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SENSE AND SENSIBILITY. EMPIRICAL AND PHILOSOPHICAL INVESTIGATIONS ON THE FIVE SENSES

Edited by Clotilde Calabi and Elisabetta Sacchi

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INTRODUCTION

INTRODUCTION

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INTRODUCTION

INTRODUCTION

The papers collected in this volume originate from the international conference "Sense and Sensibility: Empirical and Philosophical Investigations on the Five Senses", held in January 2013 at San Raffaele University and organized by the Research Unit "Person, Social Cognition and Normativity" (Prin 2008), the Research Center in Phenomenology and Sciences of the Person and the Research Center in Experimental and Applied Epistemology of San Raffaele University. Its aim was to promote a thorough exploration of the world of sensory experiences from phenomenological, cognitive, and neurobiological points of view. The questions addressed in the conference and in the papers that constitute the present collection are the following: What is the nature of the senses and how do the different senses operate? In particular, can each sense modality be understood in isolation from any other such modality or, in order to fully understand each sense modality, do we need to understand how that modality relates to the others? Are our perceptual experiences representational states? And, if so, what and how do they represent? Moreover, what is the relation between the representational features of our sense experiences and their phenomenal qualities? Apart from modal experiences, are there also "crossmodal" experiences and, in the positive case, how do they differ from modal ones? How do we account for the multi-modality of sensory experience and how is the information gathered from different sensory modalities bound together in such a way as to account for the fact that our experiences are phenomenally unified?

This issue of the journal *Phenomenology and Mind* opens with a section from Helmuth Plessner's book *Die Einheit der Sinne* (*The Unity of the Senses*), entitled "The objectivity of the senses", in which the author presents his philosophical account of the nature of sensory perception. We think that Plessner's analysis of perceptual experience anticipates in many interesting ways important ideas circulating in current debates on the nature of perceptual experiences. For this reason, we have decided to position this text as an introduction to the present collection. Plessner places the analysis of perceptual experience under the label "aesthesiology". Roberta De Monticelli in her postface stresses both the novelty and the virtues of this approach. She argues that Plessner successfully overcomes the limits of the traditional intellectualist approach to perception, which treats it as a passive reception of information by a disembodied and disengaged mind. Plessner, instead, places the lived body at the very center of his analysis. In this sense, his aesthesiology can be seen as the forerunner of the embodied and enactive approach to sensory perception, that is so popular nowadays.

The other papers are organized in two sections. Section 1, "Perception, Embodiment, Sensibility", collects contributions, both theoretically and experimentally oriented, that in one way or another present a strong connection with the phenomenological tradition and with the embodied and enactive approach. Section 2, "Representationalism, Phenomenal Character and Subjectivity" collects works that are more concerned with the analytic approach in the study of perceptual experience. They focus on some of the main issues currently debated within the philosophy of mind, such as the relation between the qualitative and the representational aspects of perceptual states, the externalist *vs* internalist individuation of phenomenal character, the relation between perceiving and visualizing and the content of perceptual experience.

Let us present now the contents of the papers in some detail, starting from Ferraris' contribution. He addresses the general question of why perception matters for philosophy. His answer is that perception (conceived not as a representational state, but as a direct contact with the world, not mediated by our conceptual scaffoldings) provides the most powerful argument in favor of realism. For, as he claims, the main feature of perception is what he calls "unamendability", which reveals reality as it is. Zhok focuses, too, on the relation between perception and reality, by comparing and contrasting the views of two giants: Husserl and Gibson. Although they both claim that perception provides access to reality, the ways in which they ground their claims differ radically concerning the role they attribute to "subjective" features in the constitution of the percept. In his analysis Zhok also addresses the question whether Gibson's replacement of subjective features in favor of biological ones is ultimately compatible with his declared naturalism.

Of course, the idea that perception discloses reality raises many other questions. One might ask, for example, whether there is any sense modality that enjoys a privileged rank in that respect. If it is true, as Ferraris' motto goes, that "what exists, ontologically, is essentially what resists", the most plausible answer to that question is that touch enjoys that rank, because it is through touch that the resistance opposed by the world becomes manifest. A paper devoted to the role of tactility is Fugali's in which the author maintains that this sense modality is fundamental both in our apprehension of reality and in the development of our body self-awareness. This complex role is made possible by the functional duplicity which distinguishes touch from other senses: as an exteroceptive sense it is outward-oriented and as an interoceptive sense it refers to the body and its states. The interoceptive sense grounds the emergence of what phenomenologists call "the lived body".

Both Forlè's paper and the paper by Bower and Gallagher are devoted to the general topic of embodiment. Forlè analyses the role of the body and the role of *kinaestesia* for the constitution of the objects of our own experience. What grounds the claim that there is a strong relationship between the experienced sense of our body states and the way in which we experience the world around us? Forlè makes reference to several empirical findings that highlight the role of proprioception in providing us with a pre-reflective awareness of our own body and a primary sense of ourselves as embodied subjects. One author who, more than anyone else, has vigorously stressed the role of bodily factors in our perceptual encounters with the world is Noë. Taking Noë's picture as their starting point, Bower and Gallagher claim that in order to properly understand enactive perceptual agency, Noë's theory of perception has to be integrated with an account of the complex motivational dimension that animates body-world interactions. What is needed to that end is in their view the acknowledgement of what they call the "affective dimension" of embodied experience, where bodily affect is conceived as a *sui generis* form of intentionality having a practical more than a theoretical import. The paper by Gregori Grgič and Claudio de'Sperati deals with the question of whether a discipline such as psychophysics, conceived as the quantitative branch of the study of perception, can possibly capture the conscious, subjective dimension of perceptual experience. By building upon the results of a motion perception experiment they show how psychophysics, despite being objective and quantitatively oriented, can recover certain aspects of conscious perception. They suggest a first step

towards a sort of "phenomenologization of psychophysics" analogous to that suggested by Gallese, some years ago, in the field of cognitive neuroscience.
Gualandi's paper addresses the pathological experience of hearing voices, which characterizes the schizophrenic syndrome. The paper provides a theoretical comparison between some contemporary scientific approaches to this syndrome and Straus's aesthesiological approach. In Gualandi's view, the best theoretical framework for understanding the syndrome comes from integrating aesthesiology with anthropology, along the lines indicated by both Gehlen and Plessner.
The last two papers in section 1 deal with two different aspects of our perceptual experience, namely our perception of other people's emotional states and our perception of values. The first topic is dealt with by Songhorian. In her paper she challenges the traditional view of TToM as the basis of intersubjectivity and claims that the tool for our basic understanding of others is provided by our affective ability to "mirror" other's people emotional states. Such mirroring can be conceived as a *sui generis* perception, sub-personal and unconscious. Ferrarello's paper is about value perception. The author asks whether evaluating acts possess some kind of intentionality (a sort of practical intentionality) and, in the positive case, she further asks how practical intentionality differs from epistemological intentionality. Practical intentionality involves validity and epistemological intentionality involves truth, but validity and truth are interwoven with each other.
The major unifying theme of the papers in Section 2 is the nature of the qualitative/phenomenological properties (the "what-it-is-likeness") of our experience and their relation with representational/intentional properties. Nowadays many philosophers endorse representationalism according to which the qualitative/phenomenological properties are merely a kind of representational/intentional properties (strong version) or, at least, necessarily co-vary with them (weak version). Both the strong and the weak version of representationalism give place of honor to the notion of (mental) representation: they conceive the mind as a field of homogeneous phenomena and try to account for homogeneity by claiming that the essential feature of all mental items is precisely their representational/intentional content: for this view, intentionality is the mark of the mental. This variety of representationalism can be called "intentionalism". Although intentionalism looks very appealing in so far as it avoids awkward ontological commitments, such as the one towards intrinsic, non-relational properties of the experience (*sense data*), the question arises whether it is possible to fully capture the phenomenal character of mental states in terms of their representational/intentional content.
In his paper Voltolini argues that intentionality is *not* the mark of the mental and defends an alternative view. He criticizes what he takes to be the best version of intentionalism, namely the one defended by Crane, according to which intentionality is a necessary, albeit not sufficient, condition of the mental. Voltolini claims that there are states that do not possess the basic features that endow a mental state with intentionality (namely: the possible non-existence of the intentional object of a state and the aspectual shape of such a state). His alternative hypothesis is that the mark of the mental is not intentionality, but rather consciousness. Sacchi's paper, too, deals with representationalism (alias intentionalism). She criticizes its strong version and argues that the attempt to account for the qualitative/phenomenological dimension of perceptual states only in terms of representational properties ends up with promoting either an inadequate account of phenomenology or an inadequate account of content. She proposes instead to account for the phenomenal aspects of perceptual experience not in terms of representational properties, but in terms of presentational properties, conceived as properties of the experience that belong on its mode-side (and not on the content-side of the state, as intentionalists claim). A defense of intentionalism is provided instead by Uggé in her analysis of the experience of ambiguous figures. In looking at one such figure, we have visual experience of it as an A or, alternatively, as a B. Is the difference between the two experiences a difference in the phenomenal character (as anti-intentionalists claim) or in

their representational content? Uggé says the latter. She acknowledges that we cannot analyze our experience of ambiguous figures (and of the *Gestalt* switch this experience involves) in terms of a one-level account of the non-conceptual content of the experience. In fact, she argues that a sophisticated account of content is more suitable, such as the one put forward by Peacocke, who articulates the non conceptual content in the two levels of scenario content and proto-propositional content.
Locatelli focuses, too, on the phenomenal character of perceptual experiences. She discusses the most radical anti-intentionalist view on the nature of phenomenal character, namely Mike Martin's phenomenological disjunctivism. As it is well known, most intentionalists adopt the so-called common-content view. They claim the best explanation of the fact that perceptual experiences and hallucination are indistinguishable (we often mistake a hallucination for a veridical experience) is that perceptual experiences and hallucinations share a common content, the difference being that for veridical experiences the content is true and for hallucinations it is false. Phenomenal disjunctivists, instead, both acknowledge that perceptual experiences and hallucinations are indiscriminable, and, at the same time, claim that they are phenomenally different. But theorists criticize their inconsistency. Locatelli wants to provide an elucidation of the commitments and motivations in the disjunctivist rejection of the common content view, a rejection that, in her view, is often misconstrued. Locatelli shows that, far from being committed to self-contradiction, Mike Martin's version of disjunctivism promotes a radically new conception of the nature of phenomenal character. Martin rejects the idea that the "what-it-is-like" aspect of perceptual experiences is a mysterious "special stuff" added to their representational content. Phenomenal consciousness requires no special stuff of any kind. Rather, to enjoy phenomenal consciousness (that is, to have conscious experiences) is simply a matter of having a point of view on the world, and having such a point of view, as Locatelli puts it, is simply being sensorily conscious *and* being aware of what one is conscious of. Most importantly, this account of phenomenal consciousness explains in what sense there is both phenomenal difference between perception and hallucination and, at the same time, indiscriminability.
Calabi concentrates on visual experiences and her paper addresses a more specific issue concerning their "what-it-is-like" aspect. When we observe an object that is partially behind another object, given our point of view, we are aware not only of the visible parts of this object, but also, in some sense, of its occluded parts: it is as if they were consciously present, albeit not visually present to the observer. Some theorists claim that we visualize such parts, while she criticizes the argument they provide in favor of visualization.
Perceptual experiences raise a number of metaphysical quandaries, too. Tomasetta and Di Bona address two such quandaries. Tomasetta's question is what kind of entity the subject of a perceptual experience is and, more generally, what kind of entity the subject of any conscious experience is. He moves from the Cartesian idea that a human person is identical to an immaterial soul and recounts a short history of the recovery of the bodily self. After resuming skepticism about Cartesian souls, transcendental egos, and eliminativist accounts of the self, such as Dennett's and Parfit's, he focuses on two recent attempts to restore the bodily self: the constitutionalist account and the animalist account. Constitutionalists claim that persons are not the same as human animals, although they are constitutively connected to them. Tomasetta is unconvinced by their idea that there is a duality (of persons and organisms) without dualism. Instead, he takes the side of animalism, according to which persons are identical to human animals.
Di Bona is interested in the metaphysics of sounds and their audible qualities. According to some theorists, sounds are identical or supervenient upon sound waves and according to another view (the so-called "distal view") they are identical to the vibrations of the sounding object. In the first view pitch and other audible properties are explained in terms of a correlation with the sound waves' properties. Di Bona argues that these properties are interestingly correlated to the properties of the

sounding object, too. In particular, she argues that pitch is a cue that allows us to recover important information on the sound-producing source. Whether correctness of the distal view provides further evidence for realism, which is the concern of some of the philosophers contributing to this collection, is yet another story.

The two last papers in the volume deal with the issue of multimodal sensory integration, in relation to the sense of taste and the sense of touch. In his paper, "The Nature of Sensory Experience: The Case of Taste and Tasting", Barry Smith focuses on taste and challenges the widespread idea that we have immediate and infallible knowledge of the properties of our taste experiences. He argues that there are aspects of our experience of taste that go missing in how things appear to us, and therefore, we should make a distinction, within experience, between appearance and reality. In support of this claim, Smith considers recent works in both psychology and neuroscience that show that what we call "taste" is not simply sensations from the tongue, but rather the multimodal integration of taste proper with olfaction (of the "retronasal" variety), with somatosensory sensations, trigeminal irritation and mechanoreceptors triggered by chewing. The object of perception in tasting is therefore not taste but flavor, which can be considered as a multi-sensory product, that is, the effect of a complex interaction of smell with olfaction. The fact that the contribution of smell to what we call "taste" is not immediately available as part of the subject's awareness explains, according to Smith, why theorists until recent times have considered our experience of tasting rather simple, and until recently it has remained vastly underexplored. If we want to make progress in our understanding of taste experiences, we must get rid of the "dogma" according to which these experiences are simply phenomenological facts and an analysis of their phenomenology ultimately settles questions about their nature. The importance of the issue that Smith addresses goes far beyond flavor perception, in so far as many sense scientists now recognize that multimodal perceptions are the rule, not the exception.

The paper coauthored by Vittorio Gallese and Sjoerd Ebish is devoted to an exploration of the sense of touch in relation to the issue of social cognition. The authors provide a new account of multisensory integration in the brain, within the framework of the theory of Embodied Simulation. They study multimodal sensory integration in relation with the crucial role played by both action and motor system and aim at showing how vision, touch and action are inextricably related. According to them, visual perception of the tactile experiences of others systematically leads to the activation of the observer's motor and somatosensory systems. Thus, the theory of Embodied Simulation explains basic and crucial aspects of our intersubjectivity, by showing how our understanding of other's sensations is grounded in our power of re-using our own motor, somatosensory and viscera-motor representations.

As this introduction has highlighted, the topic of sensibility constitutes a very rich and complex field of inquiry. We hope to have given the reader a flavor of how fascinating this subject is and of how large is the realm of things we can learn about us as sensing creatures by investigating the questions that surround this area of investigation.

SESSION

SESSION 1

PERCEPTION, EMBODIMENT, SENSIBILITY

Helmuth Plessner
"The Objectivity of the Senses"

Roberta De Monticelli (Università Vita-Salute San Raffaele)
Embodied Visual Perception. An Argument from Plessner (1923)

Maurizio Ferraris (Università degli Studi di Torino)
Why Perception Matters

Andrea Zhok (Università degli Studi di Milano)
On the Reality of Percepts: Husserl and Gibson

Edoardo Fugali (Università degli Studi di Messina)
The Role of Tactility in the Constitution of Embodied Experience

Francesca Forlé (Università Vita-Salute San Raffaele)
What we See Depends on How we Move

Regina Gregori Grgic (Università Vita-Salute San Raffaele),
Claudio de'Sperati (Università Vita-Salute San Raffaele)
Psychophysics Phenomenologized? Sensation and Decision in Visual Motion Perception

Matthew Bower (University of Memphis),
Shaun Gallagher (University of Memphis, University of Central Florida, University of Hertfordshire)
Bodily Affects as Prenoetic Elements in Enactive Perception

Alberto Gualandi
"Sensing" Voices. A Theoretical Comparison

Sarah Songhorian (Università Vita-Salute San Raffaele)
How do we Understand Others? Empathy and Theory-Theory of Mind as Two Different, but Cooperative, Mechanisms for Sensibility

Susi Ferrarello (Loyola University Chicago)
Husserl's Phenomenology of Validity

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THE OBJECTIVITY OF THE SENSES

THE OBJECTIVITY OF THE SENSES

Translator's Note

The following translation is of a short passage from *Die Einheit der Sinne* (*The Unity of the Senses*) by Helmuth Plessner (1892-1985), a leading figure of twentieth century philosophical anthropology in Germany along with Max Scheler and Arnold Gehlen. Originally published in 1923, *Die Einheit der Sinne* now appears in Volume III of Plessner's collected works (Plessner 2003). The passage translated here (Plessner 2003, 293-305, 313-315) is extracted from the last section of that work, which is titled "The objectivity of the senses". In this passage, Plessner recapitulates some of the major points of *Die Einheit der Sinne* in order to draw out their philosophical consequences. The theme of the work is what Plessner calls an "aesthesiology" of the senses. This project offers a philosophical account of the nature of sensory perception. Like some contemporary accounts of perception emphasizing its enactive and embodied character, Plessner's aesthesiology does not neatly map onto the classic intellectualist picture of perception as the reception of information by a disembodied and disengaged mind.

Plessner seeks to shed light on the nature of the senses by contextualizing their qualitative aspects (i.e., as phenomenally conscious) within the whole person. Besides being phenomenally conscious in sensory perception, a person is an agent of "sense-bestowal" (*Sinngebung*) and is always attuned to the world in a certain bodily "stance" (*Haltung*). The sensory modalities, on Plessner's view, are essentially interrelated with these mental and bodily phenomena, and only this integrated whole gives us genuine sensory perception. These ideas interestingly anticipate certain claims currently gaining more currency within philosophy of mind and cognitive science, like claims that action or the body is constitutively (rather than merely causally) bound up with perceptual experience. Severing the sensory modalities from their role in the mind's sense-bestowing activity and its expression in the lived body (*Leibkörper*) is a dead end that will only obscure the nature of perceptual experience.

On the basis of the intimate unity of body, mind, and sensory modality in Plessner's theory, the results of his aesthesiology are supposed to not only clarify the nature of sensory perception, but also the vexing and longstanding philosophical issues of how to understand the mind's relation to the body and to the world. Plessner argues here that conceiving the sensory modalities as the interface between the mind and the body or the world is the only way to get past the difficulties inherent in various extant versions of dualism and monism. His proposal has the virtue that it brings mind and body or mind and world together without either interposing a dubious *tertium quid* or leaving unanswered precisely how all the terms in question interrelate. The sensory modalities are suitable for the task of crossing this metaphysical bridge due to their variety as types of intuition capable of making "objective" (presenting to phenomenal consciousness) both mental (in "encountering" intuition) and bodily or worldly (in "cognizant" intuition) events within a fundamentally unitary structure of intuition.

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EMBODIED VISUAL PERCEPTION. AN ARGUMENT FROM PLESSNER (1923)*

The whole editorial board of Phenomenology and Mind and the present writer wish to express their gratitude to Matt Bower for his extremely competent English translation of Plessner's awkward language, his very useful Translator's Note and, last but not least, the untiring patience with which he has tried to give this Commentary a greater resemblance to English.

abstract

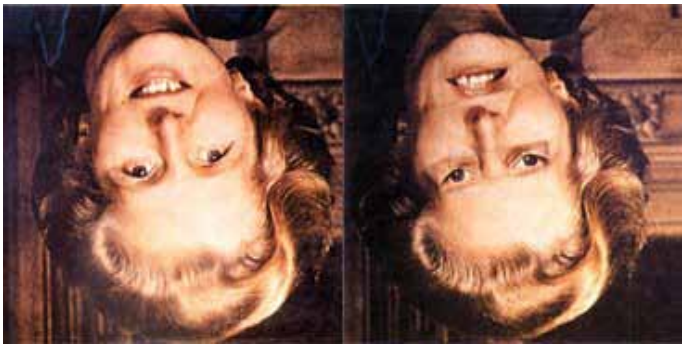
Thatcher's Perceptual Illusion is presented as a case study to test the fruitfulness of Helmuth Plessner's Aesthesiology for contemporary philosophical and empirical research on sensory perception (§1). In one reading, Thatcher Illusion's seems to question Gestalt Theory. We argue that it limits ideed its explanatory power, by forcing us to distinguish physiognomic identity *from* emotional expression *(§2). Although integrating Gestalt Theory, Aesthesiology takes a further step into a thorough criticism of contemporary reductions of Phenomenal Consciousness in terms of Qualia: an embodied-enactive theory of perception (§3). Plessner's insights into Geometry and Music as "symbolic forms" grounded, respectively, on goal-directed action/objects manipulation, and on emotional expression are expounded (§4). The Thatcher's Illusion's Puzzle is solved on the basis of this Plessnerian distinction (§5).*

keywords

Embodied/enactive perception, Gestalt theory, phenomenology

1. A Case Study for "Aesthesiology"

Does Helmuth Plessner's "aesthesiology" still have anything to say to contemporary philosophers and empirical researchers on perception?
Let's start from a very popular experimental case study: the so-called Thatcher illusion.[1]
Most of us are incapable of detecting – at least at first sight - a crucial difference between these two images when they are upside down.



Yet a dramatic difference *immediately* strikes us the moment the images are rotated in their "normal" upright position:

Here we suddenly notice a *big* difference. And upon reflection, we may further realize that the

1 Thompson, P. (1980), "Margaret Thatcher: A New Illusion", *Perception* 9, pp. 483-484.

emotional difference in expression is obtained artificially, through photo-shopping.
There is one possible explanation that might work – although, I will argue, it is importantly limited because it treats only part of this phenomenon, and not the most interesting one. The part thus "explained" is the "recognition" of the physiognomic *identity* in the upside-down images: "aha, it's Margaret Thatcher!" This identity recognition would be a sort of *illusion*, for the second upside-down image "is" *not* at all Margaret Thatcher, or a proper image of her, but a poorly and very crudely altered image, constructed by rotating the eyes and mouth in an unnatural way.
This explanation can be read as a partial refutation of a *Gestalt* thesis. The illusion would prove that eyes and mouth have such a key role in the recognition of a face's identity (of its physiognomy) , that we recognize a face in spite of the alteration of its configuration or *Gestalt*, simply in virtue of its individual features by themselves. Contrary to Köhler's prediction we do "recognize" the true facial expression (of Margaret Thatcher) even when upside down, without noticing the photoshop. When the images are turned aright, we do notice that certain features were upside down – so the second image is "not really" an image of M. Thatcher, but a distortion of it through photo-shop. This "illusion" then would prove that "compositional" information primes "configural" or *Gestalt* information in the coding of facial identity recognition – even at the cost of cognitive error.[2]
This explanation still leaves the most interesting part of the phenomenon unexplained: why is it that we do perceive a grotesque, and yet *perfectly meaningful* change of emotional expression in the upright second image? If we did not know that the image was manipulated by photo-shopping and that it thus "distorts reality", it would strike us – as it does anyway –as a very telling caricature, or a grimacing expression of that visage. Why did we *not* see that *change of emotional expression* in the upside down setting? Why were we deluded into failing to detect the *additional expressive qualities* of the second image? Isn't there a more serious illusion here (missing the evident difference in emotional expression) than in the illusory recognition of the same face?
How would Plessner's aesthesiology explain this phenomenon? Let's proceed step by step. Would it yield a convincing analysis of the first part of this phenomenon?

2. Aesthesiology and *Gestalt* Theory

First of all, the claim that *configural or Gestalt* visual information, as opposed to *compositional* information, is involved in recognition of facial *expressions* would have been endorsed by Plessner. *Die Einheit der Sinne* is abundant in quotations from the founders of Berlin's *Gestalt* Psychology – Wolfgang Köhler, Max Wertheimer, and Kurt Koffka, who had been students of Carl Stumpf (1848-1936), the very founder of Experimental Phenomenology.[3] Edmund Husserl , another of Stumpf's students and Plessner's *Doktorvater*, dedicated his first major phenomenological work, the *Logical Investigations,* to him – and this is certainly not surprising when one thinks of Stumpf's definition of phenomenology as the study of the "essential", "structural" laws of perceptual phenomena – of its "material apriori", as Husserl would have it. Plessner himself quotes the most famous of Stump's "laws":

2 Thompson's own reading of this illusion recalls Köhler's remark "that upside-down faces are hard to recognise because of the loss of facial expression in such faces". But since a very famous visage like this one is easily recognized by most subjects even when upside-down, Thompson' conclusion – if there is one in his paper – seems to be rather against an explanation of face perception in terms of *configural or Gestalt* visual information, as opposed to *compositional* information. Since eyes and mouth convey most information about a face, "it seems possible that an inverted face in which the eyes and mouth remain the normal way round might preserve the facial expression better than a truly inverted face". And this prediction comes true, or this would be what the illusions shows. Unfortunately Thompson uses "facial expression" in an ambiguous way, without distinguishing between *physiognomic identity* and *emotional expression.* Without this ambiguity there is no means to reject Köhler's thesis that configural information plays a major role in the recognition of the value-qualities of any object of perception. See W. Köhler, (1938), *The Place of Value in a World of Facts*, A Mentor Book, New York 1966. This is why we argue that the Thatcher illusion forces us to distinguish physiognomic identity from expression, and lead us to the question why rotation in space preserves recognisability of the former, but not of the latter.
3 Spiegelberg, H. (1982), *The Phenomenological Movement*, Third revised and enlarged edition, with the Collaboraton of Karl Schuhmannn, Nijhoff, The Hague, pp. 51-65.

"An essential (necessary) state of affairs of the optic sense domain (*Sinneskreis*) says that to every color phenomenon belongs an extension, even if one can hardly identify this phenomenal extension with the two dimensionality of a surface in the *geometrical* sense. We propose a corresponding acoustic law: a sound is essentially given with a volume".[4]

Some additional information about Plessner's background may be helpful for contemporary readers. Born in 1892, Helmuth Plessner studied zoology and philosophy in Heidelberg, Berlin and Göttingen. In Göttingen, he was a student of Husserl's, and also of David Katz', a psychologist who had likewise studied with Husserl (and with the Goettingen psychologist Georg Elias Müller). Katz, while very close to the Gestalt movement (on which he also wrote a very popular introduction)[5], was also critical of it, and very much along phenomenological lines. We shall find an echo of his criticism in Plessner's aesthesiology. Looming in the background of *Die Einheit der Sinne* is a very specific set of concerns arising from the field of experimental psychologyand especially the then pioneering works of Ewald Hering[6] and David Katz[7] on colour and space perception, both quoted in the introduction of Plessner's book. Edmund Husserl of course, and Max Scheler as well, are also referred to in Plessner's *Introduction*; yet the primary impetus toward the new research project Plessner was to develop after his "Aesthesiology of the Mind", and which issued in 1928 in the emergentist ontology of *Die Stufen des Organischen und der Mensch*,[8] might be seen in Stumpf's idea of phenomenology as a universal pre-science, that is a description of all the immediately given contents of our acts and functions, to serve as foundations of both *Natur- und Geisteswissenschaften*.
Let's return to our question. The Thatcher illusion forces us to distinguish between physiognomic identity and emotional expression. We must admit that the former is recognized when upside down, but the latter is not. Köhler was right after all, since he referred to expressions. But then, why do we recognize the face and not its changing expression when the image is reversed? Why did we miss the *change of emotional expression* in the two images when turned upside down? What accounts for the loss of relevant and meaningful information (if a caricature can be meaningful without being "realistic") about such prominent expressive qualities?

3. The Enactive View of Sensory Perception: The *Leistungsperspektive*

Because *Sehen ist Stehen,* Plessner would likely answer. The notion of *Haltung,* attitude and quite particularly bodily attitude is the central idea of the whole book. The involvement of the lived body in perceptual experience, its role in the constitution of the apparent visual, tactile, auditory world; the roles that action, posture, balance play in the "meaningful" organization of a perceptual scene: all these points take many pages of analyses in Plessner's aesthesiology, and, unsurprisingly, not just in the 1923 book. The enactive, embodied character of sensory perception in all its modalities, the constitution of the perceived world within the field of action of the perceiving subject, the meaningful organization of a perceptual environment through the affordances it provides: these notions were quite familiar within the earlier phases of the phenomenological movement, much before they were reworked by

4 Plessner, H. (1923), *Die Einheit der Sinne – Grundlinien einer Aesthesiologie des Geistes,* in *Anthropologie der Sinne* (*Gesammelte Schriften* III, Suhrkamp, Frankfirt a.M. 2003, p. 231.
5 Katz, D. (1944), *Gestaltpsychologie.* Basel 1944 (translated into English, Swedish, Spanish, Italian, Finnish und French – but of course his collaborations with the *Gestalt* psycholgists trace back to the Goettingen years with Mueller and Husserl).
6 Hering is the author of the still widely accepted theory of the visual system as based on a system of colour opponency. Hering's proposal is now widely recognized as nearer to the neurophysiological truth than Helmoltz' three-colours theory, although Hering's findings are essentially "phenomenologically" based. E. Hering (1872-1874), Zur Lehre vom Lichtsinn, Leipzig 1907, quoted by Plessner (1923), p. 13.
7 Katz, D. (1911), *Die Erscheinungswesen der Farben und ihre Beeinflussung durch die individuelle Erfahrung* , Leipzig, quoted by Plessner (1923), who describe it as "determined by Husserl in its basic principles", referring also to P.F. Linke (1918), Grundfragen der Wahrnehmungslehre, München, which "points to the relationships between experimental psychology and ontological-phenomenological research" (Plessner (1923), p. 14).
8 Plessner, H. (1928), *Die Stufen des Organischen und der Mensch. Einleitung in die philosophische Anthropologie* Berlin / Leipzig 1928: Walter de Gruyter & Co.

Maurice Merleau-Ponty and, more recently, made popular by such Embodied Mind approaches such as Andy Clark, Alva Noë's or Vittorio Gallese's, not to mention Shaun Gallagher's and Dan Zahavi's works. The Husserlian formula of the lived body as "centre of orientation for the surrounding space" is the starting point for Plessner's solution of the problem of "the unity of senses", namely, the problem of how information coming from the different sensory modalities can be "put together" into an apparently coherent, solid, meaningful world as our life-world.
So, before suggesting some hints concerning a "Plessnerian" way to interpret a vast class of phenomena like the Thatcher illusion, let us introduce the reader to the selection of (at times impervious) pages from the long 1923 essay, *Die Einheit der Sinne – Grundlinien einer Aesthesiologie des Geistes,* in Matt Bower's English translation.
The opening of this selection mentions an "initial problem", for which the argument developed throughout the book up to that point is purported to provide a solution. It may be useful to read in Plessner's own words (or rather in our translation of them) which was this problem – at least as it is presented at the very beginning of the book, namely in the Introduction:

"If physics deals with the true state of the world, is our experience of the world only a colorful although unavoidable epiphenomenon, a sort of involuntary luminescence of certain material events in the cells and paths of the brain? Are then the qualities of our sensations, which are specifically bound to some definite sense organs, nothing but illusions, appearances? Or is rather the world-image of physics and chemistry in its uniformity just a black and white sketch, artificially taken from the whole picture of manifest reality, an abstraction designed to simplify nature to the end of mastering it practically? [Is this abstraction not] a conceptual transformation that forbids us to attach any spectre of reality to appearances?"[9]

"It is a fact that natural science and psychology cannot explain in the least *the way of appearing of this world* (die *Erscheinungsweise dieser Welt*)"[10]

As Plessner sees the matter (at the beginning of our selection), the problem of the *unity* of the senses (i.e., of the objects we perceive through their quite different modalities) must be connected with "the question of the objectivity of the senses, an age-old theme of philosophy" (hence the title of the section we translated): the just quoted texts give expression to this question.
The background against which the young Plessner thinks is still a (Neo)Kantian one. Yet a Kantian solution based on the "pure forms of intuition" (space and time) is rejected along the lines of phenomenological or Gestaltist arguments, rejecting the whole idea of an unorganized plurality of sense-data, upon which the "forms" of space and time and the categories of the understanding would impose their order:

"The claim that every colour, independently of its empirically changing way of appearing, is a 'flat quale' in Hering's sense, or that to each colour matter (Katz) belongs an extension in Stumpf's sense, imply essential states of affairs about colours, which neither physical nor physiological optics can explain, and are valid independently of measure determinations".[11]

In the body of the book, though, something more is accomplished than a search for material a priori (*à la* Hering, Katz, or Stumpf) "organizing" perceptual data. A genuinely novel and original step is taken here. The "problem of the objectivity of the senses" is no longer conceived of as an epistemological one. Beyond the sceptical or epi-phenomenalist doubt about reliability of sensory experience, the

9 Plessner, H. (1923), *Einfürung,* p. 25.
10 Ibid., p. 23, Plessner's italics.
11 Ibid., p. 15.

mind-body problem comes into view. Neither materialism ("monistic parallelism") nor dualism can possibly explain how a meaningful world might be produced out of physical events in the brain, or how a conscious mind can change the physical world.
Instead of distinguishing intentional or representative consciousness from qualia, as it has been customary in classical cognitivism (but also in the empiricist attitude of the famous German physiologists and psychologists, like Wundt or Helmoltz) Plessner introduces the much more promising "perspective of the performance" or accomplishment (*Leistungsperspektive*). Only this perspective, Plessner suggests, would allow us to ask sensible questions about the "quality" of sensory modalities. What does a given sensory modality allow a human being (remember, this is an "anthropology of the senses") to do that humans could not have done (in that way) without it? The answer lies right before us, made manifest in the achievements we are all familiar with in the life-world. We move in space, we act, we have goals, we even move without any goal, in a kind of action which seems peculiar to us: expressive movement, such as dance - at least in it's "gratuitous" development over and above non-human animal "dance", as bound to sexual life and reproduction. Plessner would stress a human peculiarity that distinguishes our movements from the animal ones: we are *agents* in a peculiar sense, which Plessner will later concentrate on, namely, agents who possess a *capacity for innovation* based on a cognitive skill not shared by other primates. It is an ability which the prominent contemporary evolutionary anthropologist Michael Tomasello[12] (ideally, even if not really, an heir of Plessner's anthropology) seems to have (quite independently) re-discovered, and which he describes as a capacity of "role-reversal". In contrast to the primates Tomasello studied (in Koehler's tradition, one might say), children in early age can "transpose" information acquired from their own points of view (or in terms of their zero-point system of coordinates) into other persons' points of view, and vice versa. More generally, humans are not exclusively bound to their "centre" or to the ego-centred system of coordinates for which their body is the "origin". For this further degree of "freedom" (relative to the animal world) Plessner will later introduce the technical term "excentricity" or "excentrical positionality", the key-concept of his anthropology in what is probably his most ambitious and best known book, *Die Stufen des Organischen und der Mensch* (1928).

"The secret of the indirect method of inquiry consists in leaving the task of isolating a sensory quality not to the scholar's artifice, but allowing the isolation to be carried out by human culture and taking note of its results".[13]

4. The Perceptual Grounding of Symbolic Forms: Geometry and Music

We shall at present only hint at the two pillars of this analysis of the sensory *Erscheinungswelt* from the perspective of our cultural accomplishments: geometry and musics.
Geometry and music, as "symbolic forms", presuppose a perceptual intuitive basis whose structural or *Gestalt* properties organize the field of basic types of bodily action or movement: goal directed action, in the case of geometry, and purely expressive movement, in the case of music. In seeing and hearing, the lived body is involved as an "organon" of the will (Husserl) and as a means of emotional expression and communication.
Geometry makes the *Seinsinn or* phenomenal way of being of the visible world conceptually explicit. What Plessner discovers in the visual *Seinsinn* (or, a parte subjecti, *Sinngebung*) is the *practicable* world, the world of planned action and goal-directed movement. Music makes the *Seinsinn* of the audible world explicit, which is the *world of expressive movement* (e.g. dancing, a theme later deeply explored by Erwin Straus).
The irreducible, qualitative content of sight and hearing experiences are hence not just modes of

12 Tomasello, M. (1999), *The Cultural Origins of Human Cognition*, Harvard University press, p. 103.
13 Plessner, H., "The objectivity of senses", M. Bower's translation p. 3.

"phenomenal consciousness" in the sense of contemporary cognitivists (i.e., as qualia), but the very modes of presence of such aspects of an *Umwelt* as the practical and the expressive *milieus*, in the experience of which we become aware of ourselves as, respectively, active and feeling beings. The visual space works as a paradigm of the "objective", the "external" part of reality, as it is given in "the experience of encountering" (*antreffen*). The auditory field, for its part, "*versinnlicht*", gives body, as it were, to the "inner" or "subjective" part of reality – the emotional life and its "rhythm", as given in emerging awareness (*innewerden*).[14] "*Schematismus*" is a structural property of sight as "*Thematismus*" is one of hearing.[15]

"Music and geometry, as the specific mental employments of sensory modes, are for us only symptoms of what is possible, an aid for understanding what would otherwise hide its mystery from us in silent splendor."[16]

Hearing and sight, construed as sensory modalities essentially involving bodily attitudes and ways of acting in the environment, call for a third essential mode of sensing which – we may gather – will constitute the very basis of both kinesthesis and cenesthesis (touch, inner visceral sense): the sense of one's position-attitude (*Haltung*) and the sense one's state (*Zustand*) – confirming familiar notions on the central role of lived posture, balance, inner condition in any mode of perception.
An example of Plessner's insightful description of the relationships between sight and goal-directed action can be found in several passages in which he develops the notion of the "visible" *Griffigkeit* of objects:

"The grippiness or handiness (*Griffigkeit*) of a thing, as it is originally given to us at a distance through just the line of sight (....) by itself already entails an *Akkordanz* to action".[17]

Even more revealing is Plessner's description of the "architectural" world, where what is directly given to the sight are artifacts for use – with their functional properties, rooms to inhabit, chairs to sit on, ladders to climb, and so on.[18]
To sum up, Plessner' aesthesiology seems to provide an approach that introduces insightful avenues of research concerning "how the body shapes the mind", to quote Shaun Gallagher's felicitous phrase.

The solution of Thatcher's puzzle: why is physiognomic identity but not emotional expression preserved in upside-down images?

Let us conclude this commentary with a suggestion of a possible "Plessnerian" supplement to the analysis of the Thatcher illusion. If *Sehen ist Stehen,* then surely the organization of a visual field will be disrupted by inverting the customary orientation of visual objects on the vertical axis – as Merleau-Ponty famously proved on the basis of previous experiments with image-inverting glasses. Yet our blatant oversight of emotional change of expression in the reversed visage poses a further, more specific problem. Why is emotional expression, as opposed to physiognomic identity, so blurred by the unusual orientation?
Bodily involvement in sensory experience, both in goal-directed action and in expressive attitude, is precisely the solid experimental and phenomenological basis on which Plessner will later continue, developing a further chapter of aesthesiology and issuing in an important essay written in

14 Ibid., p. 9.
15 Plessner, H. (1923), p. 284.
16 Plessner, H., "The objectivity of senses", M. Bower's translation p. 4.
17 Plessner, H. (1923), p. 263.
18 Ibid., p. 278.

collaboration with the biologist and philosopher F.J.J. Buytendijk.[19] That further chapter is the human face to face. This enlargement of aesthesiology is required by the phenomenological attitude lying at the heart of Plessner's study of perception. It is not surprising that Plessner's research – as that of many phenomenologists in those years (The Munich Circle around Lipps, Moritz Geiger, Max Scheler, Edith Stein) – concentrates in the following years on direct social cognition. It does so, however, from a very peculiar point of view: the nature of "expression mimicry" – one of the most manifest tendencies of the human body defining it as a *personal* body.
Once again, the notion of bodily attitude is central to the analysis. At this point, one of Plessner's *Leitfaden* comes prominently into view: whenever configural qualities are expressive qualities, namely carriers of value-saliencies of some sort, sense-experience cannot be separated from the experience of sense (i.e., meaning). The natural axis system constituted by the standing body prescribes its *Sinnrichungen* to the surrounding space. Meaning is disrupted by rotation against that system. A person is not – it stays recognizable. Its shape its preserved through rotation in space – as geometry prescribes. After all a face is a physical object – if you disregard its expression.
Let's return to the case of inverted images. Take any image of which you can appreciate some famous expressive quality – take the most obvious of them, the "mysterious" or "ineffable" smile of Leonardo's *Mona Lisa*. Put the image upside-down. A bewildering experience follows: you shall not "grasp" the values, the sense, the quality of that smile any more. It is not that we don't see the shape of it. We do. The "sense" of it is missing, though. We have the feeling that we no longer "understand" the expression. This is true with any photograph – even of a very familiar person.
Let's leave the last word to Plessner himself:

"When somebody says, 'I see it on his face (*ich sehe ihm an*), [e.g.,] that he is ashamed, that he regrets, that he is furious, that he grieves,' this does not mean that he is given the actual being and way of the other's lived experiences of shame, regret, anger or grief, but only that the enacting forms of his behaviour (*Verhalten*) are given, establishing a certain attitude referred to the environment. Intersubjective coexistence consists of *attitudes*, ways of behaving (*Haltungen*, *Verhaltungen*), and the need for understanding is satisfied when these changing attitudes reveal some interrelation among them and the unity of the situation between the body in question and its environment (to which I may belong) is preserved in the progress of the whole [....]
Whether one is angry, jealous, grieving, cheerful, jovial, whether one is ashamed, regrets or merely acts as though he really were in one of these emotional states: this doubt is only solved in the framework of the particular *situation* by considering the *Gestalt* features of the given behaviour. Shame, regret, jealousy, anger etc. are here intersubjective ways of being for reciprocal communication, in relation to a *common world* (*Mitwelt*), and their identification depends in some measure on the development of the situation."[20]

Plessner's explanation is just a beginning – and yet a very good one. *Sehen ist stehen*, quite particularly in the human *face-to-face:* which means that we must not reduce a "tertiary" quality, even if it *is* a felt quality and not a "conceptual" or verbal representation, to those purely perceptual traits deserving the identification of the perceived things. For real qualities and value- or expression qualities are not the same. Left uncorrected, this confusion would make the most interesting part of the Thatcher illusion inexplicable – for we do see the thing. We just don't grasp its *sense*.

19 Plessner, H. (1925) *Die Deutung des mimiche Ausdrucks. Ein Beitrag zur Lehre von Bewusstsein des anderen Ichs,* in : *Ausdruck und menschlichen Natur* -Gesammelte Schriften VII, Suhrkamp, Frankfurt a.M. 2003, pp. 68-128
20 Plessner, H. (1925), p. 123; pp. 125-126.

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WHY PERCEPTION MATTERS

abstract

What I would like to do in what follows is to explain how, in my view, realism cannot but engage with perception. But we have to be careful here. I am not saying that reality is nothing other than perceptual experience. That is certainly not how things are: rather, that is precisely the mistake we have to avoid, although this mistake is very often made by the many, and often well-informed, people who dismiss realism as a sort of sensism. The route that leads from aisthesis to realism is more tortuous and goes by way of some matters that are not only central to the history of modern philosophy, but also apt to recur like a persistent disease.

keywords

Epistemic trust, scepticism, phenomena, anti-reductive ontology, fundierung

1. Language

The first thing that it is important to get straight is why, in the twentieth century, and especially in its second half, perception came to seem so irrelevant for philosophy. The answer is simple: the big questions had all to do with language, and in the heyday of the "linguistic turn" it did not make much sense to pay attention to something that seemed at best to be a secondary matter that could be dealt with by science – perhaps a second-level science such as psychology as it is traditionally conceived by philosophers. This was a widespread attitude, which went hand in hand with antirealism, and that established a far from casual parallelism between a lack of interest in perception and antirealism. We might cite the following list: Davidson, Derrida, Dummett, Feyerabend, Foucault, Gadamer, Kuhn, Putnam (middle period) Rorty, Van Fraassen, Vattimo. These are just eleven philosophers, but they make up a championship team, and not one of them has studied perception. We may go further: not one of these philosophers, unlike their predecessors in the previous fifty years – from Husserl to James, from Bergson to Aliotta – would have even thought that perception deserved to be considered as a matter of philosophical interest.

This was the period in which it was held, as Gadamer put it, that "the being that can be understood is language"[1] or, in Derrida's slogan, "there is nothing outside the text".[2] Things were much the same among analytical philosophers, where Davidson claimed that we encounter not perceptions but beliefs,[3] and Goodman spoke of worldmaking in the same terms as the construction of an artwork.[4] What was called the "linguistic turn", both in analytical and in continental philosophy, was in the end a conceptual turn. What we are and how we live is made of history, language, traditions and texts. And even what is "out there" in the world of nature is not what we are shown by the senses, which are always deceptive, but rather is what is interrogated by paradigms, by the great conceptual constructions with which scientists give shape to the world.

Typically, when a philosopher has no theory of perception, or is not interested in having one, it means simply that he is in the grip of one, and of a bad one at that, which generally leads him to claim that perception is dominated by concepts – at least in the Kantian sense that intuitions without concepts

1 Gadamer, H. G. (1960), *Wahrheit und Methode. Grundzüge einer philosophischen Hermeneutik*, Mohr, Tübingen.
2 "Il n'y a pas de hors-texte", literally (and a-semantically) meaning "there is no outside-text", see Derrida, J. (1967), *De la grammatologie*, Les Éditions de Minuit, Paris.
3 Davidson, D. (2001), *Inquiries into Truth and Interpretation* Clarendon Press, Oxford.
4 Goodman, N. (1978), *Ways of Worldmaking*, Hackett, Indianapolis.

are blind, which is then enriched by examples in which perception is determined by our culture, our expectations, our habits and practical ends. The philosopher who does not attend to perception holds that perception is not a philosophical matter. The reason for this oversight can be sought in the privilege accorded to concepts in the construction of experience[5] and not, we ought to note, in the wholly reasonable scientific and philosophical *re-construction* of experience.

2. Perception

What these attitudes presuppose, so as to justify the supposed superiority of the conceptual over the perceptual, is a sort of trick by which perception is expelled from the realm of philosophy by simply exaggerating its shortcomings as a source of knowledge.
A classic example of this treatment can be found at the beginning of Hegel's *Phenomenology of Spirit*,[6] where we see the condemnation of sensible certainty by way of the condemnation of the "this". The passage is well known: sensible certainty says "Now it is day", and Hegel asks to write this truth down, but twelve hours later it is out of date because in the meantime night has come on. The trick is fairly transparent, but it works pretty well. We start by thinking of perception as a source of knowledge, then we notice that this source is sometimes misleading, and we draw the conclusion that we must withdraw all credibility from perception and look for certainty elsewhere. The clear aim of disqualifying perception carries the significant philosophical advantage that it gives a huge boost to the realm of the conceptual, which is then given the task of keeping the truth firm against the illusions and tricks of the senses.
This is even easier to see in Descartes.[7] He begins by claiming that our knowledge comes from the senses, but that these sometimes mislead us, and it is better not to trust anything that has deceived us even once. To the objection that we are deceived only about things that are small or far away, Descartes replies that not only are there madmen who believe they are dressed in purple robes when they are in fact naked, but also every night we dream and hence what we perceive could be a mere representation. Here, the philosopher's unfairness to the senses is at least threefold. First of all, he emits a radical sentence of condemnation in response to an occasional shortcoming: sometimes the senses mislead, *therefore* we must be systematically wary of them. Second, he supposes that the senses should be regarded as genuine bearers of knowledge, in that they bear "witness". Finally, he thinks he can establish a radical scepticism by assuming a perfect equivalence between waking life and the dream state, which is clearly not true – I shall return to this shortly with the help of Austin.
Hegel and, before him, Descartes thus claim that all knowledge begins with the senses, but then hasten to show how unreliable the knowledge deriving from them is. This is a typical starting point, which we also find in the first lines of the *Critique of Pure Reason*.[8] It is also precisely what Hume does quite explicitly[9]: his assumption is that knowledge comes from sensible experience and is based on inductive reasoning. But then, once he has shown that inductive reasoning is not one hundred per cent certain, he draws the sceptical conclusion from it. I repeat the central point here: the clearest fact about these strategies is that they *give an essentially epistemological role to the senses*, as if they were above all vehicles for knowledge, and then, having pointed out that sensible knowledge does not guarantee certainty, they withdraw all interest from sensibility. They pass from occasional doubt to global doubt, with an overload of science. This is where constructivism comes from: from the need to found, by way of construction, a world that has lost its stability, a world that (like man for Nietzsche) is "rolling away towards the *x*". The result, however, is the opposite of what was expected, and is summed up in Price's sentence quoted ironically by Austin: "When I see a tomato, there is much that I *can doubt*".[10]

5 See typically McDowell, J. (1994), *Mind and World*, Harvard University Press, Cambridge (Mass.). For a criticism of this, see my "Mente e mondo o scienza ed esperienza?", in *Rivista di estetica*, n. s., XII (2000), pp. 3-77.
6 Hegel, G. W. F. (1807), *Phänomenologie des Geistes*.
7 Descartes, R. (1641) *Meditationes de prima philosophia*, Michel Soly, Paris.
8 Kant, I. (1781=A, 1787=B), *Kritik der reinen Vernunft*, Johann Friedrich Hartknoch, Riga 1781, A I, B I.
9 Hume, D. (1739), *A Treatise of Human Nature*, John Noon, London, p. 40.
10 Austin, J.L. (1962), *Sense and Sensibilia*, ed. G.J. Warnock, Oxford University Press, Oxford, p.105.

