

The Role of Normativity and Anticipation in the Constitution of Objectivity

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Abstract

We concentrate on the problem of the constitution of objectivity and conceive of it as a normative strategy of anticipation in our interaction with the world. We stress the transcendental account of objectivity, which is explicitly relational through its emphasis on the human involvement. First, we deal with Husserl's transcendental philosophy and the role of normativity and anticipation in the constitution of objectivity. Next, we elaborate a functional interpretation of transcendental reasoning, which can remedy for a number of flaws in Kant and Husserl, and makes transcendental philosophy relevant again for contemporary debates. Such an interpretation focuses on the *function* of constitution, which is essentially normative and anticipatory. We conceptualize this functional approach in terms of symmetry.

Keywords

anticipation, normativity, objectivity, symmetry, transcendentalism

1 Introduction: objectivity and situatedness

In contemporary philosophy, debates on the issue of consciousness or the relation between subject and object are mostly put in terms of subjective experience and the 'hard problem' of consciousness. However, the study of human experience requires not only an analysis of mental operations and subjective experience, resp. viewed from a third person perspective (such as in the cognitive sciences) or as *subjective* and from the *first person* perspective (cf. the stream of consciousness), but also an explicit *epistemological* counterpart. This *epistemological* counterpart concerns a set of fundamental philosophical problems concerning relations of an exceptional kind: the relation between 'knowledge' and 'world', between particulars and universals or between subjectivity and objectivity. The peculiarity of this relation is that it relates

regions of a profoundly different philosophical status. In our point of view, not the poles of the relation, but the relation itself is primal. The relation comes first and out of it the antagonistic poles emerge in mutual determination. Stated more generally, we are dealing here with the problem of our situatedness in the world.

This problem cannot be handled by a mere analysis of subjective experience, but asks for a particular – epistemological – perspective. Such a point of view can be found in the branch of philosophy that is called ‘transcendental’. In transcendental philosophy, the problem of the relation between subject and object is put in terms of constitution. In this paper, we concentrate on the problem of the constitution of objectivity and conceive of it as a normative strategy of anticipation in our interaction with the world.

Traditional transcendental philosophy makes us aware of the situatedness of all objectivity, but its account is restricted to the specific perspective within which it operates. By shifting to a functional interpretation of transcendental philosophy, we can account for the constitutional role of the perspective and situation in its generality without referring to a specific perspectival instantiation.

2 Transcendental philosophy and constitution

To talk about objectivity in the context of the problem of relatedness is suitable, because since Kant, objectivity is no longer conceived in terms of a simple and direct correspondence with a pre-given reality. Kant constructed his own method of investigation which is called the *transcendental* method. By this time, transcendentalism has a rich history and, as we shall see, it is of a crucial importance in the work of the phenomenologist Edmund Husserl. The transcendental account of objectivity is explicitly relational through its emphasis on the human involvement.

In general, transcendental philosophy starts with an unquestionable feature of our experience and knowledge, and then searches for the necessary conditions of its possibility. The initial, rather implicit or even dogmatic givenness is made explicit by deducing its conditions of possibility. Thereby, the initial ‘dogmatism’ is put into the perspective of and related to our faculties of knowing, or broader, to our involvement in the world. This means that the factors of our own contextual situation, constitutive for the givenness, are taken into account. By systematizing those factors, however, the original givenness is restored in its validity: the de-subjectivized conditions of possibility transmute in a *prescription* for the constitution of the givenness, that is, in a de-subjectivized form, they *legalize* the givenness as such (cf. *infra*).

As we shall explain in more detail, transcendental reasoning affects a twofold philosophical dynamics. First, it de-ontologizes or de-dogmatizes the starting point. Second, by giving a systematic account of its necessary conditions of possibility, it protects the givenness against mere subjectivity. In other words, transcendental reasoning contextualizes the givenness without destroying it *as* givenness, without deconstructing it. This is not the primary – Kantian – interpretation of transcendentalism, but we think it is the most fruitful one nowadays. Moreover, it provides the most appropriate basis to develop an anticipatory vision on transcendental constitution.

We start with the transcendental philosophy of Husserl and the role of normativity and anticipation in the constitution of objectivity (section 3). Next, we elaborate a functional interpretation of transcendental reasoning, which can remedy for a number of flaws in Kant and Husserl, and makes transcendental philosophy relevant again for contemporary debates (section 4).

