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HUSSERL AND THE PHENOMENOLOGICAL DESCRIPTION OF IMAGERY: SOME ISSUES FOR THE COGNITIVE SCIENCES?

Abstract: In this paper I am dealing with two phenomenological theories of imagery Husserl has outlined. My interest is not actually a merely historical and philosophical one. In fact, I am going to sketch which properties of imagery a husserlian phenomenological description could bring to the fore, in order to see whether it be possible to put some phenomenological constraints upon the theoretical models about imagery which guide the modern empirical research. To do so, I will compare the descriptions and some consequences of a husserlian theory of imagery with those supported by the theory proposed by Kosslyn and Colleagues.

INTRODUCTION

I maintain that Husserl's phenomenology could be used to face very important issue in the current Cognitive Sciences, because of its descriptive contents and empirical plausibility. In this paper, I will use the imagery as a test case to see whether and at what extent phenomenology could give the general description of the phenomenal properties of imagery and could formulate a sketch of a theory, which should be consistent with the phenomenological constraint an adequate theory should be accounting of and comparable to scientific theories, such as the one proposed by Kosslyn.

I am aware that this general lines already hint at some heated debates about issues such as the naturalization of phenomenology, its possible empirical content for the Cognitive Sciences and the Neurosciences, all issues I will not address explicitly to. Opposite views have been defended, but I think most of them need still to be backed up by evidences, either theoretical or experimental ones. I just support the view that the mereological method, the attention paid to the ordinary experience concepts usually take their content from, the assumptions about the phenomenal organisation of our experience field are all phenomenological useful tools for giving non trivial constraints upon the phenomena to be studied and the different level at which the empirical research about

them could be carried out[1]. To be sure, I could be blamed for having a sort of a deflationary view of phenomenology, and it is obviously an open question whether the husserlian version of phenomenology were the more suitable one for satisfying the conditions for being a theory able to formulate this kind of constraints. Many other forms of phenomenology, which share the features I have just listed above, could claim rigthly to be the suitable ones.

None the less, I choose the husserlian descriptions of imagery for they seem to be strong enough to catch the ordinary properties of the related phenomena, and at the same time formulating a non trivial theory of their phenomenal conditions. As it will become clear farther, I believe that a phenomenological theory must not be restricted to the subjective side of experience, which is the one the discussion about the naturalization of phenomenology often refers to. In fact, a phenomenological theory will be useful for empirical research, if only it will be also able to give sound explanation of the organization of the objective side of experience. The hard question at what extent (at least one form of) consciousness is a feature of experience, and experience is a feature of phenomenal contents will be left aside. My only aim is to see if some treatment of a specific problem provided by the husserlian phenomenology will show non trivial arguments, which could prove useful for models and experimental research on imagery.

PHENOMENAL FEATURES OF IMAGERY AND TWO HUSSERLIAN THEORIES

I start dealing with the descriptions of imagery and the theories Husserl made out of them after various texts collected in the volume XXIII of the Husserliana series, which differs as to their domain and explicative value from what Husserl himself wrote about imagery both in the Logische Untersuchungen and in Ideen…. In these texts, Husserl focused his analysis onto a narrow and proper sense of imagination. In fact, one might understand the term imagination in a wide sense, whose examples are having an image or an idea made to oneself such as imaging an absent object, wether it be a real or a fictional one, fancying some circumstances to obtain, whether they be actual or merely possible, supposing a non occured or a impossible event as if it were the case to be happened. On the other hand, the term imagination in a narrow and proper sense might be used to designate the phenomena of imagery, whose examples are to picture to oneself something, in the way people usually incline to report as if seeing something before one's mind's eye. In this proper sense, Husserl gives us some descriptions about the so called mental images.