3. Construction

The upshot of the classic trick with perception is thus twofold. On the one hand, experience is credited with a magmatic nature, thus assuming that there is no regularity in nature and likening sensible impressions to the representations of the imagination. On the other hand, the conceptual is given endless powers and is called on to put order into a matter that would otherwise be chaotic and incoherent.

As I have repeatedly pointed out,[11] Kantian philosophy became the philosophical mainstream over the last two centuries, because it was able to resolve the sceptical impasse defined by Hume's critique of induction. Following this view, knowledge does begin in the senses, but it does so only if the senses are fixed by conceptual schemes that are independent from experience and prior to it. As a result, "Intuitions without concepts are blind",[12] a view that heralds a total collapse of ontology (what there is) into epistemology (what we know about what there is). And it is precisely against this background that we can explain the linguistic turn, that is, the claim that being, language and truth are closely associated with one another.

It might be objected that there is nothing wrong with this collapse of ontology into epistemology. Yet, I am not convinced that it is so. In fact, the Kantian point of view (as we find it already in Descartes: think of the ontological argument) is hyper-constructivist, which is to say that it makes being dependent on knowing. It is against this backdrop that the postmodernist ideas arise according to which reality is socially constructed and there is no being independent from our manipulations. Now, there is a slippery slope that leads from the negation of non-conceptual content to pan-interpretationism, and then to negationism. If only what is known exists, then anything – even the worst of crimes – of which we have lost all trace, has not existed. This is a possible outcome of Dummett's claim, which he later denied for obvious reasons, about the non-existence of the past.[13] If only the present exists, then past crimes were never committed and the Shoah never happened. I think that this is the strongest argument there is in favour of realism about the past. The same argument can be used in connection with perception: if perception does not count and only conceptual schemes do, then any sensual evidence can be denied.

Moreover, to claim, as Rorty did,[14] that bidding farewell to objectivity can be valuably counterbalanced by solidarity seems not to take into account that solidarity can perfectly well be the principle that binds together mafia gangs or authoritarian regimes (as Putnam recalls, Mussolini supported pragmatism). But these are the political harms produced by that particular form of anti-realism that is postmodernism, about which I shall say no more here, since I have discussed them at length elsewhere.[15] I rather wish now to respond to a simple question: why is the appeal to perception, which is so easy to disqualify from an epistemological point of view, such a powerful argument in favour of realism? At a first approximation, the answer is simple: *it is easy to disqualify perception from an epistemological point of view because it is not being treated as perception but as representation.* At this point everything becomes very easy indeed. But if instead we treat it as perception – which is exactly what *Sense and Sensibilia* invites us to do – then the game is anything but decided.

4. Representation

In all this business the notion of "representation" is thus playing a central role. It is the idea of a medium that stands between perception and concept, between object and subject, being neither of them but also, if needed, (when perceptions need to be equated with thoughts) being both at the same time. Consider the following passage that Boghossian[16] cites from Rorty: "None of us antirepresentationalists have ever doubted that most things in the universe are causally independent

11 See my *Il mondo esterno*, Bompiani, Milano 2001 and *Goodbye Kant! Cosa resta oggi della* Critica della ragion pura, Bompiani, Milano, 2004.
12 Kant, *Critique of Pure Reason*, A51/B75.
13 Dummett, M. (2006),*Thought and Reality*, Oxford University Press, Oxford.
14 Rorty, R. (1989), *Contigency, Irony and Solidarity*, Cambridge University Press, Cambridge.
15 I have extensively argued in favour of this in my *Manifesto del Nuovo Realismo.*
16 Boghossian, P. (2006), *Fear of Knowledge. Against Relativism and Constructivism*, Oxford University Press, Oxford, p.43.

of us. What we question is whether they are representationally independent of us". It is far from easy to know what to make of this passage, but it surely betrays itself as belonging to the same mind-set as "there is nothing outside the text" and "the being that can be understood is language". Thus, everything is absorbed into this "representation" and it becomes inappropriate to speak of "perception". I suppose that saying that the world depends on us representationally, though not causally, roughly means that the ways in which we represent objects are dependent on us, while the way in which objects are made depends on how they are represented by those who have made them. What Rorty calls "representation" was known in Austin's days as "sense data", and this helps us understand what Rorty is referring to when talking of causal dependency. Let us take Austin' analysis of how someone might get to the claim that we always and only perceive "sense data": "the argument from illusion is intended primarily to persuade us that, in certain exceptional, abnormal situations, what we perceive – directly anyway – is a sense-datum; but then there comes a second stage, in which we are to be brought to agree that what we (directly) perceive is *always* a sense-datum, even in the normal, unexceptional case".[17] Austin has the merit of showing the pervasiveness of this incipiently totalising mechanism, which does away with any difference between perception and representation. Perceptions are completely assimilated to mirages, hallucinations, dreams or afterimages under the umbrella-word "representation", and it is obvious that, in this way, perceiving is reduced to the level of mere illusion. In order for this trick to work, two things are called for.

The first is, so to speak, a sort of phenomenological carelessness. You would have to be very gullible indeed to mistake a greenish afterimage for a patch on the wall; of course it can happen, but it usually never does. The grain of what is perceived – and this is the point much insisted on in the recent debates on "non-conceptual content" – is much finer than that of what is merely thought, recalled or represented. You can look at a remembered sun without hurting your eyes; a remembered duck-rabbit does not shift; comparing two remembered colours is always problematic because the real shades have a finer grain than the memory of them. If this is how things are, then the whole trick consisted merely of assimilating, under the name "representation", things that are in fact very diverse, only to draw the conclusion that the control and guide of representations derive from conceptual schemes, in line with the constructionism we mentioned earlier.

The second element is what psychologists call the "stimulus error", by which they mean the ease with which we replace an observation with an explanation. It is the ease with which, when we have our eyes closed, we reply "nothing" or "blackness" to the question "what do you see?", when what we see are really phosphines and flashes. We do not include those in our description because we are talking about something else, namely a theory of vision for which the eye is like a camera obscura so that when the shutter is closed there is total darkness. It is not hard to find a trace of the stimulus error in the idea of the incommensurability of paradigms initially defended by Kuhn.[18] This is an idea that, if taken to its logical conclusion, would lead us to say that Ptolemy and Copernicus did not have the same perceptual experience of the Sun. From this point of view, the contrast between the manifest image of the world and the true image can be seen as an instance of the stimulus error. *Thus we can see that the basic sense of the stimulus error is the confusion between ontology and epistemology.* Not to mention the fact that, when it comes to social objects,[19] it is hard to draw the distinction between the manifest and the true image, which in fact, in objects such as mortgages and marriages, seem to coincide.

5. Dream

There is an even clearer proof of this. In Descartes, the disqualification of the senses goes hand in hand with the disqualification of madness and dreaming as sources of knowledge. When observing that

17 Austin, *Sense and Sensiblia*, p.44.
18 Kuhn, T. (1962), *The Structure of Scientific Revolutions*, University of Chicago, Chicago.
19 I have vastly discussed the difference between natural, ideal and social objects in *Documentality. Why It Is Necessary to Leave Traces*, Oxford University Press, Oxford, 2012.

the senses mislead us about things that are small or far away, he also objects that he could be mad or, without seeking the hyperbole, that, like every man, every night he dreams and takes for real things that are only representations.[20] As we know, fifty years ago this passage was central to an acrimonious dispute between Derrida and Foucault,[21] where the latter upheld the exceptional nature of madness, while Derrida held that the true hyperbolic scepticism was that of the dream, namely something that happens to everybody and is not at all extraordinary. Precisely because they are ordinary, dreams potentially undermine every datum of sensible knowledge, given that it could simply be a dream-state. What is curious here is that neither party took into account the concrete aspect of dreams, or the fact that it is very difficult to mistake a dream experience for a real one. For sure, following a widespread and little examined commonplace, we can come to suppose that dream-states can really be systematically confused with waking experiences. But suffice it to recall, on the other hand, how taken aback we are when a dream seems real and how much trouble we have shaking it off, which means that in most cases the difference between dream and wake is very clear indeed.

Now, at the heart of Austin's genuinely anti-Cartesian argument there lies a consideration of the specificity of dreams compared to waking experience. Indeed, as we have just seen, Descartes' dream argument offers Derrida the path to radical scepticism: every perception could be a representation and every representation could be a dream-state. Yet, the assimilation of dream and perception is not at all justified, if we look even cursorily at perception. Locke had already seen the point[22]: if you look at the Sun in a dream, your eyes do not hurt as they would in reality; if you drink absinthe in a dream, you do not get drunk. There is a specific trait of perception, namely its peculiar "grain", that is lost in dreams, so that the identification becomes problematic and, with it, the whole line of thought that Descartes wants to build on it.

In the end, it is the dream argument that most fully illustrates the antirealist bent that is at the core of the notion of "representation". As Austin recounts it, this argument runs more or less as follows. One night, Helen dreams of the Taj Mahal, which she has never visited, though she may have seen photographs or films of it. No one would say that, in her dream, she is perceiving the Taj Mahal, because what she is having is a purely mental representation of it. It is also worth noting that we cannot tell to what extent what she is seeing really resembles the Taj Mahal, given that such identifications in dreams often go beyond matters of shape and, in any case, it is implausible to suppose that when someone represents the Taj Mahal to himself, he does so in the smallest details. Suppose then that Helen travels to India and sees the Taj Mahal. The representation-friendly thinkers will say that in the first case Helen was perceiving the Taj Mahal indirectly, but that she had to do with "sense data", that is, representations, in both cases. Which seems like a bizarre slovenliness about the phenomenological features of these two experiences. But was it not with an argument of this sort that Descartes did away with sensible certainty?

Apart from the phenomenological negligence, dreams are also subject to the same hyperbole that is applied to senses. As for the latter, from the fact that senses sometimes mislead, the conclusion is drawn that we should be systematically distrustful of them. As for dreams, the fact that in some cases we seem to have veridical experiences is transformed into the claim that dreams and veridical experiences are made of the same stuff. Yet, the senses mislead us just as little as dreams resemble reality (and in any case we sooner or later wake up). As Austin observes, it could hardly be seriously suggested that dreaming of being presented to the Pope is "qualitatively indistinguishable" from actually being presented to the Pope.[23] In any case, ever since I gave up smoking I have been having frequent dreams – accompanied by strong feelings of guilt – of smoking, but funnily enough these do not leave a cough nor the taste of smoke in my mouth (neither in the reality nor in the dream); so

20 Descartes, *Metaphysical Meditations*, First meditation.
21 Foucault, M. (1961), *Histoire de la folie à l'âge classique*, Plon, Paris; Derrida, J. (1963), "Cogito et histoire de la folie", in *Revue de Metaphysique et de Morale*, LXVIII, pp.460-94: then in (1967), *L'écriture et la différence*, Seuil, Paris.
22 Locke, J. (1689), *An Essay Concerning Human Understanding*, Thomas Bassett, London.
23 Austin, *Sense and Sensibilia*, p.48.

it is unlikely that I am mistaken. In short: "Does the dreamer see illusions? Does he have delusions? Neither; dreams are *dreams*".[24] The argument according to which life is nothing but a dream, with all the powerful antirealist value it carries with it, is based on simply leaving out the fact that dreams are dreams and that we are rarely mistaken about this, so much so that – and here I risk repeating myself – we notice it distinctly when we have a particularly realistic dream and are surprised by it. One good test of whether you are dreaming or not is to pinch yourself. If you do not wake up, then it may be unpleasantly true that you are not dreaming but are awake.

6. Unamendability

Ultimately, the interesting feature of perception is this: rather than a source of information or an epistemological resource, it should be regarded as a barrier to our constructivist expectations. In a certain way, the function of perception is similar to Popper's falsification, except that here it has an ontological role rather than an epistemological one.[25] In perception what really counts are the lines of resistance, or what I call "unamendability".[26] It is at this point that we find the importance of perception as well as the ontological meaning of aesthetics as *aisthesis*. It is the fact that it does not confirm and realise our expectations and knowledge, but rather it controverts them, showing clearly that there exists something distinct and separate from us. The unamendable may even be an error, a delusion, nonsense, but it certainly is something.
Now, this resistance seems to have intrinsically something to do with the real in the ontological sense. As Austin notes,[27] the best way to get at what "real" means in a given context is always by way of what it excludes. If I say "this is real beer", I do not say much; but if I say "this is not really beer" (perhaps because it is alcohol free), then I have said something substantial. In any case, it is easy to see that perception helps us recognise the inappropriate use of words of everyday language, here too serving a negative rather than a positive role. Starting from this obstinacy or unamendability, I would like to set out four paths by which *aisthesis* leads to realism. It may be noted that none of these have to do with knowledge-gathering, unlike in sensism or naturalism. Rather, they run perpendicularly to epistemology, to what we know, and lead instead towards being: towards what there is. These traces are non-conceptuality, objectness, naivety and ontology.

7. Non-Conceptuality

Let us begin with the notion of "non-conceptual content", which has been much debated in recent decades.[28] It is an essentially contrastive notion. It has to do with the whole sphere of experience that lies outside concepts and that defines an external world as unrelated to knowledge – which can even be recognised in Kant when he refers to the "synopsis of sense" preceding the syntheses that lead from perception to concept.[29] In short, non-conceptual content tells us that there is something out there to give sense to our knowledge-gathering and moral practices, and thus to our knowledge and actions. Non-conceptuality is a resistance, an unamendability, something that cannot be ignored. At the same time, it can also be seen as an autonomous organisation of experience, thus reducing the importance attributed to conceptual schemes in the organisation of the world. In fact, the activity of conceptual schemes mostly regards knowledge, and it seems excessive to attribute to them also the organisation of ordinary experience, as is claimed by the philosophies that share the Kantian-hermeneutical mind-set.

8. Objectness

Insofar as it is connected with non-conceptual content, the very notion of "object" is linked to the idea of a world that is organised and that possesses its own features, to which we have access through simple perception with no need of an intervention from the conceptual. It is the sphere of what I call

24 *Ibid.*, p.27.
25 Popper, K. R. (1935), *Logik der Forschung*, Julius Springer, Wien.
26 For a deeper discussion of the notion of "unamendability", see my *Manifesto del nuovo realismo*, pp. 39-42.
27 Austin, *Sense and Sensibilia*, pp. 70-71.
28 The start of the debate in matter is usually attributed to Evans, G. (1984), *The Varieties of Reference*, Oxford University Press, Oxford.
29 Kant, *Critique of Pure Reason*, A 97.

"objectness". For instance, even before they learn a language, children are able to divide reality up into objects,[30] something which – if Kant was right – should be impossible, given that they presumably do not possess the scheme of substance as the permanence of something through time. The idea is that, at least to some extent, meanings are in the world, incorporated in objects that offer affordances – to use Gibson's term[31] that has a significant predecessor in Fichte's "*Aufforderungskaracter*", as referred to reality.[32]
Organisation is first of all in the world, then in the eye and only lastly in the brain; the hyper-constructionist mind-set assumes the diametrically opposite hierarchy. Meanings are not all in the head, and this explains why there can be such strong interactions among beings belonging to different cultures (as well as having different conceptual schemes and perceptual apparatuses).

9. Naivety

What emerges is a "naive physics"[33] or a "second naïveté".[34] The world presents itself to us as real without necessarily on that account claiming to be scientifically true. In short, what emerges is a theory of experience. The naïve realism in question is minimal. All it wants to do is save the phenomena and take into account our experience of the world. Also, it has obviously nothing to do with metaphysical realism, which assumes a world of ordered meanings independent of us. In particular, naïve realism assumes that there exists a specific family of objects – social objects – that are entirely dependent on subjects, while not being subjective themselves. If you give up on this naivety, you risk taking on a philosophy that is wholly false.
This naivety was already what Reid called experience, and in fact he criticised the empiricists' epistemologisation of experience: "he [Berkeley] maintains (...) that sun and moon, earth and sea, our own bodies, and those of our friends, are nothing but ideas in the minds of those who think of them, and that they have no existence when they are not objects of thought".[35] This passage gives exactly the idea of what is meant by the epistemological hyperbole. If no one would be ready to regard their own friends and relatives as mere representations, why should we assume that the sun and the moon are such?

10. Ontology

Let us take a passage from the still partially antirealist Putnam, the Putnam of :

> What is factual and what is conventional is a matter of degree; we cannot say 'These and these elements of the world are the raw facts; the rest is convention, or a mixture of these raw facts with convention'. What I am saying, then, is that elements of what we call 'language' or 'mind' *penetrate so deeply into what we call 'reality' that the very project of representing ourselves as being 'mappers' of something 'language-independent' is fatally flawed from the start*. [36] [italics in the original]

It is surely so. But that does not stop this something independent from existing or from making our science true, otherwise we would be unable to explain surprise and disappointment, and furthermore we would have to go back to saying saying *sic et simpliciter* that there is nothing outside the text.

Description and explanation are never a pure copy of reality. For this reason the distinction between

30 von Hoften, C. E. & Spelke, E. S. (1985), "Object Perception and Object-directed Reaching in Infancy", in *Journal of Experimental Psychology: General*, CXIV, pp.198-211.
31 Gibson, J. J. (1979), *The Ecological Approach to Visual Perception*, Houghton Mifflin, Boston.
32 Fichte, J. G. (1796), *Grundlage des Naturrechts* ("Zweiter Lehrsatz"), Gesamtausgabe der Bayerischen Akademie der Wissenschaften, Fromman-Holzboog, Stuttgart-Bad Cannstatt, ch.I, par.3, pp. 342-51.
33 Bozzi, P. (1990), *Fisica ingenua*, Garzanti, Milano.
34 Putnam, H. (1994), "Sense, Nonsense and the Senses", in *The Journal of Philosophy*, XCI, iss.9, where he associates Reid, James, Husserl, Wittgenstein and Austin to naïve realism.
35 Reid, T. (1785), *Essays on the Intellectual Powers of Man*, John Bell and G. G. J. & J. Robinson, Endinburgh & London, Essay 2, chapter 10, p.166.
36 Putnam, H. (1992), *Realism with a Human Face*, Harvard University Press, Cambridge (Mass.), p.28.

ontology and epistemology is essential, also and precisely so as not to fall into the confusion of metaphysical realism. All well and good, but what does it mean, then, to return to perception, and how does this change things? It is not at all a matter of returning to perception as truth, which I do not think was ever upheld by anyone, precisely because of the experience of the deceits of the senses – as well as the fact that things can be true even though no one perceives them, as is obvious to everyone. Rather, we should concentrate on perception as being unconstrained by our constructions. There is an ontology that is independent of epistemology. The conceptual is very important, but is only concerns epistemology. There is a whole non-conceptual world, and this world is ontological: it exists and it manifests itself often through the resistance it puts up. In the end, it is this robust sense of reality that sets an insurmountable limit to every constructionist hyperbole. And this limit – fundamentally this limit – makes up the greatest merit of perception. It is in this sense that what exists, ontology, is essentially what resists.

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ON THE REALITY OF PERCEPTS: HUSSERL AND GIBSON

abstract

Although the theoretical background of Edmund Husserl and James Gibson respectively could be hardly more distant, their accounts of perception show high compatibility. This compatibility does not extend to the ontological status of percepts. We propose here a short contrastive analysis of Gibson's and Husserl's theses on the relation between perception and reality. We dwell on three restrictions formulated by Gibson with regard respectively to the nature of memory, imagination and the biological meaning of affordances. These restrictions, which are functional to Gibson's direct realism, are then criticised in the light of relevant Husserlian analyses. Finally, we suggest a phenomenological line of inquiry able to address and resettle the ordinary notion of perceptual reality.

keywords

Perception and ontology, naturalism, teleology, phenomenology and realism

Edmund Husserl's account of the constitution of perceptual objects can be roughly set forth along the following lines:

1. Percepts are *genetically constituted* over time through sensuous experience: we learn to perceive (Hua I, 112).
2. Percepts are always *posited as* independently existent objects. That the existence as wholes is *posited* is displayed, among other things, by the phenomenon of adumbrations (*Abschattungen*): perceptual things are wholes that are betokened by present impressions (Hua XI, 3).
3. Perceptual objects are *apperceived* in the wake of just unfolded impressions (retentions) and in sight of immediately expected impressions (protentions): apperceptions are *teleological* syntheses providing unitariness and intertemporal identity to percepts. This means, among other things, that we cannot conceive of the constitution of objects without reference to a *motivational* dimension (HuaMat VIII, 260).
4. Perceptual objects are 1) *transcendent entities* and 2) *spatiotemporal determinations*. These two features do not coincide.
    - 4.1 Something is "transcendent" if it is recognised (intended) as subsistent beyond and independently of subjective activity. This means that transcendent entities are *intentionally posited* as *subsistent irrespective of intentional acts* (HuaMat VIII, 52).
    - 4.2 The transcendent character of a perceptual object is *not* to be equated with its "external" nature. Something can be independently subsistent without having spatial determinations: pain, dizziness or logical truths are recognised as independent on my intentional acts, but they need not come "from without". On the other hand, we can imagine externally existent objects without them being transcendent (See Hua IV, 131 et seq.).
5. The existence of perceptual objects as spatiotemporal determinations depends on kinaestheses, which are *supramodal* sensations of motion. Kinaestheses can produce the cross-modal synthesis needed for the constitution of spatiotemporal objects since they inhere in the *living body, which is a transmodal sentient unity* (Hua XVI, 154 et seq.).
6. Finally, perception, while obviously fallible, represents the *first source of phenomenal evidence*, which can be refuted only by contrast with further perceptual evidence. First and foremost perception must be taken to be conducive to truthful judgments.

These phenomenological theses could be argued for through an exegesis of Husserl's texts and/or by autonomous phenomenological analysis. This is not the way we want to go in the following pages: here we would like to illustrate interest and validity of those theses by contrast with the well-known analysis of perception provided by J. J. Gibson. This contrastive analysis of Husserlian and Gibsonian theses is justified by the fact that many ideas of the two authors seem highly compatible, while their ontological frameworks appear to be clearly at odds: Gibson's naturalistic realism and Husserl's antinaturalism seem to be incompatible. Furthermore this comparative effort is motivated by the current revival of Gibsonian theses in the framework of contemporary attempts to reconcile phenomenology and cognitive sciences (see Noë 2004, 104 et seq.).

Let us set forth Gibson's main arguments with particular reference to their treatment in *The Senses Considered as Perceptual Systems* (1983, 1st ed. 1966), where all key concepts relevant to our aims are to be found. Gibson's core thesis is that *perception is a way to grasp real environmental information, and does not consist in imposing order onto chaotic sensations*. Perception is not an order imposed by the subject on an alleged chaos of sensations, since this would amount to making of perceptual reality an imaginational product: if perception was interpreted as transformation of unordered sensations into perceptual units, this would call upon a subjective projecting activity, such that perception would turn into imagination posited as real (Gibson 1983, 227-228). This view, which threatens to make of perception a "grand illusion", is opposed by the idea that subject's activity looks for and obtains useful *information* from the environment (*ibid.* 31). The protagonists of perception are not sensory receptors but *sense organs*, by which Gibson means the mobile parts of the sensory system (*ibid.* 40). Percepts are not just received, but they are actively *obtained* by the perceiver, who brings to light percepts by mapping her own exploratory sensorimotor activity (*ibid.* 31). This means that the "perceptual system has to be propriosensitive as well as exterosensitive" (*ibid.* 252), so that the continuum of sensations coming from muscular activation and modal feedback can blend into environmental information. Gibson's use of the term "kinaesthesis" is more restricted than Husserl's one, however, their accounts of the kinaesthetic constitution of percepts are highly compatible (See Hua XVI). In this sense Gibson's work can be regarded both as an illustration and as an updated completion of Husserl's inquiry. But when it comes to tackle the nature of the connection between perception and reality, the two authors clearly part ways.

According to Gibson, environmental light intrinsically brings *information* relative to visual surfaces in the same way in which the sound of a bell informs us of the bell and the odor of cheese of cheese (*ibid.* 187). The core idea is that *environmental* light (which is not just physically available light) is to be conceived as a sequence of *optic arrays* centred in the perceiver's eye and manifesting *invariant optical transformations*. In other terms, by actively exploring the environment, the sensorimotor feedback of eyes, head and overall locomotion brings forth patterns of environmentally available optical thresholds. Such patterns are the expression of invariants akin to the ones investigated by topological transformations (*ibid.* 202), according to which any two proximate points in a geometrical figure can be associated by a function to two proximate points in classes of different figures. Topological transformations (especially continuous ones) show cases (*e.g.*, perspectival transformations) where one can *derive* a figure from another according to a function. Yet, the reference to topological transformations is more a suggestive example than an actual solution of the problem of perceptual identity through sensory change: we can produce a continuous transformation of the image of an apple into the one of a horse, but this does not support the perceptual identity of apples and horses yet. Indeed, Gibson himself is uncertain about how strict the reference to topological transformations should be: they do not actually express anything more than a suggestion to look at optical invariants.

Gibson's realism essentially consists in the idea that optical (and other modal) invariants represent environmental information, which gives *direct access to reality in itself*. What is meant here by "reality" is not as clear as one might wish, though. Apparently Gibson feels obliged to downplay and possibly discard *any* role played by subjective acts of synthesis. We may appreciate what Gibson has in mind if we notice that he tries: (I) to minimize the role to be attributed to *memory* in perception; (II) to drop any reference to *imagination* in perception; and (III) to conceive all relational properties of things (*affordances*) as elements belonging to the world in itself.

(i) As we said, in order to downplay all irreducibly subjective contributions to perceptual recognition, Gibson minimizes the role played by all *non-actual* experience in actual perception. However, when the relevant non-actual experience is memory, it is hard to see how one could avoid referring to a *memory* function while relying on a model of perception dependent on *diachronic* sensorimotor sampling (conducive to invariants). In order to detect invariance across change you must rely on the availability to consciousness of bygone impressions, otherwise you cannot discern what stays and what flows. Indeed, Gibson at first downplays all reference to memory, but ends up stating that his criticism targets just the idea of memory as a *storage* (*ibid.* 262 et seq.). Yet, if this is the case, it becomes unclear how *this* rejection of the role of memory could ever reduce the weight attributed to subjective acts of synthesis. After all Husserl's notion of *retention* may be read precisely as a memory function which is irreducible to any storage model, while being *essential* to a synthetic institution of percepts.

(ii) Gibson wants to avoid the idea that our perceived world is an imaginational construction based on sensations. However, this cannot mean that perception can do without *any* subjective activity, since we need something that brings us from sensorimotor samples to unitary percepts. As Husserl extensively shows, perceptual objects can be acknowledged only by "completing" current impressional evidence; it may be inappropriate to use the label "imagination" for such completing activity (and indeed Husserl avoids it), but the reference to subjective activity is inevitable. Here the crucial point of contrast is between the necessary reference of Husserl's account to a *motivational* (and *teleological*) dimension implicit in perceptual constitution and the resistance of Gibsonian realism to any such traits. Gibson describes the required perceptual synthesis as if it were a kind of pure intuition of mathematical invariants, which underlie sensory samples:

"The sampling of the world by locomotion, the sampling of the head's field by eye-turning, and the detailed sampling of parts of this field by foveal exploration, are all similar in one respect. The set of sequential samples is a unit in the sense that it comprises a mathematical group." (Gibson 1983, 261)

But what does it mean that the "set of sequential samples is a unit in the sense that it *comprises a mathematical group*"? It seems to say that the real unity of the percept depends on the invariance of a mathematical function, which ideally underlies a sensorimotor transformation. But this point is unclear. In fact, there are countless mathematical functions which can define topological transformations without supporting any objectual identity. Should we specify that, in the infinite set of all possible functions defining geometrical invariances, human eyes pick up *special subsets* of invariants? Plausibly those invariants that "humans are interested in"? But this means that the potential availability of an underlying mathematical function is at most a *condition of possibility* for synthesis, not the ground that *actualizes* synthesis. In order to obtain perceptual units we must apparently rely on *motivational ground*, as Husserl taught us.

(iii) One of the most original contributions by Gibson is his theory of *affordances*. By affordance Gibson means any potential of action inherent in the environment; such potentials are *sensorimotor relations*, which are immediately apprehended as intuitive units (Gibson 1983, 23; see Gibson 1986, 127-145). This means that we have direct access to the graspability of the stick, and need not first acknowledge the objective attributes of the stick and then infer the relations between those attributes and our sensorimotor powers. From a phenomenological point of view the notion of affordance can be precious since it captures a universal character of experience: *what we apprehend is primarily what fits subjective embodied powers.* And, as we will see, this implies that *objective features are available only as qualified subsets of those primary subjective apprehensions*. But Gibson insists in conceiving of affordances as something that somehow belongs to the thing in itself: they represent immediately accessible environmental information. Here the ground becomes slippery and the thesis ambiguous.

On the one hand, it is right to emphasize that "environmental information" is not "made up" by the perceiver, but belongs to the thing *as perceived*. On the other hand, we cannot go all the way down to the statement that affordances "exist independently" of perception (*i.e.*, sensorimotor apprehension in general) (Gibson 1983, 274). Gibson is right in saying that affordances are not *created* by cerebral reorganization (*ibid.* 273), but he seems to believe that the only alternative is to attribute them to the thing in itself. Before opposing mind and matter along traditional lines, we must take seriously the idea that our *primal access to reality* is *phenomena*, especially perceptual phenomena, which come to existence, as it were, at the "meeting point" between embodied capabilities and sensuous transcendence. This perspective, while compatible with the notion of affordance, is foreign to Gibson: he conceives of the very relation between subject and object in objective terms. This position is of course nothing but full-fledged scientific naturalism: subjects, their properties and experiences are *essentially* nothing but their objective spatiotemporal embodiments, and if something does not fit this reduction it is either downplayed (*e.g.*, *qualia* as epiphenomena) or referred to a scientific reduction to come.

Gibson's naturalism does not argue for a reduction of cognitive variables to the *physical* but maintains the original nature of *biological* features: this is the ontological framework underlying the most innovative aspects of Gibson's account, like the immediate apprehension of affordances and the irreducibility of environmental information. Gibson needs to separate the "ecological" (biological) meaning of light, environment, information, etc. from their physical meaning, since the physical value of those notions cannot account for perception (*e.g.*, physically there is no such a thing as *figure-ground contrast*). In a strict physical sense no light modulation is more salient than any other, and luminous invariants are no more significant than ever-changing polychromies. From a phenomenological perspective we could say that physical reality, that is, the range of all potentially detectable physical units is no *unitary* reality and so much the less is *perceptual* reality. Gibson is perfectly aware of the necessity to introduce a selective principle conducive to perceptual *units*, but he wants to do it while staying at the naturalistic level, and this is done by granting priority to biological reality. But when we depart from mainstream scientific naturalism, which relies on physicalism, realism loses much of its plainness. Is Gibson telling us that the cognitively accessible world is the one compatible with our *biological interests*? But this would amount more to Uexküll's (2010) idea of *Umwelt*, than to customary realism: we would not refer to the *world in itself*, but to the biologically meaningful world. And here we run into an inescapable epistemological aporia: we cannot provide statements of biological content *from the outside of biological functions*. The "ecological" nature of Gibson's realism does not seem rationally discernible from a vision where Uexküll could join Schopenhauer: we experience only what complies with our instincts. As Uexküll's well-known example goes, the tick reacts to the odor of sebaceous follicles and to the temperature of blood,

without them necessarily entering into any unitary picture (reality) (Uexküll 2010, 53 et seq.). Would this still be realism?

A Husserlian kind of perceptual realism can be provided by noting that perception is just never bypassable for our cognitive access to the world: we may build technological devices able to refine and amplify our perceptual powers, but we cannot access *reality* (whatever it may be) without relying on perception. From this point of view perception is constitutively conducive to reality, while the reality to which we can refer is given only through *an embodied motivational orientation*.

The reference to biological variables is essential to Gibson in order to introduce in the perceptual process a *principle of selection* (saliency, interest) which would be unavailable at the physical level. And using a natural science like biology as ontological framework may give the impression that we can do without subjective traits in accounting for our perceptual access to reality. But this is an illusion, since *biology* is not *life*: biology is a rational construct, which presupposes and rests on *living interests*. We must recognise in the first-person essential features of life in order to gain access to biological categorizations.

It must be stressed that no motivational (and intentional) features can be recognised without reference to first-person accounts: ends, drives, and intentional acts in general are essentially *not* spatiotemporal facts; they may "supervene" on spatiotemporal embodiments, but nothing in their sole spatiotemporal determinations captures their motivational/intentional character. This is a simple, but discriminating point for Husserlian phenomenology in contrast with all naturalistic approaches: for Husserl, objective accounts are and cannot be anything but *qualified subsets of first-person experiences* (phenomena); this means that first-person experiences are not peculiar exceptions in the ontological sphere, but the only possible basis for truthful statements on what there is. We use the (non-Husserlian) expression *first-person experience* to convey the idea that the epistemic priority of phenomena is not a priority of "introspection", but of experience "within the limits in which it is presented" (Hua III, 52). Phenomena for Husserl are *not "mine"* (they do not belong to any specific individual) and are *not "internal"* (they are not specifically seen by the "mind's eye", but mostly by ordinary eyes, ears, etc.). Phenomena are just *all first-person manifestations describable while suspending any thesis on the ontological status (reality) of what is described*. Phenomena are first-person experiences which can be never "bypassed" in favour of objective data. *E.g.*, we may grant that the perception of "red" objectively corresponds to a wave-length of about 700 nanometres, but the *experience* of red is *necessary* to reach that objective conclusion, while the allegedly objective conclusion is *contingent* on the experience of red. (In fact, it turns out that the equivalence between wave-length and colour is not generally true (Thompson 1995, 82 et seq.)). This means that the phenomenological vindication of the role of *consciousness* does not involve any dichotomic contrast with *objectivity*, since the latter is unthinkable without the former. But this implies also that all efforts by objective accounts to keep away from the dimension of experienced consciousness are at best misleading. Gibson's analyses are compatible with phenomenological accounts up to the point where he fears that his naturalistic realism could be threatened. When this happens, he tries to take distance from all concepts of subjective flavour like "memory" and "imagination", but actually he can distance himself only from some discredited versions of them. Both Husserl and Gibson maintain that perception provides access to reality. Gibson tries to argue the point by grounding perception on a multi-layered explanation where percepts are truthful because of biological (evolutionary) reasons: we detect the environmental information that is useful for the biological beings that we are. For Husserl this way to argue for the intrinsic link between perception and reality would be nonsensical, because it would amount to supporting the ground with what is grounded on it: objective theories

of biological or physical nature may or may not be true, but in any case their relative truthfulness depends on the *assumption that perception is conducive to reality*, otherwise no corroboration or refutation of the relevant theories could ever take place. As Husserl argues, perception can indeed deceive. But this can be brought to evidence only by *further perceptual content*, never by theories unrestrained by perception. Husserl's "realism" implies at the same time that no attribute of reality can be provided without (implicit or explicit) reference to embodied consciousness.

Finally, we must notice that there is a problem essential to perceptual realism, which is left unmet by the Gibsonian approach. Perceptual reality is characterized by cross-modal identity: our tactile, visual and acoustic percepts must provide *coherent* information and when this is not the case, we know that we have to do with illusion of a kind. If the stick in water appears visually bent, but tactilely straight, we speak of illusion (perceptual unreality). Here two distinct problems rise: the first one concerns the *nature of the common ground* ("code") where different modalities must be able to interact in order to be considered *coherent* (or not) with each other. This question is not properly answered either by Gibson or by Husserl, and we will overlook it here (but for a possible phenomenological answer see Zhok 2012, 97 et seq.). The second problem concerns the *meaning* of the relevant judgments of coherence (or not).

This second question concerns the very nature of the cross-modal *reality* to be found. Regardless of the problem of what is in common between modalities, the essential question from a Husserlian point of view would sound: what is the *meaning* of the apparently self-evident *assumption* that reality is the locus where all sensuous modalities *agree*? Why do we judge that modal information which is discordant (the stick bent in water) signals unreality? Here we are interested only in the general sense of Husserl's answer, because of its incompatibility with any obvious naturalistic realism: phenomenologically, reality is not a fact, but a *tèlos*, and precisely a constitutive, immanent, non arbitrary *tèlos* (not to be mixed up with an Aristotelian final cause).
To briefly illustrate this point, let us consider the well-known experimental findings on the perceptual adaptation to inverted glasses. After wearing glasses that invert the direction of rays coming to the retina, the perceiver suffers a disruption of the ordinary cross-modal associations and a consequent perceptual breakdown (Kohler 1964, 8 et seq.). This disruption is gradually overcome through sensorimotor exploration, so that the perceiver comes back to the same unitary organization of perception available before wearing the glasses. At the end of the process of adaptation the actual stimuli are *physically* different from the ones available before wearing the glasses, while the *perceptual* content is the same. But such an *end* of the process can be an end in the sense of "conclusion" only insofar as it is an end in *teleological* sense: the process *stabilizes* when we reach perceptual reality. We must deal with sensuous transcendence, but it is not the world in itself that impose *reality* on us: it is we who *actively look for* sensuous concordance in the field of sensuous transcendence. And such *motivated sensuous unitariness* is what we primarily call *reality*.

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THE ROLE OF TACTILITY IN THE CONSTITUTION OF EMBODIED EXPERIENCE

abstract

In this paper I aim at highlighting the role touch plays in comparison to other sensory modalities both in our apprehension of reality and in the development of our bodily self-awareness. I will try to discuss above all the latter topic by showing that touch enjoys an unique status among the senses because of the coincidence between its bodily organ – the flesh – and its material sensory medium. For this essential link with the whole living organism touch ensures at the highest degree our anchorage to the world and exerts an epistemological supremacy since its cognitive performances contribute to establishing a robust sense of reality, by confronting ourselves with the resistance opposed by the things. In its essential connection with proprioception, kinesthesia and bodily feelings tactile perception constitutes the bodily intentionality in its basic form and therefore assures the mutual interplay between different sensory modalities. Another exclusive feature of tactile perception consists in its double function as proprioceptive and exteroceptive direction, as shown by the unique phenomenon of touchant/touché. Husserl and Merleau-Ponty have devoted their attention to the relevance of this experience in generating the bodily self-awareness in its reflexive structure.

keywords

Touch, embodiment, bodily self-awareness, Husserl, Merleau-Ponty

In spite of the fact that in our philosophical tradition the sense of sight has exerted an indisputable supremacy in comparison with other sensory modalities, it is true that touch plays a key role both in our apprehension of reality and above all in the development of our bodily self-awareness. From Plato to Enlightenment the vast majority of philosophers has unilaterally placed the accent on sight by stressing its privileged status as the true image of intellect (Roth 2012, 43). This fact finds confirmation in the worship of visual image among all expressive forms that pervades our culture almost in its totality. In *On the Soul* Aristotle arranges the five senses according to a hierarchy that culminates with sight and has at its bottom touch as compromised with the most "fleshly" components of the sensitive soul, whereas sight anticipates the high-order performances of intellect. Nowadays this tendency is mirrored in the mainstream attitude of Anglophone philosophy of mind which conceives sight as the epistemological sense par excellence and proposes an approach to sensory experience modelled on the role of perceiver as a passive spectator. Beside of this the distal property of visual perception and its relative independence from the bodily conditions allow the separation between the external world and the experiencing subject (Ratcliffe 2010, 134). As we shall see in the course of our exposition, it is difficult to trace such a sharp boundary line, as shown by the phenomenon of the reversibility between passive and active touch.

The little consideration given to tactility is not enough to play down its essential function in our bodily experience and the complexity of its physiological constitution. Unlike the other sensory modalities, touch requires not a single organ, but a huge amount of mechanoreceptors that are strewn across the whole body surface. The intracorporeal ubiquity of touch has its counterpart in the fact that it goes together with almost all our interactions with the external objects and the other people. The correspondence relation between the body and its environment refers to a functional duplicity which distinguishes touch from the other senses. On the one hand touch as exteroceptive sense is outward oriented since it turns to the objects of the external world in their material features, on the other as interoceptive sense it refers to the body itself and its states. In this latter function touch generates the bodily self-awareness in its self-reflexive structure, whereas this property is not to be understood as a higher-order cognitive performance which involves a fully developed self-consciousness, but in the narrow sense of a pure sensory self-referring without need of abstract representations (Roth 2012, 48).

Despite the low-ranking position it occupies in his hierarchy Aristotle himself admits that touch is the most basilar sense because of its necessity for the survival of animal organisms. Tact has priority compared with other senses not only as a possibility condition and a general model for them, but also from a phylogenetic point of view, because it is common to all animals, including the less evolved ones (Aristotle, *De an.*, 434 b 20-24). However touch owes its exceptional status to the fact that it does not satisfy the requirement of the distinction between bodily organ and material sensory medium to which the other senses are subject (Paterson 2007, 4-5). The flesh and the whole body are at the same time the medium and the organ of touch so that the apprehension of a tactile quality like dryness can involve both the bodily sensation of dehydration and the perception of an objective feature (e.g. a dry leave). In general terms Aristotle's concept of *aisthesis* is strictly correlated with the sensing body since it includes both physiological aspects like affects and bodily sensations and psychological ones – the perception as high-order activity whose task consists in processing the raw data provided by sensations. The embodied nature of *aisthesis* is already mirrored in its definition as the capacity of an organism to be moved or affected by an external object. This alteration is not to be drawn back to the activity of the objects as such, but it depends on the specific way of alteration the sense faculty undergoes (Paterson 2001, 17-20).

For its essential connection with the living organism touch is among all sensory modalities the one that ensures at the highest degree our anchorage to the world. Touch deserves an epistemological supremacy because its cognitive performances are indispensable for the development of our sense of reality. Nothing attests in so pregnant a way the existence of an external world and of our body than the impacts the environment exerts upon our tactile receptivity. Touch is the less deceptive sense since it corrects the perceptual illusions generated by the sight and allows us to recognize the constancy of shape, size and superficial structure of the objects, despite the modifications these features can undergo in visual perception. The primacy of touch and its chronological precedence are confirmed in the ontogenetic development of humans too. Though the exploratory active touch is not yet developed in newborns and infants, the tactile impressions yielded by the mouth are enough to communicate them a robust sense of reality and play a fundamental role in nutrition (Katz 1925, 240-241).

Touch competes with sight in apprehending the spatial relations and the objective features of the external world and exhibits therefore a functional kinship with it. However the narrowness of its perceptual field and its proximal range, which depend on the fact that tactile sensations occur only through contact of objects on the cutaneous surface, have led several psychologists to consider touch as an auxiliary sensory modality subordinated to sight (Hatwell 2003, 1). To be sure, the reasons for this negative appraisal are to be traced back on the one hand to the insistence on the performance disparity between touch and sight, on the other to the propensity to treat both as separate and incommunicable sensory modalities. It is rather necessary to consider touch and sight in their mutual interplay and in their common rootedness in the motor capacities of the body. E. Straus (1956) and D. Katz (1925, 79-80) have insisted on the unnatural character of a clear-cut distinction between perception and movement since it splits at the level of reflective consideration what is inextricably united in sensory experience. Having neglected movement as basic condition for perception is a consequence of the atomistic approach of empirical psychology, which devotes its attention to punctual and motionless stimuli. Both sight and touch involve exploratory bodily movements in order to grasp the objects in the full-fledged richness of their spatial and qualitative features. If I want to gain a complete and veridical percept of any object it does not suffice that I lay my hand on it, but I must slide the tips of my fingers along its surface and contours. In the same way the visual apprehension of the object in its manifold sides requires that I turn my head toward it and execute exploratory movements with my ocular bulbs. J. J. Gibson (1962, 477) has carried the analogy between the exploratory functions of

sight and touch so far that he speaks of a "tactile scanning" which allows active touch to integrate vision – and to surrogate it in blind people. Conversely Noë (2004, 72-73) refers to Merlau-Ponty's "palpation with the eyes" in order to stress the common sensorimotor constitution of both vision and touch.

Perception is then from its very beginning an eminently motor activity. The spatiality of perceived world and the experience of the localisation of the objects according to the perspective that radiates from the zero-point of the body are possible only for a being capable of moving in its environment. Kinaesthesia – understood in a broader sense as the direct awareness of my bodily movements – constitutes the spatiality of both the sensing body and the perceived object. Thanks to the bodily movements the manifold sensory appearances are synthesised along an unitary perceptual process and recognized in their belonging to the same and the one thing. Hence the motivating character of kinaesthesia, on which depend both sight and touch as well as the coordination between their sensory schemata (Mattens 2009, 100). According to the late Husserl (1954, 106) and Merleau-Ponty (1945, 112 ss.) the kinaesthetic system coincides with the lived body as common power of motion and sensation since it gives rise to a background of sensorial receptivity that makes possible for every object to be perceived and constitutes therefore intentionality in its most basic form. The call to the essential role of the whole body in grounding perception and action counts for both Husserl and Merleau-Ponty as a vindication of the true nature of sensory experience against the empirical atomism which reduces it to the functioning of segregated sensory organs. Merleau-Ponty's refusal of the notion of sensory *quale* as the sole object of perception entails a radical rejection of the traditional distinction between proper and common senses introduced by Aristotle as well as the one between primary and secondary sensory qualities. We are able to apprehend material features as the texture of a colour or the fragility of a crystal glass only through the integration of different sensory modalities (Moran 2010, 183-184).

The kinaesthetic system exploits the resources provided by sight, touch and proprioception in order to coordinate the position of limbs with the objects in the environment during the execution of explorative movements. From a phenomenological point of view it is very difficult to disentangle these aspects, since the dimension of tactility is coextensive with the kinaesthetic background of our embodied experience and involves the contribution of proprioception (Ratcliffe 2008, 302). During the tactile perception of any object I am at the same time aware of myself as a sensitive and mobile body because every touch experience is both proprioceptive and exteroceptive (Bermùdez 1998, 137) so that it can ground the distinction between self and non-self as well their intrinsic relationship. The holistic character of the lived body as common sensible involves the interplay between tactility and other bodily sensations like proprioception, kinaesthesia and vestibular sense. The intimate relation these sensory modalities entertain with each other has led some authors to include touch under the general heading of "somatosensation" (Serino and Haggard 2010, 224) or to highlight the connection between tactual perception and somatic sensations, conceived respectively as the transitive and intransitive form of bodily perception (Armstrong 1962, 20). In a similar way Gibson (1962, 478-479) distinguishes in information flow carried by active touch an exterospecific and a propriospecific component whereas the latter one – called "somaesthesia" – covers the broad spectrum of bodily sensation.