3 Husserl: consciousness as a normative and anticipatory system

3.1 Husserl's transcendental philosophy

The phenomenologist Husserl has continued the study of consciousness as a transcendental undertaking: reality is not independent from consciousness, but consciousness constitutes the objects it intends. Everyone knows that the pre-eminent subject matter of phenomenology is the theme of intentionality. To say that it is about intentionality already implies more than to say it is about subjective and conscious experience. To explain this, we need the equally important notions of constitution and the eidetic and transcendental reductions. Intentionality is in the first place an active operation (a *Leistung*), viz. the operation of constitution. This means that consciousness is not a passively receiving instance; the object of consciousness is not merely passively given to consciousness, but is the result of consciousness' intentional activity.

To unveil consciousness as an intentional system, we need, first, the transcendental reduction which brackets all claims about the existence of empirical subjects and objects and reduces them to mere phenomena (this is not the same as denying the existence of subjects and objects! Moreover, the term phenomenon should not be confused with the notion of 'mere appearance'). Only then it can be examined how consciousness constitutes its objects, both with regard to the objective qualities and the objective status of an object. The transcendental reduction enables the phenomenologist to ask basic *epistemological* questions, without accepting pre-established concepts or answers given by the natural sciences. More in particular, it distinguishes phenomenology from psychology. Psychology, e.g., presupposes the object of consciousness and partly explains the 'content' of consciousness in terms of the (causal) influence exercised by the external object. Phenomenology brackets the object, and asks for the origin of the object of consciousness, instead of starting from the object as a pre-given entity (cf. the notion of constitution). In the following passage, Husserl shows the necessity of the transcendental reduction in order to obtain the transcendental point of view, in which we see that the world is an intentionally constituted correlate of transcendental consciousness. "And yet it will be revealed that the region of the absolute or transcendental subjectivity "contains in it" ["in sich trägt"] in a special, very particular way the real universe, resp. all possible real worlds and all worlds in any broader sense, viz. "contains them in it itself" through real and possible 'intentional constitution'."¹ In short, the transcendental reduction should enable us to discover the relation between the

¹ E. Husserl, *Ideen I*, p. 73 (not included in the translation by Kersten, our translation).

subjective and the objective, or how the objective and its experience are constituted by the subjective. The main finding of the transcendental reduction is that the objective world cannot be assumed, but that we have to examine its 'being given' in the first place. "The upshot here is that, contrary to what traditional theories of knowledge allowed one to conceive, the philosophizing subject, once it has attained the attitude of transcendental reduction, now understands that it is the transcendent objects themselves, in the first place the objects of external perception, which demands to be understood as constituted by consciousness, as correlates of acts of consciousness which present them in both their primary qualities and their secondary ones." (Vilella-Petit, 1999: 510)

Second, we need the eidetic reduction, which searches for the invariances or essences or necessary conditions of (the constitution of) the intentional subject and its object and the relation between both. The link between the conditions of possibility (cf. the eidetic reduction) and constitution (cf. the transcendental reduction) is very tight in Husserl's philosophy. "To uphold the rights of a transcendental phenomenology consists in bringing to light the very constitution of the experience of an object for a consciousness by showing how the object is, in this way, given intuitively to the consciousness. Unlike constitution, condition of possibility maintains the dualism between the phenomenal and that which conditions it. Constitution, on the other hand, rejects just such a duality by engaging phenomenality on the level of its original constitution." (Depraz, 1999, p. 465). This also explains why his phenomenology is inevitably transcendental. Transcendental should be understood as the a priori pertaining to constitution.

The problem of constitution concerns not only the problem how objects are given to us (in terms of their primary and secondary qualities), but also how objects acquire *validity*, i.e. how the ontological status of an object is constituted. This will be the focus of this article.

3.2 The problem of objectivity and its constitution

In Petitot (1997), it is particularly clear that the transcendental has to do with the constitutive. Petitot distinguishes three kinds of reality. First, *ontology*, i.e. the view that a substantial and independent reality exists. Second, the *strong objectivity* of physics from Newton to Einstein, i.e. the view that there exists an independent reality in the sense that the measurements do not interfere with the phenomena. Yet this reality is not independent from the spatio-temporal formation of the phenomena. In this view, being is veiled by the phenomenon. Third, the *weak objectivity* of quantum mechanics, in which the measurements do interfere with the phenomena. Transcendental philosophy is a philosophy of the non-ontological objectivity. This doesn't mean that the objects of consciousness should be interpreted as mere appearances. Even if a phenomenon is decoupled from any underlying ontology, it is not a mere appearance (cf. Petitot, 1997: 235).

