidetic character. Here I provide only a brief summary of this eidetic web. Suppose object-directed consciousness is perspectival, conception-dependent, finite, and thus limited. With respect to the description, for example, it then follows that consciousness cannot be object-directed and partial and not temporal. It cannot be object-directed and temporal and not partial. This is not possible. It is countersensical, a contradiction on the concepts involved. It cannot be object-directed without retention and recollection. Consciousness cannot be conception-dependent and yet completely determine all of the properties and relations of its objects. It cannot be conception-dependent and not temporal. It cannot be temporal and punctate. It cannot be punctuate and continuous or punctuate and synthesized. It cannot have a foreground/background structure and be punctate. It cannot have a horizon and lack a foreground/background structure. It cannot be object-directed without being the experience of some subject, and so on. All of these assertions can be brought into the form of contradictions. We lift out the network of these concepts along with their logical interconnections. It seems clear that much of this can be formalized, but the idea would be that one could not expect to completely eliminate semantics or meanings from the picture in favor of pure algorithms, for the directedness would then disappear. The analysis can be deepened considerably, sorting out the details, circumscribing the concepts, and generally clarifying the eidetic invariants and their relations.

Here we would be cultivating what we called the rational mode of inquiry, as in our earlier mathematical example. These statements are not empirical generalizations. They are not the results of experiments in cognitive science but, rather, they pick out conditions that make experiments in cognitive science, indeed science in general, possible. They are necessary conditions for the possibility of any science. They are not derived from sensory experience but sensory experience depends on these eidetic invariants. Hence, they are not a posteriori. They are also not based on introspection of what is private, 'hidden', or individually subjective. There are privately experienced, 'hidden', or individually subjective phenomena such as, e.g., a pain I might have in my toe at a certain time. What is known by *reason*, however, does not consist of private, hidden and only individually experienced particulars. Think again, by analogy, of the ZGT. Here I am following the long tradition in which 'reason' is the name given to the capacity to thematize and to be aware of ideal *universals* or *invariants* (in this case, regarding object-directed consciousness of subjects of a certain kind). The upshot is

that with our eidetic invariants we are able to *obtain some objectivity about subjectivity.* This is one reason why Husserl wants to speak of eidetic transcendental phenomenology as a 'science', only it is not an empirical or natural science. Instead, it is a transcendental 'logic', a logic of consciousness. It is a discipline of reason that can yield some knowledge, evidence and truth in its own right.

4 Eidetic phenomenology and cognitive science

In this section I will briefly present a couple of examples of experiments from the history of cognitive science in order to draw out the contrast with eidetic results in transcendental phenomenology. What I am mainly interested in is not the specific content of the experiments but rather the components that distinguish cognitive science as an *empirical*, *non-eidetic* study of the mind from the eidetics of phenomenology. We have some examples above of directedness toward essences or eidetic truths but in cognitive science we have a different kind of directedness. In cognitive science, as an empirical science, we are not directed toward essences. Since different models and explanatory schemes have been employed within cognitive science the examples below would not necessarily be accepted by all cognitive scientists, but this fact itself shows us something important about the contingencies of the shifting and even incompatible approaches that have been part of this field, to say nothing of the relatively short period of time in which it takes certain alleged results to be viewed as historical relics. Broadly speaking, there have been computational/symbolic approaches, connectionist/dynamic approaches, and embodied/enactive approaches in cognitive science. In general, it is safe to say that cognitive science is or was supposed to be distinct from pure neuroscience, behaviorist approaches, introspection, and eidetic/a priori investigations of mental phenomena. It should operate at a different level from brain science but also from experimentation in the style of behaviorism. Unlike introspection, it should involve third-person observation. Unlike eidetic investigation, it should involve empirical experimentation.

If phenomenologists are correct then there are things that neuroscience, behaviorism and cognitive science cannot tell us about experience and consciousness. There are also of course many things about the mind that transcendental eidetic phenomenology cannot tell us but that we might learn from experimental work. Phenomenology cannot tell us about the functional organization of the brain, e.g., about what is due to left and right hemispheres. Neuroscience has to be involved. It cannot by itself tell us how seemings are realized. It cannot reveal anything about mental events such as certain acoustic or visual processes that do not *seem* any way at all. There is a long list of things it cannot tell us about.