If sight prevails over touch as regards the constitution of material objectivity, touch and bodily sensations enjoy a privileged rank for their peculiar role in generating bodily self-awareness, since they allow the emergence of the lived body. Both passive and active touch involve a subjective component oriented toward the body and this applies also to the tactile experiences that seem to concern only objective features. Thanks to a modification of the subjective attitude it is possible to point out in them a qualitative aspect localized in body that offers itself in intuitive evidence and is not merely

the product of an indirect inference. The emergence of either the subjective or the objective pole in tactile phenomena depends on the specific bodily localisation: in body parts that are not involved in thing-related tactile perception the subjective aspect prevails, while the objective one comes into prominence when the touch organ is moved (Katz 1925, 41). This attention shift from the objective aspects of tactile perception to the subjective ones involves the own body too, as shown by the phenomenon of touchant/touché which finds its paradigmatic expression in the example of both hands touching with each other cited by Husserl and Merleau-Ponty.

When I touch with my right hand the left one, the touching hand becomes the bearer of presenting tactile sensations, whose function consists in presenting the touched hand – and thus my body – as an objective thing with its material features, like skin texture, smoothness, softness and so on. When instead I turn my attention to the touched hand, I can notice that a field of localised tactile sensations ("sensings" in Husserl's terminology) spreads over its surface. These sensations are fundamentally different from the ones that have presenting function, because they do not give rise to a manifold of perceptual adumbrations like object perceptions, but let manifest to itself the whole lived body in its own sensibility. Thus sensings transmit the experiential quality of bodily ownership that enables me to recognize immediately and without further verifications my hand as my hand. Beside of this sensings unfold an intracorporeal space which constitutes the ground for the tactile construction of the external objective space through the exercise of kinaesthetic sensations in their motivating function. Both kinaesthetic and presenting sensations are localised in the body and depend on the sensings, which ground the mutual belonging of the different sensorial fields and of the corresponding systems of voluntary movement (Mattens 2009, 104-105). Thanks to the property of reversibility exhibited by the double touch the body can act simultaneously as constitutive subject and constituted object. This feature is absent in other sensory modalities as sight and hearing. Sight can constitute the real objectivity and therefore my body as material thing at the level of body image but can constitute neither its own sensory organ as such nor the whole body as touch does, especially since there are body parts like my backs and my face that cannot fall within my visual field. It is only through a mirror that I can attribute to my eyes the perceptual function they play by making use of the sole resources of sight. In other words, I cannot see my eyes seeing in the same way I can touch my hands touching each with other. I know that I see through my eyes not on the grounds of the perceptual data provided by vision but through the localized tactile sensation of my eyes and the corresponding kinaesthesias which come into play when I move them in order to explore the environment (Husserl 1952, 152-159).

According to Merleau-Ponty (1945, 105-107) instead, my body is prevented to be an object because it is not completely constituted neither through sight nor through touch. The phenomenon of double touch reveals the difference between the touching hand and the touched one, insofar the latter shows itself as a material thing done of bone, nerves, tendons and flesh and the former disappears from the foreground "to reveal the external object in its place" (105). The reversibility between both roles gives rise to a kind of reflection which differentiates the touching hand from the touched one as a part of my living body in the exercise of its power of perceiving and acting in the world (Merleau-Ponty 1960, 166). When my passive hand attends the contact with the active one and anticipates its role, there is no difference from shaking the hand of another person or only seeing it, because I recognize both my living body and the other's one by virtue of an intercorporeal compresence (170-171). The self-othering dialectics disclosed by the phenomenon of double touch anticipates the way another subject experiences my lived body. Bodily awareness is thus affected from its very beginning by the reference to otherness and constitutes a precondition for empathy and the recognition of other persons as embodied subjects (Thompson 2005, 413). More explicitly than Husserl, Merleau-Ponty insists on the

mutual permeation between ownership and otherness in the constitution of living body. According to Slatman (2009, 334) Husserl can trace a sharp distinction between the sensing embodied subject and its thing-like materiality only because he has conceived of touch as an isolated sensory modality and has stressed the role of sensings in the genesis of bodily self-awareness only as concerns the isolated subject in its indexical "here". For Merleau-Ponty on the contrary there is no substantial difference between touch and sight as regards the possibility of (not) constituting the living body and there is no reason to ascribe to sensings any particular role in generating bodily ownership, because the self-attribution of a bodily part presupposes already the identification of the subject with a lived body that is already "there" (Carman 1999, 222). The relation between touching and touched is not to be interpreted in the sense of a coincidence but as a gap that can be filled neither by consciousness nor by the body itself. This difference points out to the flesh as an ontological mixed genus which grounds on the one hand the coexistence of lived body and material body, on the other the reciprocal belonging of the embodied subject and the world (Merleau-Ponty 1964, 254-257).

As a tentative conclusion I will try here to foreshadow a comparison between Husserl's and Merleau-Ponty's contrasting positions about the role of tactility in the constitution of *Leib*. In the first place Husserl seems more attentive than Merleau-Ponty to highlight the gradual constitution of the experience of the own body in its different layers of sense through the conceptual tools offered by his regressive analysis. In this way Husserl can succeed in identifying in the localized sensations and in the corresponding kinaesthesias the minimal conditions for bodily self-awareness and intentionality. The gestaltic holism which characterizes Merleau-Ponty's philosophy of body is incompatible with Husserl's analytic-regressive approach, since the former recognizes in the *Leib* an always already given and constituted structure without any concern for its genesis. For this ground Husserl's approach is more suitable than Merleau-Ponty's one in order to obtain a rigorous description of bodily self-awareness as concerns the possibility of grounding a neurophysiologic investigation of its conditions of realization (Petit 2006). Secondly, Merleau-Ponty muddles up the different components of bodily awareness whereas Husserl tries to keep them distinct. The category of flesh as mixed genus blurs every distinction between lived body and material body on the one side, proper body and other body on the other. On the contrary Husserl can keep these differences by pointing out the integrating function of the palpating hands. Taking an object in hand sanctions its belonging to the system of *Leib* as its extension, while the mutual touch of both hands leads to an operation of self-constitution which enables by means of the localized sensations the transition from the perception of the body as object to the perception of the body as sensing and acting subject. Thirdly, in spite of the usual contraposition between Merleau-Ponty's apparent emphasis on intracorporeality and Husserl's solipsism, Husserl takes into account the circumstance that the single subject has only a partial and limited perspective on his own body and that its complete apprehension implies the constitution of intersubjectivity which is accomplished only at a further stage. This happens through an emphatic apperception which exploits the same tactile localized sensations that drive the constitution of lived body at the level of the solipsistic subject, by transposing them analogically on the other's body. "The full appreciation of others as persons like us depends upon the involvement of body-related first-person tactile experiential knowledge" (Gallese 2005, 40). This suggests that Husserl is right in maintaining that the own lived body is not primarily constituted by alterity, which plays an integrating role and makes up a further layer of sense in comparison to the solipsistic constitution.

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WHAT WE SEE DEPENDS ON HOW WE MOVE. THE EMBODIED ROOTS OF VISUAL PERCEPTION

abstract

The aim of this paper is to highlight the role that our lived body has in shaping our perceptual life. Through Husserl's description of the way in which we perceive the world around us, we will underline the fact that our body is not just an object among others for us, but a fundamental constitutive principle of our own experience. In this way, we will try to maintain that to perceive is, in some sense, to have an implicit and pre-reflective knowledge of our embodied relation to the world.

keywords

Husserl, embodiment, phenomenology of perception

WHAT WE SEE DEPENDS ON HOW WE MOVE. THE EMBODIED ROOTS OF VISUAL PERCEPTION

In *The Ecological Approach to Visual Perception*, the American psychologist James J. Gibson states:

> *We human observers take it for granted that one sees the environment with one's eyes...But the truth is that each eye is positioned in a head that is in turn positioned on a trunk that is positioned on legs that maintain the posture of the trunk, head, and eyes relative to the surface of support...One sees the environment not with eyes but with the eyes-in-the-head-on-the-body-resting-on-the-ground.* (Gibson 1986, 205).

This is not a banal claim. It highlights, instead, one of the most important aspects of the constitution of visual perception and perceptual objects– that is, the *embodied* nature of our experience of the world. As the phenomenological tradition has well underlined (Husserl 1907; Merleau-Ponty 1945), our body is not just an object among others for us but it plays a primary role in shaping our perceptual life. In this sense, despite the great variety of meanings that the notion of "embodiment" has today in the philosophical and psychological debate, what we will mean by this term here is just the phenomenological fact that our *lived body*– that is, our body as we experience it from the first-person perspective– plays a fundamental function as a *transcendental principle*– that is, a condition of possibility– for the constitution of the objects of our own experience.
One of the most important fields in which this fact can be appreciated is *visual perception.* Husserl, in particular, has developed an interesting description of the phenomenology of our perceptual experience of the world around us, underlining the conditions of possibility for our experience to be as it is and trying to show the roots of the *constituted* perceived object– that is, the roots of the object as it appears in the acts of consciousness. Doing this, he has perfectly recognized how our lived body and, in particular, the *experienced sense* of our body and its abilities, are necessary conditions of possibility for the phenomenology of visual perception.

The aim of this paper, then, is, in the first place, to recollect those analyses of Husserl's of the phenomenology of vision that highlight the role of our *lived body* for the constitution of perceptual objects; in the second place, to put these descriptions together with some empirical findings that can underline the same topics from a psychological point of view. In this way, we will try to maintain the idea that to perceive is, in some sense, to have an implicit and pre-reflective knowledge of our

embodied relation to the world; or as the American philosopher Alva Noë says, "...to understand, implicitly, the effects of movement on sensory stimulation" (Noë 2004, 1).
Now, Husserl's analysis of the constitutive function of the body is well developed into two important works: the course of lectures of 1907, known as *Ding und Raum*, and the second volume of the *Ideas* (Husserl 1952). In this paper, then, I will follow Husserl's thought through these two works, analyzing, in particular, the role of the body as the bearer of the zero point of orientation and the role of *kinaesthesia* (that is, the sense of our movement or stillness) for the "constitution of the object as an identity in a manifold of appearances" (Zahavi 1994, 68).

1. The Zero-Point of Orientation

One of the first and main features that Husserl underlines when he talks about visual perception is the fact that perceptual objects are never given in their totality, but always in a certain *profile* (Husserl 1952, 160-161). Every perspectival appearance, nevertheless, presupposes not only something that appears, but also something that it appears for; this has to be the point from which that particular perspective is originated or, better, the point of view that *motivates*– that is, that *gives reasons for*– the appearance of that certain profile of the object instead of another. Now, the bearer of this privileged point of view, that Husserl calls "the zero point of orientation" (Husserl 1952, 160), is our body. Everything in the world, in fact, has a particular orientation in relation to our body and the way in which we can talk about the place of things in the surrounding space reveals this relationship. We can say that something is near or far *from us*, that now, in this room, this book is on *my right* and that cup of coffee on *my left*, or that there is a door in *front of me* and a piano *behind me*. The orientation of things can obviously be changed: thanks to the ability of free movement of my body, in fact, I can move around in the room so that the piano will appear in front of me and the door behind, the cup of coffee on the right and the book on the left. But, though they have been changed in their orientation, the objects I see continue to be oriented in relation *to me*, to that "here" where my body always is. In our immediate experience of the external world, then, we have a unique position because we are the centre around which the spatio-temporal things are organized. But this is possible only because we have a three-dimensional body that is in space as the other material things are and that can, in this way, be in a particular perspectival relation to the objects of the world. In other words, spatial things can appear as they do only to an embodied subject, whose body, then, must be regarded as a *condition of possibility* for other objects.[1]

Let us come back for a while to the previous scenery of the objects in my room. I can say that the door is in front *of me* and the piano behind, and that, if I turn back to 180 degrees, I can find the piano in front *of me* and the door behind. But, being able to describe this situation in this way means not only that every object is oriented to me and, so, that I am the centre of this orientation; but also that, in some sense, I am able to experience my body, its position and its relation to the surrounding world. In other words, my perception of the door or the piano must contain some information about *my body* too, to allow me to know how those objects are oriented towards me.
The psychologist James J. Gibson well underlines this point when he describes some experiments about *affordances perception*– that is, the perception of the pragmatic possibilities that the objects in the environment offer to the subject. The most significant studies, in particular, were those with the *visual cliff*– that is, a simulated drop-off arranged by the psychologists E. J. Gibson and R.D. Walk to investigate depth perception in human and animal species (Gibson and Walk 1960). These experiments showed that most infants with the ability to crawl avoid crossing over the simulated drop-off even though a rigid glass surface extends over it. The idea is that this happens because "optical information specifies a drop-off, and the conflicting haptic evidence for a solid supporting surface is generally insufficient to tempt the infant to move out on it" (Gibson 1988, 29).

1 On this point see Zahavi (1994).

Now, how can visual perception give information about a drop-off– that is, about something dangerous for the subject? Gibson's thesis is that this can be possible mainly because every objective perception is strictly linked to the *co-perception* of the body, so that the information I gain about the world implicitly contains some information about myself. Our perceptual experience, in fact, is full of information about our *embodied* position in the world and can provide, then, some data about the relationship between the observer and the observed object. In the empirical studies with the visual cliff, therefore, the drop-off can be perceived as something dangerous– or something that affords "falling"– because the perception of the cliff is inextricably linked to the co-perception of one's body in that situation. In this sense, the infants involved in the described experimental setting have information about the fact that *their feet* are *far away from* the ground and this leads them to avoid crossing over the glass surface (Gibson 1986, 247).
But there is a final step to take, here. If every perceptual experience is a *co-perception* of my *embodied* position in the world, so that every objective perception is, in the meantime, the perception of the relationship between *myself* and the object, then I need to have at least some kind of perceptual experience of myself and, specifically for this purpose, of *my body*. In other words, visual perception can give me some information about my position in relation to the objects in the surrounding environment only if I have some kind of preliminary experience of myself and of myself as having a body or, better, as *being* a body; that is, only if I have some *sense* of me and, in particular, of me as an embodied subject. Now, this primary sense of self is guaranteed by a specific kind of experience, that is *proprioception*. This is the implicit and pre-reflective awareness of my body as an organized entity in the environment. It seems to be a kind of experience that children have from birth and that constitutes the first base for the subject for a more explicit and reflective sense of himself. [2]
Proprioception, then, is our first access to our body. But it is not as the other object-perceptions. In particular, it is not the perception of the body as an object among others, because it cannot be a perspectival awareness of the body without resulting in an infinite regress. As Shaun Gallagher states in *How the Body Shapes the Mind*, "If one accepts the premise that sense perception of the world is spatially organized by an implicit reference to our bodily framework, the awareness that is the basis for that implicit reference cannot depend on perceptual awareness without the threat of infinite regress. To avoid the infinite regress one requires a pre-reflective bodily awareness that is built into the structures of perception and action, but that is not itself egocentric" (Gallagher 2005, 137). In other words, proprioception does not offer a perspectival perception of my body because, if it did, it would require a second body as an index and this would generate the same problem of reference again. Nevertheless, though it does not require the body itself to be a perceptual object, our pre-reflective proprioceptive experience gives us the first basic awareness of our embodied nature.
As we have said earlier, this *sense* of ourselves as having a body and a spatial position between the objects we perceive is one condition of possibility for our perception to be as it is. For the *constitution* of our perceptual experience and of the objects of vision, then, it is necessary not only to have a body, but to have a *sense* of our body. In the next section we will focus on one specific aspect of this "sense of our body" which is particularly important for the analysis of the constitution of the visual object.

2. Feeling Kinaesthetic Sensations

Let us consider the following situation. I am moving in a dark room where there is only one visible object thanks to the illumination of a spotlight. If I move in a certain way– for example from the left to the right– I will experience the transition of a certain number of visual images which are constantly transformed into each other in a specific way. Now, let us suppose that it is not me the one who is moving, but the object, and that it is moving in a way that makes me experience the same

2 On this point see Gallagher and Zahavi (2008, 301-329) and Gallagher (2005, 65-85).

transition of images of the previous situation, when it was my body that was in movement. In both cases, then, I can see the same visual images; but if in the first scenario, I perceive a stationary object seen from different points of view, in the second, on the contrary, I perceive an object in movement.[3] This mental experiment clearly shows that mere visual images are not able to give us all the information we gain in our perceptual experience; in this case, in fact, they do not allow me to distinguish if it is me or the object I see the one which is moving.

So, how can we have such different perceptual experiences if mere visual images do not give us sufficient information? Husserl clearly answers that it is possible thanks to the awareness of the *body states* (stillness or movement) – that is, thanks to the *kinaesthetic sensations* – that we constantly experience during every perception (Husserl 1907, 215). In the situation we have described, in fact, I can experience my body as stationary or in movement and this possibility gives me the information I need to disambiguate my perception. In this sense, the same visual images that first show something stationary in relation to my kinaesthetic situation, can then show something in movement if I am in *another* kinaesthetic situation. The perceived difference between the object's stillness and movement, then, is guaranteed by our *kinetic* relation to the objects we perceive.

There are, of course, some situations in which our own movement is not so easy to detect. Let us suppose, as Husserl proposes, that we are sitting in a coach in movement (Husserl 1907, 344-345). If I am stationary in the coach, I will experience a *constant kinaesthetic sensation*– that is, a sensation of stillness, together with stationary images of the inside of the coach and a transition of images from the outside landscape. But this does not mean that I perceive myself as stationary and the landscape outside as in movement. On the contrary, I experience a stationary landscape and me as "in movement" or, better, as *being moved*. This can be possible because, even though we experience our body as stationary in the coach and the coach as stationary in relation to us, we can also experience the *coach in movement* through something such as the coach shaking, the noises of the wheels and so on. According to Husserl, these conditions can take the place of the *kinaesthetic sensations*, thus making us perceive the scene as we do. So, if we exclude possible situations in which there is no perceivable element that can explain our perception as, instead, the coach shakes and the wheel noises in our example do, then we can say that the function mostly pertaining to the *kinaesthetic sensations* can also be played by other circumstances, though in an indirect way.

Notwithstanding their differences, all the situations that we have presented in this section show something fundamental for our purposes. They demonstrate, in particular, that conditions of possibility for the constitution of the objects of visual perception are not simply our body and the awareness of its *position*, but also our *kinaesthetic sensations*. As we have noted, in fact, feeling our own movement or our stillness is the way in which the same visual images can lead to different object perceptions. As we said at the end of the previous section, there is a specific aspect of proprioception worth underlining for a better account of the constitution of the perceptual object: it is our ability to experience our body movements or our stillness– that is, to have *kinaesthetic sensations*.

But, as Husserl clearly underlines in the lectures of 1907 (Husserl 1907, 189-246), kinaesthetic sensations are fundamental, in some particular cases, for another central aspect of our perception– that is, as Zahavi says, "the constitution of the object of perception as an identity in a manifold of appearances" (Zahavi 1994, 68).

We know that one of the main features of visual objects is the fact that they can be seen from different points of view. As a consequence, they show different profiles depending on the perspective they are looked from. But, if we start moving around the object so that we can have the opportunity of seeing it from several perspectives, how can we know that we are looking at the same object? Or, better, how can two different adumbrations be seen as the adumbrations of one and the same object?

3 These scenarios, although slightly modified and simplified, are drawn from Husserl (1907, 214-215).

Husserl's idea is that this can be possible only if there is a continuous and uninterrupted transition between the two, so that, in some sense, they can "be able to merge into each other" (Zahavi 1994, 67). In other words, the perceived unity of the object is guaranteed by the continuous transition that links many perceptions together. But, if it is me the one who is moving around the object, this transition between different perceptions can be guaranteed only by the continuous and uninterrupted course of *my* movement– that is, of my *kinaesthetic* course (Husserl 1907, 227-230). This means, in other words, that, *in situations like this*, the experienced sense of the continuity of my movement is a necessary *condition of possibility* for two adumbrations to be experienced as two different perspectives of the same object.

All the situations we have described in this section clearly show that our *kinaesthetic sensations* play a fundamental *motivating* function for the objects to appear as they do. As Husserl reminds us (Husserl 1907, 244-245, 262-265), there is a strict and specific correspondence between the position of the observer and the visible profile of the observed thing. In the same way, given a certain relation between the subject and the object, there is a specific correspondence between a certain movement of the former and a specific transition of the visual images of the latter, so that, if in a certain position I can see a certain adumbration of the object but I want to have another visual image that makes me see, for example, in the left part of my visual field what I previously had in the right one, there are some specific movements that I need to make (Husserl 1907, 218). In this sense, Husserl states that all the aspects of the objects of perception are correlated through some rigid *if-then connections* (i.e. if I move this way, then this aspect will become visually accessible) and that these connections determine how the objects will look in relation to our movement.
So, our position and our movement *motivate* the specific perceptions we have and it is only because of this fundamental function of our *body states* that being proprioceptively aware of them let us perceive as we do, making us, for example, distinguish two different perceptual situations notwithstanding the identity of the visual images– as we have previously seen– or allowing us to recognize two different profiles as two different adumbrations of the same object.
Now, it is worth noting that the relationship between the experienced sense of our body states and the way in which we experience the world around us is underlined by many empirical findings too. Bauermeister (1964), for example, shows some important effects of body tilt on the perception of verticality. After having tilted the subject in a dark room through a heavy iron framework that could be rotated up to 360°, the experimenter measures the perceived verticality of a luminescent rod. Data show that, depending on the degree of the body tilt, there was a tendency to displace apparent from objective vertical either in the direction of the tilt or opposite to it. Clearly, this experimental situation shows how the perception of our own posture can contribute to how we visually perceive the surrounding environment. In another experimental setting, described by Gibson in *The Ecological Approach to Visual Perception* (Gibson 1986, 286-289), the subject is sitting in a dark room whose movable walls are illuminated by a fluorescent lamp; this time, contrary to the previous study, the subject is stationary in the room but, as the walls are moved, he feels as if his body and the chair are moving too. Here, it is not the case that our posture influences what we see, but, on the contrary, that vision contributes to an illusory proprioceptive sense of posture and balance. How can this be possible? Our hypothesis is that in certain experimental settings in which there are no points of reference and no other visible and perceivable reasons that can explain the changing of the perceived object, as in our experiment, we can have illusory kinaesthetic sensations that could *motivate* what we are seeing. If this hypothesis were reasonable, it would provide other important empirical support for the *motivating role* of kinaesthesia for perception.

Let us come back for a while to the idea of the *if-then* connections. We have said that these connections tell us how the objects of perception look in relation to our movements. We will see now,

in the end, how these connections are correlated to another important feature of perception, the one that Husserl calls "horizontal intentionality". In this way we will have sketched, at least, the most important aspects of the connection between the "sense of our body" and our perceptual experience.
As we have repeatedly said, when we visually perceive a three-dimensional object, we always see it from a particular point of view, so that we can actually see only one of its profiles. However, through the perceived adumbration, we can perceive the *object itself*– that is, an entire three-dimensional thing. How can this be possible? Husserl's idea is that the hidden sides of the object that are not *intuitively given* are, nevertheless, *co-apprehended*. He states, moreover, that it is only through the co-apprehension of the absent profiles that we can see the intuitively given as *one profile of the object*: it is only in relation to the other sides, in fact, that it can appear as *one* face of an entire thing (Husserl 1907, 53-68).
This co-apprehension of the horizon of the absent profiles, which allow us to see the object itself in the actually seen side, is what Husserl calls "horizontal intentionality".
Now, while the perceivable side of the observed thing is correlated to our present orientation in space, the unperceived profiles are nevertheless correlated to my *kinaesthetic horizon*– that is, to the movements and the positions I can take thanks to my embodied nature. In this way, the co-apprehended but momentarily absent aspects can be intended as correlated to the perceivable one through some specific *if-then* connections and they can be consequently meant as the backside, the bottom, etc., of the object we are perceiving. In other words, to perceive an entire three-dimensional thing *in and through* the adumbration that you actually see means to understand how the object's look would change if you were moving in a certain way (Noë 2004, 77) or, as Husserl would say, to know the specific *if-then connections* of the object you are perceiving.
Obviously, to perceive an entire three-dimensional thing through its adumbration means, at the same time, to know how the perceivable side would change if it were the thing itself the one moving around me. This means, however, that I should know how the object would change if *it* were moving *while I experience a constant kinaesthetic sensation*– that is, a sensation of stillness. This shows that, in one way or another, our kinaesthetic sensations are involved in the constitution of the object of perception, because, as we have already stated, every visual perception is, in the meantime, the perception of the relationship between the objects in the world and me. In this sense, as we have already said in the introduction, we can state that to perceive is, in some sense, to have an implicit and pre-reflective knowledge of our embodied relation to the world.

What we have tried to do in this paper is to provide a description of the *phenomenology of perception* that could account for the primary role of our body in the constitution of our perceptual experience. As we have noted, this function becomes unquestionable when it comes to an accurate analysis that stresses, for example, the role of the body as the bearer of the zero point of orientation or of *kinaesthesia* as the condition of possibility for the constitution of perceptual objects.
In this sense, what we have finally found is that only an embodied subject with a *proprioceptive* sense of his body and, in particular, of his states of stillness and movement, can make our perceptual experience to be as it is.

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PSYCHOPHYSICS PHENOMENOLOGIZED? SENSATION AND DECISION IN VISUAL MOTION PERCEPTION

abstract

Experimental phenomenology and psychophysics are two rather different approaches to the study of perception, and rely on first-person descriptions and third-person measurements of the percept, respectively. Yet, a common ground may be found in the original goal, shared by both approaches, of addressing the conscious dimension of perception. Here we argue that, despite being objective and quantitatively-oriented, psychophysics can, with some cautions, recover certain simple subjective aspects of conscious perception. Building upon the results of a motion perception experiment, we show how to transform the ratings of subjective visibility into a well-known index of objective discriminability in perceptual decisions (d'). We found that, once all factors are equated, motion discrimination is superior to motion detection, as measured as perceptual decisions; in turn, motion detection is superior to subjective motion visibility. This finding strengthens our previous suggestion that, under uncertainty conditions, perceptual decisions can be taken before the conscious percept is fully stabilized, and suggests that some simple sensations can be reliably captured by objective "currency" through an open-minded quantitative approach. Our perspective may be regarded as an attempt to "phenomenologize psychophysics".

keywords

Sensation, decision, perception, consciousness

PSYCHOPHYSICS PHENOMENOLOGIZED? SENSATION AND DECISION IN VISUAL MOTION PERCEPTION

It is generally accepted that psychology as a scientific discipline originated in 1879, when Wilhelm Wundt founded the first laboratory of experimental psychology in Leipzig. Mental facts were thus thought to be explained by physical/physiological facts, and assumed to be amenable to experimental investigation, as in the physical/physiological sciences. These ideas were then exported in the United States by Edward Titchener, and became a main tenet of the mainstream scientific psychology. The reliance on the scientific method in psychology also heavily drew from a new discipline that had emerged just a few years earlier, also in Germany: Building upon the pioneering work of Ernst Weber (1834), Gustav Theodor Fechner published in 1860 his *Elemente der Psychophysik*, which established psychophysics as the quantitative branch of the study of perception and the "exact science" of the relation between sensory stimuli and the ensuing sensations (the so-called external psychophysics). At variance with Wundt's methodology, which involved controlled introspection to characterize the subjective sensations of his subjects, psychophysics developed its own rigorous methods to measure sensations,[1] introducing for example the notion of sensory thresholds. About one century after Fechner's initial work, the application of Signal Detection Theory (SDT), originally developed for telecommunications, brought an important evolution in psychophysics, shifting the focus on the capability to make a perceptual decision[2] (e.g., deciding that a given signal, or stimulus, is present or absent). Another important extension of psychophysics came with the introduction of the scaling methods, which assumed that subjects can produce reliable quantitative reports of their own subjective sensations (Richardson, 1929; Stevens, 1946, 1957). In direct magnitude estimation, for example, subjects are asked to assign a numeral to a given sensory attribute along a continuum, or scale.

In the same period of Wundt, and again in Germany, Franz Brentano gave rise to another school of thought in psychology, grounded on phenomenology rather than on experimental science. Brentano did not believe that psychophysics could really get a grasp on the structure of conscious experience, which in his opinion should be demonstrated through direct experience rather than measured: "a clear

1 With the term "sensation" we do not mean the introspective reading of an internal event, nor just the processing of sensory information, but the humble conscious experience of an external stimulus.
2 A perceptual decision is the result of choosing an option from a set of alternatives based on available sensory information.

understanding of what is actually measured by Fechner's methods would show us that the object of measurement is not so much a mental as a physical phenomenon" (Brentano 1874/2009, 52). However, immediately thereafter Brentano himself seems to leave room for the possibility of measuring mental facts through psychophysical methods, though only partially: "For my part, I admit that if, on the basis of Fechner's method, a measurement could be found for the physical phenomenon, it could also be found for the mental phenomenon in which the physical phenomenon is presented. Yet, it seems to me necessary to add the new restriction that only one aspect of the mental phenomenon should be measured according to its intensity, namely its reference to its primary object, for we shall see that the mental phenomenon has still other aspects and is not exhausted by this one reference" (p.52). The ideas of Brentano have been highly influential for Edmund Husserl in philosophy, and Carl Stumpf and Alexius Meinong in psychology. Later on, the Berlin school of the Gestaltpsychologie (Wolfgang Kohler, Kurt Koffka, Max Wertheimer) sprouted from the phenomenological tradition. In Italy, Cesare Musatti, Fabio Metelli and Gaetano Kanizsa, following Vittorio Benussi, contributed crucially to the diffusion of the phenomenological method in psychology.

Behind the substantial differences between the psychophysical and the phenomenological approach to the mental facts, they share the original aim of grasping the realm of subjective experience, at least in the domain of perception. As a matter of fact, Fechner embraced a view of the mind-body problem ("psychophysical parallelism") that at least certified his genuine interest for the mind. While the primary concern for conscious perception remained obviously well alive in the phenomenological approach, also in its experimental variant (Bozzi, 1989; Vicario, 1993), it remained somewhat under the surface in the psychophysical approach, where observers were better regarded as "responding machines" (producing an observable behavior) rather than "contemplative spectators" (having a private sensation). Indeed, perceptual decisions can be studied disregarding the phenomenal status of the observer.

The risk of throwing consciousness away is present also in cognitive neuroscience (with some notable exceptions, e.g., Gallagher 2007; Gallese 2006; Varela 1996). Because neglecting the conscious mind cannot be adequately motivated by the need to reject metaphysical dualism, as this would throw the baby out with the water (de'Sperati, 2006), consciousness must be taken seriously. However, if neuroscience aims to address the conscious mind, either it undergoes a Kuhnian revolution, or it cannot escape the traditional logic and methodology of experimental investigation, the same that has always been used for studying, say, movement and neural motor control. This in turn implies that appropriate methods to measure the conscious experience should be adopted, and this brings back to the target theme of this article. In this regard, we just note that the terminology is often loose or ambiguous, as, for example, studying visual perception is not tantamount to studying the conscious experience of seeing, although it clearly alludes to it. More generally, this is the difficult relation between consciousness and cognition. The ambiguity is certainly not dissipated by presenting physiological and neuroimaging methods as methods to measure the mind (Senior et al 2006). Somewhat ironically, the formulation "neural correlates of consciousness" (but, again, also "neural correlates of movement") implies the existence of two terms.

In this article we will not try to refute or favor one or the other approach, phenomenology or psychophysics, as this is probably an endless exercise.[3] We simply wish to underline some aspects that we hope may help appreciating the efforts that at least part of the scientific psychology community puts in the attempt to get close to the conscious, subjective experience, simple as it may be, without throwing it away but rather taking it seriously (Overgaard, 2001). Although a defining property of the

3 In 1932, a committee appointed by the British Association for the Advancement of Science to answer the question whether human sensations could be measured, took seven years to discuss the issue and did not reach a general consensus (Michell, 1999).

experimental method is the manipulation of the independent variable(s), we will deal with another important aspect of the scientific method, that is, the choice and the treatment of the dependent variable(s). In particular, we will focus on how to (try to) measure a conscious sensation in visual perception using the tools of psychophysics. For this, we will build upon a recent study on motion perception (Gregori-Grgic *et al.*, 2011), as well as on some data of a new experiment in which various tasks and conditions are directly compared, which differ along the objective/subjective dimension (though this distinction is somewhat blurred in psychophysics, Kingdom & Pins 2010).

Briefly, we used noisy motion stimuli (RDK, Fig. 1A), which were presented for 200 ms to 18 observers. Before running the main experiment, we selected the individual 75% coherence threshold, so to make motion difficult to discern. The "motion" stimuli were randomly alternated to the "noise" stimuli (coherence=0%). The observers had to tell whether the stimulus was motion (regardless of its direction) or noise by a key press (detection task). Because there was only one stimulus in each trial, the above trial design is called 1-Interval (this kind of detection task is also called yes/no task). We used also another design, called 2-Intervals, in which two subsequent stimuli are provided in each trial, either the pair rightward/leftward motion or the pair motion/noise. This time the observer had to tell in which interval (first/second) was the motion or the noise stimulus (detection task, 2-Int), or in which interval (first/second) was the rightward or the leftward stimulus (discrimination task, 2-Int). Because the dimension of the response (first or second) is independent of the stimulus content, this design is often considered to be more objective and unbiased as compared to the yes/no task. Finally, in another session observers had to judge the subjective visibility of motion, with the stimulus presented with a 1-Interval design, as detailed below (detection task, 1-Int Rating). Two aspects were crucial.

Firstly, in order to capture as much as possible the first-person, subjective visibility of motion (the conscious sensation), we used an absolute 5-points rating scale ("perceptual awareness scale", Overgaard *et al.*, 2006). Subjective visibility is thus assumed to be a prothetic, rather than a metathetic continuum. The number of points was chosen to make the scale simple and comfortable for the observers, and the extremes of the scale were anchored to the minimum and maximum absolute values, namely, null visibility and full visibility. Then, despite not strictly necessary (see below), we ensured that participants understood that the scale represented a linear quantity.[4] The instructions, which were given in both written and colloquial form, were the following: 0 = You didn't see at all the motion direction; 1 = Between 0 and 2: you had a raw feeling of the motion direction; 2 = Half-way point of the scale: you probably saw the motion direction; 3 = Between 2 and 4: you saw the motion direction, but not too well; 4 = You saw clearly the motion direction.

Secondly, because it is important that the measures of sensation are expressed in a "currency" suitable to be directly compared with the "objective" measures of perceptual decisions (Reingold and Merikle, 1988), the visibility ratings were transformed into the so-called sensitivity index d', which measures the discriminability of a signal in decision tasks (Wickens, 2002). Briefly (for details see Gregori-Grgic *et al.*, 2011), the rating task was treated as a multiple detection task: the scores greater than 0 were first considered to be 'motion' responses, while the 0 score was considered to be a 'noise' response; next, scores greater than 1 were considered to be 'motion' responses, while scores less than 2 were considered to be 'noise' responses, and so on, until encompassing all pairs. Following SDT (Wickens, 2002), hits ('motion' | motion) and false alarms ('motion' | noise) were computed. The pattern of hits and false alarms allowed us to build a ROC curve, from which d' can be derived (area theorem). Thus, a subjective judgment

4 Another solution could have been to use a Visual Analog Scale, which is continuous. However, because of the properties of the ROC curve, the same results would be expected.

about motion visibility was transformed in a standard quantity (d'), which is a useful common "currency" in psychophysics and has a well-known metrics.

This second aspect is important not only because it provides an index with a common metrics, but also because it allows to avoid a thorny issue in psychology, namely, that of the scale of measure. Clearly, it is always desirable that a measure preserves all the properties of the phenomenon it represents, as in physics, where measures are quantitative. However, in psychology this is not always strictly required, and many scales are in fact used (nominal, ordinal, interval, ratio), at the cost of losing progressively certain properties: passing from the nominal scale to the ratio scale, one passes from a purely qualitative measure to a fully quantitative measure, and gains identity, order, quantity, and absolute value, as well as an increasing number of allowed mathematical and statistical treatments of the variable. Clearly, more stringent positions exist, and according to Lord Kelvin, "When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the state of science". A similar view was expressed by the Pythagorean-style Thorndike's motto "whatever exists at all exists in some amount". With our particular data analysis there is no need that the points along the ROC curve are equally spaced, thus there is no need that the raw visibility ratings represent necessarily an interval or ratio scale, which is always a questionable assumption. In fact, by using the ROC curve we could build a fully quantitative index out of an ordinal variable, without assuming that observers are capable of translating faithfully a conscious sensation into a number.

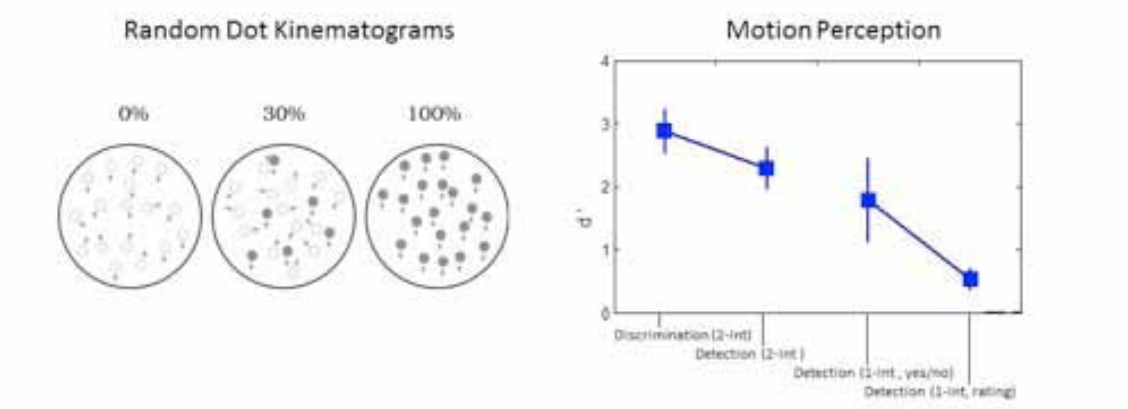

Figure 1. Left, the visual motion stimuli (RDK) with three different coherences. In the actual experiment, we used only the threshold coherence and the zero coherence; also, all moving dots had the same color. The stimuli were briefly displayed for 200 ms. Right, motion perception performance under different conditions, expressed in the same metrics (d'). The insets indicate the statistical significances. Bars represent the standard deviation.

Figure 1B illustrates the main results of the experiment. All relevant differences can be appreciated: Discrimination is superior to detection, when assessed with a 2-Intervals trial design ($p=0.007$). Despite being a somewhat counterintuitive result, this is not a fully unexpected effect, its magnitude depending on the relation between the sensory attributes used for detecting or discriminating a stimulus (Wickens, 2002). The yet non-significant superiority of 2-Int detection compared to 1-Int detection is also expected, and depends on the additional information provided by two stimuli, compared to one stimulus (Azzopardi&Cowey, 1997). Finally, the lowest performance was observed in the rating task, in which d' was significantly lower than in the yes/no task ($p=0.048$).

Why d' was so low in the rating task? We argue that it is because this task implies a fully conscious judgment, whereas a simple 1-Int detection task, and even more so the 2-Int detection task, can be executed automatically or almost automatically (for example with less attention), especially with simple and repetitive stimulus presentations in the laboratory. This implies that an observer can detect the motion stimulus even when it is subjectively invisible, as also suggested by a large body of data on unconscious perception (Merikle *et al.*, 2001). Consider also that monkeys can be trained to perform a sort of yes/no task (the so-called commentary key method, Cowey and Stoerig, 1997), but it is doubtful that they can be trained with a complex rating task. Obviously, these considerations do not imply that human observers perform detection tasks always automatically, or that monkeys are phenomenally blind; they just indicate that a rating task for subjective visibility is more likely to tag visual consciousness than other detection tasks. Thus, the perceptual performance, be it detection or discrimination, can be higher than expected on the basis of the reported subjective motion visibility. This, in turn, strengthens our proposal that, at least under uncertainty conditions, conscious perception lags visuo-motor responses and perceptual decisions (de'Sperati and Baud-Bovy, 2008; Gregori-Grgic *et al.*, 2011). In other words, perceptual decisions can be taken before the observer achieves full conscious appreciation of the stimulus.

Even though our proposal of transforming the subjective visibility ratings into a measure of perceptual decision seems to be a useful link between first-person and third-person aspects of perception, the first step of our procedure, namely, the very assessment of the subjective sensation itself, may not be totally undisputed. Despite the careful instructions to the subjects, the mainstream, orthodox Gestaltist might not be satisfied using a scale to describe a subjective sensation. He might object that the procedure is still somewhat constrained, that the conscious subjective experience cannot be reduced to a simple score, and that the relation between the scores and "true" visibility would be anyway largely arbitrary, so that the idea that a scale captures the conscious experience is something closer to wishful thinking than to a granted fact. Indeed, this is not exactly what the Gestalt phenomenological tradition hoped to get, that is, "as naïf and full a description of direct experience as possible" (Koffka 1935): After all, the perceptual judgments that we asked to our participants were neither truly "naïf" nor "full".

But even the mainstream, orthodox psychophysicist might not be fully satisfied either, although for different reasons. He would claim that a rating scale is not enough objective, and would prefer to use quantities derived from more constrained procedures involving for example forced-choice responses. Fechner himself – but not Stevens – did not believe that subjects could directly judge the quantitative structure of their sensations (Michell, 1999, 82). Some recent proposals also addressed the hard problem to combine the objectivity of a measure of perceptual decision with the subjectivity of individual experience, but without assessing directly the perceptual sensation. Post-decision wagering (Persaud *et al.*, 2007), as well as the simpler method of confidence rating (Kunimoto *et al.*, 2001), involves subjects taking a decision about a given stimulus attribute (e.g., rightward or leftward motion), and then placing a bet on their own decision, or simply giving a confidence rating. By properly combining the decision and the wagering/confidence responses, it is presumed to construct a reliable measure of the conscious experience of the stimulus that originated the decision. The title of the original paper is instructive in this regard (*Post-decision wagering objectively measures awareness*; but see Evans and Azzopardi, 2007 and Sandberg *et al.*, 2010 for less optimist views). Here too, and perhaps even more convincingly than in a simpler rating task for visibility as the one we have used, automatic evaluation can be excluded, and conscious judgment implied. However, whereas adding metacognition to a perceptual task would grant the involvement of consciousness, it would at the same time tax the procedure with extraneous elements (in the case of confidence rating or post-

decision wagering it is the estimation of the confidence of an internal decision, not of stimulus visibility). Unfortunately, where exactly drawing the line between a simple conscious sensation – something to be preserved – and additional metacognitive processing – something to be excluded – is not at all obvious. As a matter of fact, the act itself of reporting, even in the most natural way, a conscious sensation is already adding an extra-load. Although no single measure of consciousness (but not even verbal descriptions) escape this rule, we believe our rating of subjective visibility is closer to the raw subjective sensation than any measure of perceptual decisions, whether or not combined by a self-evaluation of the decision reliability.

A few years ago Vittorio Gallese maintained that we should "phenomenologize cognitive neuroscience rather than naturalize phenomenology" (Gallese 2006, 294). In this vein, our attempt may be regarded as a first step towards the "phenomenologization of psychophysics" (Kubovy&Gepshtein, 2003). Probably, the orthodox Gestaltist would continue to assert the primacy of the phenomenological analysis, while the orthodox psychophysicist would probably continue to prefer more objective procedures. We have no answers to convince orthodox believers, but we hope at least to have offered some arguments to heterodox agnostics. Clearly, our proposal lays entirely within the psychophysical tradition, but the line is drawn close to the subjective side of perception. In doing this, we have merged the spirit of subjective direct scaling (magnitude estimation, Stevens, 1957), with the spirit of objective decision-making (SDT, Wickens 2002). While there is no doubt that the richness and the structure of our conscious visual experience goes well beyond a measure of the level of a single quantitative attribute, we think it is important to try to go at the heart of conscious experience itself, which we have identified as subjective visibility. Focusing on the very origin of the conscious sensation (the "first half second" in the microgenesis of perception, Ogmen and Breitmeyer, 2006) may be a unique opportunity, if not a requirement, to understand how visual consciousness emerges out of sensory-motor mechanisms.

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BODILY AFFECTS AS PRENOETIC ELEMENTS IN ENACTIVE PERCEPTION

abstract

In this paper we attempt to advance the enactive discourse on perception by highlighting the role of bodily affects as prenoetic constraints on perceptual experience. Enactivists argue for an essential connection between perception and action, where action primarily means skillful bodily intervention in one's surroundings. Analyses of sensory-motor contingencies (as in Noë 2004) are important contributions to the enactive account. Yet this is an incomplete story since sensory-motor contingencies are of no avail to the perceiving agent without motivational pull in one direction or another or a sense of the pertinent affective contingencies. Before directly addressing the issue of affect in perception, we explain our peculiar, low-level conception of affect as a form of world-involving intentionality that modulates (minimally) bodily behavior without necessarily possessing informational value of any kind. We then address the deficiency concerning affect in enactive accounts of perception by examining some exemplary forms of bodily affect that constrain perception. We show that bodily affect significantly contributes to (either limiting or enabling) our contact with the world in our perceptually operative attentive outlook, in a kind of perceptual interest or investment, and in social perception.

keywords

Perception, enaction, embodiment, affection, phenomenology

1. Introduction

On the enactive view of perception,perceptual experience is essentially a form of active engagement with one's surroundings. Perception, rather than being conceived of as a process of passively receiving sensory information that may or may not subsequently and causally influence one's behavior,is from the very start understood to be constitutively grounded in actions and the abilities one has for meaningfully intervening in one's environment.

Noë's (2004) account stands out within the enactive discourse for a number of reasons, perhaps the most obvious being that it is focused solely on perception and not cognition overall.Noë emphasizes in sensory-motor detail theembodied character of the actions and abilities that constitute perception. While the appeal to the sensory-motor body is not itself a new idea within the discourse on enactive cognition (see Varela et al. 1991), Noë's treatment is singular for its compelling attempts to marshal enactive insights to address problems central to the philosophy of perception.

The major theoretical obstacle facing the philosophy of perception, as Noë sees it, is the problem of "perceptual presence." This problem is spurred by the tension between the phenomenological observation that when one perceives an object, (a) the target of that experience is the whole object, or, to put it differently, the experience includes a sense of the entire object's presence, despite the fact that (b) one in fact perceives it from a particular perspective and with a particular direction of attention, and, hence, one is immediately presented with just the side(s) or features with which one happens to be in perceptual contact. The problem is palpable when it comes to the sense of touch. To borrow Noë's illustration, when one closes one's eyes and holds a bottle with a firm grip, the tactile perception is a perception of the bottle as a complete object, although the organ of perception is placed in only partial and dispersed contact with the bottle (perhaps the palm and certain surface areas of the fingers are in contact, or it is simply clasped between the fingertips).

While there are alternative hypotheses on offer for assuaging this tension, Noë convincingly argues that only an enactive account can remain true to the phenomenology of this kind of experience. The main virtue of Noë's explanation is that it remains on the plane of the *perceptual*, whereas alternative (and, in fact, standard) explanations call upon the resources of other cognitive domains to fill in the

blanks, so to speak. The sense one has of the presence of the whole bottle, to stay with the previous example, is perceptual, even tactile, in nature. Although the remainder of the bottle is certainly not given in its full detail, one nevertheless enjoys an experience of its "virtual" presence, due to the fact that it is accessible to one. The tactile perception of given facets of the bottle is accompanied by a tacit understanding, a certain perceptual know-how or practical knowledge, concerning what it would take to touch other facets of the same bottle. More generally, to perceive an object is to be in partial contact with it while enjoying some sense of the sensory-motor contingencies, the coordination of bodily movements and tactile profiles, that would put one into contact with the rest of it. This practical knowledge is perceptual in nature because the sensory-motor contingencies pertain to possible perceptual profiles (whatever their modality or modalities).