If it is the case that we can not any longer accept an ontological point of view, but that objectivity is constituted, than we encounter the problematic question: how can we join real objectivity? According to Petitot, physicists have turned to the transcendental thesis again to answer this question. This means that there exists a legality that is proper

to the observable phenomena as such. It is not a matter of searching an objective explanation of the phenomena, starting from an underlying ontological inaccessible reality. Instead, objectivity has to be defined as an order of legality. In this way prescriptively defined as legality, objectivity is distinguished from any ontology. (cf. Petitot, 1997: 32) It does say that there are forms (in the Kantian sense, such as the forms of time and space) that play a constitutive role for objectivity.

This means that objects only *are* objects if they are *qualified as* objects. Knowledge, which is directed toward objects, presupposes a *prescriptive* and *normative* dimension of objectivity. There exists a difference between the phenomena and the experienced object. The latter only exist as qualified in accordance to norms and rules.² This means that the phenomena are useable in an experiment or a theory only if they are beforehand *qualified as* an object. And this is not a matter of description, but of *prescription*. The object is a normative concept, and is required as a condition of possibility for any scientific activity. These conditions of possibility are precisely what the constituted nature of objects refers to. For Petitot, it is the mistake of ontological realism to confuse the prescriptive dimension with an underlying ontology.

But how are phenomena 'legalized'? How do we get from the phenomenon, which is not yet an object, and in which the object is not given, to the object. The fundamental idea is the following: the categories of objectivity are interpreted starting from instances of givenness of the phenomena, i.e. starting from their forms of manifestation. As this interpretation is only operational if it is mathematical, these forms have themselves to be mathematised. A mathematical hermeneutics of the objectifying categories thus operates in each objectivity in the transcendental sense. This hermeneutics eliminates the sense of those objectifying categories (i.e. their metaphysical usage) and it rests on the mathematisation of instances of phenomenal givenness. (cf. Petitot, 1997: 32) Particular about this proposal is its twofold but apparently paradoxical function. First, it has to take into account that being is veiled by the phenomena. Second, the concept of phenomenon has to be desubjectivized. In this sense, it breaks away from both ontology (cf. *supra*) and psychology.

By now, we know that the object only has objective sense if it is related to a constitutive strategy. This constitutive strategy, which should be mathematised in order to be operational, starts from the manifestations or the phenomena. The correlate of such constitutive acts of legalization is a normative conception of the object. To put it briefly: the object is the correlate of the conditions of possibility of experience, which pertain to the constitution of the object from the phenomena. This is a general outline of the epistemological task of a transcendental theory of the possibility of experience and objectivity. This task is in its generality not different from Husserl's project, in which the function of *objectifying acts* is central, although Husserl refused a *mathematical* solution³. We won't pursue the details of Petitot's mathematical solution here, because our aim is to point to the general issues of constitution and its relation to normativity.

² Petitot refers here to the eidetic-constitutive rules of Husserl. Regions of being (for example physical object, animate being, spiritual being) are defined by such eidetic-constitutive rules.

³ „Therefore if he has let himself be won over by general considerations to the belief that a phenomenological eidetics is required, the immediately abortive attempt to establish anything like a

3.3 Consciousness as a normative and anticipatory system

„Accordingly, the *problem of constitution* clearly signifies nothing else but that the regulated series of appearances *necessarily* belonging together in the unity of what appears can become intuitively surveyed and seized upon theoretically - in spite of their infinities (unambiguously controllable precisely in the determined, and so forth) -: that the *law-conforming production* [Leistung] of *perfect correlation between what determinately appears as unity and the determinately infinite multiplicities of appearances* can become fully seen intellectually and thus all enigmas can be removed.“ (Ideas I: 362) Although the flux of experience is an infinite one, there are a priori or essential (i.e. necessary) rules to be discovered which govern the flux of experience and constitute unitary objects. “Thus we have to go back, as exemplary, to the consciousness in which things are given to us originally and so perfectly that we can be lacking nothing of grasping the universal essential form which prescribes the a priori rule for such objects.” (Ideas II: 37) and „It is only if one interrogates the thing-noema itself, the so-to-say thing-meaning, by bringing it to a givenness which unfolds itself in all directions, and, further, only if one lets the answer come from it itself in the actual carrying out of its directives, only then does one actually gain the essential components of thingness and the necessary essential interweavings, without which what is meant by a thing at all cannot be thought.“ (Ideas II: 38) Husserl thus explicitly states that the rules are necessary, a priori or eidetic laws. Moreover, the rules are eidetico-constitutive. The eidetical part refers to the idea that a (type of) object has to fulfil a number of essential (cf. eidos or essence) properties in order to qualify as an object. The constitutive part refers to the idea that the object is constituted according to these rules. Together, the eidetical and the constitutive part refer to the idea that an object is only possible and accessible if it is the result of the above operations. In other words, the object is the correlate of its conditions of possibility. What belongs typically and in general to the objectivity of the phenomena of a certain kind is beforehand determined. Consciousness operates according to the eidetic-constitutive rules and is, therefore, inherently normative and anticipatory. Normativity, prescription and anticipation are inherent marks of the intentional activity of consciousness. “Perception has its *perceptual sense*, its meant, just as it is meant, and lying in that sense are directives, unfulfilled anticipatory and retrospective indications, which we only have to follow up.“ (Ideas II: 38)