Example 1 I start with the sort of experiment I worked on in a Cognitive Science lab as a graduate student.[7] It concerns semantic processing of auditory information (Lackner and Garrett 1973).[8] In experiments of this kind

[7] With Thomas Bever in the psychology department at Columbia University

[8] Owen Flanagan (Flanagan 1992) provides a description of such an experiment, which I am partially following here, but his comments about 'phenomenology' display the pattern of much of recent analytic philosophy of mind in using the term to refer to introspection or first-person reports which are, of course, often unreliable. This usage completely ignores the Husserlian idea of phenomenology.

subjects are asked to pay attention only to the left channel in a set of earphones, and in this channel they hear an ambiguous target sentence such as "The lieutenant put out the lantern to signal the attack." In the right channel there is irrelevant noise plus the sentence "He extinguished the flame." Upon being interviewed afterward subjects report what they heard in the attended channel and insist they heard nothing in the unattended channel. It appears that they keep meaningful sounds received in the unattended channel from becoming conscious, a phenomenon known as the 'Broadbent filtering effect'. Subjects are then asked to choose between two interpretations of the target sentence: (i) "He extinguished the lantern to signal the attack", or (ii) "He put the lantern outdoors to signal the attack." Can we determine a priori, based only on analysis of the concepts involved, what they will choose? I think not. Introspection also will not help. The experiment shows that subjects display a preference for the interpretation that fits the semantically related sentence "He extinguished the flame" even though they claim not to have heard this in the unattended channel. From this it is natural to infer that they did in fact 'hear' or process the sentence even though they claim they did not experience the sentence in the unattended channel. The favored explanation has been that acoustical processing occurs in both the attended and unattended channels. The noise in the unattended channel is semantically processed. Meaning is attached to the noise. The sentence on the attended side is an object of explicit awareness and can be recalled. The sentence on the unattended side is also remembered but it is not consciously retrievable, yet its semantic content was processed in such a way as to disambiguate the target sentence.

This explanation *could* be true but there are also other possible explanations. Maybe, for example, subjects are conscious of the noise in the unattended channel but only for an instant, a period too brief to be remembered as experienced. Again, it appears that introspection will not help us to decide here, nor will eidetic phenomenology, but perhaps neuroscience could help. In discussing this experiment Owen Flanagan (Flanagan 1992, p. 15), for example, has speculated on how this might work. Suppose, as was suggested at one point by Crick and Koch, that subjective awareness is linked to oscillation patterns in the 40 hertz range in the relevant group of neurons. The 40 hertz patterns can be sustained for very short periods of time, in which case there is rapid decay of memory, or they can resonate for several seconds, in which case they become part of working memory. It is then possible that the sentence in the unattended channel makes a conscious appearance (since it is a 40 hertz oscillation) but it is not remembered. It is also possible that neither of these is the correct explanation. We are not dealing here with the eidetic mode of thinking.

Example 2 How is information of recently encoded memories retrieved (Sternberg 1966)? It should not be controversial that memory exists. We saw above how it would be part of eidetic phenomenology that 'memory' exists if there is to be object-directed consciousness. One can then go on to distinguish 'retention' from acts of 'recollection' and to explore further

> details about types and features of memory. The question, however, depends upon several other assumptions, as Flanagan (Flanagan 1991, p. 185) points out, that indicate how models of cognition change. It assumes that memories are representationally encoded, which connectionists and others may reject, that there are mechanisms that retrieve information from memory, and that these mechanisms operate in a rule-governed way.
>
> In the Sternberg study subjects memorize lists containing subsets of numbers 1 to 10, where the lists vary in size from one to six digits. In each trial the subject sees a randomly generated list, and the list is visually displayed for just over 1 s. After a 2 s delay a test digit appears. The subject pulls a lever, A, if the test digit was on the memorized list, and pulls a lever B if it was not. The data collected consisted of measurements of the time it took from presentation of the test digit to the pulling of the appropriate lever. Three hypotheses are put forward to answer the question at issue: (i) there is an unordered mental overview of the entire list; (ii) a self-terminating serial search; or (iii) an exhaustive serial search. These three hypotheses predict different reaction times. The mental overview hypothesis (i) predicts that reaction time will be the same no matter where the test digit appears on the list since the entire list is seen all at once. Hypothesis (ii) predicts that reaction times will vary depending on the location of the test digit on the list. Responses should take longer the later (assuming left to right search) the test digit appears on the list. Negative responses should also take longer than positive responses. Hypothesis (iii) predicts that reaction times will not vary with location on a list, but unlike hypothesis (i) this model predicts that reaction times will vary with the length of the list. Since the search is exhaustive we go to the end of the list even after a match has been made and therefore reaction time should be longer when the list is longer. Sternberg concludes that our minds perform exhaustive serial left-to-right searches in these kinds of cases because it was found that the mean reaction time varied linearly with the length of the memorized list and that reaction times were the same for positive and negative responses.