An enactive account of perceptual presence integrates bodily factors into the perceptual event as an essential, constitutive ingredient. The body here is understood as what phenomenologists call the "lived body," which includes the related notion of a "body schema" and the full ensemble of bodily factors prenoetically governing conscious life below the level of conscious monitoring and manipulation, and which may or may not be accessible to conscious awareness (Gallagher 2005). The role of the body schema pertains to motor control and precisely the kind of sensory-motor contingencies emphasized by Noë; it facilitates interactions with one's surroundings, in contrast to the "body image," a term that designates the ways in which the body shows up for consciousness as its intentional referent.

The lived body in its full sense, however, involves more than the sensory-motor body schema and body image. Moreover, we will argue, on a full-scale enactive account, bodily factors are constitutive of perception in more than just the way Noë explains in treating the problem of perceptual presence. Notably absent from the framework he elaborates is the *affective* dimension of embodied perception. Noë's account falls short, first, due to its neglect of the relevance of the affective aspects (especially proprioceptive and kinaesthetic aspects) that derive from movement and that contribute to one's practical knowledge of sensory-motor contingencies, something Sheets-Johnstone (2009) emphasizes in her discussion of the body as "animated." In addition, the body as it factors in Noë's theory of perception lacks an account of the complex motivational dimension that animates body-world interaction. Meaningful encounters with the world imply a perceiving agent with some basic attentive attunement to perceptually engage her surroundings, and sensory-motor schemata are a necessary but not sufficient condition for understanding enactive perceptual agency thus construed. Schemata of sensory-motor contingencies give an agent the *how* of perception, a tacit knowledge of potential sensory-motor engagements, without giving its *why*, the latent vectors or valences that give any potential sensory-motor engagement a degree of desirability, nudging the agent in one direction rather than another. The endogenously originating motivational viscera of the body are just as important to perception as the exogenously oriented sensory-motor elements.

The task of the present paper is thus to breathe some affective life into the enactive view of perception. Before approaching head-on how to understand the role of affect in perception, we will first explain our distinctively enactive and embodied conception of affect as a form of world-involving intentionality that modulates bodily behavior without necessarily possessing informational value of any kind. We then move to remedy the just-observed lack of appreciation for affect in enactive accounts of perception by examining some exemplary forms of bodily affect that constrain perception. We show that bodily affect significantly contributes to our contact with the world in our perceptually attentive outlook, in perceptual interest or investment, and in social perception.

2. Embodied, Enactive Affects

There already exists a significant and growing literature discussing affective phenomena in terms of embodiment and enaction. In this section we will advance a conception of basic affect, exploiting the resources of this literature to bring out some salient features that render affect both embodied and enactive. We will not concern ourselves with defending any general claim about the nature of all affective phenomena, e.g., whether they must always be enactive and/or embodied. We will rather consider in general terms what enactive and embodied affects are like.

The aim of embodied and enactive approaches to cognition generally is to overcome artificial barriers and divisions established in traditional theories about the mind, e.g., separating functions of the mind or brain from those of the body in principle, or separating various functions within the mind or brain, such as functions related to action and those related to perception. The embodied and enactive views of the mind exhibit the family resemblance of seeking an integrative view of cognition across brain, body, and environment, with respect to diverse faculties or functions, a project admitting a variety of positions under its umbrella. Our present aim is to bring such integrative perspectives to bear on the contribution that affect makes to perception.

Let's be clear, to begin with, about where our interest lies. Affection, embodiment, and enaction are of interest to us insofar as they factor prominently in our "basic mentality," borrowing this term from Hutto and Myin (2013). Because our aim is ultimately to outline a theory of embodied and enactive affects as they prenoetically constrain and enable perception, we will keep our analyses restricted to the "basic" cognitive domain, the primitive domain shared with mammalian species generally.

For purposes of our analysis, we leave out of consideration affective phenomena involved in cases of propositionally formulated evaluation, appraisal requiring causal attribution, and, in general, any affective phenomenon necessarily involving rational reflection or deliberation. The sorts of phenomena excluded from our considerations are no doubt important, but they are unlikely resources for supporting a general claim about the nature of perception. Similarly, the sense of "action" in enaction is a liberal one. It need not involve any overt decision, deliberative effort, or reason-giving. It is loose enough to include, for instance, biologically motivated behavior, acting out of habit, or socially constrained behavior (e.g., "throwing like a girl"[Young 2005]) – cases where one may not realize the motive, manner or even the course of action until it is already underway.

We also note that there are a growing number of conceptions of embodiment on offer in contemporary discussions. Embodiment often refers to (a) the prereflective experience of the lived body, i.e., the complex of world-involving bodily sensations and feelings. This is the idea that one's body features *in conscious experience* as the *subject* of experience and not primarily or necessarily at all as its object or intentional content. But embodiment can also refer to (b) the inclusion in cognition of certain subpersonal processes *not accessible to conscious awareness* that are distinct from but pertinent to brain activity. This is the idea that the body more broadly, and not the brain alone, is necessary for cognition (or at least certain forms of cognition). While these ideas are complimentary and likely lend mutual support to one another (Thompson 2007, Colombetti 2011, Maiese 2011), they are distinct and should not be completely conflated. In many cases, they call for different methodological approaches and draw on different theoretical resources.

The former includes phenomena of first-person experience accessible to conscious awareness as its primary material, the analysis of which involves the reflective techniques of phenomenology and the analytical resources of the philosophy of mind. The latter concerns the body's physiological and neural makeup and must ultimately be cashed out by developing and deploying methods for

experimentally testing hypotheses about the workings of the body. In many cases there is overlap, i.e., phenomenology and cognitive science can have the same referent and support the same theses about that referent, although they approach it from different perspectives. Yet, the two approaches do not fully or always overlap. There are manifestly many subpersonal elements and processes that have no phenomenal correlate, that leave no trace in the realm of conscious awareness (Ellis 2005, 8, 50, 70; Gallagher 2005; Johnson 2007, 61-68). And even neural events that usually have a phenomenal correlate do not always have one.

While we must for that reason take care to observe the differences in approach and the points where one approach is more apt to contribute than the other, enactivism's integrative ethos calls on us to frame the two approaches within a single perspective. The personal (i.e., the consciously experienced lived body) and the subpersonal are brought together, for instance, using the resources of the theory of autopoiesis (Varela et al. 1991; Thompson 2007). They are two sides to a single self-organizing living system. The idea of the body schema is another apt conceptual tool for bringing the personal and subpersonal together (Gallagher 2005). The body schema denotes some of the prenoetic elements that constrain and shape conscious experience, elements that may or may not be accessible to conscious awareness. As Merleau-Ponty's (2002, 296) words, written in the mid-1940s, testify, this integrative perspective is neither entirely new nor inimical to an approach that takes the phenomenal seriously: "My personal existence must be the resumption of a prepersonal tradition."

That is an important point to make especially in the present context. Often discussions of affective phenomena concerned with their enactive and embodied character preferentially treat the affective phenomena of feeling and emotion as *consciously* felt phenomena, even if in a "pre-reflective" mode (Maiese 2011, Colombetti 2011, Slaby 2008, Sheets-Johnstone 2006). As we think of them, affects are not restricted to the domain of phenomenal consciousness, although they may certainly have an effect on what experience feels like. Affects may or may not reach the threshold of conscious awareness. I may consciously experience the blues, or I may be unaware that my whole demeanor reflects the blues. Hence, we prefer the language of "affect" and "affection," which is perhaps less burdened than that of "feeling" and "emotion" with connotations of conscious awareness.

A reflection on the intentionality of affect will clarify its embodied and enactive character. The first noteworthy observation to make in that regard is that such affects are world-involving (Ellis 2005, Ratcliffe 2005, Slaby 2008, Colombetti 2011). They have an intentional referent. This conception of affection is thus at odds with theories that construe them as non-intentional, e.g., the views of such disparate figures as Husserl (2001b), Goldie (2000), and Damasio (1994). For Husserl, a specific affect requires interpretation in order to have an intentional referent; for Goldie bodily feelings are in themselves referentially inscrutable; and, similarly, for Damasio feelings are only world-involving to the extent that they are suitably associated with exteroceptive data. As we understand it, bodily affect is a *sui generis* form of intentionality, directed at some specific object, or, in some cases, simply directed at the world in general.

There are many different views of how affective phenomena may be intentional, so we would do well to say how affection, in our sense, is *not* intentional. First, although affection is intentional in the sense of world-involving, it does not present information about the world, i.e., it does not present its referent as possessing some valuable or desirable quality (*à la* Goldie's (2000) "feeling towards"). There are affective phenomena of that sort – "emotion" being the typical label for them. But affect in our sense is something more primitive. Second, they are not feelings "of" the body, in the sense that the body itself is the intentional referent (Slaby 2008). Subsequent reflection on an affect may

reveal something about what is going on in the body, but in its initial occurrence and in its primitive form, affection is not an episode of bodily self-monitoring. And, again, there may be feelings whose function is primarily to inform one of bodily ongoings (e.g., an acute pain), but that is not a characteristic of all affects.

Bodily affect has a more practical import. It is an ingredient to larger intentional processes that it serves to initiate and modulate. Consider the case of boredom (to borrow an example from Heidegger 1995). Boredom is not a feeling that gives any information about the intentional content of experience (whether it is taken to be an object or one's own body), although it is necessarily "directed" to some intentional content. Think about a lull during a movie or a piece of music. It is the lull that bores one. But what reveals the intentionality of the affect – after all, the movie or music itself is not inherently boring, since one may be watching or listening along with someone else who is enjoying herself – are things like the urge to change the channel, skip the track, or do something else altogether. The affect thus functions as a latent urge to act (Varela and Depraz 2005; Thompson 2007; Thompson and Stapleton 2009).

But the affect is more than potentially related to action. Even before one takes measures to overcome one's boredom, the boredom already modulates one's viewing or listening behavior, as is apparent in the way one arranges one's body, perhaps without even noticing, in a "bored" manner, or in the way one begins to fidget, widen one's eyes, give vent to an exasperated breath, etc. These bodily expressions are moments of the affective phenomenon of boredom, when something is just barely endurable and requires effort to hold one's attention. Affected in this way, one finds oneself immediately embodying a certain meaningful stance towards one's situation, a pull that resonates with and perhaps already prepares, as a kind of crude "pre-shaping," for further courses of action.

Affect is not only embodied in the sense that it is reflected in certain bodily movements or postures, such as those just described. Affect goes deeper. Current research on emotion cognition suggests that affective phenomena like fear – which comes in different forms, but surely in many instances fits the bill for affect in our sense – are determined by the functioning of the circulatory system. Even the heartbeat influences how and whether fear-inducing stimuli (images of fearful faces, in the reported experiments) are processed (Garfinkel et al. 2013). When the heart contracts in a systole phase, fearful stimuli are more easily recognized, and they tend to be perceived as more fearful than when presented in a diastole phase. That is, the fact that we are flesh and blood creatures equipped with beating hearts (rather than being, say, brains in vats) explains in part why we have just the sorts of affective states that we do.

There are two important respects in which an affect is inherently vague. The vagueness is frequently captured in the terminological rendering "background feeling" (Ratcliffe 2005, Slaby 2008, Colombetti 2011), although this is not entirely appropriate. The background feeling thus conceived is not accompanied by a foreground feeling as the genuine notion of background would seem to require (i.e., a non-heterogeneous figure/ground whole). Nevertheless, the features of affective phenomena to which that term refers are salient. On the one hand, if one starts looking to the body for the affect, it remains vague in its localization, and may be distributed throughout the body (Varela and Depraz 2005; Slaby 2008). The feeling of boredom (if it reaches a conscious state) may be experienced, pre-reflectively, as a diffused tension felt in various parts of the body (e.g., shoulders, neck, face). On the other hand, whether conscious or not, an affect is indeterminate in the way it modulates one's directedness to the world.

There are at least two senses to this indeterminacy. It consists, on a smaller scale, in the variety of ways the same affect is embodied and enacted. Boredom can be felt in different ways, diffused in different parts of the body corresponding to the pertinent movements the affect engenders and/or

actions it urges one to perform. One feels pulled, and both the pull and where one would be pulled are multiply realizable. Various postures and movements may all serve equally well to instantiate the affect, and each may point to some different path of action, e.g., tightening one's grip on the remote orients one to the act of changing the channel, leaning forward and anxiously tapping one's feet puts one on the path of simply escaping the situation.

On a larger scale, the indeterminacy may also consist in the affect's place in the larger context of one's life. Affection should not be thought of atomistically. To get a sense of this, consider the affects that figure in (a) an undertaking that is itself immediately gratifying (e.g., hearing a favorite song), (b) embarking on and pursuing a project with a definite end-point (e.g., driving to work, writing a paper), (c) seeking to be a certain way (e.g., to maintain a certain lifestyle or cultivate a certain moral trait). There is a bodily affect peculiar to each of these sorts of cases, and for (b) and (c) there are affective spectra. Picture, for instance, the affective changes that take place in the phases of the lead-up, actual execution, and aftermath involved in giving a paper or doing an interview (either of which could be construed as an instance of (b) or a stage in an instance of (c)). Affects of anxiety and excitement build up gradually, perhaps with some sudden jolts, perhaps with breaks in the process – but in any event, instances like those just mentioned illustrate that affect is a temporally extended process that allows varying degrees of complexity in its enactment and interrelation with other affects.

To borrow (with some modification) an idea from Darwall (1998), there is an indirect object to this sort of affection. The affect may have a determinate reference, but the significance of that reference is determined largely by something more amorphous, namely, one's concern, one's present aims, which, as just indicated, may be shorter-term, longer-term, or even temporally indefinite. The affect has significance especially in light of one's self-organizing behavior, the goals of which may not be (and need not be) consciously formulated or available (Ellis 2005, Thompson 2007). And, as Darwall (1998) and Schmid (2009) argue, the concerns that shape an affect's intentionality are not necessarily egocentric.

Perhaps that seems too much to pack into the primitive, unreflective phenomenon our desideratum is supposed to be. But take the following example as a summary illustration of the kind of affect we are interested in. Imagine that you have just baked and decorated an elaborate cake for a dear friend's birthday. A little while after finishing the project, you return to have another look at your creation. As it happens, you enter the room just in time to stop your pesky dog from leaping up to consume the cake. Presented with this scene, you find yourself completely thrown into getting between the dog and the cake.

No appraisal, deliberation, or decision is necessary. But a dread at the situation spreads through you, manifesting itself in a feeling of dread, but also involving certain bodily changes of which you are not conscious but which do something to your ability to move, and motivate something in regard to how you experience the situation. Your whole bearing is affected as you stiffen and forcibly hold your breath; and that affective impulse carries over into your act of intervention. The affect's trigger manifestly underdetermines it. The visceral and autonomic changes that take place, and feeling that floods your body at that instant reference the indirect object of the cake's meaning to you as the product of your own effort and, just as much, the cake's meaning as a gesture of friendship. To be perfectly clear, you may not recall any of that, in that precise way, and your affective experience may not convey it in any explicit way. Indeed, things are much the other way around. The concern informs the affect, and the affect would not modulate your behavior – your panic, desperate bearing, cries, movements – in precisely the way it does in this case without that oblique reference.

We could also think of other cases that more clearly highlight the subpersonal elements that may characterize affection. The indirect object and the affect itself may not be anything at the level of conscious awareness (like the personal investment in the cake), but, as in cases like hunger or fatigue, may rather have to do with the more basic biological goals of homeostasis that one has as a self-organizing living system (Ellis 2005). Such processes are behind the curious statements people sometimes make, like, "I didn't realize how hungry/tired I was until..." In commonplace instances like that, one may not consciously discern an affect's presence until after the fact, and the indirect object need not be brought to light even in that subsequent reflection.

3. Illustrating Affect in Perception

Now that we have a better idea of what a bodily affect looks like, we can move to consider how that affection enactively factors in perception. First, let's consider particular instances of the hunger and fatigue we just mentioned. Somaesthetic factors such as hunger delimit our perception and action possibilities, as well as our cognitive possibilities. William James once noted that an apple appears larger and more invitingly red when one is hungry than when one is satiated. A recent study (Danziger et al. 2011) reinforced the idea that hunger can shape, and perhaps even distort, cognitive processes. The study shows that the rational application of legal reasons does not sufficiently explain the decisions of judges. Whether the judge is hungry or satiated may play an important role.

> *The percentage of favorable rulings drops gradually from ≈65% to nearly zero within each decision session [e.g., between breakfast and lunch] and returns abruptly to ≈65% after a [food] break. Our findings suggest that judicial rulings can be swayed by extraneous variables that should have no bearing on legal decisions. (Danziger et al. 2011, 1).*

In one sense, such affective factors appear "extraneous" only if we try to think of cognition as something that is disembodied, although clearly they may be extraneous to the formal aspects of legal reasoning. In any case, it seems reasonable to think that this embodied hunger affect has an effect on the jurist's perception of the facts, as well as on the weighing of evidence, and doesn't appear out of nowhere just when the judicial decision is made.

Fatigue too can have an effect on perception. This has been shown indirectly in experiments by (Proffitt et al. 1995; 2001) which show subjects estimate the grade of an incline to be steeper whilst wearing a heavy backpack in comparison to wearing none. Typically, in experience, there is not a simple, isolated affect – there is rather a cocktail, a mélange of aspects that make up affective state. My trek up the mountain results in a perception that is informed by a combination of my fatigue, my troubled respiration, my hunger, my pain, my feelings of dirtiness, and the kinaesthetic difficulty involved in climbing. More generally we can take it that the mountain path looks quite different and less challenging after a good night's sleep, not because of certain objective qualities that belong to the path, but because of my affective state. These affective aspects are qualifications on my perception as they more generally constrain my being in-the-world in some specific way. As such affects may clearly manifest themselves in the effects they have on perception and action, even without me being aware of them, they may also have an effect on my phenomenal consciousness.

> *There's a difference in what it is like to be on the mountain path in the morning after a good night's rest, and what it is like to be on the very same mountain path at the end of a long day of hiking. At the same time, these experiences are experienced not purely and simply, but are modulated by intentionality. My physical state may be felt as an overwhelming fatigue that is a barrier to any further climbing; or it may contribute to a feeling of satisfaction as I sip a glass of wine in front of the fire at the end of the day. (Gallagher, in press)*

The connection between affect and perception has been noted by many enactivists (Thompson 2007; Thompson and Stapleton 2009; Colombetti 2007; Ellis 2005). Here we want push this idea further by describing and analyzing a handful of affective phenomena that are pervasively integrated into perceptual experience.

4. Attentive Attunement in Perception

One role of affect in perception occurs in the form of taking notice or paying attention. This is an idea of central importance in phenomenology. Edmund Husserl (2001a) theorized that for something to stand out in perceptual experience it is necessary that it have an affective appeal. It is not so strange to think that taking notice of things like music, food, sports, a friend's company, and the like involve an appeal like this. Husserl picks up on that insight and generalizes it. Shifts of attention are instances of our focus being drawn in one direction or another by the affective ebb and flow of what we experience. My attention to a particular book may motivate a conscious decision to read in a dimly lit room, which can carry me only so far before I am compelled to turn elsewhere to ease the strain of that activity. A certain patch of flowers, perhaps with an attractive color or shape, stands out in the cluttered scene of a garden to the extent that it offer my gaze a place to rest, literally setting the rest of the scene in relief.

Husserl (2004) describes such affective states involving tension, resolution, exertion, unease, and satisfaction/dissatisfaction as modulating our perceptual (but not only perceptual) attention. It would be easy to overlook the way in which the affect involved in attention is embodied. Even in its properly felt dimension, the affect is not especially prominent. Yet attention is embodied in a variety of related ways. In visual experience, for example, attending to something may involve squinting or opening the eyes widely, it may involve a contortion of the face all the way from the scalp down to a mouth left gapingly open or with pursed lips, and so on (borrowing from Bergson's (2001, 27-28) excellent description). Even in less extreme cases, there is some tension, at least in the way the eyes dart about, which always involve kinaesthetic accompaniment from extra-ocular muscles.

Ellis (2005) elaborates an enactive theory of attention very similar to this. On his view, something must have emotional appeal for one to attend to it (see also Hutto 2006, 33-35). As Ellis argues, the enactivist view of affective phenomena implies that they must drive perceptual experience, and not *vice versa*. As we observed above, the intentionality of affect gets meaning primarily from aims one already possesses. Perceptually registering something may be an insufficient condition for being affected in a certain way. The affect may be evidence of some standing goal or project, it may be the efficacious presence of the aim determining one's stance in relation to what one encounters in one's environment. But one might think that this only goes as far as one happens to be in an affective state that motivates perceptual attention, and there is no *a priori* reason to think one must always be in such a state.

This problem would disappear if there were some attentive attunement latently operative in perception generally. It may not be hard to concede certain cases where affect drives perception, but we want to understand how it might do so more generally. Such claims about attention and perception are wanting without a pervasive affective attunement peculiar to perception. Both Husserl and Ellis seem to recognize this. Husserl (2006) appeals to curiosity as the basic attentive outlook operative in perceptual experience. Ellis (2005, 14-18, 106-110) also mentions curiosity, but draws on Panksepp's (1998) notion of a "seeking system" as the driving force of perception, guaranteeing the constant necessity of some affective engagement with the perceived world, however subtle.

Curiosity and seeking behavior plausibly explain how affect might drive perception inasmuch as they are non-acquired dispositions that do not point to any final satisfaction (they are not

"consummatory"). Such a frame of mind is the default setting, as it were. One might also think of this in more general terms that involve an anticipatory aspect of perception (and cognition in general) – something that Husserl (1991, 2001a) puts down to the temporal (protentional) structure of consciousness. We are generally directed to whatever the next thing might be. In Heidegger's existential expression, we tend to be "ahead of ourselves" – a certain basic structure of our system which gets disrupted in cases of depression. Generally speaking, however, when one has no particular aim (e.g., in food, a friend's company, etc.), in the stretches of time between consummatory and regular life events, one does not become an affective zombie. One's restless regard, perhaps freely floating to explore the random contours of a scene, may be subtle, but a subtle affect is no less an affect, a lesson Hume forcefully taught, but which is admittedly no easy task to keep in mind at all times.

5. Perceptual Interest

Affect figures in perceptual experiences in other ways besides its presence in our disposition to perceptually explore our environment merely out of curiosity, or our basic anticipatory inclination connected with survival. One such affect is closely related to the phenomenon of perceptual presence elaborated by Noë (2004), namely a sense of interest or investment. While the language of "interest" easily gets tangled up with that of "attention" (e.g., to "take an interest" is roughly equivalent with attending or noticing), we have something distinct in mind. Perceptual interest denotes the affective sense of the stakes or costs involved in exchanges with one's environment. This phenomenon is very close to what Schmid (2011) calls a "sense of ability." This is not, however, to be confused with what phenomenologists refer to as the "I can," which means, roughly, the intuitive possession of a sense of skill or competence. Rather, even if one is capable of some feat in those terms, one might still not feel "up to the task," or feel inclined to do the thing, which is the sort of affective nuance the sense of interest is supposed to highlight.

As we discussed above, perceptual presence is the sense one has of the perceptual accessibility via bodily movement of non-apparent aspects or sides of a perceived object, or, more broadly, of what is not presently directly perceived (e.g., what lies at one's back or in an adjacent room). Delicately interwoven with that perceptual sense of presence is a sense of the affective stakes of making something available or present. As the term "affordance" incidentally suggests, there are definite costs involved in transactions with environmental affordances. One's environment affords many possibilities for action, but each has its affective price tag, and they are not all equally affordable.

One thus not only has a practical understanding of accessibility, but an affective take on that same accessibility, in terms of interest or inclination to follow through. The latter may also involve a perceptual sense of the ease or difficulty of making something present. Proffitt's work, mentioned above, illustrates this fact well. Proffitt et al. (2003) describes how the estimation of distance is influenced by anticipated effort. Subjects saddled with a backpack tend to overestimate perceived distance, whereas those without backpacks do not. Proffitt et al. (1995) similarly describes how subjects overestimate the degree of incline of a slope when fatigued, and this may translate into a lack of inclination in the subject which further informs perception. The hill looks not only steeper, but uninviting. This research suggests that perceptual experience is informed by one's present affective state. One's circumstances appear very differently depending on how one is affected, e.g., the burdens, whether externally (e.g., by a backpack) or internally (e.g., fatigue) imposed, presently carried by the body insofar as these are relevant to potential tasks to be undertaken within those circumstances.

Perceptual interest is distinct from the tacit knowledge or practical mastery of sensory-motor contingencies, as an affective outlook on those sensory-motor contingencies in terms of possible

costs, like expenditures of effort in physical exertion. Taking this affective phenomenon into account importantly enriches one's understanding of perception, since it clarifies the nature of individual perspective in perception. A perceiving agent's perceptual stance and outlook is determined by a mastery and tacit grip on the pertinent sorts of maneuvers needed to access environmental affordances in suitable ways. But this understanding, once acquired, is a relative constant, a generic set of skills suitable for most transactions with the world, with possibilities for supplementation and specification as needed. To perceive a situation in light of sensory-motor contingencies is close to perceiving it impersonally, as *one*, that is, anyone with the standard perceptual skill set, would perceive it.

With only that in hand, one lacks a sense of the individual significance of perceptual experience. That significance consists at least in part in one's perceptual interest, inclination, or investment, the sense of one's own stakes in a given situation. A broad spectrum of individual life circumstances may in this way be brought to bear on a perceived situation. These circumstances include not only the physical burdens and impediments, such as a heavy backpack, or the endogenous impediment of fatigue from physical exertion just undertaken. There are also broader circumstances having to do with time of day, since one typically is energized at the start of the day and tired out toward the end, or even having to do with longer-term life phases, as youth and old age surely shape one's perceptual interest. While everyone is affected by such circumstances in one way or another, each individual lives them out in a unique way.

Perceptual interest is not a monolithic phenomenon, given its many possible determinants. It would be a grave omission to leave out further possibly relevant circumstances like one's involvement in various projects and practices, social groups, and ways of life. Whether consciously recognized or not, these may influence one's perceptual interest. This includes the influence that skills and sensory-motor contingencies might have. A skilled surveyor, cartographer, bird watcher, or animal tracker perceptually searches for and finds in a landscape with ease what would be very difficult if not impossible for the novice to discern. In such cases, the affective solicitude of an affordance hinges on one's skill or competence. So, while skills (including the mastery of sensory-motor contingencies) are distinct from perceptual interests, they complement one another. Whether or not one faces a situation with the relevant competence or degree of competence can impact how approachable it appears and, hence, one's perceptual inclination in relation to it.

Social interactions, roles and groupings also have their influence. To modify Proffitt's scenario, imagine the hill is not just any hill, but the hill where one first met one's spouse, or a hill where some terrible incident once befell one. Or, again, think of the affective import of the distance in situations where one would be seen by others, negatively impacting one's "image" (e.g., in possible shame or embarrassment). In some social circumstances one may find a particular setting to be of more interest than if one were with a different group, or alone.

Before one reflectively considers how these sorts of scenarios will unfold, one may already be gripped by an affect in the form of an altered bodily demeanor presaging a more elaborate response to certain aspects of the situation in light of the potential costs and benefits of a given course of action. At the level of felt awareness, the costs and benefits virtually embodied in the affect add up and determine whether and to what extent one is "up to" facing a given situation (Schmid 2011), a nascent inclination or aversion. Such an affect is properly perceptual to the extent that it figures in the flesh-and-blood phenomenon of perceptual presence. The sense of the presence of the other side of an object, of what is behind one, of what is in an adjoining room, and the like, touches – over and above one's generic strategies for bodily coping with the environment – one's individual condition

with all of its strengths and weaknesses. In a very simple example, what Noë calls the "grabbiness" of an object is dependent not only on the current pattern of one's sensory-motor contingencies and whether it is near or far, and properly shaped and weighted, etc., and not only on whether one is in a state of pain, or fatigue, or fear, etc., but on whether one is even concerned about (or inclined to) the possibility of grabbing the object.

The idea of an affective perceptual interest operative in perception might best be understood as a refinement of what Noë (2012) dubs the "fragility" of presence. Presence is fragile because it depends on one's ability to gain access, which is "always at least potentially problematic" (41). The ability to access something that is present but not immediately presented leaves open in principle the possibility of failure, which can have multiple causes. Perhaps the failure is the result of the inherent difficulty of a task, limitations of what a given skill can accomplish, faulty expectations, imperfectly practiced skills, drawing on the wrong set of skills, or misapplying the right set of skills. In any case, that fragility is rooted just as much in one's own biological, personal, or social fragilities, which are not captured in sensory-motor abilities alone. Rather, they can be embodied in a perceptually relevant way in an affective perceptual interest as we have described it.

6. Bodily Affect in Social Perception

So far we have discussed the role of bodily affect in perception within the relatively abstract confines of simple perceptual encounters with one's environment. There is good reason to believe, however, that perception is also an interpersonal or intersubjective phenomenon. Perceiving is a matter of getting along with other people as well as of getting along in one's surroundings. Indeed, it has been argued on phenomenological grounds that perceptual presence is dependent on a kind of tacit awareness of other possible perceivers, a phenomenon Zahavi (2001) calls "open intersubjectivity." To Noë's idea of perceptual presence grounded in an understanding of sensorimotor contingencies, the notion of open intersubjectivity adds that one has, over and above that, a sense of the virtual presence of the same perceptual target for other possible perceiving subjects as well. And, moreover, other minded beings also feature in experience and require a unique grasp of "self-other contingencies" for understanding their peculiar kind of presence (McGann and De Jaegher 2009).

What is perceived is perceived as publically available, and not as the private property of a solipsistic subject. The perceptual habitus is a socially informed one. (Arguably, so is our natural cognitive endowment, viewed in light of its natural history [Hutto 2006, 29-31; Hutto and Myin 2012, 151-153].) Given the intimate relation of perception and bodily affect as we have elaborated it so far, it would be reasonable to suppose that there might be an interpersonal significance to at least certain forms of bodily affect at work in perception as well. In fact, something like this is already a part of theories of social cognition that construe our basic manner of understanding other creatures like ourselves to be minded as a form of direct perception (Gallagher 2008, Zahavi 2011). This view distinguishes itself from simulation and theory theories of social cognition that in one way or another appeal to something beyond perception (and a number of allied non-conceptual capacities for interaction) in making sense of social cognition. The direct perception view takes perceptual experience to be "smart" enough to put us in contact with other minded beings. More specifically, directly perceiving someone as minded typically involves the immediate recognition of intentions and emotions in the other's movements and contextualized behaviors.

Direct social perception can capture quite a lot about others, such as the emotional tone of a voice, the direction of a gaze, the target of a movement in progress, even in very early stages of cognitive development (Gallagher 2008, 539). Our interest in such phenomena is specific. While in debates about the nature and varieties of social cognition one's concern naturally centers on the content of the experiences or cognitive episodes in question and the cognitive resources necessary for enabling

that, we want to highlight the broader significance of this kind of cognition for the perceiver. This is in keeping with the enactivist emphasis on perception as an interaction or exchange rather than the mere reception of information or registering of stimuli. Understanding bodily affect in social perception requires paying closer attention to the perceiver in interpersonal interactions.

When we view the social perceiver *in medias res*, we readily recognize the affective and embodied character of perception in a way that is less apparent in contexts where other people are not implicated. One's perceptual stance while watching a cloud pass or a leaf fall from a tree may lack the expressive quality that is the norm when one is in the presence of others. But think of the variety of affective possibilities when others are implicated: the stance of watching passers-by, of peaking into a room of familiar faces, of listening attentively, of being in a heated quarrel, or accidentally meeting someone with whom one was recently quarreling. Each instance exemplifies a certain embodied affect, e.g., tensing or loosening of posture or facial expression, folding one's arms, gesturing with one's hands, etc. Bodily affect is even more prominent in tactile perception (e.g., hugging, shaking hands, brushing against someone in a crowd), undoubtedly because in such cases one is unburdened by assumptions about the cognitive or informational character of perception and sees it in its ordinary pragmatic context.

Importantly, bodily affect is mediated by acquired habits of social behavior. In response to the worry that such habits are extra-perceptual, we maintain that the affect is no less perceptual on account of its complexity and history. Habits may certainly arise from non-perceptual activities, but once acquired they may serve perceptual ends. Learning a skill often involves careful observation, deliberation, reasoning, conceptualization, and so on. After one has become practiced in the skill, however, it can in many instances be efficacious perceptually, setting aside its higher-order cognitive training wheels, as recent discussion of expertise show so well (see Dreyfus 2002). The situation is the same for social perception as well. One certainly does have to learn how to hold oneself and regulate one's expressive behavior in various social circumstances. Once a behavior of this sort becomes routine, it becomes part of one's repertoire of perceptual bodily affect.

Bodily affect is present in social perception in even simpler forms. This is demonstrated in studies of infant cognition (Maiese 2011, 158-162) and further supported by research into mirror neurons. Infant imitation, which can occur shortly after birth, takes place when an infant adopts for herself a seen facial expression (e.g., smiling, pursing of lips, protruding the tongue).Since taking on an expression typically associated with a certain affective state tends to engender that very state (Darwall 1998, 265), or some enactively related state (Gallagher 2008), we should not think of the infant's imitation as an affect-less bodily movement. This phenomenon therefore illustrates well the possibility of bodily affect's presence in social perception in a way that clearly does not depend on more sophisticated cognitive abilities than perception itself affords.

Here it may be averred that the infant's imitation is a distinct event from the perceptual experience engendering and accompanying it. To grasp on phenomenological grounds why that is not so, think about your own experience of having a look of surprise. In that case, the bodily affect (mostly, but not exclusively, spread across the face) is part of the perceptual experience, i.e.,you are surprised at what you see. When you look at something in a surprised way, it is precisely your perceptual intentionality that is modified. It would be a phenomenally distinct act without the surprise. We should understand the case of infant imitation analogously. The infant gives a smiling look to the person she imitates. And, given the exploratory and self-revising character of infant imitation as reported in Meltzoff and Moore's (1983, 707) study, one cannot easily write off the infant's imitation as mere mechanical

reflex behavior (like a "knee-jerk" reaction) in contrast to adult expressions (see also Gallagher 2005). Such facial expression, on both sides (infant and care giver), is part of an initiated interaction, a process that involves social affordances. Something in addition to exteroceptive sensory information, or sensory-motor contingencies, which by themselves are too impoverished to account for social cognition, is needed to underwrite the phenomenological observation that one can *see* someone else's emotion or intention in her expressive behavior.

The neuroscience of mirror neurons may help to explain some aspects of bodily affect in social perception. These neurons, which activate when we engage in an intentional action, and when we see another person engage in that action, can assist in explaining why one cannot be a detached or disengaged observer of others, and why one should in fact expect some degree of bodily affect to be a part of social perception. One can see this in overt cases of emotional contagion (Jeannerod 2006, 147), and at the personal level in our tendency toward affective congruence with individuals and groups. At a funeral, for example, one's demeanor is transformed to fit that situation, and in listening to someone recount an event with dramatic flair one's facial expressions spontaneously match those of the story-teller or other listeners. Such responses may be more or less overt, and more or less recessive.

7. Conclusion

In either case they strikingly fit the profile of bodily affect as sketched above. Their low-level cognitive character matches our non-informational construal of affect. As Goldie (2000, 191) remarks, "[t]ypical cases of contagion neither involve understanding nor result in it," since "the agent is not aware of the contagion" or "what the other's emotion is about." Emotional contagion, as a bodily affect, does something other than inform us about ourselves or others. It is no less intentional, world-directed for that reason. What it does is modulate our perceptually maintained interpersonal exchanges. The bodily affect involved in emotional contagion, even if recessive to a high degree, lends a peculiar phenomenal character to perceptual encounters with others. Just as with the adoption of moods more generally, the affective state is not neutral to one's interactions or how one perceives the world. Waking up in a foul mood disposes one to a certain set of responses, and likewise when that mood is borrowed from others in a social setting.

We propose this account of affect as a way to enrich the enactive account of perception. Perception is not fully explained in terms of sensory-motor contingencies, even if such contingencies play an important role in a fully embodied account of perception. The lived body is not simply a sensory-motor mechanism, even if body-schematic processes play an essential role in placing the perceiving subject in a pragmatically oriented world. We suggest that a fuller enactive account of perception requires a phenomenology and a scientific explanation of bodily affect. Such an account adds depth and muscle to the enactive model and puts flesh on the skeleton of sensory-motor contingencies.

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"SENSING" VOICES. A THEORETICAL COMPARISON BETWEEN THE AESTHESIOLOGICAL APPROACH TO SCHIZOPHRENIA AND SOME CONTEMPORARY PHENOMENOLOGICAL AND NEUROPSYCHIATRIC MODELS

abstract

Erwin Straus' aesthesiological analysis of the voice-hearing modality can serve as a bridge between top-down *models, which emphasize the emotional and inter-subjective significance of auditory hallucinations, and* bottom-up *models, which highlight the dysfunctional neurobiological mechanisms that cause them. The comparison with Crow's hypothesis allows to include the aesthesiological approach in an anthropo-biological context in which schizophrenia appears to be the price that species* Sapiens *had to pay to acquire self-consciousness.*

keywords

Erwin Straus's aesthesiology, auditory hallucinations and schizophrenia theory, biological and cultural hominization and exaptation, philosophical anthropology

1. Fundamental Principles of Straus's Aesthesiology

According to Straus, Aesthesiology has the task of providing an analysis of *aisthesis* devoid of the intellectualistic prejudices that still dominate Kant's aesthetic, restoring the *sense* of which it was deprived in the modern era by Galilean and Cartesian epistemology, science and philosophy (Straus 1949, 240). If for Descartes sensations are in fact a defective way of knowing which must be analytically led back to the clear and distinct ideas of Cogito, for Kant they are a sort of chaotic and atomized *dust* of stimuli, passively received by sensitivity, awaiting the action of synthetic and unifying schemes, categories and principles of the imagination and the intellect to receive a formal sense. The aesthesiological analysis of sensing shows instead that sensory modalities express in different ways a unitary structure of meaning that shapes every single act of sensing (Straus 1935, 101), giving it *embodied legality* – at the same time a priori and material – which, in our opinion, can be summed up in three key principles.

First, we have to acknowledge a fundamental fact, disowned by most philosophers and scientists: *sensory experiencing* [*Empfinden*] *is not a form of representation of reality among others, but the only means of access to reality which a living being provided with motility, be it man or animal, is equipped with*. For a sensing and self-moving living creature, only what is or can become the object of sensing is real. Recognizing that fact does not mean being dissolved in perceiving, but understanding that every other cognitive, language or imaginative act – be it belief, judgment, or mathematicizing abstraction – is eventually forced to return to the activity of sensing if it wants to establish some relationships with reality. In other words, between the act of sensing and other intentional acts, there is an ontological difference – similar to the one existing between the landscape and the map that would represent it – that gives the act of sensing inescapable primacy (Straus 1949, 241; Straus 1935, 379).

Secondly, we must acknowledge that the activity of sensing has a character of intentionality which is disavowed by those like Husserl who situate the active source of each donation and constitution of "sense" in a solitary consciousness, separated from the world and from every other consciousness (Straus 1935, 12, 210). These doctrines do not take into account the fact that the sense-bestowing consciousness – self-sufficient in its reflexive withdrawal into itself – is not a starting point, but a point of arrival for philosophical analysis: a historical construct, conveyed by the language of tradition, which has to be critically

deconstructed in its residual spatial metaphoricity (interior / exterior; content / container), by reason of the impasses that it produces at the level of the process of self-understanding of the human and, more particularly, at the level of understanding of psychiatric disorders that distort the individual's relationship with reality.

According to Straus, the primary consciousness is that which occurs in the sensory relationship with reality: a *pathic-communicative* relation, which man shares with all other moving animals, characterized by unavoidable emotional valence – attractive or repulsive, painful or pleasant, suffered passively or actively produced by the contact with the world – and characterized by such a reciprocal communication that, in any act of sensing, *I* am at the same time aware of myself in relation to the otherness of the world, and of the otherness of the world in relation to me (Straus 1949: 262). A relationship of mutual interpenetration between the whole and the part that varies with the moving prospects, bodily located and by motility dynamized, which my senses open up – in a continuous flow of views and adumbrations, actual and potential viewpoints, movements and advances – *in the unitary horizon of the world*. This intentional structure, which is closely associated with motility, is given by Straus the name, not free from doubt, of *I-and-the-Other* or *I-and-the-World*. A structural concept that retranslates into prelinguistic and embodied terms, extended to the sphere of animality, Heidegger's phenomenological concept of *being-in-the-world*: a concept regarded by Straus as too human and culturalized (Straus 1963).

The problem of the unity and multiplicity of the senses arises within this unitary and at the same time variable structure, actual and at the same time potential, spatial and temporal (Straus 1935: 212, 395; Straus 1945: 245). *Each sensory modality articulates the primary structure of sensing according to its peculiar form and laws, while the intentional structure of the whole remains unchanged*. These specific forms and legality are defined in relation to the way in which in each sensory modality the emotional and communicative, active and passive, spatial and temporal components belonging to the fundamental structure that puts each living being in relationship with reality, combine and hierarchically arrange themselves. Therefore, the different sensory modalities become part of an *almost circular* sensory spectrum in which the two extremes are represented by the dual nature of touch: haptic sense, exploratory and *digital*, on the one hand – the most active and intelligent of the senses according to Aristotle – and passive, epidermic touch, on the other hand, the most atavistic and primordial sense, common to every animal form, which exposes us directly to the immediate, painful and invasive contact with the world. Being a predominantly analytical and active sense, which allows us to stabilize reality on the basis of spatial relations, repeatable and variable in a coordinated and regular way, sight allows us to hold off the world by controlling its multiplicity and becoming, while taste and smell convey *physiognomic* characters which give an immediate repulsive or attractive valence to reality. Because of its inability to offer any resistance to sounds that seem to *invade* us cancelling any distance between us and the world, hearing is positioned, according to Straus, in a place that is diametrically opposed to sight. Being a synthetic sense that informs us of the time and rhythm of the world and of the occurrence of the event, hearing is permanently exposed to the encircling and overwhelming power of the *Other* – either the power of the natural world, *Allon*, or the power of the interpersonal world, *Heteros* (Straus 1963). According to Straus, the ones that succumb to this overwhelming power are those who hear *atmospheric* voices that come from all sides and break any distinction between the inside and the outside, between what is mine and what belongs to the *Other*, disrupting the whole structural relationship which governs the relationship between the *I-and-the-world* (Straus 1935, 382; Straus 1945, 257). But how can we explain, in its phenomenological characteristics, this specific syndrome that radically distorts the transcendental apperception of the self and the sense of belonging to the self for our acts of consciousness?

2. Phenomenological-Hermeneutic Analysis of the Schizophrenic Syndrome

In contemporary scientific debate, the analysis of the schizophrenic syndrome developed by Thomas, Leudar and co-workers seems to agree in many points with Straus's methodological approach (Leudar & Thomas 2000; Thomas, Bracken & Leudar 2004). The starting point of these authors is the need to be at the source of any separation between the psychological and neurophysiological. This separation is vitiated by epistemological and ontological bias of Cartesian origin, inadvertently affecting also neuroscience and cognitive approaches that claim to overcome the Cartesian dualism by reducing the language of psychology to the one of natural sciences or establishing an analogy between mental processes and the algorithms of a computer. In fact, *what remains the basis of all these efforts is the distinction between the external world and the inner consciousness*, a distinction which, in our opinion, no one has criticized more radically than Straus. The outer world and the inner world are for Straus only secondary, linguistic and metaphorical constructions, produced from a primary and incontrovertible ground: the *territory* of sensing. This aesthesiological region can be represented as a surface without distinction between inside and outside and without *thickness*, as a sort of Möbius ring folded back on itself, from which – through sensory-motor assembling which comes to form the eccentric and *excarnated* scaffold (Straus 1965) of philosophical and scientific language – the myth of a solitary inner space separated from the outside world is historically and culturally built.

According to Thomas, Bracken and Leudar, in order to overcome this separation, it is first necessary to develop a new philosophical framework which is able to provide psychiatric practice with a new phenomenology of schizophrenia. Current phenomenology, inherited from Jaspers, is vitiated by an undue separation between inner consciousness and the outer world, of Husserl's epistemological source, which must be replaced by an ontological phenomenology, rooted in Heidegger's and Merlau-Ponty's thought, centered on the concept of *being-in-the-world*. Readapting in numerous articles and applications Merleau-Ponty's phantom limb analysis to the description of clinical cases of schizophrenic patients treated by them, Thomas and colleagues show convincingly that the experience of hearing voices may acquire again the meaning that has been denied by cognitive and neuro-scientific approach: a situational and embodied meaning where auditory hallucinations are closely linked to the patient's biography, culture and religion, with the memories and emotions associated with his history and past, from which memories and emotions strongly re-emerge as a peculiar way of *being-in-the-world* and of *being-with-others*. These memories and emotions survive their past – for example, the death of her husband whose voice, sighs, and denigrating words Sue continues to hear – just as phantom limb survives its amputation as the possibility of haptic and kinesthetic relationship with the world *sedimented* in the body. According to the authors, this situational and embodied approach also allows to reinterpret the experience of hearing voices not only as a disorder, a deterioration or degeneration, but also from an ethical and autopoietic perspective, as a creative and quasi-intentional way to deal with one's painful and fragmented experience of the world. Individual and group techniques that allow the patient to alleviate the suffering produced by hearing voices are evidence of this ability to influence the course of their disease according to a *top-down* dynamic that cognitive and neuroscientific models are not yet able to explain (Cockshutt 2004; Wykes 2004). But, recognizing the importance of the analysis of these authors, something fundamental is still unclear: why is this mode of *being-in-the-world*, peculiar to schizophrenia, expressed mainly in the form of hearing voices rather than that of tactile or visual hallucinations?

3. The Mediating Function of the Auditory Modality

In our previous works, we compared two different theoretical applications of the concept of *being-in-the-world* to the problem of schizophrenia: Binswanger's *top-down* conception and Straus's *bottom-up* model. While the former provides the advantage of giving account of the historically, biographically and intersubjectively situated character of the disease, the latter offers the

advantage of giving account of its embodied characters, and in particular the advantage to explain why the auditory modality is the one most concerned with schizophrenia. Despite some ambiguities and uncertainties, well highlighted by Binswanger in his critical reading of Straus's work (Binswanger 1936), Straus's conception also seems to offer the advantage of providing some useful information to open a new theoretical perspective and to reconcile these two opposite conceptions of schizophrenia. In addition to developing an aesthesiological analysis of the auditory modality, Straus gave some information which helped to understand the uniquely sensorimotor *loop* implemented by the human phonatory-auditory system and the feedback/feed-forward process of hearing. According to Straus, in patients suffering from auditory hallucinations we can assume a delay or a shift-phase of the sensorimotor system – similar to that produced by a reverb or echo which sends back to our ears the sound produced by ourselves as if it came from the external environment – penetrated by the experience of auditory hallucinations. How can this happen? We must first remember that for Straus – and for the founders of Aesthesiology Gehlen and Plessner, from whom Straus partly drew inspiration – the inner dialogue that we call thought is nothing but language exonerated from the action of real sound production. Therefore, the function of control carried out by our ears produces – for object relational psychoanalysts (Mitchell 1988), but also for philosophers of language like Ernst Tugendhat (Tugendhat 1976) – a kind of internalization/anticipation of the judgment of approval or denial affixed to our statements by communication partners we have been related to since early childhood. This shift-phase of the sensorimotor system of hearing and voice would thus provide a plausible explanation for the hypothesis of schizophrenic syndrome in which the distorted relationship with the *Heteros* would have the power to deform the very relationship with the *Allon*. The phono-auditory modality would offer, in other words, the ability to operate a kind of mediation between the *top-down* and the *bottom-up* conceptions of phenomenology and etiology of schizophrenia.