“The eidetic structures of perceptive experience are rooted in the rule-governed stream of consciousness. By its rules, the immanent temporal order of lived experiences constitutes objectivity. In that sense, the *passive synthesis* of the sensible *ante-predicative* manifestation is the ultimate ground of logical and predicative acts.” (Petitot, 1999: 332) The eidetic-constitutive rules are intentional functions that constrain

mathematics of phenomena can mislead him into a relinquishing of the idea of a phenomenology. But that would really be wrong.” (Husserl, Ideas I, p. 161) According to Husserl, phenomenology cannot become a geometry of experience.

the flux of experience or the flux of sense data and they elaborate the sense data into a unified objective whole⁴.

It thus is not only the case that consciousness is anticipatory, but also that consciousness is constitutive only because it is inherently normative-anticipatory, i.e. according to the eidetico-constitutive rules.

Epistemological components thus are an intrinsic component of an analysis of consciousness. This does not mean that we are idealists, i.e. that we 'create' the objects, but it means that objects are the result of a constitutive operation according to a priori, i.e. essential rules. According to Husserl, we have to turn back to consciousness in order to grasp the essences that prescribe a priori rules to the objects of consciousness (cf. *Ideen II*, p. 34). Therefore, in the epistemological part of the study of consciousness, normativity and anticipation are the main issues in the description of the constitution of the object of consciousness.

4 Towards a functional interpretation of transcendental reasoning

4.1 The unquestionable starting point of Kant and Husserl ...

To recapitulate: transcendental philosophy starts from an unquestionable givenness and then ascends to the necessary conditions of possibility of this givenness. Kant's starting point is the unquestionability of the objectivity of scientific knowledge, and more particularly, the objectivity of Newtonian mechanics (objectivity comprehended in a double sense: (1) objective as 'valid for everyone', and (2) objective as 'possible to organize a set of appearances in an object-like structure'). Then he searches for the necessary conditions of the possibility of this objectivity. The end-result is an extensive system divided into the forms of givenness of – scientific – experience and the categories which provide the rules according to which these experiences are connected.

According to the twofold philosophical dynamics of transcendental reasoning, we can say that (1) Kant de-ontologizes Newtonian mechanics: it is no longer a theory about *what there is*, but a theory about *phenomena*. That is because phenomena are made possible or constituted by our own faculty of knowing (2) But because Kant de-subjectivizes the phenomena, – for instance by identifying our mental form for spatial intuition with the Euclidean space in mathematics – they are nevertheless not reduced to subjective appearances. The phenomena are neither *ontological* nor *psychological*; they are *objective* following normative rules (cf *infra*).

Husserl starts from the unquestionable fact that our experience is 'evident', i.e., that it is immediately present to our consciousness. The transcendental method enables him subsequently to uncover the essential structures of consciousness.

⁴ The eidetico-constitutive rules that *predetermine* the kind of object operate on the basis of antepredicative elements, ordinarily referred to as *sense data*. "Here, with the pure datum of sensation, we encounter a *pregivenness* which yet precedes the constitution of the object as object." (*Ideen II*: 24-25)

4.2 ... made questionable

Certainly, our interpretation of transcendental reasoning is much weaker than the original one. To explicate this, let us examine the concept of necessity. In Kant's analyses 'necessity' actually has a double sense. The necessary conditions of possibility are necessary *to render* the mechanics of his time objective. So, their necessity is *relative* to this objectivity. But since for Kant the objectivity of the Newtonian mechanics was beyond any doubt, the necessity of the conditions of possibility became *absolute*. The peculiar transcendental necessity is merely the necessity of being subjective, of being situated and having a perspective, but Kant – in an ultimate dogmatic turn – *universalized* this situatedness and perspective. He could do so by hitching his philosophy to classical mechanics. As we all know the latter has turned out to be just a limit case of more recent physical theories. As a consequence, Kant's concrete philosophical system had to die with the development of modern physics.