Essential part of these descriptions is Husserl's listing of the phenomenal features

1 It must be noticed that this is a very minimal formulation of a possible version of the relationship between phenomenology, specifically the husserlian one, and Cognitive Sciences, specifically those branches interested in the conditions for perception, imagery or pictorial perception to obtain. This is a defective aspect of what I am going to expound, since it oversights the complexity of the Cognitive Sciences and neglects the correlation among phenomenology, psychophysics and physiology, where this very last coupling makes up a heavy debated problem on its own.

shared by all the occurrences of mental images as opposed to those he maintained to be typical of the appearing objects in ordinary perception or in physical images, that is pictures necessary possessing a physical support. It is worth noticing from the beginning that the descriptions of these features as regards to the way of appearing in the visual field and in the perceivable environment the observer herself is placed in remain true from a phenomenological point of view, regardless which one of the two theories proposed by Husserl is taken to be the right one. This is very important because it is the „neutrality" of these descriptions that justifies my view about the usefulness of phenomenology for theoretical modelling and experimental reasearch in Cognitive Sciences.

I am going to sketch what these phenomenal features might be like in order to assure the conditions to which occurrences of mental images can take place in the visual field of an observer who is otherwise engaged in perceiving the world around her to move successfully in it. I make reference to Husserl (1973, 1980).

First of all, every phenomenal content of perception becomes a costitutive part of a series of preceding appearances of sides of one and the same object or of other sorrounding objects, whose course define the value of it. The manifold of the appearances and its way of displaying might depend (1) on the moving of the observer or of some part of its body (eyes, head, trunk) into the environment she is placed in, (2) on the rotating or displacement or location shifting or moving of the objects which share the same environment with the observer; (3) on a suitable combination of (1) and (2). The particular course of a manifold of appearances which make up one or more series will determine the value of each single part of it according to two main parameters: (A) the degree of concord among the successive appearances as to their showing compatible sides and properties of one and the same object or allowable spatial relations among two or more objects (which we can call the parameter of the intuitive content of appearances); (B) the domain of variation as to the progressive displaying and integration of the intuitive content which is allowable within an on going defined range of variance. It is (B) what let one or more appearances to be taken by the observer as keeping on showing the perceptual properties already displayed in perception, or as introducing an unexpected change in the considered perceptual properties, which might lead to a belief change regarding the phenomenal content now considered as showing an allowable new property vs being a sort of deceptive appearance, or a perceptive illusion which interrupt the course of appearances falling outside the range defined by (B).

According to Husserl these general conditions accounts for the appearances being always an organized structure and not a raw sensible material which must be given a form by the subjects. The structured manifold is also constrained by the spatial arrangement of the manifold of positions in the visual field, which can be covered by the series appearances. The visual spatial arrangement of possible locations inside the visual field, corresponding to various sections of the environment to be falling into actual perception, gives the phenomenic manifold an order value. Each appearance of the various perceptive series is ordered by its position inside the visual field in such a way that it is not only a constituive part of but is also a well ordered part. The integration of each appearance in a series according to (A) and (B) and the ordering relation among the manifold members and the visual field location makes up the connection which holds

our visual world up and justifies the believes an observer has about the way the world is like.

Now the first condition to be met for a mental imagery to occurr is that its phenomenal content does not take part of the perceptual manifold, because it does not satisfies neither the (A) and (B) parameters nor the ordering relations the perceptual appearances usually support in the visual field.

On the one hand, there is an incommensurable contextual difference between perception and imagery. Whatever mental image might it be of and whenever might it be occurring, a mental image do not enter any series or manifold of the visual field. In fact the phenomenal property of a mental image is to cover some section of the current visual field, in order to displace the reference by the observer from one or more than one material objects which share with her the perceptual environment to something appearing but not being placed in the same environment. The very feature of imagery is letting the observer see something which is not a current occurrence within her ordinary visual field, something that might not fall within it just by simplly turning her head or moving around. It is worth noticing that talking about the specific phenomenological difference between perception and imagery as one of not sharing a common perceptual environment does avoid biased definition of mental images as appearing of something whose existence is only intentional and not real. This definition runs the risk of being too narrow, because everything could be the object of imagery independently from its being really existent, mery possible or impossible, and of reducing imagery to a simple matter within the mind. One should be led to think of imagery as it were a case in which one essential feature of the mind, such as its intentionality, is not ordinarily used to grasp existent object, because it fails to satisfy its reference conditions, so giving rise to some non ordinary objects, whose existence would be dubbed merely mental.