Here again we are not dealing with the eidetic mode of thinking. The kind of skepticism that accompanies the empirical mode of directedness is possible. The mental overview hypothesis, for example, is also compatible with the data. It predicts no variation in reaction time depending on the location of the test digit but it does not necessarily predict against reaction-time differences for lists of different lengths. It might take longer to bring up longer lists for scanning on account of access mechanisms, but once they are brought up the response could be all or none.

These examples do not display an eidetic form of meaning and directedness. The components of meaning and directedness they do display involve issues about the accuracy of sensory observation, about sample size, measurement, deciding on the best hypothesis of those formulated, alternative explanations, empirical prediction, and so on. None of this is involved in the eidetic results discussed above. Unlike the ZGT case or the case of the intentionality of belief, we do not get a contradiction on the concepts involved if we deny the alleged or even the most probable conclusions. In the eidetic case, however, denial

amounts to a change of meaning and directedness in the expressions in the problem. The only way a belief could fail to be about an object would be to willfully assign the expression 'belief' a different meaning, so that we only succeed in changing the subject. In these experiments we do not know a priori what is necessary to make the phenomenon in question possible because there are alternative explanations, each of which admits of doubt.

As a general thesis about the relationship of eidetic transcendental phenomenology to empirical cognitive science we can say that the structures of consciousness discussed in sections 2 and 3 above are conditions for the possibility of cognitive science. In the absence of these structures there could be no cognitive science.

The contrast between eidetic and experimental modes of thinking is manifest in the examples we have presented, but should we be skeptical about whether it is real? There are some deeper issues raised by attacks on the distinction and by reductionism that we should consider.

5 Naturalizing phenomenology

In this section I make only a few brief comments related to the literature that has developed on naturalizing phenomenology. We are living at a time when it is close to being an imperative in philosophical culture to attempt to naturalize in some way or other epistemology, metaphysics, ethics, and so on, and it is not surprising that Husserlian phenomenology itself has been subjected to this pressure. As the famous logician Kurt Gödel writes in a lecture manuscript on Husserl (Gödel 1961), this is part of the *Zeitgeist* that has been developing in the West since the Renaissance. Reacting negatively to his own early views, Husserl argued at length against the naturalization of logic, mathematics, and phenomenological philosophy. For him, the naturalization of certain domains of experience is 'one-sided', blind to some basic aspects of human consciousness, and potentially even dangerous (see, e.g., Chp. 1 of Tieszen 2005). It is not that natural science is not legitimate. On the contrary, it of course has its place in the study of the natural world. We should, however, distinguish the totalizing philosophical attitude of naturalism from the practice of science itself. The problem is not with science but with scientism. It is possible to be a competent practitioner in science without adopting the *philosophy* of naturalism or empiricism.