This mediating conception seems to us partly in accordance with some recent models provided by neuropsychiatry. Actually, the pathophysiological models trying to provide an explanation of auditory hallucinations through neuroimaging techniques follow a theoretical dissemination which, according to some authors, would express the variability and plurality of schizophrenic phenomenology (David 2004). Although many studies correlate the experience of auditory hallucinations with structural and functional abnormalities of the auditory cortex, and in particular with the areas responsible for the monitoring of internal or external sources of language production and perception, according to David, however, what is still unclear is the role played by specific brain areas and functions related to voluntary and involuntary memory, to the "excessive" auditory imagination, to "on-line self-monitoring" and to the appreciation and evaluation of the semantic content conveyed by what the voices say. According to Seal, Aleman and McGuire (2004), it is possible and necessary to try to unify these different models into an integrated concept in which *top-down* and *bottom-up* processes converge towards a monitoring sound-auditory centre which – noting a considerable discrepancy between feed-forward mechanisms of vocal emission and feedback mechanisms of auditory recognition of the sound produced and perceived – would come into a kind of sensory-motor short circuit. Being prepared by genetic factors, but also encouraged and amplified by factors associated with *top-down* expectations, moods, evaluation attitudes, communicative and interpersonal distortions, delusional linguistic frameworks, this voice-hearing short circuit would be the place, at the same time structural and functional, where according to Seal and his collaborators, the experience of auditory hallucinations starts.

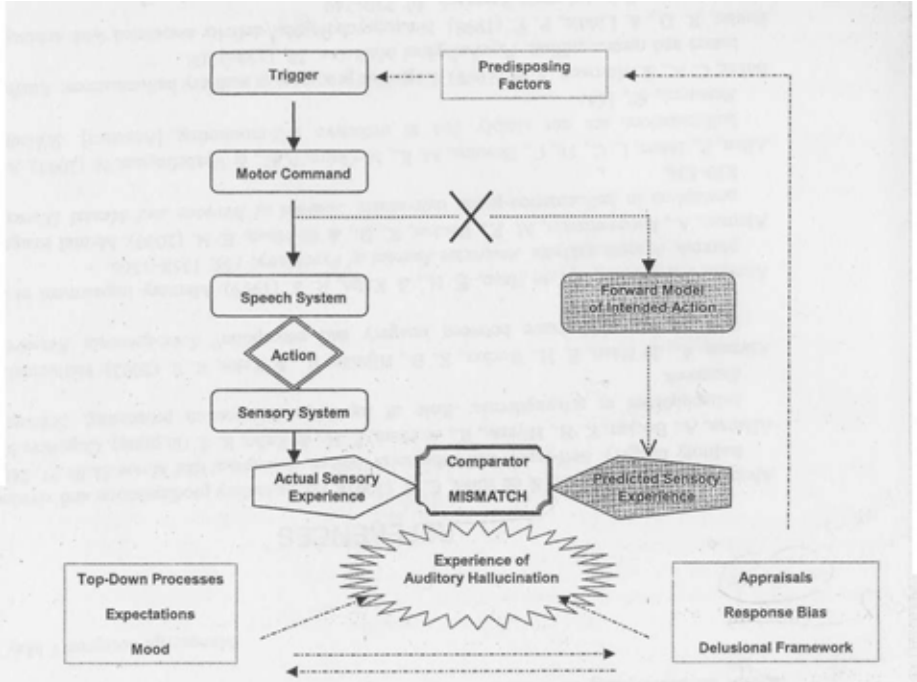

Figure 2. Proposed model of auditory verbal hallucinations.

(Seal, Aleman & McGuire 2004, 64).

Retranslating this theory into the terms of Straus's Aesthesiology, it could be argued that "I", *Allon* and *Heteros* short-circuit, fuse and surreptitiously exchange their roles of listener and speaker thanks to the *transactional* primary power – typical of the original condition of the infant and the child – of the only, complex and articulated, by man self-produced, sensory reality: the sound of his own voice.

4. Brain Lateralisation, Cultural Hominization and Schizophrenia

According to other authors (Hunter 2004; Jones & Fernyhough 2007), however, such a model would be unable to explain two things: how is it possible for the inner speech, which we identify with *silent thought*, to turn into *really* hearing voices? And why, in most cases, would these voices be perceived as coming from the outside world (although those that perceive them appear very frequently to be less able than normal subjects to locate the source of real sounds, especially if coming from the right side of the body)? In order to answer these questions we must complete, in our opinion, aesthesiology with a more explicit anthropology: theoretical connection established in part by Straus and made more explicit by Gehlen and Plessner's latest works. Gehlen's anthropobiology, in particular, provides a powerful theoretical model through which we can try to reconstruct the genesis of silent speech, which we call self-consciousness or reflection, from a process of progressive exemption of the senses and the body, performed by the voice-hearing system, which in turn is exonerated from the effective phonatory process, by means of the anticipatory and feedback function implemented by the auditory imagination alone (or, in terms of Changeux, by means of the auditory pre-representation).

According to contemporary neurobiologists and paleoanthropologists, this process can be conceptualized as a complex and progressive succession of restructuring *exaptations thanks to which anatomical, neurological and cognitive structures are completely or partly freed from previous functions* – the hand from ambulation, the eye and the hand from the function of synesthetic exploration and identification of reality through the predicate and the name, hearing from the monitoring of the voice – *and co-opted for new biological and cultural purposes not provided for by evolution* (Gould & Vrba

1982; Tattersall 1998; Ramachandran 2003). These neuroanatomical exaptations converge on sensory-motor assembly, in part socially regulated and stabilized, which sometimes have an impact on the process of biological evolution, by means of sexual selection and culture. According to Michael Corballis (Corballis 2002), this interaction between biological and cultural evolution would explain the progressive increase in brain lateralization which was produced (about 50,000 years ago) in correspondence with the technologically and linguistically crucial phases of the hominization process. And according to Julian Jaynes and Timothy J. Crow, the possible reversal of this process of evolutionary biological-cultural interaction would explain the *breakdown*, to which the schizophrenic patient is prone, in structures of consciousness prior to those made possible by the neurobiological process that allowed us to allocate the centers for production, anticipation and recognition of sound in a dominant hemisphere, *dragging* the entire sensorimotor structure of the body to the right: the so-called brain lateralization (Jaynes 1975; Crow 1997; Crow 2000; Crow 2004).

It is not possible to reconstruct in detail here Crow's neuropsychiatric doctrine, which refers to Marian Annetts's theory of brain lateralization (Annett 1985; Annett 1999), and to the theories formulated by Chomsky and Bühler concerning the indexical and propositional structure of language. Suffice it to recall that it attempts to show that the persons who, for genetic reasons, are close to the indistinction point for cerebral lateralization risk the collapse of the quadripartite structures that regulate in a coordinated way the anticipation and perceptive recognition of the voice, and the anticipation and recognition of the semantic meaning conveyed by it. Thus breaking up the deep indexical structure, which is the basis of language, according to Crow the result is a deconstruction of the mechanism that indexes the roles of speaker and hearer of our voice and the voice of the Other, through the allocation of deictic terms (I, you, here, there, now, before, after) to their content of consciousness (Crow 2004).

But since, as Descartes had already found, every judgment or proposition implicitly contains a metalinguistic proposition introduced by a deictic that reflexively clarifies the intention of the person who thinks or says this judgment – *I say* (here and now) *that* "the grass is green", *you doubted that I believed* (there and before) *that* "it is right to do so", etc. – what is disrupted by the collapse of the voice-hearing neurological mechanisms is the same recursive and metalinguistic structures that have made the phenomenon of self-consciousness possible. On the basis of this theory, we may conclude by saying that schizophrenia can be interpreted as the price that humanity continues to pay for having acquired, at the end of a long process of biological and cultural hominization, those sensorimotor montages – result of exaptation and exoneration – which allowed us to internalize the *Other* human being in the anticipating and recognizing mechanisms of hearing. A conclusion which agrees with the deepest meaning of Straus's phenomenological anthropology (Straus 1960) and, in our opinion, casts new light on the dynamics and mechanisms that underlie normal and pathological human self-consciousness.

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HOW DO WE UNDERSTAND OTHERS? EMPATHY AND THEORY-THEORY OF MIND AS TWO DIFFERENT, BUT COOPERATIVE, MECHANISMS FOR SENSIBILITY

abstract

The aim of this paper is to understand whether Theory-Theory of Mind (TToM) can be considered the one and only *source of our understanding of others or not.*
I support the idea that TToM cannot have such a role and that it can be played only by basic empathy - a sui generis *perception.*
In this paper, I challenge TToM as basic, I then consider the notion of "empathy" and I provide a very narrow definition of low-level empathy, that I compare to Scheler's account on affective phenomena.

keywords

Theory-Theory of Mind, basic empathy, Max Scheler, sui generis *perception*

HOW DO WE UNDERSTAND OTHERS? EMPATHY AND THEORY-THEORY OF MIND AS TWO DIFFERENT, BUT COOPERATIVE, MECHANISMS FOR SENSIBILITY

1. Introduction

> The traditional view in the cognitive sciences holds that humans are able to understand the behaviour of others in terms of their mental states—intentions, beliefs and desires (Gallese 2007, 659).

The way in which we do that was challenged long ago by the discovery of the so-called mirror neuron system (MNS) (Rizzolatti et al. 1996, Rizzolatti et al. 2001, Gallese 2003a,b), and by its consequent extension to our ability to share feelings. The point at issue here is that of understanding how and to what extent MNS can change our standard comprehension of the way we enter into a relationship with other human beings. Motor MNS does not require the subject to be aware of the fact that when he himself makes a specific movement or he perceives that movement performed by someone else the same neural mechanisms are active. If our affective mirror system doesn't require our cognitive and conscious understanding of the fact that we are actually mirroring – just like the motor MNS doesn't require it – how does it work? If it is a kind of sub-personal level of comprehension of co-specifics, how does it change the conscious and personal level of that understanding?

To answer these questions I will need both to challenge the traditional view of Theory-Theory of Mind (TToM) as the basis of intersubjectivity and to take into consideration how a sub-personal and Mind (TToM) as the basis of intersubjectivity and to take into consideration how a sub-personal and unconscious mechanism of comprehension of others has been analyzed within the phenomenological tradition, since it can provide some further insight into the relation between this basic understanding – the natural, primitive and unconscious way of mirroring other people's emotional states – and the more sophisticated one obtained by means of TToM – that is just one among other more complicated mechanisms of comprehension of others. The idea is that this basic tool to understand others and TToM are two distinct mechanisms of sensibility – that is, of the ability to enter into a relation with co-specifics, to understand their intentions, beliefs, desires, and feelings. On the one hand, there is an immediate mechanism of perception of others[1] – that is itself subject, as any other sense is, to the problem of perception; while, on the other, TToM will be defined as a mentalistic, theoretical, "second-order" theory. In the first case, we perceive a certain emotion; in the second, we infer a certain mental state by more complex mentalizing abilities. The aim is not that of eliminating one of the two possible mechanisms, but to understand which one is more fundamental.

1 "a special kind of perception" (Ingarden 1994).

2. Before and Below TToM: Some Criticism

The idea that our understanding of other beings' mental states can only derive from a complex set of mental processes of attribution needs to face some serious criticism.
We can define TToM as follows:

> By theory of mind we mean being able to infer the full range of mental states (beliefs, desires, intentions, imagination, emotions, etc.) that cause action. In brief, having a theory of mind is to be able to *reflect* on the contents of one's own and other's minds (Baron-Cohen 2001, 174, emphasis added).

> This model specifies a mechanism which underlies a crucial aspect of social skills, namely being able to conceive of mental states: that is, *knowing* that other people know, want, feel, or believe things (...). A theory of mind is impossible without the capacity to form 'second-order representations' (Baron-Cohen, Leslie, Frith 1985, 38, emphasis added).

So TToM will be defined for the purposes of this work as a mechanism to attribute mental states to others.[2] It requires complex, theoretical capacities – like 'second-order representations'. It is a mentalistic mechanism, enabling us to *know* about the beliefs and intentions of others.

> Theory of Mind is the branch of cognitive science that investigates how we ascribe mental states to other persons and how we use the states to explain and predict the actions of those other persons. More accurately, it is the branch that investigates mindreading or mentalizing or mentalistic abilities (Marraffa 2011, 1).

My aim is not that of claiming that this version of TToM is false or useless, but only that it cannot be claimed to be exhaustive as far as social cognition and the basis of intersubjectivity are concerned nor it can be our basic mechanism to understand others. TToM has to be phylogenetically and ontogenetically secondary.
Three remarks will be sufficient here. First of all, if we consider in particular the case of emotional comprehension of others (but similar cases can be designed also concerning intentions and beliefs), we often feel it in our gut long before we can understand it mentally (Zahavi 2012). Provided the acceptance of the parallelism between what we feel when we are actually experiencing an emotion and when we are seeing it in someone else – a parallelism that should not necessarily be abandoned by TToM, the difference lies in the process to acquire such a parallelism (an intellectual process moving by inference on the one hand, and a perception of similarity on the other), not in the final result – we can assume as evidence all the results that have been acquired since the first theories of emotions (Kandel et al. 2000, 983-986). The fact that, in contexts of extreme distress, we have peripheral reactions before we are consciously aware of them or we can distinguish what kind of emotion is involved, constitutes itself as a consistent criticism against the idea that our comprehension of other people's emotions needs a complex set of mentalistic and intellective attributions. The process of understanding looks too fast to undergo such a complex mechanism, that requires consciousness.

> Whenever we are exposed to behaviours of others requiring our response, be it reactive or simply attentive, we seldom engage in explicit and deliberate interpretative acts. The majority of the time our understanding of the situation is immediate, automatic and almost reflex-like (Gallese 2003a, 520).

2 There is obviously much more to say about the definition of TToM and the one advanced here is not the only possible version.

The second and third remarks deal with the fact that infants and primates are capable of interacting with one another without having the conscious and mentalistic categories to attribute intentions, beliefs, desires and emotions to others. The idea is that the mother-son bond comes before and somehow constitutes the child's capability of entering into that kind of relation with the world and with other beings described by TToM.
If we consider the strongest version of TToM, it is clearly implausible that it constitutes the *only* tool we have to enter into the worlds of others. The speed of the process and the fact that even primates and neonates have a kind of sharing can be considered, if not conclusive evidence, at least relevant clues to the fact that TToM cannot be our *first* and *basic* tool to enter into a relationship with others. This does not mean that TToM cannot have a role in our understanding of others, it means only that it is somehow secondary. So,

> it is possible to considerably deflate the role played by abstract theorizing when ascribing mental states (at least some mental states) to others. My thesis is that many aspects of our felt capacity to entertain social relationships with other individuals, the ease with which we 'mirror' ourselves in the behaviour of others and recognize them as similar to us, they all have a common root: empathy (Gallese 2001, 42).

3. Empathy: A Narrow Definition

Empathy, thus, can constitute such a basic, sub-personal and direct level of comprehension of others. Dan Zahavi correctly underlines the difference between the "that question" and the "why question", which can be very useful to understand the difference between empathy and TToM.

> To see *that* another person is angry or performing a specific action is already a form of interpersonal understanding that arguably depends on a basic form of empathy. But even if we ascribe a certain primacy to this rather primitive, automatic and affective form of social understanding, one also has to realize its clear limitations. It doesn't as such provide us with an understanding of *why* somebody is angry or performing the action in question. And if the latter kind of understanding also requires a form of empathy, we are dealing with a cognitively more complex type (Zahavi 2012, 81).

Besides this relevant difference, it is still true that:

> The point is *how* to characterize this special form of *understanding* (Gallese 2003, 519).

As De Vignemont and Singer (De Vignemont, Singer 2006) have pointed out, there have been some interesting results since the discovery of MNS regarding human ability to mirror emotional states of other individuals. The theoretical point is that of understanding what exactly this ability is, how it works and to what extent we can use it.
Besides the huge interest that this issue has raised in literature, a common definition of the matter has not been found yet. Therefore, it is true that:

> There are probably nearly as many definitions of empathy as people working on the topic (De Vignemont, Singer 2006, 435).

This, of course, constitutes a matter of controversy and it hinders the possibility of a fruitful dialogue. I will furnish a narrow definition of low-level empathy – narrower both than the one proposed by De

Vignemont and Singer themselves and than that endorsed by Gallese (Gallese 2001, 42-43).[3] The reason for this choice – of a narrow definition – is twofold. On a purely conceptual level, besides the complexity and the variety of words used and of definitions proposed, I believe the phenomenological tradition had a lot to say about different levels of affective sharing. So, I would like to interpret low-level empathy (Coplan, Goldie 2011)[4] solely as the basic, sub-personal and unconscious level of that comprehension of others, leaving plenty of room for more sophisticated, more personal and conscious ways to achieve it. Concerning the usage of words – e.g. low-level empathy, emotional contagion, fellow-feeling, affective sharing, sympathy, and the like – there is no agreement between philosophers, but I think the basic elements are implicitly shared. So, some common ground can be found.
On the other hand, concerning the connection between phenomenology and neuroscience, to narrow down the concept of basic empathy to its very minimal elements could make it easier to find its neural basis.

> There is empathy if: (i) one is in an affective state; (ii) this state is isomorphic to another person's affective state; (iii) this state is elicited by the observation or imagination of another person's affective state (De Vignemont, Singer 2006, 435).

And (iv) the subject is not necessarily conscious of the difference between subjects.
This last condition is contrary to the one displayed by De Vignemont and Singer, since they posit a self-other distinction within their definition of empathy. My point is that there can be phenomena of empathy that include the distinction between subjects, but they lie on a more complex level, not on the simplest and more basic one – which is the topic of my interest here. Again, the example of the mother-child bond can clarify this point. The child has no perception of the distinction between himself and his mother and yet he shares with her a great deal of feelings and emotions.

4. The Phenomenological Tradition: Max Scheler's Account as an Example

To what extent can the phenomenological tradition enter such a debate? And how can it provide some further insight? I will try to answer these questions by considering in particular Scheler's account on *The Nature of Sympathy* (Scheler 1923). Besides the evident sketchiness, I believe the elements to be put forward will prove useful for the aim of this work. Obviously some further research and a deeper analysis of other accounts by phenomenologists is still needed.
In his work, Scheler distinguishes four phenomena of affective sharing:

1. Immediate community of feeling, e.g. of one and the same sorrow, 'with someone'.
2. Fellow-feeling 'about something'; rejoicing in his joy and commiseration with his sorrow.
3. Mere emotional infection.
4. True emotional identification (Scheler 1923, 12).

The phenomenon relevant for the matter at issue here, is the last one, i.e. "true emotional identification". It is a sub-personal state in which individuals are not yet distinct subjects, but they are merged into an indistinct flow. Even after the process of individualization, subjects can – but it happens infrequently – return to that state occasionally, as in the case of a constant hypnosis (Scheler 1923, 20). True emotional identification represents the original presence of the "us" within the "I": it is the primitive basis of all these kinds of acts of intersubjectivity and of the possibility of social cognition. That is, this identification is a return to a cosmos-vital stage when, ontogenetically and phylogenetically, subjects were not distinct individuals, but one and the same vital community. It is unconscious, automatic and sub-personal.

3 As far as Gallese's version is concerned, I think De Vignemont and Singer's remarks against a broad sense of empathy find their mark: "this definition does not enable precise claims to be made about the nature of empathy or its automaticity because one can always reply that it depends on the level of empathy" (De Vignemont, Singer 2006, 435); and, moreover, it prevents the possibility of distinguishing "empathy from other related phenomena" (De Vignemont, Singer 2006, 435).
4 Zahavi distinguishes between "basic" and "complex" empathy (Zahavi 2012). In what follows, I will use "basic" and "low-level" as synonyms.

> The essential character of human consciousness is such that the community is in some such sense implicit in every individual, and that man is not only part of society, but that society and the social bond are an essential bond of himself (Scheler 1923, 229).

The relationship between a mother and her son or daughter is a good example of this shared presence of the community within every individual:

> The child feels the feelings and thinks the thoughts of those who form his social environment, and there is one broad roaring stream of living in which he is totally immersed (Scheler 1923, XXXIX).

Scheler doesn't claim that this phenomenon is the only kind of empathic experience, but that it is the more basic and fundamental one, without which every other experience – i.e. the other three phenomena quoted above, together with altruism and philanthropy – would not be possible. True emotional identification represents the necessary, but not sufficient, basis for every other phenomenon of comprehension of others, even for the most personal and conscious ones, just like altruism and philanthropy. What Scheler considers really interesting, from a purely moral point of view, are the more personal and conscious levels of sharing.
How can this minimal presentation of Scheler's account on empathy be useful for my purposes here? How can he answer the questions mentioned above? Scheler provides us with a very interesting and detailed conceptual distinction that helps us both in the comprehension of the basic elements of empathy and in the examination of the superior and more complex levels of it. His account can provide some further insight, if properly interpreted, on what it is to have a purely empathic experience and supplies the categories – personal or sub-personal, conscious or unconscious, feeling the state of others, understanding it mentally, or acting because of it in a certain way – useful to place every related phenomenon in its proper place.
Finally, concerning the relation between phenomenology and neuroscience, I believe Scheler's account on true emotional identification, as the fundamental cosmo-vital stage, should be challenged by neuroscience.

5. Conclusions

A proper conceptual distinction makes experimental tasks more precise and the results more useful, and that is also the reason why I believe a narrow definition of basic empathy should be adopted. At this level, phenomenologists, and on this topic, Scheler in particular, can definitely help the research. Regarding the relation between low-level empathy and TToM, my proposal stems from these assumptions that I have been analysing in this work:

1. TToM cannot be *the one and only* source of our understanding of others, since it presupposes complex mental attributions that cannot be achieved (a) as quickly as we often do, (b) by neonates and (c) by primates.
2. Nevertheless, TToM should not be wholly abandoned, we only need to recognize that it is not basic.
3. If TToM is not the tool for our basic understanding of others, what can play such a role? Basic empathy, our affective ability to 'mirror' other people's emotional states. A *sui generis* perception.

Empathy itself needs to be properly interpreted. I think a broad sense of it will not prove very useful since it will simply be a label for phenomena with a huge variety of characteristics, and because it will let TToM go So, besides the obvious difference in terminology, I will use Scheler's definition of true emotional identification for my account on basic empathy. It is a very narrow definition of the concept, but I believe it will prove useful on different levels. This move does not aim to reduce every

related phenomenon to my definition of low-level empathy, but just to provide the minimal and more fundamental kind.
Empathy and TToM are two different mechanisms at work in our understanding of others and in the way we are capable of sharing intentions, beliefs, desires, and emotions. They are not exclusive. Empathy is ontogenetically and phylogenetically primitive; TToM is more complex and has to do with superior forms of sharing and of comprehension (Lamm 2007).
Furthermore, even empathy is more complex than I could have analyzed here: besides the low-level kind that I have considered, there are superior forms of empathy (as shown also by means of Scheler's distinctions) that complicate the framework. A great deal of work needs to be done concerning the relations between low-level empathy (or basic), high-level one (or complex) and sympathy, TToM, altruism and philanthropy.

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HUSSERL'S PHENOMENOLOGY OF VALIDITY

abstract

What is a practical intention, particularly an evaluating intention? Are values representational states that work differently from epistemological truths? Are our perceptual experiences representational states? To simplify the inquiry, I will theoretically divide the questions into two groups: the former concerning the distinction between signitive and practical intention and the latter pertaining to the objectivity of a value. The texts I will refer to are Husserl's Ideas and Analysis.

keywords

Intentionality, active and passive synthesis, signitive acts, value and teleology

1. Introduction

What is a practical intention, particularly an evaluating intention? Are values representational states that work differently from epistemological truths? Are our perceptual experiences representational states? How can we explain an instinctive evaluation that is performed without the support of any reflection?
I would like to begin my analysis with a story whose protagonist is a *kouros*, a statue bought by an art dealer, Gianfranco Becchina. Federico Zeri, the well-known art critic, was called to make an evaluation concerning the authenticity of the statue. Although the other members of Becchina's trustee board had already acknowledged the high value of the *kouros,* Zeri denied its authenticity in the blink of an eye. He looked at the *kouros* and felt 'an intuitive repulsion'. Later on, other tests confirmed what Zeri felt (Gladwell 2005, 3-8).
I use this story to display the sense of my research. In fact, it seems possible to claim that on certain occasions an evaluating intention can be brought out via 'an intuitive repulsion'. For this reason, my aim here is to describe the moments of this kind of intention. The questions that might arise from this challenging topic are several: Wow does the intentional structure of this 'intuitive repulsion' look like? Is the value a bodily concept which comes before the representation of the object itself? Is it possible to appreciate the value of a melody without consciously listening to it? If we come in a room and our attention is completely focused on another object, are we able to appreciate the value of the melody spread in the room as well?
To simplify the inquiry, I will divide the questions into two groups: the former concerning the distinction between signitive (or largerly meant epistemological) and practical intention and the latter pertaining to the objectivity of a value itself. I would like to understand if a practical intention can be independent from any signitive or epistemological basis and, accordingly, if values might be described independently from the objects holding a value. The texts I will refer to are Husserl's works of *Ideas I* (1913) and *Analysis Concerning Active and Passive Synthesis* (1917-18) which casts light on Husserl's idea of intentionality after the transcendental and genetic turn. These texts can be taken as a reference point to explain the analysis of validity from a static to a genetic viewpoint. In this way we could get an overall phenomenological definition of validity pointing out its differences respect to a signitive acts and showing its i*n fieri* nature.
As for the critics, Husserl scholars seem to be divided on this issue: Schuhmann as well as Melle maintain that this debate can only lead to an aporetic conclusion. Drummond and Rinofner-Kreidl

consider the possibility of carrying out a two level analysis of evaluative acts as intentional acts where it is possible to distinguish the experience of a valuable object from the corresponding values themselves. In contrast to Liangkang, who retains evaluating acts unable to constitute their own noema, Crowell considers the so-called emotive 'target' as a phenomenologically 'normal' *object* (which he calls 'objectity') that can have worth as a proper value. Finally, Smith (but naturally there are many other scholars involved in this debate) construes the object of values as a universal object grasped by the categorical experience of the universal. Seemingly Husserl's theory of values, as Rinofner-Kreidl and Crowell noted, presents some deficiencies that cannot be solved or accepted. In this paper I would like to expound these deficiencies focusing on practical intentionality and the meaning of value.

2. Hierarchy of Intentions in *Ideas I*

As already mentioned, the meaning of 'value' in itself can be understood by the analysis of Husserl's idea of intentionality. Indeed, a value is defined by Husserl as the content or *noema* of an intentional act of evaluation. The issue here is to examine which kind of intentionality, if any, belongs to evaluating acts. As these acts are commonly considered instinctive and spontaneous, their intentionality is problematic because they seemingly arise without any proper *intentio* (Husserl, 1970,107-112). They simply mean their own objects in the absence of any 'aware' intention. For instance, when I enter a room, a melody makes me feel well, though I may not be listening to it attentively. This means that I (or my body) can evaluate it positively while I am doing something else. In this case the evaluating act functions without a proper intention and (probably) a proper object. Something happens (listening to a melody) and I recognize it with a feeling but my aware intention is addressed toward another actual object (talking to another person, for instance).
In paragraph 97 of *Ideas I* Husserl explains the moments that constitute a simple act through the following example. "We are looking at a tree over there which is now motionless and then appears blown by the wind and which is also presented in greatly different modes of appearance as we, during our continuing observation, change our spatial position relative to the tree"(Husserl 1983, 236, 201). This observation encompasses a plentitude of information that is given in the unity of *one* perception. Yet if we want to exclude the natural attitude which provides phenomenal and mutable information of the tree in order to describe the act just from a phenomenological point of view, we should stayed focused on what remains of the former sensuous perception, that is, on the "inherent component of the pure mental process" (Husserl, 1983, 237). In fact, seen phenomenologically, the tree becomes that mental phenomenon by means of which I perceive the tree. Phenomenological analysis focuses on what affects the perception as a pure mental object.
According to *Ideas I* the act of perception can be divided into two components: noesis and noema. Noesis is the 'subjective' side of an act and noema the 'objective' side. Noesis is the field of constituting multiplicities and noema is the field of constituted unities. From a phenomenological point of view the noesis is not the colour of the tree which changes according to the intensity of the light, but the colour itself as we perceive it. On the other hand, the noema of a colour corresponds to the "sensed colour". This latter is an identical and unchangeable unit encompassing all the data pertaining to the perception of colour as they are grasped by the noesis.
Husserl holds that we have different kinds of noeseis and noemata that are displayed within a specific hierarchy (Husserl 1983, 246, 249, 255). "There are presentations *simpliciter*, modifications *simpliciter* of perceptions. But there are also presentations of a second, third and essentially of any level whatever" (Husserl 1983, 246). It is possible to intend an object in different ways (phantasy, memory, representation), but all these ways can be figured out and collocated in a specific order. To every way of perceiving objects there belongs a characteristic of reflection: "with respect to remembered things at the second level of rememberings, there are reflections on perceivings of just these things belonging to the same level" (Husserl 1983, 247). For instance, we cannot seize upon the object-tree

by memory if we have not represented it yet. The various noeseis by which an object can be given are all built up on signitive or doxic acts, that is, on acts capable of performing the representation of the sensed object. "The being-characteristic *simpliciter* is the primal form from which all being modalities are derived" (Husserl 1983, 251). We can perceive the tree and reflect on its properties only after we have recognized it as an object, as something which stands in front of us. Therefore, I can have an overall idea of the tree thanks to the mixture of different levels of my perception. Each noematic level is "an 'objectivation' of the data of the following level" (Husserl 1983, 247, 249). I can draw a pleasant feeling from the sight of the tree because this feeling generally arises after I have seen the tree standing before me and have instantly processed this representation.

Hence evaluating objectivations are possible only on the basis of signitive or positing acts. "A perceiving, fantasying, judging, or the like, founds a stratum which overlays it completely we have different noemata or senses in the stratified whole which is called a concrete mental process of valuing by being designated according to the highest level within it" (Husserl 1983, 231). Every evaluating act which appears just like a second kind of act is based on the signitive stratum of perception, judgement and fantasy (Husserl 1983, 232). Consequently, an evaluative act does not seem to hold its own object as it always requires the representations of a signitive act in order to evaluate something. The value seems to be a different kind of signitive noema. For example, if I enter a room and I listen to a melody, the process of evaluating this melody is probably grounded on the realization that a melody is being played and then I can evaluate it. The melody is a signitive object that is predicatively given to the act of evaluation. The actual object of the evaluating act is a "Value-Objectiveness" (Husserl 1983, 232) (*Wertkobjectivität*), that is, a state of affairs (*Sachlage*) founded on the predicative form of the object that holds a value.

Nevertheless, in every value there must lie a distinction between the valuable object (i.e., the predicatively given object I am evaluating) and the value-objects (Husserl 1983, 232). The former is the noema of a signitive act by which I know what I am experiencing and the latter is a noematic modification of what I am experiencing. Accordingly the noema of an evaluating act is an intentional object in a twofold sense. "We shall speak of the mere thing which is valuable which has value characteristic which has value quality; in contradistinction we speak of concrete value itself or the value-objectiveness (*Wertobjectivitaet*). [...] The value objectiveness involves its mere materially determinate thing (*Sache*). It introduces a new objective stratum, the value quality" (Husserl 1983, 232, 198). As a matter of fact, any value is an actual and axiological object, that is, the thing as valuable, with its value-characteristics and value-qualities, and the concrete value in itself, which should be considered as a value-objectiveness and a mere predicatively formed value-complex.

For this reason in §37 Husserl mentions the expression 'evaluative perception' (*Wertnehmung*) as the first step on which the noema of value is built up as a "value-objectiveness", namely the object as it is vaguely perceived. Hence, on this first founding act, another process of objectivation takes place. Accordingly, the concrete value in itself, as opposed to the thing as valuable, seems to hold a peculiar intention and its own "Setzungscharaktere", namely its own way of positing an object and taking a position with respect to it.

3. Passive and Active Intentionality: the Blink of Validity

In his *Analysis Concerning Passive and Active Syntheisis,* Husserl makes a distinction between passive and active intention. This distinction can be helpful to understand the 'object' of a plain perception (*Wahrnehmung*) as opposed to the one of a value perception (*Wertnehmung*). This distinction should be conducive to form a whole idea of the lived experience as something static that is taken in itself and in that moment as a unit which is always *in fiery* since it is experienced by a living subject.

The first layer of a passive intention is mainly a perception (Husserl 2001, 92). Within a passive perception, noesis consists in an act of uninhibited intentions and the noema is the free fulfillment of several modes of being. Since in this correlation there is no hierarchy, consciousness can be

directed wherever it likes without being regulated by any kind of knowledge. To use the example given before, while I am staring at the tree, probably a lot of intentions impinge upon my staring. I can be compelled to touch the tree's trunk or just to like its shape. All these stimuli are simultaneous and force my consciousness toward different directions. It is likely that my consciousness can only knowingly follow a part of these, and only a few uninhibited intentions can become real (active or actual) intentions. The hierarchy, as it was displayed in *Ideas I*, comes into action only when consciousness decides to choose among the interwoven, uninhibited intentions through an active acceptance.

The active acceptance corresponds to the ego taking a position as a decision 'for or against' the uninhibited intentions. In this case we have an active intentionality where, as stated before with *Ideas I*, the doxic or signitive act holds a primal position. In the hierarchy the noesis there is a 'Yes or No', and its noema is what has been judged as 'Yes or No' with respect to the perceived content.

"The noetic Yes and No [...] arises from taking a position specifically as judging. As with every mode of consciousness, we have a noematic correlate. Here, of course, this correlate is the noematic valid and invalid arising in the objective sense" (Husserl 2001, 134).

The first step of an active intention is the process of validation as confirmation (*Bewahrheitung*) or verification (*Bewährung*) of the perceptual concordance (Husserl 2001, 143). The perceptual concordance is exactly that balance between what is given to consciousness as self-giving and the presentation of what is expected to be presented to consciousness. In that sense the confirmation that lies behind the very first step of an active intention seems to be essentially a normative act of regulation by which the first balance can be restored (Husserl 2001, 150).

Here something more is added to *Ideas* I. In this hierarchy the former act of an active intentionality is still a signitive one but, in contrast to *Ideas I*, it springs from a validation act. According to Husserl passive intentionality turns into an active one by a judgment of acceptance and its first noema ends up being what is accepted as valid or invalid. Let us take the previous example: Mary is staring at a tree absentmindedly. After a while her passive intention is translated into the decision to do something. Whatever this doing is about, it always passes through a decision and a judgment. She decides to see its shape or rejoice over its sight or evaluate its beauty. What ignited the motor of this decision to accept a very specific intention among many others?

When someone is absentmindedly staring at a tree, she is exposed to a free horizon of expectations where all uninhibited intentions are possible. Then, the ego actively takes up a position of judging (or talking, or fantasying etc.) and "appropriates what is now concordantly given as being *simpliciter.* Active acceptance is what carries out a peculiar appropriation, determination, thereby establishing this being as valid for me from now on". (Husserl 2001, 95)

To understand this acceptance, it is necessary to go through its moments as they appear in the flow of time. In fact the analysis of perception is also "an analysis of temporal modes of givenness" (Husserl 2001, 150). The moments of this unit are always made up of time. As Husserl writes "We have the stream of givennesses in lived-experience, givennesses that are strung together temporally" (Husserl 2001, 148). Every moment is made up of impression, protension and retention. Impression represents the presentification of a temporal being, that is what is given to the subject, in that moment by shadows and uncertain forms. Protention is the expectation of the future. It "designates the second aspect of genetic primordial lawfulness that strictly governs the life of consciousness" (Husserl 2001, 739). It represents what we could see or expect to see. It constitutes a kind of norm or rule about what we are experiencing. In fact, while we are experiencing the surrounding, we build up an idea of what we are perceiving and expectations are precisely the presentifications of the idea we have created from the former glimpses. Finally, retention is the empty presentation of what we have already felt. It is the passive law built on the memories just collected in our mind (Husserl 2001, 114). This empty representation can be fulfilled by the contents given with evidence. "The objects found in such a

retention are disclosed through a process of bringing them to intuition [....] They are disclosed in the synthetic transition to an appropriate intuition in the consciousness of them. This is obviously a synthesis of confirmation" (Husserl 2001, 150).
Therefore, the decision made by the ego is mainly determined by these phases. The confirmation granted by the unit of continual concordance allows the ego to go ahead with its intentions following the proper hierarchy. This is the way in which the consistency of empty presentations, presentifications and expectations can be achieved. The noema of validity can be acquired because "the perceptual lived-experience is continuously being fulfilled" in this temporal flow. (Husserl 2001, 107)
Perception appears as a process "of streaming from phase to phase [...]. In each phase we have primordial impression, retention and protention and unity arises in this progression by the protention of each phase being fulfilled by the primordial impression [...]. When this concordance is ruptured [...] we no longer have a perception in the normal sense" (Husserl 2001, 107).
These moments bring a lawfulness to the act of perception which allows the stream to flow. "The original confirmation, in which a presenting object is fulfilled in a synthesis of the intended object and the corresponding object in itself", occurs exactly in the present relationship between what I expect to see and all that I have presented before. If the expectation is fulfilled by the actual presentation, the confirmation is possible and the noema is valid.
In a word, the expectation seems to be the main stimulus of an active acceptance and the acceptance is what gives validity to the noema of a passive uninhibited intention. The idea of validity seems to be embedded in this temporal structure, especially in the expectations which give the norm of what has to be fulfilled. These seem to be the moments grasped by the very first *Wertnehmung*. "Every belief directed to the future has its truth or its falsity prefigured in advance and once and for all" (Husserl 2001, 151). The validity of this truth consists in this expectation.

4. Conclusion

Coming back to the questions I raised in the first paragraph concerning the difference between a practical and an epistemological intentionality, it is now possible to state that there is a strong interweaving of the two. Indeed, Husserl compares both (along with their noemata, namely, truth and value) also when he talks about mathematics. This probably happens because, as Crowell noted, "Husserl equates the normative with the rational" (Crowell, 2005, 15). Here in fact Husserl writes: "To elucidate the structure of the *truth or validity* is to elucidate <the decision> in itself [...] drawing a parallel to the mathematical in itself where it is easiest to detect the peculiar trait of validity in itself" (Husserl 2001, 150). In this excerpt it is quite difficult to make a distinction between truth and validity. They seem rather to be strung together in analogy with mathematical truths. Logical rationality is validity and vice-versa. In this overlapping, validity seems to be a quality belonging both to a mathematical and a theoretical truth. "There are affective motives that also orient and reorient the regard in this direction". The ego resists the inclination of will and "ego responds by dismissing it, by declaring [the latter intention] invalid"(Husserl 2001, 96, 56). Validity is what the ego 'declares' to be true. It appears to be that temporal shadow which overlays a logical act. "The negating act carried out by the ego is a process of striking down validity (*Ausser-Geltung-Setzen*)" (Husserl 2001, 96,56). Therefore, Husserl characterized "deciding-in-favor-of" by taking-possession-of, appropriation, as being henceforth valid, as settled for me from now on. "Deciding-against means that such a validity, which was somehow expected of us and possibly taken up by us earlier, is rejected" (Husserl 2001, 97, 56). In addition to being the valuable object and the value-object, the value is the noema of what has been recognized as valid and it is the content toward which the signitive act is addressed. In this sense truth and validity as well as their intentions are interwoven because validity is in a certain sense the norm which regulates the acquisition of truth, e.g., the concordance gained between what I perceived and what is given. Taking the example of the tree, the truth lies in the consistency between what I expected to see and what has been effectively

perceived by touching or seeing it, while the value lies in the acceptance of this consistency.[1]
The transition from a static to a genetic viewpoint helps to show all the layers of the validity as something that is already given to the subject (as signitive act) and as a whole that is *in fiery* and can never be enclosed in just one lived experience.
It remains an open question how this validity is recognized as consistent and true. Husserl talks about the *sentiment of evidence,* defined as an *adequatio rei ac intellectus* between what the ego expects to do and what is done (Husserl 2001,117, 143, 103), but this is the topic of another article.

1 Ibid., p. 277: "As long as the concordance of this coinciding sufficed, the One, the objective sense, was characterized in the mode of being. As this thoroughgoing unity, every constituted thing for itself in the background of consciousness exercises an affection on the ego precisely as one."

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SESSION

SESSION 2

REPRESENTATIONALISM, PHENOMENAL CHARACTER, SUBJECTIVITY

Alberto Voltolini (Università degli Studi di Torino)
The Mark of the Mental

Elisabetta Sacchi (Università Vita-Salute San Raffaele)
The Content and Phenomenology of Perceptual Experience

Roberta Locatelli (University Paris 1 Panthéon-Sorbonne)
In Defence of Phenomenal Disjunctivism: An Elucidation

Arianna Uggé (Università Vita-Salute San Raffaele)
Representationalism and Ambiguous Figures

Clotilde Calabi (Università degli Studi di Milano)
Amodal Completion, Perception and Visual Imagery

Elvira Di Bona (Università Vita-Salute San Raffaele / Institut Jean Nicod)
Some Considerations on Pitch

Alfredo Tomasetta (Università degli Studi di Bergamo)
Sense and Subjectivity. A Very Short - and Partial -
History of the Loss and Recovery of the Bodily Self

Vittorio Gallese (Università degli Studi di Parma)
Sjoerd Ebisch (Università degli Studi "G. D'Annunzio" di Chieti e Pescara)
Embodied Simulation and Touch: The Sense of Touch in Social Cognition

Barry C. Smith (Institute of Philosophy, School of Advanced Study, University of London)
The Nature of Sensory Experience: The Case of Taste and Tasting

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THE MARK OF THE MENTAL

abstract

In this paper, I want to show that the so-called intentionalist programme, according to which the qualitative aspects of the mental have to be brought back to its intentional features, is doomed to fail. For, pace Brentano, the property that constitutes the main part of such intentional features, i.e., intentionality, *is not the mark of the mental, neither in the proper Brentanian sense, according to which intentionality is the both necessary and sufficient condition of the mental, nor in its 'watered down' counterpart recently defended by Tim Crane, according to which intentionality is just the necessary condition of the mental. However, this does not mean that* being mental *is just a heterogenous category. For there may be another mark of the mental, i.e., consciousness, in the phenomenological sense of the property of being experienced.*

keywords

Intentionality, intentionalism, consciousness

1. Introduction

In this paper, I want to show that the so-called intentionalist programme, according to which the qualitative aspects of the mental have to be brought back to its intentional features, is doomed to fail. For, *pace* Brentano, the property that constitutes the main part of such intentional features, i.e., *intentionality*, is not the mark of the mental, neither in the proper Brentanian sense, according to which intentionality is the both necessary and sufficient condition of the mental, nor in its 'watered down' counterpart recently defended by Tim Crane, according to which intentionality is just the necessary condition of the mental. However, this does not mean that *being mental* is just a heterogenous category. For there may be another mark of the mental, i.e., *consciousness*, in the phenomenological sense of the property of *being experienced*.

The architecture of the paper is the following. In Section 1, I will sketch the intentionalist programme in all its ramifications and show how it can be dismantled, by defending the idea that there are mental states that have only qualitative but no intentional features. In Section 2, I will attack what I take to be the best version of intentionalism, namely Crane's version, according to which there are no merely qualitative states for all qualitative states possess the minimal features that endow a mental state with intentionality, namely the possible non-existence of the intentional object of a state and the aspectual shape of such a state. I will indeed try to show that there are mental states, namely moods and especially proprioceptive sensations, which fail to have both such minimal features. Finally in Section 3 I will try to sketch up to what extent consciousness, or better *being experienced*, can be the mark of the mental.

2. What the Intentionalist Programme Amounts to and How it Can be Dismantled

As is well known, Franz Brentano claimed that *intentionality* – the property of *being about something or of having a propositional intentional content*, i.e., a content that makes its bearer semantically evaluable (true or false, fulfilled or unfulfilled) – is the mark of the mental, i.e., the both necessary and sufficient condition that makes something a mental state.[1] By so appealing to intentionality, Brentano wanted to support the idea that that there is a class of states, mental states, which are irreducible to entities of any other kind, primarily physical states.[2] Yet let me well put this intended consequence aside. For nowadays it already appears that Brentano's claim seems hard to defend. For its sufficiency claim seems

1 See Brentano (1874, 88-9). Following Crane (2001, 39), I won't stress here any difference between mental *states* and mental *events*.
2 To be sure, by "physical states" Brentano had something very idiosyncratic in mind, i.e., phenomenal states. See Crane (2006). Yet let me put this point aside.

problematic: over and above mental states, there seem to be other things that possess intentionality, whether they are physical states or not.[3] Nevertheless, Brentano's claim may be kept in a weakened form, according to which intentionality merely is the necessary condition of the mental: for every *x*, if *x* is a mental state, then *x* has intentionality. In this weakened form, the claim is nowadays defended by Crane – let me thus call this claim in its weakened form the Brentano-Crane thesis (BC).[4]

If (BC) holds, then there are no states that are mental but do not possess intentionality. In particular, there are no merely qualitative mental states, i.e., states that have only qualitative features, that is, features that are relevant for the so-called phenomenal character of a state, for what it is like to be in such a state. So, defenders of (BC) also defend *representationalism*, or *intentionalism*, (from now on, I will use the latter label only) about qualitative states; namely, the thesis that the allegedly qualitative properties of mental states are identical with, or at least supervene on, the representational, or intentional, properties of such states, i.e., the properties including the fact that such states have intentionality.[5] For, if there are no merely qualitative mental states, there are not even states whose qualitative properties neither are identical with nor supervene on intentional properties.

On its turn, as Crane has shown,[6] intentionalism may be modulated in different ways, depending on how, on the one hand, the relationship between qualitative and intentional properties is conceived and, on the other hand, what intentional properties exactly are. As to the first modulation, intentionalism may be meant in a *strong* form, according to which the qualitative properties of a state are identical with or at least necessarily supervene on its intentional properties, but also in a *weak* form, according to which the allegedly qualitative states have not only qualitative properties but also intentional ones, so that the former properties merely factually supervene on the latter ones. As to the second modulation, intentionalism can be *pure*, *impure*, or *spurious* intentionalism, depending respectively on whether intentional properties basically center around the very intentionality property of being about something or of having a propositional intentional content (a content that is constituted in any of the possible ways it is conceived of in the literature)[7], or they also include the property for a state of having an intentional *mode*, that is, of being the kind of intentional state it is (a belief rather than a desire, a visual rather than an auditory perception etc.), or simply shrink to the property of having such a mode. The combinations of these modulations provide at least six sub-varieties of intentionalism.[8]

As to the first modulation, strong intentionalism clearly entails weak intentionalism but not the other way around: if an allegedly qualitative property either is identical with or necessarily supervenes on an intentional property, then of course it also factually supervenes on it, but the converse doesn't hold. Both forms of intentionalism, however, have obviously to assume that, as I said above, the intentional properties of a state include the property of intentionality. Such an assumption also entails that, as to

3 Crane (1998, 230-1) points out that if one appeals to a naturalistic approach to intentionality, then some physical states, or at least some biological states, may well have intentionality. But even apart from such an approach, one may hold that there are other entities over and above mental states that have intentionality. For instance, propositions qua structured entities are about their constituents. See on this Sacchi-Voltolini (2013).