The contextual difference is then intended as a lack of any possible intersection between the mapping of the perceptual environment by the current appearance manifold in the actual visual field and the what and the how is displayed by imagery. According my interpretation of Husserl, this not sharing a common environment is not a merely matter of fact. If it not were the case, we could have some counterintuitive consequences. First, the same point in the visual field could be endowed with two different values, a perceptive and an imagistic one, entering this way two eventually different forms or systems of ordering relations. Second, the observer ought to be likely partly perceiving and partly imaging at the same time and even for the same object which is not an experience people is commonly incline to report as actually occurring. This way could be a not fully successfull survival strategy, for the detection of the environment properties should be also dependent on a visualization space which is not a section of the actual visual field.

Husserl captures this state of affair, when he talks about the necessary Verdeckung (overlapping) between perception and imagery, among perceptual appearances, even the deceptive ones, and the so called mental images. Every time a mental image is experienced, its phenomenal content covers a section of the actual visual field, whose phenomenal degree according to its intuitive content (A) decreases to a minimum value, while the intuitive content of what is imaged is comparatively stronger, though the ran-

ge of its increment could vary without a fixed correlation with perception. It could be the case of a mental image of a red cottage with a pine tree aside up on a hill or it could be also easily the case of a flashing of a red nuance with a roof profile coming to the mind. What is important is that both of these cases, and of course all the intermediate ones, require a shifting in the reference activity of an observer who is aware of not being able neither to reach this house out nor to attribute this red colour to some object in the actual environment. To make the point clear Husserl (1980, § 35) undergoes a Gedankenexperiment: let us assume that the merely imaged red cottage with a pine tree aside up on a hill is as if it were seen from the same point of view we could actually see from a real and identical red cottage with a pine tree aside up on a hill which is just visible outthere, if only we opened the window and looked at it in the right the direction. Let us assume also that the mental image covered the visual field overlapping the very section of the visual field that would be filled in exactly the same way by the perceptual appearance of the real cottage. Would we be allowed to consider the two appearances as the same in some respect? According to Husserl, the answer is no. Even in the borderline case of the same red nuance in the two appearances, the imaged red could not play any integrative role as to the surface of the real cottage and vice versa, while the same thing holds for the perceived red and the imaged surface and vice versa. In fact, there is no intersection among the different sets of circumstances which allow some part of a real surface to be that very red and some part of an imaged surface to be equally red. Although the red tokens are the same as to their type or they were exactly the very same token, the being red of the imaged surface could not allow the observer to infer anything about the light conditions in the corrispondent real scene, because appearing-red in imagery does not depend on the same conditions which would occurr if a material object exhibited the same coloured nuance. This should lead to confirm that the appearance value is only correspondent in the two cases, as one could easily compare them, but non coincident.

On the other hand, there is a conflict among two phenomenic ordering relations which lead to suppose perception and imagery do not share the same field, if imagery possesses any form of it. And this is a condition which explains why the perceptual environment does not ever loses completely its phenomenal value, although some sections of the visual field mapping it are overlapped by imagery. Moreover, if the intuitive content of the parts of the visual field as to the environmental objects happened to lose all their intuitive content, the observer would be daydreaming: she ought to image without being aware of it and without experiencing the difference between perception and imagery.

On the ground of these phenomenological differences, Husserl formulated two different theories of imagery. For the first one, he was still trusting the so called Auffassung - Inhalt Schema (interpretation - content schema). I will dub this theory the Representation Theory (RT). Afterwards he changed his mind and adopted a new theory, that might be called Implication Theory (IT). I am not going to illustrate the passage from RT to IT, but only to sketch briefly their features.

The RT takes the imagery to be the interpretation of some imaged sense contents, which could correspond as their type to those integrated in the perceptual appearan-

ces of objects, in such a way that a non contestual constrained appearing of an object occurr. This appearance is not real, because it does not satisfies the aforementioned (A) and (B) parameters and it does not support the ordering relations in the actual visual field. It comes about by referring to something in a perceptual represented way: it is as if the observer realizes a perception without its being actually performed. It is easy to see how this account is not able to make clear what has been discovered thanks to the aforementioned descriptions and to the formulation of the phenomenological constraints. The very concept of imaged sense contents looks quite obscure and it is unlikely to make sense out of the idea of a perception simply represented, that is realized but not actually performed. One could reasonably think of it as the observer takes on the perceptual properties the environmental objects usually bear and integrate them in a way to refer to something that actually does not occur in her perceptual context. So the perceptual reference might be said only represented vs actually performed in that the observer refers to something by what a perception might be looking like in an environment whatsoever while the very perception is not actually performed. So, we might interpret RT holding that imaging x is representing a perceivable x, that is visualizing how it would be looking like for x to appear.