Husserl's evidence of the immediate presence of experience to consciousness is at first sight a firmer starting point for a transcendental analysis. But with the rise of postmodernism, and especially Derrida's (1967) critique of Husserl's phenomenology, this 'evidence' too is at least not unquestionable.

Can we escape this relativism? What can we do? We can persist in our search for an absolute givenness. History, however, tells us that it is very unlikely that even our best theories are true in an absolute sense. Furthermore, it is philosophically unsatisfactory because it falls back to a kind of dogmatic foundationalism which transcendentalism tries to overcome.

Is this the end of the transcendental account of objectivity? No, it isn't. One can make the transcendental picture more robust against the evolution of scientific theories by detaching it from the concrete and contingent forms of objectivity presented in these theories. Instead of starting from the requirement that, in order to be objective, the flux of appearances has to be organised in such a way that it has the character of representing objects, one can ask what the *function* is of this object-like organisation and subsequently search for the necessary conditions of possibility of this function. This way, the transcendental picture is made independent of the concrete realisation of the constitution of objectivity.

Remember that we introduced the problem of objectivity as a special case of the more general philosophical problem of *relatedness*. Note that by shifting the emphasis from objectivity to its function (1) we turn our investigating gaze no longer at the things related but at the relation itself, and (2) the question shifts from the explanation of having a specific perspective or relatedness to the question 'what is it to be related?' or 'what does it mean to have a perspective.' in general.

4.3 Objects in their anticipatory structure

Let us start from Kant's presupposition of an object-like organization of our experiential data and ask what function it does or can have. As explained above, Husserl explicitly endorses in his writings the view that ordering the world in terms of objects

with properties is nothing more or nothing less than an anticipatory strategy. Moreover, we pointed out that Husserl's analysis supports the interpretation of the notion of constitution in transcendentalism as essentially prescriptive/normative.

Objects are characterized by their permanent identity across time, and their possession of intrinsic properties. That means that the object and its properties remain *invariant* relative to a certain set of manipulations or transformations. I can open a book, without transforming it in something else, but I cannot burn it without destroying it. The invariance of the properties is guaranteed during the transformation process, because properties not just express the *actual* relation in which the object is involved, but a large number of *possible* relations in which it *can* involve. Ascribing a property to something means recognizing this thing as a disposition to produce effects whenever it is involved in many possible relations to other things. Instead of indicating the presence of something independent, something *an sich*, the object/property-complex expresses an intrinsically relational content. The *independence* we ascribe to things and properties, is nothing but the indefinite openness of the network of *interdependence* in which they may be involved. The anticipatory capacity of such an object-like organisation of the world may be clear. To cut the world in objects with properties is extracting elements of stability from the Heraclitean flux in order to anticipate the effects of actions. Again: the invariance of the object is not absolute; it is invariance relative to certain transformations. Note that these transformations are wholly 'internalised'. They are purely mental: we don't have to perform them in actuality in order to take something as an object. This kind of anticipatory capacity is not purely weak nor purely strong. In its *functioning* it resembles weak anticipation: something must satisfy a number of rules in order to be an object, or to be possibly considered as an object. The objects satisfying these rules can thus be interpreted as a model that enables one to predict future states. On the other hand, the *status* of the anticipation is strong: one cannot choose at will the rules something must satisfy to count as an object. The way in which the structure or the type of object is anticipated, is embedded in the observing system itself.

4.4 Objectivity without objects

The requirement of objectivity in classical mechanics can be interpreted as a requirement of anticipatory power. But what about quantum mechanics? QM mechanics is certainly not object-like structured. Then the following question immediately arises. If the general function of objectivity turns out to be anticipatory and if an object-like organisation of the phenomena has such an anticipatory power, why then does quantum mechanics take another route? In Newtonian mechanics, objectivity can be expressed in terms of objects because the invariance of these objects is maintained under the experiential procedures to determine them. But in quantum mechanics the measurement apparatus penetrates so deeply in the structure of its subject-matter that this invariance is lost. So, it can no longer be structured in the classical way. That was after all the reason why the Kantian account of objectivity in his original form no longer is defensible and the weaker functional version was proposed. So, we now have to argue for the anticipatory function of objectivity in quantum mechanics.