4 See Crane (1998, 2001, 2009).

5 For Crane, intentionalism is the "view that all mental states exhibit intentionality" (2001, 8). Strangely enough, in the relevant literature there is little reflection on the fact that, *qua* supervenience base for the qualitative properties, intentional properties have to include intentionality. A notable exception is Chalmers (2004), who first draws a distinction between *represented* properties, i.e., properties that constitute the (propositional) intentional content of a mental state, and *representational* properties, i.e., the properties of having such a content, and then says that, *pace* Dretske (1995) or Tye (1995), qualitative properties have to be brought back to representational rather than to mere represented properties. Now, as I said before, having a (propositional) intentional content precisely is one of the forms of intentionality.

6 See Crane (2001, 83-5); the labels "pure" and "impure", as applied to intentionalism, come from Chalmers (2004).

7 Basically, a Russellian way according to which such a content is made only by the objects and the properties the state is about, a Fregean way according to which such a content is made only by the so-called modes of presentation of such objects and properties, or a combination of the two above ways.

8 These combinations further proliferate if intentionalism is meant as a *reductive* form of intentionalism, according to which no qualitative properties at all figure in the properties that constitute the intentional properties of a state, or as a *non-reductive* form of intentionalism, according to which qualitative properties may still figure within such intentional properties. For this further complication See Chalmers (2004), Siewert (2004).

the second modulation, the three forms of intentionalism – pure, impure and spurious – are grounded forms of intentionalism only if the intentional properties they mobilize really contain the intentionality property. This constraint automatically allows both pure and impure intentionalism as legitimate forms of intentionalism, the former for according to it intentional properties are centered around the intentionality property and the latter for according to it intentional properties at least include the intentionality property. By the same vein, however, that constraint seems to rule out spurious intentionalism (this is why is so labelled), until one is able to show that appearances notwithstanding, the intentional mode of a state has an intimate relationship with its having intentionality.

This said, however, I don't have to enter here into the delicate issue of which form of intentionalism is the best one. For the above assumption also shows that, if there is a mental state that does not possess intentionality, weak intentionalism fails, hence strong intentionalism fails as well, however either form of intentionalism is further meant – as pure, impure, or spurious (if it may so meant). This is what I want to show in what follows. I indeed want to show that there are mental states that only have, to put it in Block's (1996) terms, mere *mental latex*, i.e., they are states that have qualitative properties that are matched by no intentional properties, for they have no intentionality at all.

This is a moderate form of anti-intentionalism. That is, an anti-intentionalist has no need to show that – to put it still in Block's (1996) terms – there is *mental paint*, or in other terms, that all mental states that have qualitative properties are such that these properties may not even merely match intentional properties of such states. It may indeed well be the case that there are states that have both qualitative and intentional features; not only (rather obviously) emotions, but also (less obviously) all the so-called esteroceptive sensations – visions, auditions, gustatory, olfactory and tactile sensations.[9] For in order to dismantle the supervenience claim that constitutes weak intentionalism – no phenomenal difference without an intentional difference – hence a fortiori to dismantle intentionalism in its strong form, it is enough to show that there are merely qualitative states, i.e., states that only have qualitative properties that aren't matched by intentional properties. As I'm going to show, both moods and interoceptive, or better proprioceptive, sensations are mental states of this kind. Since the existence of such states shows that there are mental states that have no intentionality, intentionality is not the mark of the mental.

In the next Section, I will articulate my anti-intentionalist strategy as follows. First, I will enucleate what I take to be the most tenable conception of intentionalism, namely Crane's (2001) version of it. Second, I will try to show why this version doesn't work.

3. Against Crane's Intentionalism

To my mind, Crane (2001) offers the best way to argue for intentionalism. For Crane claims, first, that the matching between qualitative and intentional properties of a mental state is independent of the state's having a *propositional* intentional content; it suffices that the state has an *objectual* intentional content, or in other terms, that the state extinguishes its intentionality in its being about a particular object. As a result of this claim, allegedly qualitative states can be treated as merely objectual intentional states, i.e., as states that merely possess *reference intentionality* – being about something – rather than *content intentionality*, having a propositional content to the effect that so-and-so is the case.[10] Typical examples of merely objectual intentional states are Othello's being jealous of Desdemona or Vladimir's looking for Godot.[11]

This point is a great merit of Crane's theory. For the propositional intentional content that is ascribed to qualitative states as what qualitative properties at least allegedly supervene on is often an artificial matter. Consider e.g. Tye's (1995) thesis according to which a state's painfulness amounts to the property for that

9 Almost nobody maintains such a radical form of anti-intentionalism, for it is natural to maintain that most emotions have both a qualitative and an intentional side. Yet Antony (1997, 25) is an exception. Both Kim (1996, 13) and Rosenthal (1994, 349) maintain the pretty traditional view that all sensations, both esteroceptive and interoceptive, or better proprioceptive, sensations, are merely qualitative states. Searle (1983, 1-2, 1992, 84), Rey (1998, 441), Peacocke (2008, 8-9,11) are moderate anti-intentionalists.

10 For such labels, See Kim (1996, 21).

11 See Crane (2001, 2003).

state of having the propositional intentional content that a bodily tissue is damaged. Since according to Tye this is the (propositional) content a pain shares with a state bringing *pleasure* to someone else (a masochist, say),[12] it is hard to see how such a content can contain the property of *being damaged*.[13]
Second and more importantly, Crane claims that such a treatment is guaranteed by the fact that allegedly merely qualitative states have the two features that essentially qualify intentionality of reference, namely, the possible non-existence of the intentional object of an intentional state and the aspectual shape of (the intentional object of)[14] such a state. The possible non-existence of the intentional object of an intentional state, i.e., the object that state is about, consists in the fact that there may well be intentional states that are about objects that do not exist, as for instance Vladimir's aforementioned looking for Godot. The aspectual shape of an intentional state consists in the fact that the object a state is 'directed upon' may well be given in a certain way, under a certain aspect. Given this aspectuality, one may not recognize that two states are 'directed upon' the same object, insofar as this object is given in them in different ways respectively. For instance, Hammurabi thought of Venus both as the evening star and as the morning star without acknowledging that the two celestial bodies are nothing but the same entity.[15] As a result, the qualitative properties of such states can be brought back to intentional properties of such states.
This second point is even a greater merit of Crane's theory. For at least with respect to certain allegedly merely qualitative states, namely moods and what may be called interoceptive, or better proprioceptive, sensations (pains and pleasures, but also itches and tingles, or even kinaesthetic sensations), intuitions seem to go in the anti-intentionalist direction. Even in philosophy, up to some years ago it was quite natural to draw a distinction between qualitative and intentional states and to deny intentionality to the former ones – as Searle put it, the "of" in "I am aware of a pain" is not the "of" of intentionality.[16] So, it's quite important that an intentionalist tries to run counter such anti-intentionalist intuitions by providing arguments to the effect that the contrary point of view is the case.
In this vein, Crane's argument may be reconstructed as follows:

1. In order for a state to be intentional, it is enough that it is 'directed upon' something (that it has aboutness, i.e., intentionality of reference)
2. The necessary and jointly sufficient conditions of aboutness are: i) the possible non-existence of the intentional object; ii) the state's aspectual shape
3. Qualitative states satisfy these conditions
4. Therefore, these states are 'directed upon' something
5. Therefore, these states are intentional.

Yet this ingenious way of arguing for intentionalism is doomed to fail. For one can well reject its premise 3): there are qualitative states that are not qualified by the necessary and jointly sufficient conditions of intentionality, hence that possess no intentionality of reference. So, their qualitative properties are matched by no intentional properties. As a result, weak intentionalism fails; since strong intentionalism entails weak intentionalism, it collapses as well. As a further consequence, (BC) has to be abandoned. Intentionality is not even the 'mark' of the mental.

12 See Tye (1995, 135). To be sure, for Tye the two overall conditions of the masochist and of the normal person phenomenally differ in the further feelings the two original states of the masochist and of the normal respectively go along with (a difference to be possibly interpreted in terms of further different content features).
13 For a similar criticism see Crane himself (2001, 85).
14 For the sense of this aside see the following footnote.
15 Aspectual shape can also be described as a feature that directly affects the intentional object of a state: an intentional object of a state may present itself as the aspect of another entity, so that a relevant recognition occurs when one discovers that two different intentional objects present themselves as different aspects of a further entity. This way of describing aspectual shape traces back to Meinong ([1916]1972). As to the present requirement, Tye (1995, 133-4) stresses that reports involving allegedly merely qualitative states generate intensional contexts. Yet, as Crane (1995, 32-6), (2001, 11) rightly underlines, the linguistic phenomenon of intensionality is at most a symptom of the mental phenomenon of aspectuality.
16 See Searle (1992, 84). See also his (1983, 1-2).

In this respect, consider moods first. For Crane, a state of depression, a prototypical case of mood, is 'directed upon' the whole world as its intentional object.[17] Now, given the above argument, in order for a state of depression to be about something, it must be i) possibly about an object that does not exist and ii) such that that very object is given in a certain way. Yet it is unclear how one can feel oneself depressed towards a non-existent world and how depression can have an aspectual shape, that is, how the world can be given in one's depression in a way that may well make its bearer fail to recognize that it is the same object differently given in another intentional state.[18]

Crane's rejoinder to this problem is that moods are complex mental states, so that first, they have to be reduced to simpler qualitative states that, second, can be shown to be intentional states.[19] Yet consider pains, or any other intero or proprioceptive sensation for that matter. Crane acknowledges that pains are simple mental qualitative states. For him, moreover, their being pains can be traced back to the fact that they are 'directed upon' bodily parts. More precisely, such a 'directionality' makes pains objectual intentional states insofar as not only they may be 'directed upon' objects – bodily parts – that do not exist but also they possess aspectual shape. On the one hand, the 'phantom limb'- case shows that there are cases in which the intentional object of the sensation does not exist: in feeling pain in such a case, one indeed feels a bodily part that does not exist. On the other hand, it may well occur that a bodily part, say a leg, is presented *in a certain way* in a pain, yet it is not *so* presented when one is aware of that part in other sense modalities (e.g. in outer perception).[20]

Once again, on behalf of Crane a more limited argument can be reconstructed as follows:

1. In order for a state to be intentional, it is enough that it is 'directed upon' something (that it has aboutness, i.e., intentionality of reference)
2. The necessary and jointly sufficient conditions of aboutness are: i) the possible non-existence of the intentional object; ii) the state's aspectual shape

3'. Proprioceptive sensations are characterized by both the possible non-existence of their intentional object and the sensation's aspectual shape

4'. Therefore, a proprioceptive sensation is 'directed upon' an object – which is a certain part of one's body, the part one feels in one's sensation

5'. Therefore, these sensations are intentional.

Once again, in the above argument the third premise, i.e. 3', is the most important one. For it allows Crane to reject other possible objectualist accounts of the intentionality of proprioceptive sensations, such as the idea that a sensation has a *sui generis* intentional object, for example a pain is 'directed upon' a pain-object.[21] Appealing to sensation-objects looks very much like a 'Brentanian' immanentist account according to which a proprioceptive sensation indeed is a merely objectual intentional state yet its intentional object is something that merely 'in-exists' in the state, i.e., it is an immanent entity that depends for its existence on the very existence of the state that is 'directed upon' it. Yet definitely, an immanent object does not allow the state allegedly 'directed upon' it to have the two features that qualify intentionality of reference. First of all, there are no non-existent immanent intentional objects: immanent objects always exist, though as we have just seen in a dependent form. Moreover, immanent

17 "In depression, the world seems to the subject to be a pointless, colourless place: nothing seems worth doing. The change involved in coming out of a depression is partly a change in the subject's apprehension of the world (1998, 242). This idea is also shared by Lycan (2001, 28). Yet Lycan adds that depression has a *propositional* intentional content. Since as I said I think that a propositionalist intentionalist account is independently problematic, I leave Lycan's proposal aside.

18 To be sure, this problem may be circumvented if by "the whole world" one does not mean an entire universe but just a very significant part of it, such as our Earth. (I owe this suggestion to Uriah Kriegel.) Yet this would implausibly mean that if one travelled across the universe her depression would change its object or even more radically, if as Crane believes the intentional object of a state individuates it – See (2001, 82-3), it would become a different state.

19 See Crane (2009).

20 See Crane (2001, 79-81).

21 To be sure, Crane limits himself to saying that pain-objects are "obscure entities" (2001, 81).

objects do not allow the states allegedly 'directed upon' them to have an aspectual shape. For there is no chance that the immanent object a certain state is 'directed upon' and the immanent object another state is direction upon are nothing but the very same entity to be recognized as given in different ways. Now, 3' seems to be well supported. For the 'phantom limb'- case and the case in which one and the same entity is given in different ways in a pain and in another sensation respectively seem precisely to show that proprioceptive sensations possess the properties featuring reference intentionality, i.e., the possible non-existence of the intentional object of an intentional state and the aspectual shape of the state. However, it can be shown that premise 3' of the above limited argument fails as well. Pains (or any other intero or proprioceptive sensation for that matter) are no objectual intentional states. For appearances notwithstanding, they do not possess the above features that admittedly qualify intentionality of reference.

Let me begin with whether pains are qualified by the possible non-existence of the intentional object. Granted, we localize pains. We immediately ascribe to our pains a location, typically in a part of our body; quite unreflectively, we say that we feel a pain in our head, or in our leg. Yet such a practice does not *per se* provide a justification to the idea that pains are 'directed upon' bodily portions that might even not exist, as Crane holds. What the 'phantom limb'- case merely shows is that the location we ascribe to our pains is merely apparent: for a pain to be ascribed a certain location is just to merely take it as being located in a certain part of the body, where such an ascription may well be false.[22] Clearly this is how things stand is in the 'phantom limb'- case, in which one locates a pain in a limb that does not exist. Yet there are other situations of the same kind that do not involve non-existent bodily parts, as when one locates an itch where one's skin is not irritated.[23]

So, we have at our disposal an alternative description of the phenomenon in question, pain localization, that does not support the idea that pain is an intentional state 'directed upon' a certain bodily part. To be sure, Crane considers this suggestion yet just in order to discard it immediately: to localize a pain is something more, he says, than to associate the sensation a belief (possibly false) in such a location.[24] Yet *pace* Crane, to speak of an apparent location of a pain is not to associate the sensation a belief (possibly false) in such a location. Rather, it simply amounts to taking the sensation's possession of that property as illusory, as in optical illusions. For example, when I see the oar in water as crooked I do not believe that the oar is crooked – I know that this is not the case – yet I am forced to so see it.

An anti-intentionalist might even stop here. For she may appeal to the fact that, as we saw before, it is rather unintuitive to treat a proprioceptive sensation as an intentional state, as much as it was to analogously treat a mood: while we commonsensically think that states such as beliefs and outer perceptions have intentional objects, we have no intuition that not only moods but also intero or proprioceptive sensations have such objects, so that we incredulously stare at proposals that go along this direction. So, even if up to now the two stories concerning pains, the intentionalist and the anti-intentionalist, are on a par, given the pretheoretical intuitions, the burden of the proof is on the intentionalist to show that she is right.

Yet there is more than that in favor of the anti-intentionalist story. Pains may be taken as located somewhere even in absence of any physical entity whatsoever, whether existent or not, corresponding to that location. As Wittgenstein originally said, it is not only conceivable, but also both metaphysically and nomologically possible, that one feels her pain not in her body, but in some other's body: for

22 If one likes, one may put things in the following terms: we truly ascribe our pains an *appearance property*, the property of *seeming to be located at t in a certain bodily part*. As Wittgenstein (1975, §61) originally suggested, such an appearance property may contribute to the individuation of the sensation in question, along with other features – e.g. intensity. For similar considerations, See Peacocke (2008, 11-2). By later focusing on the case of migrant sensations, we will soon see why the temporal specification in such an appearance property is important.

23 Possibly, this is the case as far as all pains are concerned, for if they have a genuine location, this is situated in our brain. Yet I cannot here deal with this point, which involves a materialist conception of pains (or of intero or proprioceptive sensations for that matter).

24 See Crane (2001, 79-80).

instance, I may feel a pain in your teeth, or so one would say.[25] Yet Wittgenstein's example may be radicalized: one may feel a pain not only in someone else's body, but also in some merely physical object – say, the armchair out there[26] – or even in no physical object, but merely in the surrounding air, where no object at all is located nor it is erroneously said to be located (as in the 'phantom limb'- case). In such a case, one would be prompted to say that one feels a pain in the air out there. (If one likes, one may tell a plausible story as to how such a case is nomologically, hence metaphysically, possible. As different laser rays fuse themselves in a certain location in the surrounding air, that location becomes the source from which a single laser ray is shoot against me. As such a ray directly hits my brain, my sensation-underlying neurons fire. Yet since the ray's source is out there in the surrounding air, I am forced to say that I feel pain in that piece of air.) Yet there would be no object, not even a non-existent one, that pain would be 'directed upon'. So, pains are not even possibly 'directed upon' objects that do not exist.

On behalf of Crane, one might reply to this putative counterexample by changing the kind of intentional object a pain is 'directed upon': rather than a bodily part, one may say that a pain is about the space region typically occupied by one such part. Accordingly, one may say that the pain in question is 'directed upon' a portion of space –the portion out there – which is simply occupied by no physical entity. Yet this reply has even more implausible consequences. Often, when we feel a certain pain, we move around in the surrounding space. Yet if the objects of our pains were space regions we would be oddly forced to say that a pain changes its object as soon as its bearer moves around. Moreover, if we individuate pains also by means of their intentional object, as Crane is inclined to say,[27] we would be even forced to say that our pains become different mental states as we move around.

Let me now pass to consider whether pains have aspectual shape. As I said before on behalf of Crane's proposal, ascribing aspectual shape to pains is *prima facie* plausible. For pains seem to mobilize discoveries of the same kind as those that are mobilized in the prototypical cases in which we discover that it is one and the same object that is given twice in two different intentional states respectively. In this respect, it seems that we can truly say things like "Aha! What I see is the leg that I feel" in the very same vein as when we truly say "the evening star is the morning star".

Yet a moment's reflection shows that the above analogy is nothing more than an analogy. Informative identities in which one discovers that an object given in a certain way – say, the evening star – is nothing but another object given in another way – say, the morning star – are atemporal, or better *longlasting*. When one discovers that the evening star is the morning star, one discovers a fact that pre-existed to the discovery for it generated along with Venus' own generation and will last at least as much as Venus exists. Yet whatever one discovers when one discovers that what one feels is e.g. what one sees, one discovers something temporal, or better *ephemeral*, something that obtains at the time of the discovery but it may well cease to obtain after it.

This is clearly shown by the fact that pain can *migrate*, in the sense that we can well ascribe different locations to one and the same pain in different times. Migrant pains indeed show that the informative identities one may allegedly discover involving pains and bodily parts are at most *temporalized* identities: for example, one may discover that what one feels is *at t* the left big toe (that one then sees), but is *at t'* the left index finger (that one then sees). Yet such temporalized identities ground no alleged aspectual character of the sensations involved, for such a character would rather require a *non-temporalized* identity of the "the evening star is the morning star"- type.

One may see the situation at stake more deeply if one reflects on the fact that, as I said before, pain localization is nothing more than an ascription of location. For one may then clearly see that speaking of temporalized identities is just a rough way of talking of what's really going on. Insofar as they are

25 See Wittgenstein (1975, §63).
26 The example is suggested (but not endorsed) by Wittgenstein in his reflecting on muscular sensations as the basis for one's will to act (See 1961, 87-8). Rabdomants sometimes say that they feel something at the tip of their sticks.
27 See fn. 18.

migrant, pains are ascribed different locations in different times. Such locations are described in terms of bodily parts, but they should be better described in terms of the space regions that such bodily parts occupy (in case such parts exist). So what it is really going on in the situation at stake is that *now* (a certain bit of time) one (says that one) feels a certain pain in *this place*, which is the place that (say) one's left big toe occupies, and *now* (*another* bit of time) one (says that one) feels that very pain in *this other place*, which is the place that (say) one's left index finger occupies.[28] Granted, *these* latter identities – this place is the place that one's left big toe occupies, this other place is the place that one's left index finger occupies – are non-temporalized identities of the "the evening star is the morning star" – kind. Yet clearly enough, such identities ground no alleged aspectual character of the sensation.

To be sure, Crane may appeal to his conviction that the intentional object of a sensation individuates it in order to say that what one feels at *t*, namely one's big left toe, is a certain *sensation*, while what one feels at *t'*, namely one's left index finger, is another *sensation*, insofar as they are individuated by different *intentionalia* – one's big left toe and one's left finger. To be sure, one would then have genuinely non-temporalized identities at one's disposal – what one feels at *t* is the big left toe (one then sees), what one feels at *t'* is the left index finger (one then sees) – that would enable one to account for the sensations' aspectuality.

Yet this move would amount to denying the datum of migrant sensations, which states that what one feels at *t* and what one feels at *t'* are one and the same sensation. Such a denial would rather be *ad hoc*, since Crane would not deny diachronical identity to a pain when its alleged object remains the same in different times (Crane would surely admit that e.g. my headache at *t* is the same as my headache at *t'* insofar as they are allegedly 'directed upon' the same part of my brain.)

At this point, a defender of Crane's version of intentionalism might be tempted by the following amendment of Crane's own position. Instead of holding that the intentional object of a pain (or more generally of a proprioceptive sensation) is a portion of a physical body (*Körper*), Crane might say that such an object is rather a portion of a *lived* body (*Leib*), the lived target of one's sensations postulated by Husserl (1989 [1913]).

To be sure, there are reasons to defend the idea that, *pace* Gallagher and Zahavi,[29] a lived body is not epistemologically, but rather ontologically different from a physical body: that is, a lived and a physical body are not two ways for identifying one and the same entity, but are genuinely different entities (of a different kind, a physical and a phenomenological one). For the two entities may well be different, insofar as they differ in their extension. As the 'phantom limb'- case (as well as our previous hypothetical cases) shows, a lived body may be broader than a physical body (the limb in such a case is *my* limb, although my physical body has no such limb). The opposite, i.e., that a lived body is narrower than a physical body, is also true, insofar as there are parts of one's physical body that display no sensibility (e.g. the veins of one's physical body are not *one's* veins, for one feels nothing in them).[30]

Moreover, there are independent reasons as to why one may commit to lived bodies. Consider the following argument that Crane borrows from Block and appears to be invalid:

(i) The pain is in my hand
(ii) My hand is in my trousers
(iii)Hence, the pain is in my trousers.[31]

As Crane says, the argument may be regarded as invalid for it suffers from a fallacy of equivocation. Yet instead of locating the fallacy, as Crane explicitly does, in a different meaning the preposition "in"

28 In the 'phantom limb'- case, since the limb in question does not exist, it occupies no space region. As a result, an identity of the kind "this place (where one locates one's sensation) is the place that one's limb occupies" would be false.
29 See Gallagher, Zahavi (2008, 136).
30 In the same vein, Wittgenstein once said (1975, §64) that it is unconceivable that we feel pains at the tip of our (physical) nails or at our (physical) hairs.
31 See Crane (2001, 81).

has in the two premises – according to him, in i) "in" means intentional individuation (the state of pain is individuated by its putative object, i.e., the hand in question), while in ii) "in" has it ordinary locative meaning[32] – one might say that the description "my hand" is ambiguous in the two premises, by denoting a part of one's lived body in (i) and a part of one's physical body in (ii).
To be sure, the above reason is not so cogent. If one accepts that pain localization may well amount to a false ascription, the argument may be valid and yet unsound, for simply its premise i) may well be false. As a result, one may well not be committed to lived bodies. Be that as it may, armed with lived bodies a follower of Crane may reject the counterexamples I have previously provided to the idea that pains have intentionality. First, the example of a pain localized in the surrounding air does not show that pain has no intentional object at all, but it rather shows that it has as such an object *my* air, as a part of my lived body – as I noted above, in such a case the relevant subject would indeed say that such a pain is in the air out there pretty much as one ordinarily says that a pain is in the hand. Second, the case of migrant pains would simply show that one's pain changes its object, it is first about *my* left big toe and then about *my* left index finger, inasmuch as at *t* I feel it in the left big toe while at *t'* I feel it in the left index finger. Yet in a Cranian perspective this amendment fares no better. Let me even put aside the problematic fact that, since Crane believes in the idea that the intentional object of a sensation individuates it, in the amendment he would still be forced to deny the datum of migrant sensations. For what we would have at our disposal would be a *certain* sensation at *t* (individuated by *my* left big toe) and *another* sensation at t' (individuated by *my* left index finger). For the amendment entails the even more problematic fact for him that, if (a portion of) the lived body is the intentional object of a pain, then such an object is again a Brentanian immanent object, an object that depends on its existence on the existence of a living subject. *My* body is different from *your* body insofar as the former depends on *me* for its existence, while the latter depends on *you* for its existence. Yet as we have seen before Crane himself maintains that ascribing to a state a Brentanian immanent object does not happily account for the fact that such a state has intentionality of reference, understood in terms of the afore-mentioned essential features of being possibly about something that does not exist and having an aspectual shape. For there cannot be a non-existent part of a lived body, my lived body as well as its parts simply "in-exist", i.e., they exist in a dependent way (on myself, as we have just seen). To put in the most extreme terms, even a brain in a vat has an existent lived body, so to say In this perspective, therefore, all *intentionalia* of sensation exist, insofar as they "in-exist". It is then not the case that *my* phantom limb does not exist, for it exists, as well as all the parts of my lived body. Nor states about portions of a lived body can have aspectual shape. For in order for the object of a pain to be recognized as being the same object given in different ways in different sensations respectively, that object must be a physical object (as Crane had in mind when saying that identities of the kind "what I feel is the leg I see" display one such recognition – the leg in question is one's physical, not one's lived, leg).
If all this is the case, then weak intentionalism fails. For the above remarks show that the fact that a state of pain (or any other proprioceptive sensation) has qualitative features cannot be matched by its having an objectual intentional content, hence by its having intentional properties. A fortiori, also strong intentionalism fails. As a further result, intentionality is not the mark of the mental, not even in the (BC) sense, for any such state is merely qualitative.

If intentionality is not the mark of the mental, not even in the (BC) sense, then whatever affects intentionality does not *eo ipso* affect mentality. For instance, suppose it turned out that the naturalization program regarding intentionality failed, so that intentionality is a non-natural property.[33] Yet if it is not the case that all mental states are intentional, then if intentionality is not natural this does not mean that mental states are non-natural entities, or at least that all mental states are such.

32 See Crane (2001, 82-3).
33 As I personally believe (See e.g. my Voltolini 2002).

4. An Alternative Mark of the Mental

Yet such a predicament seems to have a bad consequence. As Crane again has pointed out, if there were non-intentional qualitative states, for something to be a mental state would merely be an empty disjunctive characterization: mental states would merely be either intentional states or qualitative states. *Being mental* would therefore be something not very informative indeed.[34]

Yet to say that intentionality is not the mark of the mental, not even in the (BC) sense, does not mean that there are no other candidates that may successfully play this role. In the phenomenological tradition, Husserl (1970 [1900]) suggested that *being conscious*, rather than being intentional, is that mark: something is mental (if) and only if it is conscious, in the sense that it is *experienced*, at least nomologically possibly (as Searle would put it)[35]: an idea that nowadays some people also defend.[36] Probably Crane himself would look with favor at such an idea.[37] He indeed believes that *being mental* amounts to *presenting itself* to a subject, even though he further articulates such a belief (erroneously to my mind) in intentionalist terms, i.e., as if presentedness were for a state to be perspectival, to have aspectuality.[38] Yet such an idea may be meant as the claim that any mental state has a phenomenal character, either sensuous or non-sensuous (depending on whether the state is a qualitative or an intentional state). Something Crane himself positively endorses.[39] One may immediately reply that if this move obviously covers all qualitative states – phenomenal awareness affects all of them – it does not cover *all* intentional states. According to this move, dispositional inner states having intentionality insofar as they can't be accessed; they are merely informational states. But perhaps this is a price worth paying. We are indeed ready to consider sub-personal intentional states, states that cannot in principle be experienced, as merely informational states.[40] Consider for instance a non-conscious state of vision, such as the one an eminegligent subject or another subject whose brain has been injured may entertain. Although the reactions of such a subject may prove that she entertains such a state for it gives her some information about the world, insofar as she has no awareness of it this state may well be regarded as non-mental. In this respect, note that Crane himself holds that there is a difference between dispositional states and occurrent intentional states: insofar as only the latter are experienced, a dispositional belief and an occurrent thought are entities of a different kind.[41] Now, this difference is well accounted for if one precisely holds that unlike occurrent thoughts, dispositional states of belief are not mental states, but merely informational states. For although they provide some information about the world, they are not experienced, nor can they.

To be sure, since also these informational states are relevant in order to account for the behavior of the subject entertaining them, we need another category linking together such states and mental states *qua* experienced states. It may even be the case that, if it turned out that *being experienced* makes no functional difference as regards both mental states and corresponding underlying informational states – e.g. it turned out that both conscious and inconscious vision prompt in their similarly stimulated subjects the same kind of behavior, as some experiments seem to show –[42] then *being mental* is an epiphenomenal feature of the state that possesses it. Yet this a story for another work.[43]

34 See Crane (1998, 250).
35 See Searle (1992, 159-62).
36 See e.g. Strawson (1994, 2004).
37 As Brentano himself originally did, by substantially accepting that all mental states are conscious (in his terms, are objects of inner perception). See (1874, 91).
38 See Crane (2001, 4-6,31).
39 See Crane (2001, 75-6). The terminological distinction between sensuous and non-sensous phenomenal character comes from Maund (2003, 37). Yet the point is well-established in the literature: See also Strawson (1994:6-7), McCulloch (2003:10).
40 As Strawson (2004) would well be disposed to do.
41 See Crane (2001, 107-8).
42 See e.g. Marshall, J.C., Halligan, P.W. (1988).
43 Previous versions of this work have been presented in several seminars and workshops: *The Intentionality of Phenomenology and the Phenomenology of Intentionality*, Department of Social, Cognitive and Quantitative Sciences, University of Modena and Reggio Emilia, April 28-29 2008, Reggio Emilia; *Workshop su Intenzionalità e coscienza*, Facoltà di Lettere e Filosofia, Università di Milano, 29-30.5.2008, Milano; *Autocoscienza e linguaggio. Filosofia e scienze cognitive*, Facoltà di Lettere e Filosofia, Università di Siena, 8-9.9.2011, Siena; *Sense and Sensibility*, University Vita-Salute S. Raffaele, January 17-18 2013, Milano; *Consciousness and Intentionality*, University of Salzburg, February 7-9 2013, Salzburg. I thank all the participants to these events for their important remarks. I particularly thank Elisabetta Sacchi who has painstakingly commented a previous draft of the paper.

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THE CONTENT AND PHENOMENOLOGY OF PERCEPTUAL EXPERIENCE

abstract

The paper's main target is strong and reductive "representationalism". What we claim is that even though this position looks very appealing in so far as it does not postulate intrinsic and irreducible experiential properties, the attempt it pursues of accounting for the phenomenology of experience in terms of representational content runs the risk of providing either an inadequate phenomenological account or an inadequate account of the content of the experience.

keywords

Representationalism, particularity, phenomenological indistinguishability, phenomenal character

1. Introduction

Perceptual states exhibit a double nature, both representational and qualitative: they represent the world as being a certain way and they also make a peculiar qualitative effect on the experiencing subject. If their representational nature has to do with what is presented to the subject in a given sensory modality, their qualitative nature has to do with "what it is like" for the subject to undergo the peculiar perceptual experience she is undergoing. The standard way in which this point is expressed is in terms of properties. To say that perceptual states have a representational nature amounts to saying that they have *representational properties*, whereas to say that perceptual states have a qualitative nature amounts to saying that they have *phenomenal properties*. The co-presence of these two kinds of properties raises the philosophical question of their relation. Within the philosophical debate on the topic, one can distinguish three main stances which differ as regards the position they take towards the issues of dependence/independence, reducibility/non-reducibility of one kind of property to the other. According to one position, phenomenal properties are independent (both for their existence and for their nature) of representational properties and irreducible (both explanatorily and ontologically) to them. This position, which has come to be known as the "two-realms conception", conceives of the mind as a non unitary domain constituted by two non overlapping kinds of phenomena: on the one side the purely representational ones (typically: propositional attitudes such as beliefs and desires) and on the other side the purely qualitative ones (*qualia*) such as proprioceptive states, moods, tickles, itches and the likes. According to a second position, phenomenal properties depend on (or at least co-vary with) representational properties, but are not reducible to them. The third position adds a reducibility claim and maintains that phenomenal properties are not only dependent on (or co-variant with) representational properties, but also reducible to them. The last two positions are varieties of what is called "representationalism" in the recent philosophical debate on consciousness. As the label suggests, representationalism gives to the notion of (mental) representation the highest place of honor in the account of the mind: the mind is conceived as a unitary field of homogeneous phenomena and what accounts for this homogeneity is precisely the representational nature of all mental items.

Representationalism comes in many different varieties. An important distinction is that between strong and weak versions of the doctrine: whereas strong representationalism defends an equivalence/identity claim according to which phenomenal properties are but a kind of intentional properties (typicallyrepresentational ones),[1] weak representationalism restricts itself to defending a mere

1 Supporters of strong representationalism are for example Dretske (1995); Lycan (1996) and Tye (1995).

supervenience claim according to which two mental states cannot differ in their phenomenal properties unless they also differ in their representational properties.[2] Other distinctions which are drawn are: pure/impure; narrow/wide; reductive/non reductive. *Pure* representationalism claims that phenomenal properties are identical to "pure representational properties" (properties of representing a certain intentional content), whereas impure representationalism claims that phenomenal properties are identical to "impure representational properties" (properties of representing a certain intentional content in a certain manner of representation such as in a visual perceptual way, in an auditory perceptual way and so on). Narrow/wide has to do with whether the relevant representational properties are taken as internal or external (where a property is internal/external if it supervenes/does not supervene on the intrinsic, non relational properties of an entity). The last dichotomy has to do with whether the representational properties to which the phenomenal properties are claimed to be identical can be understood and explained without appeal to phenomenal notions: reductive representationalism answers in the positive, whereas the non reductive variety of the doctrine answers in the negative.[3]
Here we shall confine our attention to strong and reductive representationalism which, according to may people, constitutes the most appealing version of the doctrine in so far as it avoids any kind of commitment towards intrinsic, irreducible properties of the experience. The main question we shall address is whether strong, reductive representationalism provides a satisfactory account of perceptual experience.[4] The critical point we shall raise against this position is that even though it looks extremely attractive, in so far as it avoids any kind of commitment towards intrinsic, irreducible, qualitative properties of experience (*qualia)*, nonetheless the attempt it pursues of accounting for the qualitative/ phenomenological dimension of perceptual states only in terms of representational properties ends up, in our view, to promote either an inadequate phenomenological account or an inadequate account of content. We shall structure our criticism in the following way: (§1) we shall start by presenting a test of explanatory adequacy which amounts to a number of requirements which, along with other people in the debate, we take to be minimal, non negotiable *desiderata* for any theory of perceptual experience. The ultimate upshot of our criticism to representationalism is that this position should be revised, if not utterly rejected, in so far as it doesn't pass the adequacy test. This conclusion will be reached in two steps in which we will respectively confront with one of two possible varieties of representationalism which differ as regards the issue as to whether a perceptual state has only one content (§2) or rather a multiplicity of contents or layers of them (§3). What we shall claim is that even though the second variety (multiple content representationalism) looks better than the other (unitary content representationalism), it also fails in so far as it proves unable to satisfy all the requirements stated. This negative part will be followed by a positive one in which we shall provide a sketch of our suggested proposal. In this part (§4) we shall revive a distinction (namely: that between representational and presentational properties), which, while being generally acknowledged and actually widely present within the phenomenological tradition, has mostly been ignored within the debate on consciousness in the more or less recent analytic tradition.[5] With this distinction in place, we shall show how one could meet the explanatory adequacy test.

2. The Explanatory Adequacy Test

A good way to critically assess a theoretical position (here: strong, reductive representationalism) aiming at providing a given explanation (here: the nature of visual perceptual experience) is to lay out a set of requirements which can reasonably be taken as minimal,[6] non negotiable conditions of

2 For this position see e.g. Block (1996) and Chalmers (1996).
3 For more on these distinctions see Chalmers 2004.
4 It is worth stressing from the very beginning that our considerations are primarily meant to apply to perceptual experiences in the visual modality. So, from now on, when we talk of perceptual experience we will always mean visual perceptual experience. Even though we think that most of our remarks can be generalized to other modalities, in the context of this work we prefer to remain neutral on the more general issue.
5 But see Chalmers (2004).
6 We use the qualification 'minimal' in order not to rule out the possibility that other requirements are actually needed for assessing the adequacy issue.

adequacy for any such account. This is what we shall do in this section where we shall formulate what we call the "explanatory adequacy thesis" (EAT) for any account of perceptual experience. According to this thesis, any adequate theory of perceptual experience should satisfy (at least) two requirements which we shall label the "particularity requirement" (PR) and the "phenomenal indistinguishability requirement" (PIR). In this paper we shall assume the validity of (EAT) without providing any argument in its support.[7]
Let us clarify the two requirements starting from the second one. Phenomenal indistinguishability amounts to the idea that a subject could undergo different experiences in different times/places and, despite these differences, be utterly unable to tell one experience from the other in so far as the way in which things appear to her on those distinct occasions is, from her perspective, the same. An example will clarify the point: let our subject S be confronted in two situations with two numerically different, but qualitatively indistinguishable apples (apple1 and apple2). Even though the two apples are numerically different, they appear to S to be identical in so far as they have the same look (the same "appearance properties" as someone would say)[8]: they both present the same shade of red, the very same shape, they are of the very same size and so on.[9] To put this point in more formal terms let us say that two experiences *e1* and *e2* are phenomenally indistinguishable for a subject S if and only if S is not able to tell *e1* from *e2*, that is if and only if she cannot know, by introspection alone, that they are not the same.[10] The adverb 'phenomenally' used to qualify this kind of indistinguishability has to do with the fact that what grounds the subject's "feeling" of identity in these cases is the way in which her experiences present themselves to her. What this first requirement states is that an adequate theory of perceptual experience should not only allow for such a possibility (which, as a matter of fact, no one is willing to deny), but also provide an explanation of it.
Let us now consider the other requirement (PR). As things stand, even though a subject could be unable in a given situation to tell one of her experience (say, *e1* in which she is confronted with apple1) from another qualitatively identical one (say, *e2* in which she is confronted with apple2), nonetheless what the subject is presented with in the two cases are different particulars, namely: apple1 and apple 2 respectively. When S looks at apple1 what she is presented with is apple1 itself and nothing less than that. In other words, what she is perceptually aware of is not the fact that there is something having certain perceptual features (redness/roundness/brightness) in her immediate surroundings, nor the fact that there is at least one apple in that area exemplifying those features. Rather, she is presented (and it also seems to her to be presented) with that very thing in front of her which looks to her to be an apple. We could rephrase this point by saying that the subject's perceptual experience is always an experience *of* particulars in the world.[11] Under this respect perceptual experiences differ from propositional attitude states such as beliefs and desires. Take a desire for example. If in this case one's desire can be either particular (S desires a particular item, say: that very tulip in front of her) or general (S desires an item of a given kind, say: a tulip of a given shape and color), in the perceptual case only the first situation can arise. True enough, if one sees a particular tulip, then there is a tulip that one sees. But what one sees is always something particular (a tulip which is not this or that particular tulip is not an object one can see).

7 Actually, that an adequate account of perceptual experience should satisfy both requirements is a point which has been recently defended by many authors. This point is explicit in Schellenberg who says: "any account of perceptual experience should satisfy the following two desiderata. First, it should account for the particularity of perceptual experience, that is, it should account for the mind-independent object of an experience making a difference to individuating the experience. Second, it should explain the possibility that perceptual relations to distinct environments could yield subjectively indistinguishable experiences" (Schellenberg 2010, 19).
8 See e.g. Shoemaker (1994).
9 Another example of indistinguishability can be provided by considering a veridical perception and a hallucination. A hallucinatory experience may be, from S's lights, indistinguishable from a veridical experience of her and yet the two experiences are different in so far as only one of them is veridical or correct.
10 For this "epistemic" characterization of the notion of phenomenal indistinguishability, see Williamson (1990).
11 See Soteriou (2000, 173).

In what follows we shall distinguish two senses of particularity which will be put to use in our criticism of representationalism. We shall label them, following a current usage,[12] the relational and the phenomenological sense. The relational sense of particularity is that according to which a perceptual experience is a relational state one of whose *relata* is the experienced object itself. The object a given experience is of is what is relevant to the characterization of the state's correctness/veridicality/accurateness conditions.[13] If it visually looks to me as if there is a red apple in front of me (apple1, say), my experience turns out to be veridical/unveridical according to how things are with apple1 itself (it turns out to be veridical if apple1 is red, false otherwise), notwithstanding how things could turn out to be with any other apple no matter how similar in appearance it could be to apple1 itself. In order not to trivialize the particularity requirement in its relational sense, it is important to distinguish a weak and a strong reading of it and link the requirement with the strong one. That an experience (at least when veridical) is always of something is a point which everyone in the debate is willing to concede. A more substantial point has to do with whether the object a given experience is about plays a role in individuating the experience.[14] The particularity requirement in the strong reading of the relational sense (PRrs) is the claim that an adequate explanation of experience should account for the role which the object a given experience is of plays as regards the individuation of the experience.

Let us now move to the phenomenological sense of the particularity requirement (PRps). When one enjoys a given experience (when one sees apple1, say) one not only happens to be related to apple1; rather, one's being so related is something that figures in the very phenomenology of one's experience (one seems to be presented with *that* particular thing which looks to one to be an apple). To put it in different terms, we can say that the particularity that one's experience involves is reflected in the way in which things phenomenally look to one (to use Jackson's terms we could say that the experienced particularity is part of the "phenomenal look" of one's experience).[15]

Even though the distinction between the two senses of particularity looks plausible and also fairly clear, one could wonder why some such distinction ought to be drawn in an account of perceptual experience. In my view there are at least two reasons. A first one is that, while in general the two senses are jointly satisfied, there are cases in which only one of them is present. As for the case in which only the phenomenological sense is exemplified, one can think of hallucinations. In one such case, even though it may seem to the subject as if she is presented with a particular object (and so there is phenomenological particularity), there actually is no real object with which that experience is related (and so no relational particularity is involved). As for the specular case, one can consider a cognitive (that is, non sensory) state such a belief for example. While a *de re* belief (a belief about a given item being thus and so) may be taken to exemplify the particularity requirement in its relational sense (because what makes that belief the belief it is is its standing in an appropriate - maybe, as Burge claims,[16] contextual, non conceptual - relation with the particular item the belief is about), the phenomenological sense of the requirement does not seem to apply.[17] A second reason of why such distinction should be drawn has to do with the different epistemic status of our judgments concerning

12 Actually, of the two senses we shall distinguish, the phenomenological one has not been widely acknowledged within the philosophical literature except for a few remarkable exceptions such as: Martin (2002); Montague (2011), Schellenberg (2010).

13 In what follows we shall use these expressions interchangeably.

14 To claim that the object a given experience is of plays a role in individuating the experience is to claim that if the subject were confronted with a different, albeit qualitatively identical object, she would enjoy a different experience with different veridicality conditions.

15 See e.g. Jackson (1982). In an analogous way, Schellenberg presents the distinction between the two senses of particularity in the following way: "a mental state instantiates *relational particularity* if and only if the experiencing subject is perceptually related to the particular object perceived. A mental state instantiates *phenomenological particularity* [...] if and only if the particularity is in the scope of how things seem to the subject, such that it seems to the subject that there is a particular object or a particular instance of a property present" (Schellenberg 2010, 22-23).

16 See, e.g. Burge (1977).

17 Or, at least, not in the same sense in which it applies to sensory states. A distinction which could be put to use in this regard is that between sensuous phenomenology and cognitive phenomenology. For a defense of the idea that phenomenology extends far beyond the purely sensory level see e.g. Bayne & Montague (2011).

the instantiation of particularity. As far as phenomenal particularity is concerned, we cannot be wrong in ascribing it to a given mental state we are enjoying: if it seems to one to be presented with a "this-such", then it is true that one is so presented. By contrast, as to the other sense of particularity, there is always the possibility of getting wrong in one's judgment about one's being related to a particular item; in this case we do not have any "privileged authority" towards judgments whose truth and falsity depend not on how things appear to us, but rather on how they actually are.

Someone could concede that I am right in distinguishing among two different senses of particularity and in claiming that there are cases (like hallucinations for example) in which only one of them is present and yet object that I am wrong in claiming that there is something phenomenological going on in those cases. Couldn't it be that what is there at stake is just a belief (a cognitive non sensuous state)? As a matter of fact, the objector could claim, an analogue distinction applies outside the experiential domain. As regards thoughts, for example, there can be cases in which a subject *aims at* a particular object, but given that there actually is no real object, one has only an impression of particularity. In such cases, the impression in question can be accounted for in purely cognitive non-experiential terms ("your thought purports to refer to something" or "you, the thinker, are aiming your thought towards something");[18] that is one has a belief (as to there being an object one is thinking about) and this belief turns out to be false. My reply to this possible objection against the phenomenal nature of the sense of particularity involved is the following: if the impression of particularity in the hallucinatory case were something belief-like (as the objector is claiming), then that impression would fade out as soon as one were told that there is no object one is experientially confronted with, for this is precisely what happens with cognitive illusions (they are so to say cognitively penetrable). And yet this does not happen in the hallucinatory case. A subject suffering from a hallucination as to there being a flying horse floating in the air around her may well believe, by being told about, that there actually is no flying horse, but still go on having the impression (a strong phenomenological feeling) of there being one.[19]

Having introduced the requirements of explanatory adequacy we can now rephrase our initial question in the following way. Can strong, reductive representationalism provide an adequate account of experience and therefore, according to (EAT), satisfy both (PR), in its double sense, and (PIR)? In addressing this critical issue we shall take into account two varieties of representationalism whose main difference has to do with whether perceptual experience has only one kind or layer of content (unitary content representationalism) or rather a multiplicity of them (multiple content representationalism). What we shall claim is that if representationalism adopts the unitary content thesis (the thesis according to which any experience has at most one content), then if it accounts for (PIR) it cannot account for (PR), neither in the relational, nor in the phenomenological sense. By contrast, if representationalism adopts the multiple content thesis (the thesis according to which the experience has at least two kinds or layers of content), then it can account for both (PIR) and (PRrs), but it does not succeed in accounting for (PRps). We shall deal with these two varieties of representationalism in the next two sections.

3. Unitary Content Representationalism

According to this position, perceptual experiences have only one kind of content and this content is general (i.e. a kind of content which can be specified by using only general terms, that is terms that refer to general features which several different individuals can exemplify). Let us confine our attention to this claim - which is labeled the "generality claim" (GC) - and try to articulate the train of thought which motivates its adoption. There are at least two orders of considerations normally adduced to ground

18 For a development of this distinction between thoughts that refer to objects and thoughts that merely purport to refer to objects, see Crane (2011).

19 Actually one could claim that what accounts for this sense of particularity is something cognitive (something thought-like) and yet maintain that this does not prevent it from being fully phenomenological in so far as one gives room to the idea that besides "sensuous" phenomenology there is also "cognitive" phenomenology. The idea that not only there is such a thing as cognitive phenomenology, but that it also compenetrates the qualitative phenomenology of perceptual experience has been recently defended by Montague (2011).