However, a positive consequence of RT seems that it does not require the occurence of something in the head or of a sort of picture before the mind's eye which should have the imaged object seen as much as it happens with an ordinary picture. In fact, the imaged object is supposed to appear directly without picture mediation, even though its overlapping the visual field and not integrating the objects in the perceptual environment let it appear as something that is not actually there, something that is only visualized in the form of an appearence not constrained by the perceptual context.

The IT seems to be more consistent. The term „implication" refers to the relationship holding between perception and imagery, and it is supposed to solve some of the problems raised by RT, as they are envisaged by Husserl himself. According to IT, every time an imagery takes place a perception must be implicated in it, so that a possible perception is a non independent part of every imagery reference, that is something that could not stand on its own, while it may be occurring only as an integrative part of a reference to an object which does not takes place in the actual perceptual environment.

The essential features of this imagery reference are:

(1) the implication is not a relationship of real inclusion, such as the one holding between a book and a drawer, neither is it an entailment relationship: it might be intended in the way that the analysis of every and all imagery appearances must show only properties which are typically occurring in perception;

(2) the perception could be said to be only „possible" in that in Husserl's own terms it is „modified": one may talk of perception only because if the imaged object were occurring in the actual environment of the observer, its imagery appearance ought to correspond to a correlative perception which would be so and so, given some specified circumstances;

(3) for (1) the imagery consists in an appearance of x such that one could say the imagery reference to x is as if imagery were an ordinary perception performed given

some contextual circumstances which are different from those actually occurring. This amounts to say that an imagery is not restricted to a single imaged object, because it can show a whole imaged context, wherein the object and its spatial relations are visualized and the observer's point of view itself is implicated;

(4) for (2), the perceptual properties showed by imagery should not be taken as necessarily referring backwards to past perceptions or even only to perceptions: they are properties which can be attributed in imagery to x stemming from a past perception of x, from an expected perception of something looking like x, from a description made by others corresponding to objects really seen in the actual world or in pictures or simply imaged or merely read of.

The IT may prove to be stronger and clearer than RT. In fact, IT does not leave room for strange entities such as imaged sense contents or realized but not actually performed perceptions. IT gives an explanation of imagery taking into account only the inconsistency holding between the actual environment the observer is placed in and the imaged context and point of view the visualized objects are visualized in. The phenomenological differences between imagery and perception as to the organizational laws ruling the unfolding of the perceptual manifold in the actual visual field are interpreted by IT as different constraints the perceptual and the imaged context/point of view establish upon appearances. The imaged properties are seen by IT as properties the observer has become familiarized to by perceiving, moving around and manipulating actual objects in her and other's environment. Finally, IT preserve the most important consequence of RT: there is no need to postulate an internal entity, serving as a picture or in the same way of a picture although not being really so. The only thing requested to exist are the ordinary perceptions and motor behaviours the observer realizes in her environment which can be transposed to an imaged context.

Husserl (1980) gives also some hints for a physiological account of the possibility of transposing the perceptual properties dependent on ordinary point of view and motor behaviour from the actual environment to the imaged context. For the imaged objects and events properties, for their spatial and temporal relations, for their dependence on the pretended point of view to occur in imagery are analogous to perceptual environment detection, it is then reasonable to think that the transposition is causally dependent on the known effects due to the accomodation, the ocular movements, the insertion of some parts of the observer's body within the boundaries of the visual field. Of course, it is not so much and this argument suffers from the state of the physiological knowledge held by Husserl. But I think they are important because they show the plausibility of linking propositions between phenomenological explanations and testable scientifical reasearch.

KOSSLYN'S QUASI-PICTURE THEORY OF IMAGERY

The theory originally proposed by Kosslyn has been disputed since its first formulation and it is still object of further specification by its Author and Colleagues, while it is still challenged by opponents. It is still a central issue in the Cognitive Sciences because it tries to give an explicative account of the deep computational structure of imagery, but in such a way to capture also the phenomenal properties of the so called mental images.