Let us briefly consider a few of Husserl's comments about naturalism and the scope of natural science. In *Ideas I*, for example, Husserl says that

> When it is actually natural science that speaks, we listen gladly and as disciples. But it is not always natural science that speaks when natural scientists are speaking; and it assuredly is *not* when they are talking about "philosophy of Nature" and "epistemology as a natural science". And, above all, it is not natural science that speaks when they try to make us believe that general truisms such as all axioms express (propositions such as "a + 1 = 1 + a", "a judgment cannot be colored", "of only two qualitatively different tones, one is lower and the other higher", "a perception is, *in itself*, a perception of something") are indeed expressions of experiential matters of fact; whereas we know with *full insight* that propositions such as those give explicative expression to data of eidetic intuition. But this very situation makes it clear to us that the "positivists" sometimes confuse

> the cardinal differences among kinds of intuition and sometimes indeed see them in contrast but, bound by their prejudices, *will* to accept only a single one of them as valid or even as existent. (Husserl 1982, section 20)

In the 'Vienna Lecture' (Husserl 1970, Appendix I) he says that

> The reason for the failure of rational culture, as we said, lies not in the essence of rationalism itself but solely in its being rendered superficial, in its entanglement in 'naturalism' and 'objectivism'.

These kinds of comments are not merely a consequence of the fact that in Husserl's time there was not yet an empirical science of the mind or of consciousness. Even now there are skeptics who might wonder whether there is such a science, which is not to say that there are not ongoing attempts. Rather, I think Husserl's comments just reflect a more fundamental kind of philosophical rationalism. This can be seen clearly, for example, in his essay "Philosophy as Rigorous Science", where the model of science in question, in the rationalist tradition of figures such as Descartes and Leibniz, is not natural science but is rather mathematics and logic. Husserl (Husserl 1965, pp. 90–91) thus says that

> To study any kind of objectivity whatever according to its general essence… means to concern oneself with objectivity's modes of giveness and to exhaust its essential content in the process of "clarification" proper to it… With this we meet a science of whose extraordinary extent our contemporaries have as yet no concept: … a phenomenology of consciousness as opposed to a natural science about consciousness.

Sciences of fact are to be distinguished from sciences of essence. Phenomenology itself is not supposed to be a natural science since it is concerned with essences. Essences cannot be adequately understood in terms of natural science. Indeed,

> The spell of the naturalistic point of view…has blocked the road to a great science unparalleled in its fecundity… The spell of inborn naturalism also consists in the fact that it makes it so difficult for all of us to see "essences", or "ideas" – or rather, since in fact we do, so to speak, constantly see them, for us to let them have the peculiar value which is theirs instead of absurdly naturalizing them. Intuiting essences conceals no more difficulties or "mystical" secrets than does perception. (Husserl 1965, p. 110)

We have some examples above of what 'intuiting essences' is supposed to mean and it is indeed not a big mystery once it is properly understood. Husserl thus says

> But one must in no instance abandon one's radical lack of prejudice, prematurely identifying, so to speak, "things" with empirical "facts". To do this is to stand like a blind man before ideas, which are, after all, to such a great extent absolutely given in immediate intuition. (Husserl 1965, p. 146)

And, for just this reason,

> It is important today to engage in a radical criticism of naturalistic philosophy. (Husserl 1965, p. 78)

A standard objection to the kind of view I have been presenting, with its invocation of Plato and its talk of essences and eidetic truths, is that it commits us to platonism and platonism is allegedly supernatural. Surely we do not want to be committed to supernatural objects or events. My response to this objection is to say that eidetic transcendental phenomenology is not committed to traditional dubious forms of metaphysical platonism that might seem to invoke the supernatural. Rather, it can be argued that eidetic transcendental phenomenology implies constituted or transcendental platonism.[9] The latter is about human *meaning constitution*, which natural science and cognitive science are incapable of addressing. It asks about necessary conditions for the possibility of constitution of the meaning of being of eidetic objects and truths as idealities. Searching for such conditions is not a task of natural science but it is also not supernatural platonism. It is a uniquely *philosophical* task, concerned with constitution of the kind of directedness toward eidetic invariants that is a function of *rational* experience. These conditions are eidetic but not mysterious, not inherently inaccessible, and so on. The idea is to examine the actual experiences in which we become conscious of essences and the abstract objects of mathematic and logic, which are phenomena about which we would be blind if we did not take the intentionality of consciousness seriously. In this case we see that such objects are not supernatural. If we examine their meaning constitution we see that they are certainly not meant that way. They do not bear the predicates and relations that characterize superstition, the supernatural, or the spooky. The suggestion that they are mysterious already reflects a prejudice (prejudgment) about the possibilities of directedness. The eidetic invariants are not things-in-themselves, for we are in principle incapable of constituting such things. We could not have evidence for such things. Rather, they are synthetic identities (invariants) in the manifold of phenomena in rational (not empirical) experience that we do not make or produce but, rather, that appear in what we called the rational mode of consciousness as non-temporal, non-mental, not dependent on actually being instantiated by anything, and not dependent for their being on our being conscious of them. They are not given as bearing within themselves the property of being constituted. One might say that what is constituted is the knowledge of such objects, not the objects themselves. It is perfectly compatible with constituted platonism that *our understanding* of concepts can change through time and that this can be informed by science, but the concepts, objects and truths themselves of the eidetic sciences do not change. As Husserl says, there is only one Pythagorean theorem even though there have been manifold variations in the times, places, persons, cultures, economies, political systems, and so on, in which the theorem has been grasped. Believing that the Pythagorean theorem is true is not superstitious or spooky. Classical mathematics and logic give us good examples of such invariants in the manifold of rational experience, and we already noted a number of the relevant points above about the ZGT and its generalizations. Just pay close attention to what is actually meant and do not impose from the outset some outside conceptual frame on the experience. The rational, scientific a