Since research instruments in quantum mechanics are highly constitutive for the phenomenon under investigation, the Kantian mental 'form' has to be extended to a form which encompasses the whole experimental activity. In the light of this view, Michel Bitbol (1998) proposes to replace the concept of the identity of an object by that of the reproduction of experimental situations. This way, he widens the notion of invariance by replacing the invariance of the object with properties by the invariance of the outcome of experimental activities. We won't explain this in depth, but Bitbol shows how this very minimal requirement can – almost – be enough to arrive at a transcendental deduction of quantummechanics. That is the transcendental method at its best: starting from a minimal set of general constraints imposed on the prediction of experimental phenomena and arriving at a strong predictive structure as a necessary condition for the fulfilment of these constraints. In this approach, the anticipatory nature of quantum theory becomes evident.

A further indication that the objectivity constituted by the physicists is but an anticipatory strategy, is the fact that most of their theories are of a reversible kind. That would be a very serious problem if physics was about the way the world *is*, because *nothing* is of course really reversible. But the reversibility in physics is in perfect agreement with its anticipating function. If something is invariant relative to some transformation, that means that that transformation has no influence on the invariance of the objectivity under consideration. So, the transformation or action is reversible relative to the objectivity. In that view the purpose of physics is to accommodate and assimilate sequences of irreversible phenomena within the schemes of reversible actions.

4.5 Objectivity and symmetry

So far, we have elaborated a conception of knowledge that is thoroughly relational. Objective theories are taken as a structural expression of an all-encompassing strategy of gaining context-invariant anticipatory capacity, in a situation where the contextuality of each single phenomenon cannot be ignored. It may be clear that the crucial notion about the anticipatory function of objectivity is *invariance*. Mathematics disposes of a very powerful tool to formalize the concept of invariance in exactly the same sense as we are dealing with in our context: it is the mathematical concept of *symmetry* and the theory of symmetry groups. Mathematical symmetries are simply *defined* as invariances under certain transformations of co-ordinates. Thus, we can complete our story by connecting the notion of symmetry to that of objectivity. Symmetry-arguments have proven to be very successful and determinant for the development of contemporary theoretical physics⁵. In conclusion, we shall briefly explain why the mathematical concept of symmetry fits perfectly well in our interpretation of transcendental philosophy.

Kant identified Euclidean space as one of the necessary conditions of the givenness of (scientific) experience. The system of Euclidean geometry, however, can be built up

⁵ Following Noether's theorem that can informally stated as "to every symmetry, there corresponds a conservation law and vice versa".

by investigating everything which is invariant under the group of physical automorphisms. It is in a certain sense that group. At least Kantian transcendental aesthetics can thus be formalized by the concept of symmetry. With the rise of the theory of special relativity, the Kantian system is discredited. Objectivity in the theory of special relativity is reached by the requirement that all the laws of physics should be invariant under Lorentz-transformations. The one group of symmetries is exchanged for another, but the symmetry-view of the constitution of objectivity remains valid. That is compatible with our understanding of transcendental philosophy. By shifting to a *functional* interpretation, we can abstract from the concrete realizations of objectivity and investigate into the constitutive relation itself. Moreover, the symmetry-approach to constitution harmonizes with what we have called the twofold philosophical dynamics of transcendental reasoning. (1) It is clear that objectivity as symmetry has nothing to do with knowledge of the thing-in-itself, since the invariances are constituted in a process which relates explicitly to and is conditioned by the way we are involved in the world. (2) The phenomena caught in the invariances are at the same time de-subjectivized, since they are remain invariant under varying perspectives.

- Symmetries are not merely a result of a process of transcendental reasoning; they embody the whole spirit of transcendentalism in themselves.
- Since a crucial part of modern physics is built upon the mathematics of symmetries, these theories not only are objective, but they also show us what it is to be objective.

5 Conclusion: a functional interpretation of transcendental constitution

The Kantian-Husserlian analysis is enlarged by lifting out the *function* of constitution. This function is essentially a normative and anticipatory strategy and can be formalized, inspired by contemporary developments in physics and mathematics. The benefit from this enlargement is that it renders the transcendental account of constitution independent from any unquestionable starting point or absolute givenness. On the contrary, it renders the notions of perspective and situatedness clear in its generality, instead of departing from a specific perspectival instantiation.

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