At the time of its first formulation, the theory was to answer questions about the structure and function of representation, given the assumption that every kind of a mental activity and content might be not only described as but also taken as literally consisting of computational processing and data structures. For those who share this assumption, whatever makes a mental state essentially what it is (we might perhaps call it its intentionality) must be certain computational features which might be converted into some canonical property ordinarily ascribed to the metal state. Taken for granted that „representation" is a term used for coding, storing and retrieving informations, whose format allows only some kind of processing, the questions were: is there a representational format specifically different frome others, which would be corresponding to what people call imagery?; were this the case, does this format require a specific processing mode, which can be thought of giving an autonomous contribution to cognition?

Answering yes to both these questions, Kosslyn (1980) formulated what we migth call the standard core of the theory. This standard core has been developed further along the following lines: the search for a neural plausibility of its claims; the definition of the imagery features as functionally dependent on standard performances in perception, memory, motor control.

According to the standard core, mental images are surface representations construed on the ground of deep abstract structural representation stored in the LTM, reactivated by memory tasks or by peripherical stimuli. These surface representations have a functionally spatial or array-like format, that is their representative units are points, while the relations among points specify spatial properties such as orientation or shape size and dimensions, which are unessential for abstract or propositional formats. The representations are not formed according to well defined syntactic rules, but only under the constraint that the points be spatially arranged in such a way to provide a non arbitrary mapping among parts of the images and correlative parts of the objects. This amounts to say that spatial properties are represented in a spatial format, unlike what happens with propositional representations, and that every part or every distance between points in the image should correspond to parts and distances in the objects. The last one is the main argument proposed to explain the classical results of Shepard & Metzler (1971), Shepard (1975), and Kosslyn (1973, 1975).

So, a mental image would arise when a surface representation of this sort is generated in a computational array, composed by cells which can be filled (or left unfilled) by symbols standing for qualitative features such as colour, 3D properties, edges, and so on. These computational array is taken as being implemented in a visual buffer making up the visualizing surface display whose phenomenal content is extracted by a proce-

ssing unit, called „mind's eye". Reading, that is making thequalitative features explicit, by the mind's eye causes an experience analogous to seeing a real or a depicted scene to arise.

It is worth noticing that imagery is said to be only analogous to real objects or ordinary pictures. Kosslyn does not hold that having a mental image is as the same as seeing a real picture in the head or in the brain. The analogy is justified only by the experiential feature of having a mental image, which is like a seeing as it were.

Kosslyn and Pomeranz (1977) claim the mental image is not as a picture might be for an ordinary observer. The image is not composed by sensory informations put uninterpreted before the mind's eye, which instead explicits already organized chunks, stored in the LTM at deeper and abstract levels. So the mind's eye should not be taken as seeing something as an homunculus would be thought of looking at a monitor inside the brain or a computational machine. This is why the theory has been defined a quasi pictorial one.

Kosslyn holds that if perception is a multistage bottom up and top down process, then the mind's eye only categorizes the data coming up from the peripheral sensors in the same way it interprets retrieved data stemming from memory. The theory claims that there is a common amodal and abstract format shared by perceptual generated or memory stored informations such that equivalent representations might be converted in a percept or in a mental image. In fact, Kosslyn & Sussmann (1995) suggest that imagery might integrate perception, when less distinctive properties are visible, when trying to identify something as a member of one category, when filling in missing elements to be perceived. All these tasks might be performed thanks to the generation of an image in the visual buffer to compare with the stimulus 'till a matching result is obtained.

According to me, the quasi picture theory of imagery faces some troubles.

The quasi picture theory's tenets would lead us to expect that, provided sufficient detail has been encoded, we ought to be able to reinterpret a mental image quite as easily as we can reinterpret the equivalent real picture. It has otherwise been shown that reinterpreting the „reversible figures" such as the Necker cube or the Jastrow's duck-rabbit figure does not occur at all or not so easily in imagery as it does in seeing the pictures. See what reported by Chambers and Reisberg (1985), Palmer (1977), and Slezak (1991, 1995). These results would likely attest a phenomenic difference between imagery and pictures perception that is not expected on the ground of the standard core of the theory.