[9] For many details see Tieszen 2010 and 2011.

priori does not equal the supernatural or mystical. There is a huge gap between the two. I renounce the supernatural. It is a false dilemma, in principle insensitive to various possibilities of directedness, to argue that one must choose either naturalization or the spooky and supernatural.

A large issue associated with the question of the naturalization of phenomenology that often goes unaddressed is whether platonism in philosophy, logic or mathematics can be naturalized. Since I think that the transcendental turn in phenomenology is to be taken seriously the question needs to be reformulated: can constituted platonism be naturalized? I am arguing that it cannot. Speaking against the prevalent form of naturalism in his time, psychologism, Husserl says that

> The psychologistic logicians ignore the fundamental, essential, never-to-be bridged gulf between ideal and real laws, between normative and causal regulation, between logical and real necessity, between logical and real grounds. No conceivable gradation could mediate between the ideal and the real. (Husserl 1973, section 22, "Prolegomena to Pure Logic")

I would argue that after the transcendental turn this gulf remains but is to be viewed in terms of meaning constitution. I return below to 'never-to-be-bridged gulf' between the real and the ideal.

Another objection of this type focuses not on the objects involved in eidetic directedness but on the subjects who are directed. Since we are arguing against the idea that naturalization can provide an accurate representation of the whole of our experience, as opposed to a part, one might think that on the phenomenological view subjects are souls or spiritual substances of some sort. Consciousness, or the self, is supernatural. My response is that, given the *epoché*, there is no evidence for such a conception of the self. There would be no way to gain access, on phenomenological grounds, to such a type of being. An investigation of consciousness or the self in the rational mode of inquiry into objectivity, as distinct from the empirical, is not supernatural. Seeking conditions for the possibility of experience and the 'logic' of experience does not equal illegitimate metaphysics. We investigate consciousness or the self after the *epoché*, which itself amounts to a kind of skepticism about (naïve) metaphysics, albeit not a naturalistic reductive or eliminative skepticism.

In recent times one of the most popular and far-reaching programs of naturalization, associated with pragmatism in particular, is due to Quine. Applied to the issues at hand in this paper, we can think of it as an attack on the distinction between the experimental and the eidetic. On the Quinean view, there is no sharp distinction between the two. What is regarded as eidetic is simply that which it would be very impractical to jettison in our overall web of belief. What we might regard as impossible, for example, is just highly improbable, so that it would be very impractical to seek counterexamples. What is alleged to be 'impossible', however, could be overturned. This holds for logical and mathematical truths as well as for what Husserl calls 'material' a priori truths. Knowledge arises from reflective equilibrium of the experimental and the 'eidetic' in the web of our beliefs. What makes this a form of naturalism is that natural science, especially physics, is what we are to preserve if it is knowledge that we want. Regarding mental phenomena, Quine himself favored a behavioristic view in his earlier

writings but later endorsed something like Dennett's view, coupled with evolutionary biology. There is no room for Husserlian eidetic transcendental phenomenology in this scheme.