(GC): one has to do with phenomenology (and in particular with the fact that it is possible for different experiences to look indistinguishable to a given subject in so far as she is qualitatively appeared to in the same way on both occasions), another one with semantics (and in particular with the fact that experiences are assessable for correctness on the ground of their having a content). That the content of perceptual experiences is general is the claim the representationalist makes in the attempt to comply with both kinds of considerations. We can reconstruct the train of thought motivating (GC) in the following way: (a) two experiences, *e1* and *e2*, which are phenomenally indistinguishable (ex: the visual experiences of two numerically different, but qualitatively indistinguishable apples, apple1 and apple2), must have the same content; (b) *e1* and *e2*, can have the same content only if the content in question is not object-involving (that is: only if the object the experience is about, apple1 and apple2 respectively, is not a constituent of the content of the experience); (c) the only non object-involving content which is suited to fix the correctness conditions of the experience is a general content (an existentially quantified content of the form "There is an x such that x is an apple and x is red"); (d) therefore the content of the experience must be general. Steps (a) and (b) are explicit in the following passage from McGinn «...the content of experience is not to be specified by using any term that refer to the object of experience, on pain of denying that distinct objects can seem precisely the same [...] we are not to say, when giving the content of the experience, *which* book it is that is seen» (McGinn 1982, 39). Here McGinn commits himself to the claim that if two objects can seem the same, then the content of the respective experiences cannot be object-involving and must therefore be general. What grounds this claim is the idea that the perceptual content of an experience has to be a "phenomenal notion" - that is something which accounts for how the world seems to the experiencing subject. This point is explicit in this passage from Davies:

> If perceptual content is, in this sense, "phenomenological content"[...] then, where there is no phenomenological difference for the subject, there is no difference in perceptual content. If perceptual content is phenomenological content then, it seems, it is not object-involving. But from this it does not follow that perceptual content is not truth-conditional – not fully representational; for we can take perceptual content to be existentially quantified content (Davies 1992, 25-6).

The two main assumptions behind unitary content representationalism are therefore the following:

> (A1) If two experiences are phenomenally the same, their content must be the same;
> (A2) If the content of two different experiences is the same, then their content must be general in form.

Let us now consider whether this kind of representationalism is able to pass (EAT). As far as (PIR) is concerned it seems that this position has the resources to account for it in so far as it conceives of content as something that can be shared among people in different environments. Of course, one could call into question the very strategy of accounting for phenomenal sameness in terms of sameness of content, by claiming that it presupposes a substantive point left utterly unexplained, namely that the "what-it-is-likeness" of qualitative states amounts to their having a content. Even though these perplexities are not in our view completely ungrounded, we will leave them aside and grant the representationalist the ability to satisfy (PIR). What we want to assess is whether he is able to account for the particularity requirement. What we shall claim is that insofar as the representationalist adopts (GC) she cannot account neither for (PRrs) nor for (PRps). The reason why in our view it does not account for the phenomenal sense of particularity is the following: even though this picture acknowledges – and how could it be otherwise - that when a subject S sees an object (apple1, say) it is apple1 that S sees and not a generic apple, nonetheless, in so far as what appears to her is specified by a general content to the effect of there being an apple of a given color, shape and size, this account does not succeed in acknowledging the fact that it is a particular item S is presented with in having her experience. As we shall say in a moment – and this point will require

a bit more sophistication – also (PRrs) is not accounted for within this picture. Of the two failures, however, the former is in our view even more severe insofar as it comes from a position which makes use of a notion of content explicitly devised to capture the phenomenology of our perceptual experience. As a matter of fact, both (PIR) and (PRps) individuate features of the overall phenomenology of our experience; these two features, while being co-present, seem to push in different directions generating a tension within the notion of phenomenal content. The way in which the (unitary content) representationalist deals with this tension is by giving priority to (PIR), modeling the notion of phenomenal content on this requirement
Let us now move to (PRrs). That in order to account for it one has to abandon (GC), is a point which has been argued for by many people. In what follows we shall stick to Soteriou's argument in its support. According to him «Those who accept an intentionalist account of experience[20] should reject this assumption [i.e. (GC)] if they want to adopt an account of experience that fits best with our ordinary concept of perception. They should reject the generality thesis, and they should instead claim that when a subject perceives the world, the subject is having an experience with a truth-evaluable content that is object-involving » (Soteriou 2000, 175). Against (GC) Soteriou puts forward a four steps argument whose structure is the following: (1) if one allows the generality claim, then one allows the possibility of veridical hallucination; (2) if one allows that veridical hallucination is possible, one also allows that veridical misperception is possible; (3) but if one allows for this possibility, one must give up an assumption which is at the core of our very notion of perception, namely: that if some part of the subject's environment is different from the way that it is represented to be, then at least one of the conditions required for the content of the representation to be correct is not satisfied. Therefore, (4) if one wants to provide an account of experience that fits with our ordinary concept of perception, the generality claim should be resisted.
Let us consider this argument. Its first step registers a claim which almost everyone is pretty willing to concede, at least since Grice's famous paper in 1961 which represents the *locus classicus* of the discussion on veridical hallucination.[21] In that paper Grice devises a thought-experiment in which a neuroscientist makes it look to a subject as if there is a clock on the shelf in front of him by stimulating the subject's visual cortex in a situation in which there actually is a clock on the shelf. In such a situation, according to Grice, even though the world fully matches the content of the subject's experience (and on this ground those who adopt (GC) would say that the hallucinatory experience is veridical) one should not say that the subject's experience is veridical for, as a matter of fact, the subject is not literally seeing the clock.[22] The crucial step in the argument is undoubtedly the second one, so let us focus on it.[23] What grounds the move from 1. (possibility of veridical hallucination) to 2. (possibility of veridical misperception)[24] is a very straightforward consideration to the effect that

> If we allow that the question of the veridicality of a subject's experience can be settled independently of the question of whether there is an object being perceived, we thereby allow that the question of

20 Where 'intentionalism' is characterized as the claim that a perceptual experience is a mental state with an intentional content that represents the world as being a certain way.
21 In that paper Grice hinges on the fact that the adoption of (GC) implies the admission of veridical hallucination in order to argue for a causal theory of perception.
22 Grice's famous consideration in support of this claim is the following: «If X's impressions were found to continue unchanged when the clock was removed or its position altered, then I think we should be inclined to say that X did not see the clock that was before his eyes» (Grice 1961, rep. 1988, 238).
23 The third step is grounded on our ordinary concept of perception and the fourth step is a consequence of 1-3.
24 In order to understand what is meant by "veridical misperception" consider the following example provided by Tye in the context of arguing against (GC) which he labels the "existential (content) thesis": «Suppose I am looking directly ahead, and without my knowledge there is a mirror in front of me placed at a 45° angle, behind which there is a yellow cube. Off to the right of the mirror and reflected in it is a cube that is white in colour. Through special lighting conditions, this cube appears yellow to me. According to the existential thesis, in these circumstances, my experience is accurate or veridical. It 'says' that there is a yellow cube located in front of me, and there is such a cube. But I do not see that cube. I see something else, something that does *not* have the properties in question. *That* cube looks to me other than it really is. My experience misrepresents its colour. So my visual experience cannot be counted as accurate *simpliciter*, as the existential thesis requires. It follows that the existential thesis should be rejected» (Tye 2009, 544).

> the veridicality of an experience can be settled independently of the question of *which* particular object is being perceived. And if we allow that the question of the veridicality of an experience can be settled independently of the question of which object is being perceived, we thereby allow for the possibility of *veridical* misperception (Soteriou 2000, 179).

The moral we can draw from these considerations is the following: unitary content representationalism, in so far as it adopts (GC), ends up providing verdicts of veridicality in cases in which such verdicts are not warranted. The reason why this is so has to do with the fact that this variety of representationalism does not account for the particularity requirement. For, what is relevant to assess an experience as veridical or unveridical is precisely how things are with the particular object one is experiencing. The conclusion of this first critical part is that if the representationalist wants to provide an account of perceptual experience which does not make violence to our ordinary notion of it (and in particular with the idea that what is relevant to assess the veridicality of an experience one is enjoying is how things are in the portion of the world that appears to one and with which one is experientially connected), then she has to account for the particularity requirement at least in its relational sense. Therefore (GC) has to be abandoned because, as we have shown, if that claim is in place, (PR) is not accounted for. But how could a representationalist make such a move while still keeping the assumption that phenomenally indistinguishable experiences must have the same content? In the next section we shall consider a possible way out that a representationalism could take.

4. Multiple Content Representationalism

It is true that experiences which are phenomenally indistinguishable must have the same content (if strong representationalism has to be true) and that in so far as the content has to be the same it cannot be object-involving (i.e. it cannot have the object the experience is about as one of its constituents). And yet from this it does not follow that experiences cannot have an object-involving content, unless one also assumes that experiences can only have one kind of content. If that assumption is resisted and the "multiple content thesis" is adopted, one can claim that two experiences which are phenomenally indistinguishable have one and the same non object-involving content (content*) and a different object-involving one. With this distinction in place it is possible to claim that what accounts for (PIR) and (PR) are two different kinds of content, respectively: content* (phenomenal content) and content *simpliciter* (truth conditional content).
Multiple (indeed dual) content representationalism can come in at least two varieties that differ as regards which representationalist assumptions they accept as regards phenomenal content (which, in this version, amounts to a part of the whole content). While the first assumption of the doctrine (which we can now rephrase as a claim concerning only phenomenal content: (A1*) if two experiences are phenomenally the same, their content* must be the same) is accepted by both – actually, this amounts to the "non negotiable claim" of representationalism) - the second one (A2*) - if the content* of two different experiences is the same, then that content must be general in form - is accepted only by one of them. So whereas those who accept (A2*) claim that content* is general (an existentially quantified content), those who reject it maintain that content* is somewhat analogous to the meaning of a demonstrative expression. In this way they can claim that this content (or level of content), while not being object-dependent or object-involving, is nonetheless object-related[25]. The claim that content* is not object-dependent or object-involving is what is needed to preserve (A1*). Given that our main aim here is to consider whether representationalism can satisfy (EAT), one of whose requirements is (PRps), we shall in the following confine our attention to that variety of dual-content representationalism which rejects (GC) both for content simpliciter and for

25 A content is object-related if it is such that a subject could not entertain it if she didn't stand with the object the mental state is about in a peculiar contextual, informational relation. A content can be object-related without being object-involving or object-dependent (that is without having the object itself as one if its constituents). The reverse does not hold, for object-involvingness (or object-dependency) implies object-relatedness.

content*, because this variety seems better fitted to account for (PR) in both senses. Regarding this variety we shall consider what can be labeled "Kaplanian representationalism" or "Kaplanianism" for short.[26] The rational for the qualification used is that this proposal amounts to a representationalist position widely inspired by Kaplan's theory of indexicals transposed, so to say, from the level of linguistic content to the level of mental content. As an indexical expression has a fixed character (which accounts for the cognitive role of the expression's type) and a content which (systematically) varies from one context of utterance to another (and which accounts for the contribution of the expression to the truth-conditions of the sentence in which it occurs), so an experience can have an invariant content, content* (which accounts for the state's qualitative/phenomenological dimension) and a different content that varies according to the contexts in which the experiential episode occurs (and which is relevant to account for the veridicality/correctness/accuracy conditions of the experience). That an experience can have both a context insensitive content* and context-sensitive veridicality/accuracy/correctness conditions is a point which has been paradigmatically defended by Burge. According to him the content of an experience includes a demonstrative element (*that*) whose referent in any given context is the object which the experience is of. What we have now to consider is whether this variant of the representationalist doctrine is able to account for (EAT). As far as (PIR) is concerned, this position seems to pass muster, at least as much as the previous variety. Also as regard (PRrs) things seem, at least at first sight, fine. Even though this last claim has been challenged, in so far as Burge's version of Kaplanianism takes content to be constituted not by the object the experience is of, but by a demonstrative element which stays fix from one context to the other and therefore, according to some people, it is not suited to properly account for (PRrs),[27] in what follows we do not want to insist on this criticism, but to show that, even granting that this position can account for (PRrs), it does not satisfy (EAT) because it does not account for (PRps). Our rational for so claiming is the following. Even though this position is able to account for the role which the object a given experience is of plays as regards the specification of the experience's truth-conditions, nonetheless, in so far as what is here taken to characterize the phenomenological domain is anything but a "purely representational mode of presentation" (as a Kaplanian character ultimately amounts to), it follows that this account, not unlike the previous one, does not exhibit the right credentials to satisfy (PRps). For, how could a Kaplanian character, which is an abstract entity with a functional nature, be able to account for a "feeling" (in this case a "feeling of particularity") given that it does not have – and cannot have if strong, reductive representationalism has to be true - any phenomenological connotation? Here strong, reductive represetationalism faces a dilemma: to avoid circularity, representational properties have to be characterized without reference to phenomenal/qualitative properties, but if no phenomenal mode of presentation is introduced, phenomenology is left unexplained.[28] How could a strong, reductive representationalist face that dilemma in order to try to account for phenomenological particularity? A manoeuvre that a representationalist could at this point perform in the attempt to meet (EAT) – whose three requirements, as we have seen, introduce a tension within the notion of content - is to introduce three different layers of content: one to account for (PIR), one to account for (PRrs) and

26 This is how Tye labels the position put forward by Burge (1991). See Tye (2009, 549-551).

27 This criticism to Burge is explicit in McDowell. According to him, in so far as Burge's position (which he labels the "two component picture of the mind") tries to account for the directedness of mental states to particular objects in terms of an internal component (the demonstrative element) - which is only a partial determinant of the state's aboutness (given that one needs context to fix it) - it is ultimately unable to account for (PRrs). To put it in his words: «Directedness towards external objects enters the picture only when we widen our field of view to take in more than the internal component. So on this conception there is no object-directed intentionality in cognitive space» (McDowell 1986, 165). That the only way to account for (PRrs) is to adopt an object-involving account of content treating the objects one perceives as components (constituents) of the content of one's perceptual experience is a point which has been emblematically defended by Soteriou (2000). The observation which is generally made in support of this idea is the following: (i) If I see an object, it must look some way to me; (ii) If an object looks some way to me, then it must be experienced as being some way; (iii) The object can be experienced as being some way only of it figures in the content of the experience; (iv) Therefore, the object must figure in the content of the experience.

28 That there cannot be reduction of the phenomenological domain without circularity is a point which has been defended for example by Crane (2003) and Chalmers (2004).

one to account for (PRps). Since both (PIR) and (PRps) have to do with the phenomenological domain, what the representationalist needs is a two-stage view of phenomenal content,[29] with one stage (phenomenal content1) accounting for the general aspects of the experience (what a given experience can share with other experiences having the same phenomenal/qualitative character) and another one (phenomenal content2) which accounts for the "feeling of particularity" that accompanies the experience. But how could phenomenal content2 be conceived in order to account for (PRps)? A possible suggestion comes from Mike Martin. In his view, phenomenal particularity cannot be accounted for unless one treats the very object one is presented with as a constituent of the state's phenomenology. According to him, the correct move to take for a representationalist who wanted to account for "phenomenal particularity" would therefore be to make phenomenology constitutively dependent (at least in part) on the particular object perceived.[30]

In my view this possible proposal,[31] no matter how "technically" adequate it could be to account for (EAT), presents a number of problems which should discourage its adoption. First of all, even though it boasts to conform to the phenomenology of our experience, in the end it does not seem at all faithful to it in so far as our experience does not present itself to us as something having the kind of stratified structure that the proposal suggests. Secondly, in so far as this position commits itself to a very radically externalist thesis according to which the very object a given experience is of is taken as an individuative feature of the state's phenomenal nature,[32] it runs the risk of promoting a very implausible picture of phenomenology. For, according to this position, two experiences which are indistinguishable could nonetheless differ at a given phenomenological level (what Martin labels "phenomenal nature", to distinguish from "phenomenal character") despite not only the fact that the subject enjoying the two experiences is utterly unable to tell one experience from the other (case of epistemic indistinguishability),[33] but also, and this is far more troublesome, despite the fact that the qualitative properties which are appealed to in the two cases are exactly the same (case of ontological indistinguishability). To accept that this could be true, is to open the door to the idea that the phenomenological domain could turn out to be different from how it presents itself to the subject's introspective access. In other words, that the distinction between appearance and reality could have an application also in the phenomenological domain. But in allowing for such a possibility, one ends up departing from our very notion of phenomenology, replacing it with a very implausible surrogate. So if the representationalist wants to provide an account of perceptual experience which does not part company from our conception of phenomenology, she should refrain from adopting Martin's position.

29 An author who has defended the idea that representationalism needs a two-stage account of phenomenal content is Chalmers (see Chalmers 2006). According to him, there are two levels of phenomenal content which he labels "Fregean" and "Edenic". While the latter is meant to mirror phenomenal character and to constitute its fundamental nature, the former merely co-varies with phenomenal character without mirroring it and without constituting its basic nature. Of the two levels it is Edenic content the one which, in his view, best reflects our first-person phenomenal perspective on the external world, whereas Fregean content reflects it only imperfectly. It is worth stressing that Chalmers' proposal is a non reductive variant of impure representationalism.

30 Martin articulates this position (which he recommends to the representationalist and which he himself adopts while not taking himself to be a representationalist, because he denies that experiences have a representational content) in terms of the distinction between two aspects of the phenomenology of an experience which he labels "phenomenal nature" and "phenomenal character". He says: «Once we reflect on the way in which an experience has a subject matter, the presentation of a particular scene, then we need a way of making room for the essentially or inherently particular aspects of this as well as the general attributes of experience. We need to contrast the unrepeatable aspect of its phenomenology, what we might call its *phenomenal nature*, with that it has in common with qualitatively the same experiential events, what we might call its phenomenal character» (Martin 2002, 193-194).

31 I qualify this position as 'possible' because, as far as I know, it hasn't been endorsed by anyone in the literature. It can be taken as originating by combining suggestions coming from Chalmers (as regards the distinction between two levels of phenomenal content) with suggestions coming from Martin (as regards how one should conceive phenomenal content – or better, one level of it - in order to account for phenomenal particularity).

32 This position is far stronger than the one defended by people such as Dretske, Tye and Lycan. For they, while adopting an externalistic individuation of the representational content, refrain from providing an object-involving characterization of it.

33 That two experiences can be indistinguishable for a given subject and yet imply different qualitative properties (and therefore be phenomenologically different) is attested by the phenomenon of "inattentional blindness" (a failure to notice stimuli present in one's field of vision when one's attention is distracted by some demanding task). For this phenomenon see Mack & Rock (1998).

Actually, the move that Martin suggests is in line with the explanatory strategy of strong, reductive representationalism in so far as it consists in accounting for phenomenological particularity in terms of a property, namely the property of *being about something* which, in turn, is explained in purely representational terms (i.e. as the property for a content of having the object the state is about as one of its constituents). The substance of my criticism against this move is that it ultimately ends up collapsing phenomenal particularity onto relational particularity, barring in this way the possibility of accounting for the fact that a hallucination, while not exhibiting relational particularity, exhibits phenomenal particularity nonetheless.[34] I think that Martin is right in claiming that one cannot account for phenomenal particularity in terms of a Kaplanian notion of character. And yet I think he is wrong in claiming that the "feeling of particularity" one enjoys in having a perceptual experience changes so long as the object changes. Actually, I think that the feeling of particularity which accompanies our visual perceptual experiences presents itself as a constant, even though not general, feature of our sensory phenomenology, something which has to do with the "presentingness" of the particulars we meet in our experience. In the last section I shall try to put forward how in my view such a feeling of "presentingness" could be accounted for. But let me conclude this critical section by considering what I take to be the last desperate move that a representationalist could make.

A manoeuvre that a representationalist could at this point perform in order to avoid any kind of commitment towards an implausible notion of phenomenology (as I claimed is the one that comes from Martin's suggestion) is to claim that that the objects which enter into "phenomenal content2" and which contribute to individuate the phenomenal character of a given experience are such that if the way in which a subject is qualitatively appeared to on different occasions in which she is experiencing different but qualitatively indistinguishable objects is the same, then the particular which figures within that layer of content is the same. Well, would this be a viable position for a representationalist to take? In my view even though this proposal, which is somewhat in the spirit of Martin's suggestion, if not in the letter of it, looks better than the previous one because it does not commit itself with an implausible notion of phenomenology, it meets several problems, the most serious of which is an awkward ontological commitment towards "sensory mind-dependent objects". Let me explain this point. If the object I am aware of in *e1* and *e2* is the same, then, obviously, that object (which is the one that figures in phenomenal content2) is neither apple1 nor apple2, but rather something which occurs in my experience whenever I happen to be related to something having the same "appearance properties" as apple1 and apple2. Well, insofar as this proposal would hardly avoid a commitment to a form of "sense-datum theory" of experience (for what else could this entity be if not a *sense-datum*?), I think that a representationalist could not accept it (at least if she wants also to be a materialist).

Let us take stock. What we have shown in the last two sections is that strong and reductive representationalism has problems in accounting for (EAT). It seems that the attempt to meet the requirements stated ends up either in an implausible account of the phenomenology of our experience, or in a problematic commitment towards *sense data*. Even though the representationalist could put forward an even more sophisticated account than the ones I have here considered,[35] I think that the problems we have raised should motivate the rejection of the proposal of trying to account for phenomenal/qualitative aspects of the experience in terms of representational properties. In the next section I shall sketch an alternative proposal to account for (EAT). According to this proposal, which I shall label "Presentationalism", whereas (PRsr) can be accounted for in purely representational terms (namely: in terms of an object-dependent notion of content, along the lines indicated by Soteriou), both (PIR) and (PRps) are accounted for in terms of a kind of properties different from and not reducible to representational properties. I shall label them "presentational properties".

34 For a more articulated criticism of Martin's account of phenomenal particularity see Montague (2011).

35 A recent attempt in that direction can be find in Schellenberg (2010) who suggests a Frege-inspired picture which attempts to keep together the virtues of representationalism and direct realism.

5. Presentational vs. Representational Properties

Presentationalism, like representationalism, is a position which aims at characterizing the nature of the phenomenological dimension (or, as people say, the "phenomenal character") of mental states, that is, that aspect of a mental state which is responsible for its "what-it-is-likeness". According to presentationalism, the phenomenal character of a mental state does not reside in the state's representational content (as representationalism claims), but rather in the way in which the content is presented to the subject; phenomenal character, according to this position, has to do not so much with what is represented, but rather with the manner in which what is represented is presented to the experiencing subject.[36] The phenomenal/qualitative properties of a mental state are therefore not representational properties (neither pure nor impure). Rather they are presentational properties of the mental state. But whose properties are these if they are not representational properties? To answer this question we need to introduce a distinction which is widely acknowledged within the philosophy of mind literature, both within the analytic tradition and within the phenomenological one, namely the distinction between the "matter" and the "quality" of a given mental phenomenon, otherwise labeled "intentional content" and "intentional/psychological mode" - where this latter notion concerns the modality in which a given content is entertained (for example: as a belief, as a desire, as a visual perception, as an acoustic perception and so on).[37] According to presentationalism, phenomenal properties are properties of the state's psychological mode.[38]

It is standard within the philosophy of mind literature to characterize intentional modes in purely functional terms: for a state to have a given psychological mode is just a matter of its playing a given causal role in the mental state's economy. In our view, even though the functional characterization captures a substantive part of the intentional mode of a conscious state, it does not exhaust it. Even though two mental states, one conscious and the other unconscious, may be associated with the same causal role, the intentional mode of a conscious state has also a "subjective dimension" that no non-conscious state has. If this is so, then to account for conscious mental states one needs a notion of mode "more fine-grained" than the functional/causal one.

According to presentationalism, the subjective dimension of a conscious mental state has two components which together constitute the state's phenomenal character, namely: (1) a *to-me component* and (2) an *aspectual component*.[39] Let us provide an elucidation of them starting from the former. In any conscious mental state something is presented *to* a subject; the "to-me component" is precisely this first-personal "presentingness" which accompanies any conscious mental state. This component, while accounting for what makes a state a phenomenally conscious state at all, is not responsible for a state being the phenomenally conscious state it is, because it is common to all of a subject's phenomenally conscious

36 The position according to which phenomenal character is to be understood not in terms of what a conscious experience represents but in terms of how it represents has been labeled by Kriegel (see Kriegel 2009) "Fregean representationalism". About this position, Kriegel claims that it is "a rubber duck" (not really a kind of representationalism). I agree with him on this point. Actually, the correct label would rather be "Fregean presentationalism". I think it is correct to qualify this position as "Fregean" because qualitative features are claimed to play the role of modes of presentation: the bluish way it is like for me to see the sky (when I look at it in a sunny afternoon) is the manner of presentation of the represented property (the way in which the color property of the sky is presented to me). And yet, even though this is a Frege-inspired position, phenomenal or experiential manners of presentations cannot be identified with Fregean *Sinne* (they play the role of Fregean MOPs, but they are not Fregean MOPs). First, because whereas Fregean senses are ways of thinking, phenomenal manners of presentation are ways of experiencing. Second, because the former are ways in which the mind presents to itself objects and their properties; the latter are ways in which the objects and their properties present themselves to the experiencing subject. Third, as we shall see in a moment, because manners of presentation do not determine what is represented in a given experiential state: two mental states may be about different objects and yet exhibit the same manner of presentation.

37 More precisely, by 'intentional mode' one means the kind of relation which holds between the subject of the mental state and its content. For a clarification of this notion and for the need to distinguish between intentional content and mode see Crane (2001) and Searle (1983).

38 The idea that the phenomenal character of a conscious state does not reside in the state's content, but in the state's mode can be traced back to David Woodruff Smith in his seminal paper "The Structure of (Self-)Consciousness" (1986), and then in his book *The Circle of Acquaintance* (1989).

39 These two components correspond respectively to Kriegel's "for-me" and "qualitative" components, in Kriegel (2009). I qualify as 'aspectual' the qualitative component of a mental state's phenomenal character because of the mode-of-presentation role which in my view it plays.

states. What plays that role is rather the aspectual component which captures the way in which what is represented (the state's content) is (experientially) presented to the subject of the state. How something is (experientially) presented is subjectively oriented, i.e. it is presented from the point of view of the subject undergoing the experience. For presentationalism, the essence of phenomenality resides precisely in this form of "self-oriented experiential aspectuality". So, what makes the intentional modes of conscious states more fine grained than the ones of non-conscious states is the presence in the former of an (experientially self-oriented) aspectual component. This component is not something which is represented, rather it is something which enters into the manner of presentation of the content of a mental state. According to presentationalism, phenomenal/qualitative properties are therefore manners of presentation of (pure) representational properties.[40]

Let us now consider how presentationalism can satisfy (EAT). According to this position, the three requirements are not satisfied by a unique kind of properties, but by two different though related ones, namely representational and presentational properties. Whereas the former account for (PRrs), the latter account for both (PIR) and (PRps). (PIR) is accounted for by the aspectual component of the phenomenal character, whereas (PRps) is accounted for by the to-component. To illustrate this point let us consider the apples example. What accounts for the fact that what is relevant for the veridicality of *e1* and *e2* is how things are with apple1 and apple2 respectively is that the object the experience is about is a constituent of its very content. Being about apple1/apple2 is a representational property of *e1*/*e2* respectively, therefore, it is something that can be accounted for in purely representational terms. Even though the objects are different, the two states present the same manner of presentation and this is accounted for by the aspectual component of the phenomenal character which is the same in the two cases (phenomenal sameness is here accounted for in terms of sameness of manners of presentation).[41] Finally, what accounts for the "feeling of particularity" which accompanies the two conscious experience is the to-me component. Even though in the two cases I have the impression that there is something particular that is phenomenally appearing to me, this feeling of particularity does not change from one experience to the other. This point is satisfied because the to me-component stays fixed.

If what we have said so far is correct one can conclude that the whole representationalist project of accounting for perceptual experiences only in terms of representational properties should be rejected, because it is unable to account for some minimal requirements of explanatory adequacy which we have claimed are not negotiable. Moreover, if I am right in claiming that those requirements can be accounted for in terms of Fregean presentationalism, one can conclude that this position qualifies itself as a better candidate for explaining the "double" nature (both representational and qualitative) of perceptual experiences. The risk of putting forward an inadequate account of content or an inadequate account of phenomenology is here neutralized by introducing a distinction between two kinds of properties: whereas representational properties account for the state's representational dimension, presentational properties account for the state's phenomenological dimension.[42]

40 For this notion of "manners of presentation" see Chalmers (2004). The main difference between my account and Chalmers' is that whereas he claims that manners of presentation belong to the representational side of the act (while not being fully reducible to purely representational properties), I reject any such commitment. For, in my view, by introducing phenomenal elements in the state's content, one runs the risk of "subjectivizing content" in such a way as to make it impossible for different subjects to entertain one and the same content.

41 This is the third aspect of difference between manners of presentation and Fregean senses we enlightened in note 36.

42 Previous versions of this paper have been presented at the XIX Congress of the Italian Society for Philosophy of Language, *Sense and Sensible*, Bologna, October 5-7 2012; and at the conference *Sense and Sensibility*, University Vita-Salute S. Raffaele, January 17-18 2013, Milano. I thank all the participants to these events for their important comments. I particularly thank Alberto Voltolini whose comments and suggestions have helped me a lot in getting clear on the issue of phenomenal particularity.

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IN DEFENCE OF PHENOMENAL DISJUNCTIVISM: AN ELUCIDATION

abstract

The aim of the present paper is to provide an elucidation of the commitments and motivations of phenomenal disjunctivism. Such an elucidation is very much needed, for, as far as I can see, the view, originally introduced by M.G.F. Martin, is often misconstrued. Even though what follows is not a direct defence of the view, this elucidation will dispel some objections, as these will turn out to simply misconceive their target.

keywords

Perception, hallucination, phenomenal disjunctivism, M.G.F. Martin, phenomenal character, consciousness, naïve realism

1. Challenging the Common View

'Disjunctivism' is the name of a variety of accounts of experience that share a broad aim and a common polemical target. The common aim is the defence of Naïve Realism (NR), the view according to which perceiving is being acquainted with mind-independent objects. The shared negative thesis is the rejection of the Common Kind Assumption (CKA), namely the claim that veridical perceptions, illusions and hallucinations are mental events of the same fundamental kind.

The two points are connected, for the CKA seems incompatible with NR: in fact, the well-known argument from hallucination against NR hinges on the CKA. The argument is a *reductio ad absurdum* of NR and runs as follows:

1. NR claims that experiencing (at least in certain cases) is being sensorially conscious of mind-independent objects.
2. In a case of perfect hallucination, one has an experience that is introspectively indistinguishable from an experience one may have in a veridical case.
3. In a case of perfect hallucination, there is no mind-independent object one is aware of.

Hence:

4. In the case of perfect hallucination, one is not conscious of mind-independent objects.
5. Two experiences which introspectively appear the same must be fundamentally identical and require the same account.

Hence:

6. NR cannot be true.

The crucial step is premise 5, where the CKA allows a generalisation from the intermediate conclusion that NR cannot be true for hallucinations to all cases of perceptual experience, on the basis of the idea that, if two experiences are indistinguishable, as a perception and a hallucination might be, they must require the same account.

Disjunctivism contends that the argument from hallucination is fallacious because the CKA is unmotivated, as indistinguishability doesn't imply identity. Even if a perception and a hallucination might be introspectively indistinguishable, they do not need to share any essential core, or be identical in any fundamental way.[1]

1 Notice that what disjunctivism denies as common between perception and hallucination is not physiological (see Hinton 1973, 75), so a disjunctivist is willing to accept that sometimes a perception and a hallucination can be realized by the same physiological brain state.

2. Indiscriminability without Sameness of Phenomenal Character

It is possible to spell out this refusal of the CKA in different ways. According to a familiar taxonomy, disjunctivism comes in both epistemological and metaphysical varieties (see Byrne and Logue 2008). Epistemological disjunctivism, chiefly proposed by McDowell, claims that veridical perception provides perceptual evidence which isn't available in the case of a subjectively indistinguishable hallucination. Metaphysical disjunctivism comes in at least two further sub-varieties (see Haddock and Macpherson 2008; Soteriou 2009): experiential disjunctivism, propounded by Snowdon,[2] and phenomenological disjunctivism, most famously proposed by M.G.F. Martin.[3] Experiential disjunctivism challenges the widespread assumption (supporting the causal theory of perception, Snowdon's target) whereby the object of perception (whether veridical or illusory) is always extrinsic to the inherent nature of experience. By contrast, Snowdon claims that an experience is either a state of which the intrinsic nature is not possible to characterise without mentioning the object perceived or a state which is "intrinsically independent of the surrounding objects" (Snowdon 1980-1, 186).

This paper will focus on phenomenal disjunctivism, which is generally deemed more radical than the other versions of disjunctivism and, as such, more exposed to criticism. Phenomenal disjunctivism (PD) casts the difference between perception and a subjectively indistinguishable hallucination in terms of a difference in their phenomenal character, while epistemic and experiential disjunctivism more modestly claim respectively that perception and hallucination have different epistemic roles, or that they are distinct concepts which cannot be explained by reference to a more fundamental common concept.

PD has provoked puzzlement and criticism. Many find disjunctivism committed to self-contradiction. It grants that a perception and hallucination be indistinguishable and yet still have different phenomenal characters. However, it is widely assumed that, by definition, if two experiences are subjectively indistinguishable[4] then they must have the same phenomenal character.

An easy response available for the phenomenal disjunctivist is to reduce the disagreement to a disagreement over terminology. When she claims that the phenomenal character of a hallucination is indistinguishable from a perception, of course she does not take "phenomenal character" to mean just "what it is like to have an experience", but something different, something in which the presence of the relevant object of experience matters and makes the difference. After all, "phenomenal disjunctivism" is a term of art and its definition is a matter open to decision.

But this reply is surely too swift. Clearly phenomenal disjunctivists don't accept the assumption that, if two experiences are indistinguishable, then they must *ipso facto* share the same phenomenal character. If this is really a consequence of the definition of phenomenal character, then they can nothing but reject it. However, this cannot be reduced to a terminological issue. A different definition of "phenomenal character" would reflect a substantial disagreement in the way this important feature of perception is understood. This disagreement about the nature of phenomenal character is indeed the real core of the phenomenal disjunctivists' proposal and hence must be motivated and argued for.

We cannot understand the sense of phenomenal character proposed by PD without considering a further claim within Martin's proposal: the negative view of hallucination (NVH), whereby at least some possible hallucinations have no positive psychological or mental features that account for their phenomenal character. This addition may make Martin's view appear even more extreme and implausible.[5]

2 Also Hinton, hailed as the inventor of disjunctivism, could be seen as a proponent of this variety of disjunctivism.

3 The label "phenomenal disjunctivism" is not due to Martin himself, who has often expressed discontent with it. Martin (2013) proposes the label "evidential disjunctivism". However, here I will conform to the widespread and better known label "phenomenal disjunctivism". Brewer (2011, 110), Campbell (2002, 116) and Fish (2008 and 2009) have endorsed similar views, and Sturgeon (2008) claimed that disjunctivism is better formulated in these terms. However, unlike Martin, in Fish and Sturgeon's accounts, hallucination doesn't simply have a different phenomenal character from perception, it has no phenomenal character at all. Moreover, instead of characterizing hallucination in terms of its indistinguishability from perception, they characterise it in terms of the cognitive effect that they share with a relevant perception. In order to avoid complications, here I will focus solely on Martin's approach.

4 This in virtue of the widespread equation of phenomenal character and "what-it-is-likeness", whose mark is being accessible through introspection. See for instance Levine (2003, 57) and Chalmers (2006, 50).

5 The combination of PD and NVH has come to be known as "extreme disjunctivism", after a label introduced in Smith (2008).

I will argue that NVH is not an oddity added to an already odd enough view, as it is often depicted. On the contrary, it is inseparable from PD, and it is what ultimately allows us to understand that PD is not committed to any self-contradictory claim.

3. The Negative View of Hallucination

Why does Martin specify the difference between perception and hallucination in terms of a difference in their phenomenal characters? To him, this is a direct consequence of what he takes to be NR, a thesis that he describes as follows:

"According to NR, the actual objects of perception [...] partly constitute one's conscious experience, and hence determine the phenomenal character of one's experience" (Martin 2004, 93)

Martin conceives NR in phenomenological terms, that is to say as a claim about "how experience seems to us to be just through introspection". In this sense NR is, for him, the default view (Martin 2004, 46) because it's based on a conception of perception we acquire just through reflection upon it, with no further assumption or reasoning.

We intuitively take our experience to be an experience of worldly objects, and the changes in what it is like to have an experience seem to vary according to how the scene presented varies:

"When one reflects on one's experience it seems to one as if one is [...] presented with some experience-independent elements of the scene before one as constituents of one's experience and not merely as represented to one as in imagination." (Martin 2004, 49).

The objects are said to constitute and determine the experience not in the way that bricks compose a wall, but in the sense that being aware of mind-independent objects and their properties is part of what it is like to have an experience.

NR is therefore the default view because it simply endorses the way in which experience subjectively strikes us. Being the default view, NR doesn't really need to be argued for; all we need is to show that NR doesn't fall under the pressure of arguments aimed at proving it false. Moreover, for Martin, a theory which takes at face value the way in which experience strikes us has a strong advantage over theories which take a different approach. Conversely, any theory that denies that experience is the way in which it strikes us is liable to lead to Humean skepticism about the senses. According to Humean skepticism about the senses, if the knowledge of the world is based on a conception of experience which turns out to be false, then one's claim to that knowledge seems to be undermined. As a result, we seem to be cut off from the world because we lack the kind of contact that we supposed ourselves to have with it.

Because NR "seeks to give an account of phenomenal consciousness" (Martin 1997, 97), disjunctivism "is intended to have a direct bearing on one's account of what it is like for the subject to be perceiving." (Martin 1997, 97). If the phenomenal character of an experience is partly constituted by objects, and in a hallucination ex hypothesis there is no object one can be aware of, then the phenomenal character of hallucination cannot be determined and constituted by the objects perceived.

But what then does determine and constitute the phenomenal character of a hallucination? Martin's response is, strictly speaking, nothing (hence the negative view). Or, better: the fact that what it is like to have such an experience is indiscriminable from what it is like to have a corresponding veridical perception.

The phenomenal consciousness of subjectively indistinguishable hallucinations is provided by their being "essentially failure they purport to relate us to the world while failing to do so" (Martin 2006, 372); and this is the most specific thing one can say about hallucinations.

4. A Modest View of Phenomenal Character

Again, this has provoked no little perplexity. How can the phenomenal character of a hallucination be determined only by an epistemic condition, such as being indiscriminable from another experience? Siegel (2004) and Smith (2008) have objected that the epistemic conception is enough to highlight the cognitive content of hallucination, but it is completely useless for explaining its sensory, felt character, that is to say its phenomenal consciousness. A more intrinsic feature is needed in order to explain phenomenal consciousness.

According to Martin, this line of objection arises only within a certain way of conceiving phenomenal consciousness as

> some special stuff which gets added to the thoughts and other mental elements in order to engender subjectivity [...] Something conceivable independently [and] prior to [...] self-consciousness which acts as the ground for it (Martin 1998).

Under this understanding of phenomenal consciousness, Martin's NVH seems to introduce a form of philosophical zombie, who may have thoughts and possess the ability to make judgments about phenomenal consciousness, but lacks phenomenal consciousness *per se*. But, for Martin, this is a misleading way of thinking of phenomenal character. The real matter of disagreement between Martin and his opponents is not whether we have to count one (just experience as a common kind) or two (perception and hallucination) in the taxonomy of mental states. Their deepest disagreement concerns the nature of phenomenal consciousness and the role of introspection.

For the "special stuff" view,[6] the phenomenal character is typically something added to the representational content of an experience, or to its functional and cognitive role, a mental ingredient or property of the experience which gives it its distinct "flavour", its " what it is like", which only the experiencer can know through introspection. In this view, the nature of phenomenal character is reified and we seem to have to indicate some "special stuff" in the mind that generates phenomenal consciousness.

This conception of phenomenal character is generally introduced through arguments that appeal to the reader's common sense. When one perceives, one doesn't only come to know facts about the world, but one also acquires awareness about what it is like to be in the experiential state one is in. This further information must be due to certain special properties of experience, or phenomenal properties. Phenomenal consciousness is therefore conceived as an "objectivity tracked through introspection" (Martin 2006, 393). This understanding of phenomenal character is presented as something obvious, something that everybody should acknowledge only on the basis of reflection on their conscious life.

Let us concede that there is indeed an intuitive understanding of phenomenal character we can start from. Let us also assume that we can spell out this intuitive understanding in terms of "what-it-is-likeness", or of what is in the reach of introspection (whatever this might mean). Still, this doesn't support the substantial understanding of phenomenal character assumed here, as requiring some special mental glow.

What else is contained in the intuitive grasp of the notion of phenomenal character? What can we safely say about what it is subjectively like to have an experience? The answer to this question brings us to the feature of transparency:[7] if we are to describe how our experience strikes us, we will have to pay attention to the features of the objects we see. In other words, our introspective knowledge of what it is like to have an experience is derivative of our knowledge of what the things we perceive look like.

The "special stuff" view of phenomenal character overlooks this indissolubility between what we come to know about the properties of the objects and what we come to know about the properties of

6 This tentative label "special stuff" might lead one to think that only proponents of qualia (special properties of experience) can be credited with this view, while people who deny the existence of qualia, like strong representationalists, aren't are liable to this criticism. However, the fundamental feature of the special stuff view isn't a metaphysical claim about what constitutes phenomenal character, rather it is the idea that phenomenal character is something that can be tracked through introspection and whose existence and nature is independent from reflection upon it. I am inclined to think that the debate on qualia arises in the context of representationalism precisely because representationalists think of phenomenal character in this way, as something that introspection can track in the same way that we track external objects. This induces the idea that in order to account for this trackable stuff something more than the representational content is needed, and as such qualia were introduced. Alternatively, representationalists are forced to explain how this stuff could be "absorbed" by representational content. Of course this diagnosis would need to be supported by textual evidence and argued for, but this will hopefully be material for another paper.

7 See Martin (2002).

the experience itself when it claims that any phenomenally conscious state must possess some special feature, something eminently subjective and private, without which the subject couldn't be said to be sensorily conscious.

Now, Martin suggests that nothing like that is required for a subject to be sensorily conscious. Phenomenal consciousness is just a matter of "having a point of view on the world", and having a point of view on the world is a matter of both being sensorily conscious and being aware of what one is conscious of. There is no need to postulate further mental qualities that constitute this phenomenal character.

Of course, this doesn't yet dispel the problem faced by the disjunctivist, since, even if one can accept this account of phenomenal experience for the good case, this doesn't seem plausible when it comes to hallucinations: in a perfect hallucination there is no relevant physical object, no part of the world on which one can have a perspective. However, it is important to notice that the disagreement about the way we make sense of phenomenal consciousness is prior to this specific problem about hallucination, and only if we appreciate the scope of this disagreement about phenomenal character in the veridical case can we make sense of the NVH.

When it comes to hallucinations, subjects also have a perspective on the world "precisely [in virtue of] meeting the relevant condition for the negative epistemological property" (Martin 2006, 378). In this case the perspective on the world fails "since *ex hypothesi* perfect hallucination does not provide one with any awareness of the environment." (Martin 2006, 378). We don't need anything else than the negative property of being indiscriminable from the relevant perceptual situation for having an (alleged) perspective on the world and hence a phenomenology:

"Appeal to further facts over and above those which provide for their subjectivity and for there to be something it is like for them to be so would thereby be redundant." (Martin 2006, 378).

5. The Negative View of Experience

We can better appreciate this point if we consider that, in Martin's proposal, the NVH is first of all a negative view of experience as a common kind: not only the notion of hallucination, but also the notion of experience can be characterised only by reference to perception. Having a phenomenal experience, according to Martin, is being in a state which is subjectively indistinguishable from a state in which mind-independent objects are made manifest. This feature can apply both to perception (this is tautological, as a perception is always indistinguishable from itself) and to hallucination (which is defined only by reference to perception). However, even if indistinguishability from perception is a common feature across perception and hallucination, it is not the most fundamental feature of both states: it is the fundamental characteristic of hallucination, but it is not the most fundamental characteristic of perception, whose most fundamental feature is its phenomenal character being partly constituted by external objects. In other words, having a phenomenally conscious experiential state is either being related to an object or being in a state which is *as if* one were related to an object.

The core idea here is that the notion of experience lacks any autonomous explanatory role and depends on the notion of perception: if we are to understand what it is to have an experience, we don't have to indicate some special property or occurrence of the mind, we simply think of all those states we treat as perceptions. Sensory consciousness is not a matter of having some inner glow that one is aware of in introspection, it is rather, in Martin's words, a matter of having a perspective on the world. And having a perspective on the world is either being in contact with objects (perception) or being in a state which is indistinguishable from the latter (hallucination). If one considers the negative view this way, saying that hallucination has no positive psychological feature doesn't have to lead us to the idea that perception, on the contrary, has some intrinsic and mysterious psychological feature hat is responsible for our being conscious. If this were so, the lack of this property in hallucination would indeed make its conscious character inexplicable. But the positive mental character of veridical experience is just being related to the world: a mental feature which is directed outwards.

6. Conclusion

We can now come back to our initial worry: whether Martin's proposal is committed to a self-contradictory claim. Given the negative view of experience, it is conceivable for a perception and a hallucination to be phenomenally indistinguishable while not sharing the same phenomenal character.

The purported incompatibility of these two claims relies on the assumption that being indistinguishable and having the same phenomenal character is one and the same thing. For Martin this equation seems compelling only if we think of phenomenal character as a special stuff that we can track through introspection: if two experiences are indistinguishable there must be *something* (the phenomenal character) which is identical. But if we stick with the intuitive understanding of the phenomenal character as what it is like to be in that state, this substantial view is a further unjustified assumption. It is hence conceivable to give phenomenal character itself a disjunctive understanding: in certain cases the phenomenal character is (partly) determined by the objects one is aware of from a certain point of view, in other cases it is specified by its indistinguishability from the perception one would have if one were presented with an object of that kind. Both cases have a phenomenology, i.e. a phenomenal character, even if these are to be accounted for in different ways. This is not to say that they do not share a phenomenal nature, as far as they are indistinguishable. Still, this indistinguishability doesn't indicate that there is some substantive mental event or property that they share.

I will conclude with a discussion of a possible criticism. The strategy adopted here in order to make sense of PD relies on an understanding of phenomenal character which overtly assumes a central claim of NR (as understood by Martin): it is assumed that, at least in certain cases, the very singular objects one perceives constitute the phenomenal character of an experience. We know that disjuntivism is generally introduced in defence of NR. It might seem, hence, that our defence of PD begs the question, because it assumes NR, while the latter is precisely what ultimately needs to be justified.

This kind of criticism misconstrues the nature of the relation between NR and PD. It is true that PD is introduced in order to defend NR, but this doesn't mean that that disjunctivism figures as a premise in an argument for NR. Disjunctivism is not meant to provide any motivation for NR. Its unique role is blocking a specific line or argument against NR, namely the argument from hallucination.[8] So, it is true that disjunctivism entirely assumes NR: more than that, disjunctivism should be seen as a consequence of NR. Of course, if NR turns out to be ill-motivated, then disjunctivism will be unnecessary. But the independent reasons for NR[9] are not to be looked for in the disjunctive approach.

8 To be more precise, PD is introduced in response to a particular causal version of the argument, which is in turn introduced in support of the CKA on which the argument in its general form relies. Here, for the sake of simplicity, we have avoided entering into these details.

9 Some motivations have been mentioned above in relation to the transparency of experience and the desire to avoid an error theory of perception.