Kosslyn (1980, 1994) attempts to account for these results in terms of the differential fading of parts of the image. It must be noticed that a complex image is taken as to be built up in the visual buffer by the sequential placing of its various sub-parts, but that during the image assemblage each symbolic value contained in the array cells is supposed to fade progressively. As a consequence, some parts of the image are faintier than others and the vividness of the whole image is not the same at ech point of it. So, if reinterpreting an image involves reconstruing the relationships between parts, or the way that it is segmented into parts, the diminishing vividness of the relevant parts might explain the difficulties people reported to have with the reinterpretation of reversible figures. As Thomas (1999) already stressed, this explanation is hardly without pro-

lems. The ordinary phenomenology of imagery attest a various and differential degree of vividness, which could vary increasingly or decreasingly in time, but every variation involve the whole image itself, while it is not so well attested the exerience of recalling an image which is at the same time faintier or more faded differentially in its structural parts. Being that the case, Kosslyn explanations seems not to be correspondent to phenomenological properties imagery appearances usually bear in ordinary experience. Together with this empirical problem, the theory faces some theorical ones. The first one is the counterintuive consequence of the alleged integrative role of imagery in perception. As Kosslyn & Sussmann (1995) themselves assert, people are not ordinarily aware of generating images while perceiving objects. They explain this fact, by saying that the lack of awareness is due to the perfect matching usually obtained between images and input perceptual data, but I feel uncomfortable with this argument, because a counterintuitive phenomenological effect is explained away by referring to a non phenomenical matching process, and because this seems to me a way of introducing a mediation effect in perception, which could be avoided by referring to the description of phenomenological structure of the visual world mentioned above. If the visual world is not only reduced to a raw manifold of sense data, as Husserl maintains, then the main indexes for integration, filling in, completing the phenomenal organization are themselves of perceptive nature. I know that this is not the only way to refer to Husserl's description of a structured visual world. For example, Lohmar (2005) supports a view which seems very close to the Kosslyn's, by the very using of Husserl's concept of „phantasma". However, I think that in Husserl's description of the structured manifolds of perceptual appearances there are some tenets which not only support my view, but are also consistent with the experimental phenomenology literature about amodal completion. Let me just refer to Bozzi (1989), Kanizsa (1991).

The second theoretical problem is that even though Kosslyn holds that the picture talk is only an analogy, it runs the risk of being a neither& nor& definition of imagery. The imagery is neither perception nor picture, it is neither seeing x nor seeing x in the head. In my opinion, this is as the same problem as the one faced by RT. On the contrary, IT seems to make it clear why we have no real pictures in the head or in the brain when we image something, requiring only the existence of ordinary perceptual and motor activity which familiarize the observer with phenomenal constraints and features which can be exploited for visualizing something not occurring in her actual environment.

CONCLUSIONS

I tried to sketch what some constraints might be looking like a phenomenological description of perception could request for a theory of imagery. I exposed breiefly why we can hold that the visual world is somewhat structured in a intentional interaction with perception and motor behaviour of the observer, making explicit reference to Husserl's phenomenology. I sketched two theories Husserl formulated for giving an account of the phenomenal difference between perception and imagery. The compa-

rison of one of these theories (IT) with the consequences and difficulties faced by the quasi picture theory might lead us to hold that Husserl's phenomenology could be used to face very important issue in the current Cognitive Sciences, because of its descriptive contents and empirical plausibility. Of course, the IT would need further specifications and reformulation to have it fully testable, but the phenomenological descriptions it is intended to capture seem to provide us with some conditions an adequate theory of cognition should be satisying. I tried only to sketch what IT could imply for a theory of imagery, but it seems reasonable to hold that it has some benefits. It does not require any image or quasi picture in the head/brain. It may explain the results of reversible figures experiments by appealing to imagery not satisfyng parameters (A) and (B) that rule the ordinary perception. It offers an alternative account of the complex process of perception and its relationship with imagery. It seems able to answer the following main questions a theory of imagery must solve. The involvement of specifically perceptual mechanisms and the scanning, rotating and inspection effects could be explained by the implication and transposition of perceptual and motor activity. Husserl's theory could be also applied to study the mnemonic effects of imagery, a connection Husserl himself saw very well. It remains true that to make these claims more than theoretical supported views, one must still be working to link phenomenology to empirical research.

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