I cannot respond in full to this here but I will briefly indicate where I think a main problem with the view lies.[10] It lies in what is concealed by the conditions that make natural science possible in the first place, conditions that are at least in part indicated in Husserl's *Crisis*. These conditions omit intentionality, subjectivity, the meaning-conferring features of human consciousness, and other features of consciousness discussed above. One has to look to the genesis of science to see how this developed. If intentionality is omitted then the features we discussed either cannot be seen at all or they cannot be seen as eidetic. A view that dismisses directedness is a view that will miss the possibility of directedness toward essences, that is, that will overlook the fact that there can be constitution of the meaning of essences as ideal objects. It is not as though we cannot *mean* essences as ideal, unchanging, and so on, in our experience, where this meaning is to be respected in its own right. We cannot swap this meaning for some form of behaviorial, neuroscientific, evolutionary biological, or computational meaning without doing an injustice to our experience. We are under the illusion that we can only because we have already adopted a certain interpretation of the world, an interpretation with limitations that can be revealed if we trace its origins. In effect, we cannot substitute the empirical mode of thinking *salva veritate* for the rational eidetic mode, for to do so is to change in a fundamental way the meaning and directedness of our experience, the behavior that accompanies this, the practical consequences of this behavior, and to omit a whole mode of directedness. Think of what the consequences would be, for example, in the case of the ZGT.

I would argue that from the point of view of transcendental phenomenology eliminativist reductionism about the mind and consciousness is itself a type of consciousness. One can trace the historical development of this type of consciousness, as Husserl suggests in the *Crisis*, asking about its genesis.[11] Here is the paradox of such eliminativism: eliminativism is a type of consciousness that seeks to eliminate consciousness. It is a type of consciousness that seeks to reduce consciousness to non-conscious physical or natural processes or things.

As we study the human brain we will observe neurons, axons, dendrites, and so on, but we will not find not essences or eidetic truths among these physical phenomena. Of course I cannot open up a skull, look inside, and see essences, just as I will not literally sense any mathematical truths. We can agree with hard-nosed neurophilosophers that it is absurd to think we will 'see', in this sense, essences, intentionality, perspectives, etc. As we reflect and reason, however, we engage an entirely different, theoretical level of directedness in which we can indeed 'see' eidetic truths, as when we see that the ZGT must be true or that there are no beliefs that are not object-directed. We then go on to ask in transcendental phenomenology what makes it possible to observe neurons and the like. How is it possible to be directed toward such objects?

Do I deny that human consciousness depends on the human brain, that neural processes make consciousness, memory, etc., possible? Of course not. I believe these things. But now consider the *belief* that human consciousness depends on the brain. On

[10] Tieszen 2011 contains an extended response.
[11] See, e.g., Chapter 1 of Tieszen 2005.

the analysis above, the belief that human consciousness depends on the brain depends necessarily on consciousness. How could it not? This is simply the situation we are in. One can argue that beliefs depend on the brain, although this is only contingently and not necessarily true if it is possible for beliefs to be instantiated in things other than brains. On the analysis above, however, beliefs depend necessarily on consciousness. I am arguing that we should not *abstract away* from the fact that the *belief* that human consciousness depends on the brain depends necessarily on consciousness.

There have been some specific proposals in the recent literature for a 'new' type of naturalization of phenomenology and I would like to offer with a few comments about this.[12] An obstacle that seems to me to stand in the way of all of these proposals is that essences are supposed to be *idealities*, as this would be understood in constituted platonism. Idealities are non-spatial, non-temporal or omnitemporal, unchanging, acausal, not objects of the senses or of introspection, and so on. The claim in constitutional phenomenology, I argue, is that we constitute the meaning of being of essences in a rational, non-arbitrary manner in this way, that we can uncover the cognitive processes that make such constitution possible, and that we cannot substitute some other kind of (reductionistic) meaning for this kind of meaning constitution. This is a claim of phenomenological *philosophy*, so part of what is at issue here is whether we can naturalize philosophy.

Now consider what 'naturalized' phenomenology means on one of the most important recent proposals. As Roy, Petitot, Pachoud and Varela (Petitot et al. 1999, p. 2) put it,

> By 'naturalized' we mean integrated into an explanatory framework where every acceptable property is made continuous with the properties admitted by the natural sciences.

Phenomenological descriptions of any kind, Roy et al. argue, can only be naturalized in this sense if they can be mathematized, except that now the mathematization will use developments that were not available in Husserl's time, in particular elements of dynamical systems theory. Mathematics alone is seen as capable of generating naturalistically implementable reconstructions of phenomenological data (Roy et al., p. 49).[13] Husserl's position, it is suggested, is the result of having mistaken certain contingent limitations of the mathematical and material sciences of his time for absolute ones:

> In our opinion it is indeed arguable that scientific progress has made Husserl's position [on the mathematization of phenomenology] largely obsolete and that this *factum rationis* puts into question the properly scientific foundations of his antinaturalism (Roy et al., p. 43).

[12] See Gallagher 2012 and Gallagher and Zahavi 2008 for nice overviews of contemporary proposals for naturalization.

[13] As Petitot puts it, the naturalization of phenomenology can be reduced to implementing algorithms that are based on 'geometrical descriptive eidetics' (Petitot 1999, p. 330) Elsewhere in the paper (p. 331) he says he will adopt the strategy that 'every concept is the name of an unknown algorithm'. Coming from Petitot, this is somewhat puzzling because he has also written in a Husserlian vein on what he calls 'transcendental platonism'. It is puzzling because one might think the platonism, with its *abstract* objects or concepts, could not be fully captured in algorithms. Otherwise, the platonism would be eliminable. On the whole, however, I find Petitot's work on morphological eidetics quite interesting and important.

Or, similarly,

> It can be argued that most of the genuinely scientific reasons that Husserl might have had for refusing to allow his phenomenology to be integrated into the field of natural sciences … have been invalidated by progress in the sciences and can now be regarded as false (Roy et al., p. 54).

I note one further component of this view. The models made available with the development of dynamical systems theory are said to represent a genuine mathematical descriptive eidetics to the extent that, in spite of being mathematical, *its concepts are not ideal* but adequate to the determinations of phenomenological data. (Roy et al., p. 56, my italics)

I do not deny that the mathematical tools for modeling cognition that are supplied by dynamical systems theory are better than anything that was available in Husserl's time. The use of these tools in 'morphological eidetics', cognitive neuroscience, and 'neurophenomenology' represents an advance and is laudatory but I am not convinced that this development helps with the naturalization of transcendental eidetic phenomenology in the sense that is at issue, namely, that of making every acceptable property continuous with the properties admitted by the natural sciences. How could the properties of essences as idealities just mentioned – their unchanging and acausal character, atemporality, non-spatial character, and so on – be made continuous with the properties admitted by the natural sciences? How could this be compatible with constitution of the *meaning* of being of essences as ideal and with the possibility of directedness toward such objects in acts of reason? There are a host of facts about the concepts and methods of dynamical systems theory and about algorithms that are *essential* to these facts and methods. These are themselves idealities. They are *meant* in such a manner in the mathematics in question. This can again be made apparent by checking whether substitutivity *salva veritate* holds when we compare the mathematical properties with properties admitted by the natural sciences.

Apart from specifying what dynamical systems in general are, one can appeal to continuous or discrete dynamical systems, the related use of differential or difference equations, linear or non-linear dynamical systems, trajectories (orbits), periodic orbits or not, attractors, bifurcations, various theorems, and so on, but as soon as we ask *what* these are we will be invoking essences as 'idealities' and not as 'realities' (in Husserl's sense) that are temporal and changeable. There are some properties, for example, that are essential to being a trajectory. These properties cannot change over time without simply changing the meaning of the expression 'trajectory'. If I vary them then I am no longer talking about a 'trajectory' in the same sense and I can no longer use the expression in the same way in applications. One can use the concepts and methods of dynamical systems theory to obtain a more sophisticated modeling of cognition and of at least some phenomenological data but we have only backed the question up to the issue of naturalizing the facts in the mathematics itself. We have to naturalize the mathematical properties that are presupposed by the dynamical systems theory in which we do the modeling.

One might object that on some views of naturalization the "properties admitted by the natural sciences" could include ideal objects. Perhaps one could read Quine's indispensability argument for realism about mathematical entities in this way. This

seems to commit us to a view on which 'natural' means much more for some naturalists than we might suppose. (We should note that Quine indicates that he would not apply his indispensability argument to essences in particular because quantification over essences is not needed for scientific practice.) I think there are a number of problems with such a view of naturalization. I cannot go into details here, but widening the notion of the 'natural' in this way is problematic on a number of grounds. Perhaps a larger issue, from my point of view, is this: why should indispensability to scientific practice, especially physics, be what determines whether idealities exist or not? In the case of mathematical idealities one can point out that actual mathematical practice does not proceed on the basis of such an indispensability argument. I would argue that the indispensability argument should be rejected in the first place. It is the kind of argument one might make if, for the reasons mentioned above in connection with Quine, one omits intentionality, the meaning-conferring features of human consciousness, and various other features of consciousness. A view that dismisses intentionality and its function in reason will be a view that does not do justice to the eidetic sciences in general.[14]

Husserl's antinaturalism about the eidetic and his arguments against the full mathematization of phenomenology have arguably not been made obsolete by progress in the sciences. Are we really in any more of a position now than we ever were to say that a *philosophical* view such as platonism or constituted platonism about eidetic domains has been made obsolete by science? I think not. Consider, for example, the philosophical views of the great logician Kurt Gödel, which I have considered in detail elsewhere (Tieszen 2011). Gödel argues that scientific results about mathematics such as the incompleteness theorems, the proof of the consistency of the axiom of choice and the continuum hypothesis with ZF set theory, and the like in fact lend support to platonic rationalism. The results show that we cannot identify formal proof with mathematical truth, and they suggest that meaning or content is not captured in mathematical formalisms, that evidence is not captured in mathematical formalisms, that intuition of essences is not captured in mathematical formalisms, that the operations of the human mind are not all algorithmic, and so on. Although there are many interesting connections between Gödel's platonic rationalism and Husserl's transcendental eidetic phenomenology we can just note here that Husserl is arguing from a phenomenology of reason that recognizes the richness of various modes of directedness and meaning constitution. This has not been made obsolete by the natural sciences. How can what the natural sciences presuppose or depend upon for their possibility, i.e., the high-level background eidetics in mathematics and in transcendental phenomenology, be made obsolete by the natural sciences?

Although I cannot go further into the issues at this point, I would argue that constituted platonism presents a serious obstacle to the naturalization of phenomenology whether one proceeds on the basis of computational/symbolic approaches, connectionist/dynamic approaches, or embodied/enactive approaches.

Here I would appropriate some of Thomas Nagel's remarks on subjectivity, objectivity and reductionism in support of transcendental eidetic phenomenology. 'Naturalistic' eliminative reductionism is a way to obtain a highly unified conception of life and the world but, as Nagel says, the pursuit of such unification can lead to false

[14] For much more detail see Tieszen 2011, especially Chapter 8.

reductions or the refusal to recognize part of what exists (Nagel 1986). I would say that we need both natural science and eidetic phenomenology, even if we cannot see at this point how to obtain the kind of unified picture of that would result from reductionism about the mind and consciousness. Obstacles to integration can cause discomfort but certain forms of perplexity embody more insight than the supposed solutions to the problems. Nagel argues that we need to be careful about the false objectification of aspects of reality that cannot be better understood from a more objective standpoint. We need both a defense and a critique of objectivity. Objectivity is underrated by some and overrated by others. It is a matter of achieving the right balance. Nagel says that because philosophy is difficult and frustrating some philosophers are receptive not only to scientism but also to deflationary views such as positivism and pragmatism which offer to raise us above the old battles.

What is possible, I would argue, is to pursue cognitive neuroscience, neurophenomenology, morphological eidetics, phenomenological psychology, *and* transcendental eidetic phenomenology, without necessarily from the outset attempting to reduce the objects, properties and relations of any one of these forms of directedness and meaning constitution to any of the others. We should be very cautious about favoring a particular approach with the idea that all the others are to be reduced to it. We are working on deep and difficult problems.[15]

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[15] I thank Peter Hadreas, Anand Vaidya, and two anonymous referees for *Phenomenology and the Cognitive Sciences* for comments on an earlier version of this paper.

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