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REPRESENTATIONALISM AND AMBIGUOUS FIGURES

abstract

The phenomenon of ambiguous figures raises difficulties for the theories of the content of our visual experience that hold that its phenomenal character is identical to its representational content and wholly nonconceptual. This phenomenon seems to show that there can be a difference in the phenomenal character of two visual experiences, without a difference in their representational nonconceptual content. Firstly, I shall try to illustrate that these "representationalist" theories cannot provide a compelling explanation for the phenomenon of ambiguous figures. Secondly, I will present an account of it grounded on Peacocke's "dual nonconceptual content" view. The distinction he draws between two levels of nonconceptual content can be used to explain the phenomenon without abandoning the thesis that the phenomenal character of our visual experience is a representational wholly nonconceptual content.

keywords

Representationalism, ambiguous figures, visual experience, phenomenal character nonconceptualism

1. Introduction

The phenomenon of ambiguous figures consists in the fact that a single figure can ground experiences of, at least, two different and incompatible percepts, even though the geometrical properties of the figure are not experienced as changing. In other words, ambiguous figures are those that a subject can see in two sharply different ways, while being aware of the fact that the shape, size, texture, etc. of the figure remain constant. Moreover, a subject can "switch" from seeing the figure in one way to seeing it in another way (this is called "figure reversal" or "*Gestalt* switch"). This phenomenon poses difficulties for the theorists of the content of visual experience and, in particular, for the advocates of representationalism.

Concerning the debate about the content of our visual experience, I hold that there are good reasons to consider it to be, at least in part, nonconceptual. This claim is supported by several arguments that underline, in particular, that our experience is characterized by a wealth of elements and details that cannot be fully captured in conceptual terms. Nevertheless, the case of ambiguous figure seems to show that an exhaustive specification of the content of the corresponding visual experiences must include conceptual constituents. As Wittgenstein remarks, the phenomenon of ambiguous figures seems to be an intermediate case between visual experience and thought.[1]

The main claim of (strong) representationalism – in the versions I am concerned with: Tye (1995) and Dretske (1995) – is that the phenomenal character of a visual experience, i.e., the "what-it-is-likeness" of having it, is identical to, or completely determined by, its representational content. In addition, it states that this content is of a nonconceptual kind. Yet, the experience of an ambiguous figure seems to show that there can be a difference in the phenomenal character of two visual experiences without a difference in their representational nonconceptual content. In that case, representationalism confronts the following disjunction: either it renounces its main thesis—the phenomenal character is not exhaustively representational; or it abandons the claim that this character is wholly nonconceptual.

I shall outline an account of ambiguous figures, based on Peacocke's "dual nonconceptual content" view, that intends to elude the above-mentioned disjunction. If successful, phenomenal character could be both wholly representational and nonconceptual and yet there could be a phenomenal difference between the experiences corresponding to seeing, e.g., the Duck/Rabbit figure as a Duck or as a Rabbit. In this way, my account intends to preserve representationalism's main claim – that phenomenal character is representational – and nonconceptualism about phenomenal character.

1 See Wittgenstein (1953).

2. Ambiguous Figures and Representationalism

I shall try to show that representationalism cannot provide an adequate explanation of the phenomenon of ambiguous figures. I will formulate an argument whose structure is similar to that of Macpherson (2006)[2].

Let us consider the paradigmatic case of the Duck/Rabbit ambiguous figure (F):

On the one hand, the figure F can be seen as a Duck (A) or as a Rabbit (B). Thus, it seems clear that F is at the origin of two experiences that differ in their *phenomenal* character: in one experience a Duck appears and in the other a Rabbit. Now, recall that, according to representationalism, phenomenal character is a representational nonconceptual content. Thereby, following representationalism, between the experiences of seeing F as A and seeing F as B there must be a difference in the nonconceptual representational content.

On the other hand, it seems intuitively clear that, since both A and B are caused by the same figure F, there must be something in common in the contents of these experiences. And indeed, the subject of the experience does not notice any change in the properties of F when she switches from seeing A to seeing B: the colors, shapes, and textures she experiences appear to be the same in both cases. Thus, it is reasonable to hold that the representational content of both experiences is identical at the *nonconceptual* level.[3] Now, for representationalism this content is identical to the phenomenal character. Thereby, following representationalism, the experiences of seeing F as A and seeing F as B should *not* differ in their phenomenal characters.

In sum, on the one hand, representationalism requires the experience of seeing an A and the experience of seeing a B to differ in the representational nonconceptual content. On the other hand, it seems that the representational nonconceptual content is in common in both experiences. Hence, representationalism seems unable to account for the difference in the phenomenal character of the experiences of seeing F as an A and seeing F as a B, without abandoning one of its main tenets.

At the conceptual level there is clearly a difference between the experience of a Duck and the experience of a Rabbit, since two different concepts are involved. Thus, a possible explanation for the phenomenal difference between these experiences might be that concepts determine, somehow, their phenomenal characters. There are two possibilities to account for the relation between concepts and the content of experiences: first, to claim that concepts enter into the content of the experience; and second, to claim that concepts are not constituents of the content of the experience.

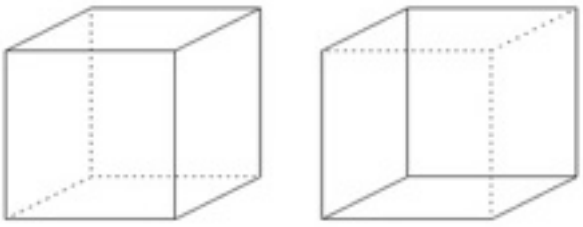
The first possibility is not available for the advocates of representationalism. First, it doesn't seem to them that the phenomenal character of our visual experience includes concepts. Several arguments can be mentioned, e.g., the argument from infants and superior animals, and the argument from the fineness of grain.[4] According to the latter, visual experience represents the world with a determinacy of detail that is not capturable in purely conceptual terms. Second, for representationalism the phenomenal character of our experience is identical to or completely determined by its representational content. If concepts entered into the phenomenal character we would have a representational content that has concepts as constituents and thus is (at least partly) conceptual.

2 However, I propose a different analysis of the problem of ambiguous figures and, unlike Macpherson (2006), I consider that Peacocke's "dual nonconceptual content view" offers the resources to elaborate a compelling solution. See Uggè (2012).
3 Colors, shapes and textures are paradigmatic nonconceptual contents of visual experience. This kind of contents is the object of the "fineness of grain" argument for the thesis that the phenomenal character of visual experience is nonconceptual.
4 See Tye (1995).

The second possibility is to claim that concepts determine (top-down) the difference in the phenomenal character between, e.g., seeing the Duck/Rabbit figure as a Duck or as a Rabbit while staying outside of the phenomenal contents themselves. This proposal is problematic for the following reasons. First, it supposes that there is cognitive penetrability of perception by thought, and this is a controversial claim. Indeed, the advocates of representationalism defend the cognitive impenetrability thesis according to which "both the phenomenal character and the intentional content of perceptual states are impermeable to states of their subjects' cognitive systems" (Voltolini 2011, 1). Evidence against the penetrability of perception by thought comes from the phenomenon of the persistence of the illusion.[5] Consider, for instance, the famous case of the Müller-Lyer illusion. When we are looking at the figure we see two segments that appear to us as being of different lengths, but actually they are of the same length. Now, the fact that we learn that the segments are of the same length does not change the way they appear. Second, the question remains, for the representationalist, regarding what is the difference in the representational nonconceptual content that accounts for the phenomenal difference between seeing the Duck/Rabbit as a Duck and as a Rabbit. Representationalists can claim that concepts have an influence on the content of visual experience that does not involve cognitive penetrability. This proposal is developed by Tye (1995). He holds that the experience of ambiguous figures might involve concepts. This is clear in the case of the Duck/Rabbit: in order for a subject S to see the figure as duck-shaped she has to possess the concept "duck". But, according to Tye, concepts play a *causal role* and not a *constitutive role* in the experience. The concepts cause two experiences with a different content, but this content can still be nonconceptual. In Tye's words, "one has a sensory representation whose phenomenal content is then brought under the given concepts. Still, the concepts do not enter into the content of the sensory representations and they are not themselves phenomenally relevant" (1995, 140).

However, the proposal just mentioned does not seem able to provide a compelling explanation of what is the difference in the phenomenal character of the experiences determined under the concepts "duck" and "rabbit". First, note that in the case of the Duck/Rabbit we do not notice any difference in the nonconceptual content of our visual experience before and after the occurrence of the *Gestalt* switch. Thus, it seems that the nonconceptual content remains the same in both cases, either when we perceive the picture as a Duck or as a Rabbit.

Second, consider the case of the Necker Cube (N):



A B

This figure differs in an important respect from the case of the Duck/Rabbit, since it involves only one concept (the cube). Its ambiguity concerns the two different orientations that the cube appears to have. Thus, the thesis that concepts are not part of the content of our visual experience but, nevertheless, have an effect on its phenomenal character, seems incapable of explaining the case of the Necker Cube.

In particular, two criticisms have been moved to Tye's account. According to Orlandi,

> "The main problem with this way of arguing is that it is strikingly *ad hoc*. Once one accepts that

5 See Fodor (1983).

> concepts are required to have a given visual experience, it is hard to see what could decide between a causal and a constitutive view [...] if concepts are required, even if only causally, to have visual experiences with given contents, then we wouldn't be able to ascribe content to creatures that lack them, and we wouldn't be in a position to give a story of how we acquire concepts." (2011, 312)

In addition, Voltolini remarks that Tye's account seems unable to avoid cognitive penetrability, even though he holds that concepts have a causal and not a constitutive role. According to him, the fact that the change in the phenomenal character is conceptually driven is sufficient to undermine the cognitive impenetrability thesis, which states that both the phenomenal character and the intentional content of experience are not permeable by the subject's cognitive states.[6]
If what we have said so far is on the right track, the legitimate conclusion to draw is that representationalism seems unable to provide a compelling account of the phenomenon of ambiguous figures. In the next section I shall argue that Peacocke's (1992) distinction between two levels of nonconceptual content can be used to ground a compelling explanation of this phenomenon, without abandoning the thesis that the phenomenal character of our visual experience is a representational wholly nonconceptual content.

3. Peacocke's "Dual Nonconceptual Content" and the Phenomenon of Ambiguous Figures

Firstly, I shall briefly introduce Peacocke's "dual nonconceptual content" view. Secondly, I shall discuss the phenomenon of ambiguous figures in the light of Peacocke's distinction between two levels of nonconceptual content.[7]
According to Peacocke, our visual experience has a representational content, since it represents the world as being a certain way. Now, this content includes both conceptual and nonconceptual constituents. In particular, it includes *two* kinds of representational nonconceptual contents that he labels "scenario content" and "protopropositional content". A "scenario" is considered to be a "spatial type", characterized by a way of filling out the space around the perceiver, consistent with the veridicality of the perceiver's experience. In order to specify a spatial type we have to fix an origin and some axes. These elements are not grounded in specific places or directions in the world, since a type can be instantiated at different places, but they are relative to the perceiver who is always present regardless the location at which a type is instantiated.[8] A "protopropositional content" is a nonconceptual content that has a different structure than that of the scenario content. Protopropositional content includes individuals, properties, *and relations*. For instance, some of the properties or relations represented are: "parallel to", "curved", "square", "equidistant from". It is belief-like (it has a mind-to-world direction of fit), and is called "protopropositional" since it has a subject-predicate form where the individuals are the subjects and the properties or relations the predicate. Now, this content is not uniquely determined by the scenario: two experiences could have the same scenario but a different protopropositional content. Peacocke remarks that it is precisely on the basis of this distinction, at the level of nonconceptual content, that is possible to ground our experiential concepts in a non circular way.
In short, Peacocke argues that our experience has three layers of content: scenario content (nonconceptual); protopropositional content (nonconceptual); and conceptual content.
Now, let us discuss the cases of the Duck/Rabbit and the Necker Cube. I will try to show that the distinction between two nonconceptual levels of content can be used to account for the ambiguity of these figures.

The Duck/Rabbit

This figure (F) can be seen either as a Duck (A) or as a Rabbit (B). However, a subject that undergoes both experiences is aware of being perceiving *the same* figure, and the corresponding *Gestalt* switch does not

6 See Macpherson (2012) and Voltolini (2011). I'm indebted to Alberto Voltolini for this remark.
7 Even though Peacocke (1992) does not develop his theory of a "dual nonconceptual content" view to account for the cases of the Duck/Rabbit and the Necker Cube ambiguous figures, I will try to show that it can be used for this purpose.
8 If we assign a time to a scenario and fix real directions and places in the world for the origin and axes, we have what Peacocke labels a "positioned scenario".

imply any change in its shape, color or texture. This invariance can be accounted for by claiming that there is no difference at the level of the *scenario* content between seeing F as an A or as a B. In both cases, the space around the perceiver is filled in the same way.
Now, when a subject sees F as an A, the left part of the figure represents the beak of a duck, the right side its head, and the eye is experienced as pointing to the left. By contrast, when she sees F as a B, the left part represents the ears of a rabbit, the right side its snout, and the eye is experienced as pointing to the right. These differences can be captured, at least partially, at the protopropositional level; they concern relations between different parts of the figure.
Hence, if the phenomenal character is constituted by Peacocke's two types of nonconceptual content, it is possible to account for what is in common, and for what differs, in the experiences of F as an A and as a B. Certainly, different concepts are involved when the figure is seen as a A and as B. But these concepts do not need to be taken as constituents of the *phenomenal* character of the experience. In fact, Peacocke's conceptual level of content can be taken to be outside a visual experience's phenomenal character. There can be top-down effects from concepts to the protopropositional level of content, and bottom-up effects in the inverse direction. Somehow, when the image is subsumed under the concept "duck" some relations among the parts of the figure are represented, and these relations differ from the ones that are likewise represented when it is subsumed under the concept "rabbit". Indeed, according to Peacocke's theory, the different levels of content are not autonomous and there are both top-down and bottom-up effects[9].

The Necker Cube
This two-dimensional figure (F) represents the flat projection of a three-dimensional cube. The figure can be seen either as a three-dimensional cube oriented downward (A) or as a three-dimensional cube oriented upward (B).
Since a subject who experiences F as an A or as a B is aware of perceiving the same figure, and its geometrical properties are not experienced as changing after a *Gestalt* switch, we can say—following Peacocke's distinctions—that these experiences have the same scenario content. Yet, the experiences of an A and of a B differ in the *relations* being represented as holding between the faces and the edges of the cube. If we look at the figure on the left, the front-face of the cube is seen in the front plane and gives rise to the A percept whereas if we look at the figure on the right, the front-face of the cube is seen in the back plane and thus gives rise to the B percept. It is possible to account for these differences by claiming that the experiences of F as an A and as a B differ in their protopropositional content.
The case of the Necker Cube supports the claim that the phenomenal differences between two alternative percepts of an ambiguous figure can be captured at a nonconceptual level. It is not necessary to involve different concepts as constituents of the phenomenal character. Indeed, the experiences of a Necker Cube as an A or as a B – by contrast with the case of the Duck/Rabbit – do not frame the figure under different concepts. Both experiences represent a cube. Differences at the level of the protopropositional content seem sufficient to account for phenomenal differences between seen F as an A and as a B.
In both the Necker Cube and the Duck/Rabbit figures, concepts certainly have a top-down effect on the content of experience. In the case of the Necker Cube, we can suppose that an infant or an animal that do not possess the concept "cube" would not be able to see the image as a three-dimensional cube. And similarly, in the case of the Duck/Rabbit, if a subject lacks the concepts of "duck" or "rabbit" she will not be able to see the figure as a Duck and as a Rabbit.

In addition to top-down effects, it seems there are bottom-up ones between the nonconceptual levels and the conceptual level. It has been argued that differences in the places where the subject focuses her attention elicit different concepts . This could be due, at least in part, to the fact that different points of

9 In this way, The Autonomy Thesis - according to which a subject can be in a nonconceptual state without possessing any concept - is not preserved. In a more recent work Peacocke changed his mind and accepted the 2)

focus would privilege the representation of different relations among the parts of the figure. Thereby, protopropositional contents would elicit the exercise of different concepts.To summarize, the distinction between two layers of nonconceptual content can account for the existence of:

- *A nonconceptual representational content that is in common in the alternative experiences of an ambiguous figure (the scenario content).*
- *A difference in the phenomenal character of the alternative experiences of an ambiguous figure (different protopropositional contents).*

4. Conclusion

I have tried to show that ambiguous figures are troublesome for the advocates of representationalism. What is particularly problematic in the case of ambiguous figures is that it proves difficult to provide an explanation of this phenomenon exclusively in terms of the nonconceptual contents of the corresponding visual experiences. In fact, when a figure F is seen as an A or as a B, it seems, on the one hand, that there is a difference in the phenomenal character of these experiences. But on the other hand, it seems that the qualitative properties of F such as its shape, size, color, texture, etc. – that are presumably represented in experience in a nonconceptual way – are shared by these experiences. In other words, the phenomenal difference that there is between seeing F as an A or as a B does not seem to concern nonconceptual contents.

As a plausible account of the case of ambiguous figures, compatible with the thesis that the phenomenal character of experience is nonconceptual, I used Peacocke's distinction between two levels of nonconceptual content. When a figure F is seen as an A or as a B, the corresponding experiences share the same scenario content, but differ in their protopropositional content. The scenario concerns how the space around the perceiver is filled, while the protopropositional content is the representation of the relations between elements of the scenario.

Peacocke's "dual nonconceptual content" view allows for both top-down and bottom-up effects between the conceptual and the nonconceptual levels of content. Thus, it seems able to ground a thorough explanation of the case of ambiguous figures that, as happens with the Duck/Rabbit, require or involve the exercise of different concepts on the part of the perceiver. In order to have this explanation we need, first, a detailed account of the relation between concepts and the phenomenal character. Second, to provide an in-depth clarification of how the relations between concepts and nonconceptual contents change, in particular, whenever a *Gestalt* switch occurs.

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AMODAL COMPLETION, PERCEPTION AND VISUAL IMAGERY

abstract

Amodal completion typically occurs when we look at an object that is partially behind another object. Theorists often say that in such cases we are aware not only of the visible parts, but also, in some sense, of the occluded parts, because otherwise we could not have a perceptual experience of the object as continuing behind its occluder. Since no sense modality carries information about the occluded parts, this information is provided by other means. Amodal completion raises two questions. First, what is the mechanism involved? Second, what kind of experience do we have of the occluded parts? According to Nanay, the so-called Imagery Theory answers both questions. For this theory, information about the occluded parts is the product of a low level, vision specific, neural mechanism that takes place in the early vision processing areas of the brain. This mechanism provides a representation of the occluded parts and, as a result, the observer enjoys a quasi-sensory or quasi-perceptual conscious experience that is phenomenally similar to seeing those parts (as purportedly Perky has proved). In this paper I criticize Nanay's answer to the second question.

keywords

Occlusion, amodal completion, visualization, mental imagery

1. Amodal Completion and the Role of Perky's Experiment

Bence Nanay has recently brought back to our attention a famous experiment by Cheve West Perky, in which she tried to prove that perceiving and visualizing are phenomenally similar.[1] The experiment consisted in the following. Subjects were asked to fix a point on a white wall while visualizing an object, such as a banana, for example. Unbeknownst to them, an image of that object was projected on the wall from behind. The visual imagery experience they reported reflected the object perceived. According to Perky, the subjects took themselves to be visualizing, though in fact they were perceiving. If we can mistake perceiving for visualizing, there is phenomenal resemblance between them. Nanay claims that this conclusion helps to address the puzzle of amodal completion.

Amodal completion typically occurs when we look at an object that is partially behind another object. Theorists often say that in such cases we are aware not only of the visible parts, but also, in some sense, of the occluded parts, because otherwise we could not have a perceptual experience of the object as continuing behind its occluder. Since no sense modality carries information about the occluded parts, this information is provided by other means.

The phenomenon of amodal completion raises two questions. First, what is the mechanism involved? Second, what kind of experience do we have of the occluded parts? According to Nanay, the so-called Imagery Theory answers both questions. For this theory, information about the occluded parts is the product of a low level, vision specific, neural mechanism that takes place in the early vision processing areas of the brain. This mechanism provides a representation of the occluded parts and, as a result, the observer enjoys a quasi-sensory or quasi-perceptual conscious experience that is phenomenally similar to seeing those parts (as purportedly Perky has proved). As Nanay puts it, the occluded parts are thus phenomenally present to the observer, despite their perceptual absence. In this paper I criticize Nanay's argument supporting the Imagery Theory.[2]

1 I would like to thank for their helpful comments Robert Briscoe, Louise Moody, Paul Nordhoof, Marco Santambrogio and Barry Smith on a previous version of this essay.

2 Nanay defends this theory after rejecting three other theories, namely the perception theory, the belief theory and the access theory. He describes them as follows. According to the perception theory, in perceiving 3-D objects, we perceive we perceive also the occluded parts that do not project on the retina, thanks to certain perceptual cues. For the belief theory that representation of the occluded parts is the result of an inference based on information about the visible features of the objects we see, and background beliefs. For the access theory the claim is that we have perceptual access to the occluded parts of objects and in this sense they are present to us, despite the fact that we do not represent them.

2. Nanay's Argument

Before addressing the argument, let me just say that people interested in mental representations are generally divided into two groups: as Daniel Dennett puts it, there are the iconophiles and the iconophobes. The iconophiles think that mental representations have visual properties, like pictures; the iconophobes think that they are more like sentences. In the discussion on amodal completion, typically mental imagery theorists take the side of the iconophiles and belief theorists take the side of the iconophobes. Since the nature of mental representations is still a matter of debate, if Nanay succeeds in defending the visual imagery account of amodal completion, then he strikes a blow for the iconophiles brigade. Here is what he says.

Suppose that I am looking at a cat behind the picket fence. The cat's tail is not visible to me, because it is occluded by one of the pickets. My visual imagery mechanism completes the missing detail by representing it and, as a result, I have visual imagery of, or visualize *the cat's tail*. Perky's experiment comes into play at this point. Given the phenomenal similarity between visualizing/having visual imagery experiences and perceiving that the experiment demonstrates, when the missing part is represented, according to Nanay it is *as if I were perceiving it*. In his own words,

> *If what it is like to have visual imagery is similar to what it is like to perceive and being aware of occluded parts of perceived objects is having visual imagery, then, putting these two claims together, we get that what it is like to be aware of the occluded parts of perceived objects is similar to what it is like to perceive those parts that are not occluded. (Nanay, 2010, p. 252).*

Fleshing out Nanay's argument, we obtain the following:

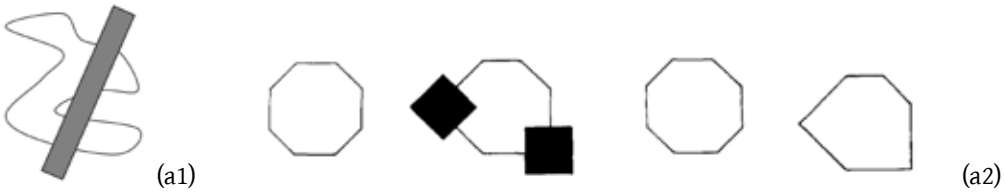
1. We are aware of occluded parts of perceived objects.
2. Being aware of occluded parts of perceived objects is having visual imagery of those parts.
3. What it is like to have visual imagery of an F is similar to what it is like to perceive an F.
4. What it is like to be aware of the occluded parts of perceived objects is similar to what it would be like to perceive those parts (if they were not occluded). (from 2-3).

Premise (1) is not negotiable: indeed, we are aware of the cat as continuing behind the picket fence. Premise (2) says that the awareness we have of the occluded features *is nothing but visual imagery of those features*. Premise (3) is a general statement about the experience of having visual imagery: it says that to have visual imagery is like to perceiving. Evidence for it comes from Perky's experiment. (4) answers the question of what kind of experience we have of the occluded parts of perceived objects: to be aware of these parts is similar to seeing them. But is it? The argument seems valid: if (2) and (3) are true, (4) is true: our experience of the occluded features of the objects we perceive is some kind of visualization. Hence, in some sense we imagine the unity of such objects. But there is nothing visual in our awareness of the occluded parts. Thus, in what respect is being aware of them similar to seeing? The conclusion of the argument is at least doubtful and this makes us wary of its premises.

3. Briscoe's Objection

Briscoe (2011) rejects (2). According to him the imagery-based account provides only a *partial explanation of amodal perception* (amodal perception is the perception of objects that are partially occluded by other objects). More precisely, he argues that visual imagery is not necessary for amodal perception. Of course, if visual imagery is not a necessary condition for amodal perception, then (2) is false.

Briscoe points out that there are two types of amodal completion, one stimulus driven and not depending on background knowledge and the other depending on stored information about the kind of object we are perceiving and/or its individual properties. Typically, the former occurs in cases such as these:



(a1) (a2)

And the latter in the cat behind the fence example and many other cases, such as the following:

(b)

There are some significant differences between the (a) cases and the (b) cases, as Nanay rightly acknowledges. But according to Nanay the imagery theory applies to them all. Briscoe disagrees. He claims that the (b) cases, that is, those that involve cognitive amodal completion, "give rise not only to mental imagery, but also to beliefs". Instead, "an empirically and phenomenologically compelling case can be made" for the view that the (a) cases, namely those involving amodal non-cognitive completion are "a properly *perceptual* phenomenon subserved by representations of occluded object features in early visual processing areas". (159, my emphasis).

Let me focus, then, on the (a) cases. If Briscoe demonstrates that the (a) cases do not involve visual imagery, then (2) is false. He starts with the observation that the absence of sensory stimulation does not always mean absence of visual information. Following Gibson, he stresses that the informational basis for the perception of a surface is not limited to the surface's optical projection in the retinal image. There are many other sources of visual information for occlusion, such as the wiping of surface textures according to perspective information, binocular disparity and T-junctions. Most importantly this kind of information contributes to the segmentation of the 3-D visual scene into discrete objects that we perceive in certain spatial relations with each other, given our observation point. In fact, our visual system exploits this information and constructs perceptual representations of occluded object features that contribute to the content and phenomenology of our perceptual experiences. Thus, according to Briscoe, "non-cognitive amodal completed contours and surfaces are *not* non-perceptual addenda to what we 'strictly speaking' see [my emphasis]". As a result, we experience the visible parts of the object as connected to their invisible parts – that is, we perceive one surface as continuing behind another surface.

I do not think that Nanay would have anything to object up to this point. He would happily accept that there are perceptual cues that allow us to perceive 3-D objects as arranged in a particular visual scene and hence make us aware of some of their not-visible parts. But the presence of perceptual cues is not a reason for rejecting the claim that our awareness is an experience of imagery.

Briscoe has one more blow to strike. He claims that there is an asymmetry between phenomena of amodal completion and visual images. Visual images

1. have a conscious quasi-visual phenomenology
2. are not stable

3. are not stimulus driven
4. are not obligatory

Instead, our awareness of the occluded parts of partially hidden object is not quasi-visual, it is stable, is stimulus driven and obligatory.

On these grounds, Briscoe concludes that Nanay's idea that "we use mental imagery to represent the occluded features of the objects we perceive" should be rejected. If he is right, (2) is false.

Interestingly enough, Briscoe points out that nothing he says militates against the view that mental imagery is sufficient for amodal perception. Now, sufficient conditions are notoriously difficult to pin down. But here is what he says.

If amodal perception is defined as representing a perceived object's non-visible features, and if mental images are representational, then forming mental images of a perceived object's occluded features suffices for amodal perception. This modest thesis is empirically well motivated. In particular, there is neuropsychological evidence that feedback connections may enable high-level visual areas in the brain sometimes to 'augment' degraded perceptual inputs or, in the case of partial occlusion (superposition) incomplete perceptual inputs with stored, object specific information [...] There is good empirical motivation for the claim that we sometimes represent occluded object features by superimposing mental images of the relevant region of the visually experienced scene. (Briscoe 2012, pp. 166-167)

In fact, according to him, this is precisely what happens in the (b) cases. In these cases superimposition of mental images is sufficient for amodal perception, other necessary conditions being satisfied. In particular, we become visually aware of the hidden part of the objects that we see in virtue of certain necessary perceptual cues. But it is the (a) cases that are under scrutiny, not the (b) cases.

Are we at the end of the game? No. Nanay could rejoin that the visual images that Briscoe has in mind are of a peculiar type, namely intentional visualizing. This is the experience that we have, for example, when we try to figure out how a round table would look in the dining room. This kind of visual imagery is not stimulus driven; it is not obligatory and unstable. However, there are other phenomena, involving picture-like representations that contribute to the content of a visual experience, and are stimulus driven, obligatory and stable (like perception). Which are they? The popping up of camouflaged objects, the Kanizsa triangle and all the other examples of modal completion are cases in point: their experience is visual, stable, stimulus driven and obligatory. But we can find examples that are even more suited to our case: phenomena of amodal completion too, have these same features. And of course, it would not do to say that they do not have a visual phenomenology. For this is precisely Nanay's contention: they *do* have some kind of visual phenomenology.

As Nanay acknowledges, there are some obvious differences in the phenomenology of modal and amodal completion. In amodal completion, objects are represented behind an occluder, whereas in modal completion they are represented in front of inducers (for the Kanizsa triangle, the inducers are the three black circles and the triangle is represented in front of them). In the Kanizsa case,

> *[given that the boundaries of the triangle do not project any contrast], they have no corresponding features in the image and thus the nearer object is effectively invisible. Under these circumstances, the visual system must actively "hallucinate" the invisible structures (Fleming and Anderson 2004, p. 1288).*

Experiments tell us that the visual system also "hallucinates" the invisible parts of a partially occluded object. At this point Nanay concludes that, given that the visual imagery mechanism for modal completion generates an experience of visualizing that is phenomenally indistinguishable from the experience of seeing, for amodal completion, too, we have an experience of visualizing, which is phenomenally indistinguishable from the experience of seeing.

We cannot reject this implication simply by saying that phenomena of amodal completion do not enjoy visual phenomenology. However, there are at least two ways in which we can reject it. One consists in rejecting the claim that the mechanism determines one and only one phenomenology. If we adopt this line we fall into the muddy waters of the mind-body problem. The other line, which I follow, amounts to the claim that awareness of the occluded parts, whatever it is, cannot be similar to seeing. Thus, either awareness of the occluded parts is not visualizing, or visualizing is importantly different from seeing. In following this line, I attack (3).

4. Points of View

If visualizing is phenomenally similar to seeing, as (3) asserts, then it should share seeing's essential property, which is the following: we cannot have two different point of views on the same scene at the same time. Thus, for example, we cannot have a visual experience of the inner parts and of the outer parts of an object (unless this object is transparent) at the same time and we cannot have at a visual experience of the front and of the back surface of an object (unless there is a mirror) the same time. Accordingly, Nanay remarks that phenomenal resemblance between seeing and visualizing suggests that we visualize the occluded parts of perceived objects as occupying a particular location in our egocentric space:

> *When we represent the occluded parts of perceived objects, we use mental imagery in this latter sense: in a way that would allow us to localize the imagined object in our egocentric space. When I represent the cat's occluded tail, I represent it as having a specific spatial location in my egocentric space. (Nanay 2010, p. 250).*

Consider now the following example. I look at a tree in front of a house and I see the front surface of the tree and the front façade of the house that is not occluded by the tree. Given that by hypothesis, I am aware of the occluded part of the front façade, I should visualize it. But the surface of the tree that I see also occludes some parts of the tree itself, namely its rear. Similarly, the region of the house façade that I see occludes the rear façade. The theory predicts that I also visualize these parts. Given my viewpoint, the rear part of the tree is in front of the occluded part of the house and it occludes parts of the front façade and parts of the rear façade. The prediction of the theory is that I have at the same time a quasi-sensory experience of the rear part of the tree, of the front part of the façade that is occluded by it and of the rear façade. However, if visualizing things involves projecting them in one's egocentric space, I should visualize the rear part of the tree as in front of the occluded part of the house and that part as in front of the rear façade. But it is not obvious at all in what sense these spatial relations, given the uniqueness of the point of view, can be preserved.

More generally, the objection is that if we are perceptually aware of the occluded parts of some three-dimensional objects arranged in a scene, we must at the same time have different points of view on the same scene. But, if visualizing is like seeing, we do not visualize the occluded parts of those objects.

A possible rejoinder could be the following: my experience of the rear part of the tree is similar to the one I would have if I were moving around the tree and looking at it from the back, *and* my experience of the invisible parts of the house is similar to the one I would have if I were moving around the tree

and looking at the house. In other words, I visualize (at *t*) that if at *t* I were in place *l* and looking at the tree, I would see such and such a scene and if at *t* I were in place *l** (*l** can be identical to *l*) and looking at the house, I would see such and such a scene.

But here we have a problem. The content of awareness in such a case is captured by a conditional sentence or a conjunction of conditional sentences. But can a conditional sentence capture the content of a visualization? That is, can we visualize conditional states of affairs? I do not think that we can. Thus, if we are aware of the occluded parts of the objects we see, our awareness is not a case of visualizing.

I conclude now with a possible objection, a reply and a final suggestion. The objection is that I focus on anomalous examples of occlusions and amodal completion. When we talk about occlusions, we have in mind objects that are partially hidden from our view by other objects, for example we have that the front façade of the house is partially hidden from our view by the tree. For such cases, Nanay will happily say that we see the tree and the not-occluded part of the façade and, at the same time we have visual imagery of the occluded part of the façade, as if it were a semi-transparent picture superimposed on the tree. [3] No change in point of view would be required here. However, we do not generally say that the front side of the tree occludes its rear side, nor do we say that the near side of the moon occludes its far side. But these cases are crucial for my argument against the visual imagery theory, for it is precisely the assumption that the front side of a 3-D object occludes its rear side that allows me to argue that the observer has different points of view on the same scene.

My examples are *not* anomalous. When we perceive 3-D objects, we generally perceive them as having a rear side. This means that we see them as continuing beyond the surface that we immediately see. For example, if I see a cube, I see it as continuing beyond its square front side. Is it possible to simply superimpose a visual image of the rear side on the image of the front side, as if it were a semi-transparent picture (as for the tree in front of the house example)? Suppose that the front side of the cube is coloured and its colour shades form red to blue: at the centre it is brilliant red and at its boundaries it is blue. I will see it continuing as blue on the back, too. But if this is the case, I cannot imagine the rear side as if it were a semi-transparent picture superimposed on the front side. In fact, I should imagine it, as it would look if I turned around the cube and changed my point of view. But, once again, in order to visualize, I should have different points of view on the same scene at the same time. This is impossible for me.

I draw the suggestion from Dennett (1992). His argument against the filling-in analyses of the blind spot phenomenon suggests that there are two ways in which one can deal with occlusions, depending on whether we take the visual system as *excluding* an absence, that is, representing the absent part as if it were present or as *ignoring* an absence. In the visual imagery account, the visual system *excludes the absence* of the (missing) parts, by representing those parts as present. In other words, the visual system *excludes that the missing parts are missing* (it imagines them as present). I have argued that this strategy raises a serious problem. In the alternative view, the visual system ignores that some parts are absent, that is, ignores that seeing one part i**s** *seeing one part only.* My suggestion is that we should endorse the alternative view. One way to do it is to accept the hypothesis that to see a non-detached part of a 3-D object, is simply to believe that the whole thing is there, unless we believe otherwise.

3 Briscoe (2012), footnote 3, makes a similar point.

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SOME CONSIDERATIONS ON PITCH

abstract

Pitch is an audible quality of sound which can be explained not only in terms of strong correlation with sound waves' properties, but also by a neat correlation to the properties of the sounding object. This seems to be in favour of the theory of sound labelled "distal view", according to which sound is the vibration of the sounding object.

keywords

Sound, perception, pitch, sound sources

The medial view of sound says that sound is identical or supervenient upon sound waves in a medium (Nudds 2009; Smith 2009; Sorensen 2007, 2009). The distal view (Casati and Dokic 1994, 2005; Pasnau 1999, 2000; O'Callaghan 2007, 2009; Kulvicki 2008; Matthen 2010), on the contrary, claims that sound is located where sound sources are and that sound is the vibration of the sounding object. Generally speaking, as regards pitch, loudness and timbre at least, audible qualities are perceptual properties which are explained by the presence of strong correlations with some properties of waves and, therefore, they are sufficiently explained by the medial view. On the contrary, it seems that if we identify sound with the vibration of the sounding object, we cannot give an account which correlates the audible qualities with the properties of the sounding object. In this essay I shall focus on the audible quality of pitch in order to show that pitch can not only be considered as the perceptible counterpart of the physical properties of sound waves in a medium, but that also it correlates to the physical properties of the vibration of the sounding object. I shall conclude the essay with some remarks regarding the fact that pitch lets us grasp a number of features of the sound sources which produced it.

This essay is divided into four sections. In the first section, I formulate the three questions which we should answer in order to define the relationship between the audible qualities of sound and the properties of both sound waves and sound sources. In the second section, I give a general response to the first of these three questions. In the third, I clarify some issues related to the possibility of having sound in a vacuum. In the last section, taking into account the example of pitch, I answer the second question formulated in the first section. I shall leave the answer to the third question for further investigation.

1. Three Questions Regarding the Nature of Audible Qualities

Imagine you are in a concert hall, listening to the beginning of the first movement of Max Bruch's *Violin Concerto n.1 in G minor*, and that the sound you hear is the sound of a violin, playing a G3 in *mf*,[1] with a fermata on the note (the fermata indicates that the duration of the note is at the musician's discretion). You would note that the sound you hear has some features, namely timbre, pitch and loudness which are commonly called the "audible qualities" of sound.
It is usually asserted that sound possesses audible qualities and that it is by virtue of our capacity

1 In music notation the signs *ppp*, *pp*, *p*, *mp*, *mf*, *f*, *ff* and *fff indicate* the dynamics of a composition.

to attribute such qualities to the different sounds which form our auditory scene that we are able to group the undistinguished sound streams into distinct streams (Bregman 1995). Generally, these qualities are defined in terms of sound wave features. Assuming, however, that sound is an event source which can also take place in a vacuum (Casati, Di Bona, and Dokic 2013)[2] and considering that we cannot have sound waves in a vacuum, it appears that there might be a problem in attributing audible qualities to sound.

Therefore, in order to clarify such a delicate point, it might be useful to address three questions. The first concerns the relationship between the audible qualities of sound and sound waves; the second, the relationship of audible qualities to sound sources while the third considers how we perceive audible properties. The third question in particular is related to the possibility that how we perceive audible qualities to be is not how these properties really are in the world. I shall, therefore, not answer the "how" question by means of the study of the psychophysical processes involved in auditory perception – i.e. the functioning of the acoustic apparatus we use in order to detect sound waves and transmit auditory stimuli to the brain – but by observing how audible qualities appear to us. Imagine, for example, that you are looking at the garden of your home through a window with yellow glass. You see the grass as yellow, but this does not mean that the grass is actually yellow. Therefore, in answering the question of how the grass looks to us, we might say that it looks yellow, even though the grass in the garden is not yellow.

The three questions just mentioned are closely related to each other. It seems that, indeed, in order for us to be able to answer the third question - namely, how we perceive the audible qualities of a given sound - we need to take the analysis of the medium into account, since we cannot say how the audible qualities appear to us in a vacuum, where they are not perceptible at all. Moreover, the analysis of the medium, in turn, is also necessary in order to answer the first question, which addresses the relationship between sound waves and audible qualities. I take into account here only the auditory perception of audible qualities, not the perception of them by means of other senses. Of course, we can imagine a case in which we can perceive audible qualities in a vacuum by means of other senses in a very coarse-grained manner. For example, imagine a situation in which someone is playing the violin in a room where there is a vacuum. We could touch the neck of the violin and have a sort of perception of the audible qualities by "feeling" them. If you were to have a highly sophisticated sense of touch, you would be able to feel the vibrations of the sounding object- the neck of the violin - and eventually say whether the sound were loud or soft depending on the vibration rate you feel. We can thus say that we could perceive the sound's audible qualities in a vacuum.

At first sight, the second question regarding the relationship between audible qualities and sound sources might appear to be unrelated to the other two. In fact, it seems that we can answer the first question by saying that audible qualities are identical to the properties of sound waves without endorsing any account of the relationship between sound sources and audible qualities. At the same time, if we claim that the only object of audition is sound with its audible qualities (Warnock 1983), we can ask how we perceive audible qualities to be, regardless of their relationship to sound sources. On the contrary, if we look carefully we can note that the answer to the second question, regarding the relationship between sound and its source, will turn out to be relevant in addressing both the first and the third questions. Such relevance is based on two claims: 1) sound sources *determine* the properties of sound waves and, therefore, they determine the audible qualities as well (relating to the first question); 2) for audible qualities to carry information about the characteristics of sound sources, when we question how we perceive audible qualities to be, we might also question whether, at the same time, there is a way in which sound sources appear to us by virtue of the audible qualities they are related to (relating to the third question).

2 We distinguish the *event source* (jiggling, speaking, hammering) from the *thing source* (keys, mouth, hammer), and we identify sound with the event source by virtue of arguments against the mereological view (O'Callaghan 2011), according to which sound is part of the broad event of the sound source.

2. On the Relation Between Audible Qualities and Sound Wave Properties: A First Approximation

Audible qualities can be construed in two ways. In fact, in order to exist, they need their physical counterparts, namely sound wave features. At the same time, however, audible qualities are not fully reducible to their physical counterparts. Let us start with a discussion of the general issue regarding the relationship of audible qualities to wave aspects.

The feature of waves responsible for pitch is frequency. A higher pitch corresponds to a higher frequency, with higher frequencies heard as sharper sounds (an A6 sounds sharper then an A5). Analogously, lower pitches correspond to lower frequencies, as when we hear an E2 played by the fourth string of a double bass, which is perceived as a deep sound. The sound wave characteristic of intensity is responsible for the audible quality of loudness. That is, an increase in intensity corresponds to an increase in loudness, resulting in a louder sound. On the contrary, when intensity decreases, we hear a lower sound, of a lower volume, such as that of a whisper or of a violin played with a dumper. We can affirm that the same thing happens in the case of the perceptual quality of timbre,[3] where changes in the spectrum shape – which is determined by the partials[4] of sound – correspond to the sound's quality, which allows us to distinguish the sound of a piano from the sound of a violin.

Although audible qualities correspond to sound waves, they are not just perceptible counterparts of physical properties, but also appear to be causally determined by the properties of wave frequency, shape and intensity. As O'Callaghan (2007, 73) suggests, there could be different kinds of relations between audible qualities and their physical counterparts. For example, since frequencies are causally responsible for the experience of pitch, if we consider pitches as the physical properties that are causally responsible for experiences of pitch, then they are identical to frequencies. If pitches are simple or primitive properties of sounds, they can supervene upon frequencies (ibid, p. 74). If pitches are dispositions to create experiences of pitch, frequencies may still be considered as the categorical basis of such dispositional properties. Furthermore, I would add that, if we have cases in which pitches are experienced in the absence of frequencies, it is not true that experiences of pitch depend on frequencies.[5]

The same also applies to loudness. For instance, if we consider loudness as a physical property causally responsible for the experience of loudness, then loudness is identical to intensity. If loudness is a simple or primitive property of sounds, it can supervene upon intensities. If it is a disposition to create experiences of loudness, then intensities can be considered as the categorical basis of such dispositional properties. And the same argument could also be made for timbre.

Audible qualities, in order to be perceived, have to depend on properties ordinarily ascribed to sound waves, since audibility is assured by the presence of sound waves. Given that the medium is a necessary condition for the existence of waves and, considering also that audible qualities depend on waves, the medium turns out to be the necessary means which makes audible qualities also audible. A sound, in order to be heard, requires a medium through which sound waves might propagate. Since waves propagate only through such a medium, we cannot have sound waves in a vacuum.

3. The Problem of Vacuum

Before going further with the discussion of pitch, we have to clarify how the notion of sound as event source fits with the notion of sound as the bearer of audible qualities. According to a particular version of the distal view, we might have sound in a vacuum since, considering sound to be the vibration of the source, we might perfectly imagine a vibration in a vacuum, as in the case of a tuning fork under an empty jar (Casati and Dokic 1994, p. 42; 2005, p. 27). It may seem contradictory to claim that we have sound in a vacuum and then claim that audible qualities exist only in the presence of

3 The case of timbre is more complicated. It is controversial to give a satisfactory definition of it but, for the purpose of this paper, it will be sufficient to define it in a "negative" way: if two sounds have the same loudness, the same pitch and the same duration but they are heard as two different sounds, this dissimilarity can be explained in terms of timbre. For a discussion of timbre see Sethares (2005).

4 In section 4 there is an explanation of what the partials of sound are.

5 I refer here to cases such as the tinnitus, in which we hear a sound as having a pitch which could be more or less definite and which is generated in the absence of frequencies which are external to the ears of the perceiver.

a medium, since the medium is the condition required in order for us to perceive them. However, the question is: how is it possible for sound to occur in an empty jar, even if this sound cannot bear the audible qualities which, in order to exist, require a medium? Even if these qualities required a medium in order to be heard, this would not mean that sound does not exist in a vacuum. Indeed, sound does exist in a vacuum, since the event source or the vibration exist in a vacuum, even if they cannot be heard. What is important to highlight is the fact that audible qualities can be explained not only in terms of sound waves' properties but also in terms of vibration's properties. The notions of sound as the bearer of audible qualities and sound as the vibration of the thing source are not in contradiction. It is simply that the vibration of the sounding object, like sound waves in a medium, possesses physical properties such as frequency, amplitude and phase which correlate to sound waves' properties and which determine also the nature of the audible qualities. In the specific case of pitch, there is even an identity between the frequency of sound waves and the frequency of the vibration of the thing source.

The vibration of the object can be considered as a sound wave where the medium is the sounding object itself. The audible qualities we perceive sound to have correlate with the physical properties of the sounding object vibration. The medium, such as the air, simply reveals them; it ensures that the physical properties can reach the ear and can be perceived. Sound waves make the audible qualities audible.

We have to distinguish between the informational medium and the surrounding medium. The informational medium is the medium in which the vibration is generated, while the surrounding medium is the medium in which sound propagates. In a vacuum, we do not have the surrounding medium, but we still have the informational medium. (Casati and Dokic 2005, p. 17).

The general idea is that, if you were on the Moon with a friend of yours who starts to play the gong, you would not be able to hear the sound of the instrument or the noise of his walking and, therefore, you could not perceive the audible qualities of the sound; however, we can still say that the sound of the gong or the noise of your friend's walking are there anyway.

The case of pitch shows how an audible quality depends on the thing source, and specifically on two aspects of the thing source: the way in which the thing source is stimulated and the materials from which the thing source is made. Moreover, the example of pitch further demonstrates that frequency, before being a property of sound waves, is a property of the vibration of the source, which is also present in a vacuum. Therefore, we shall consider the audible quality of pitch as the property of both the vibration of the thing source and of sound waves. It is as if audible properties were already present in the thing source in the form of vibration's features, and only in a second moment do we recognize them as being properties of sound waves by virtue of a medium. Pitch exists in a vacuum, even if it is not audible. In addition, I hold that, even if sometimes the ear perceives pitches which do not have a sound wave counterpart, the pitches perceived are a means to obtain information about the sound sources which produced them.

4. Pitch

If we opened a handbook of acoustics, we would read that sound waves are generally characterized by three mathematical quantities: frequency, amplitude and phase (Sethares 2005). Frequency is the number of complete oscillations of an elastic body in one second. An A4 corresponds to the frequency of 440 Hz, i.e. to an oscillation of 440 times per second. We perceive frequency as the pitch of a sound. In order to give an account of pitch which is consistent with the distal view, I shall need to demonstrate that pitch depends on the vibration of the object, even though, in order to be perceived, pitch needs sound waves in a medium.

When we listen to a sound, we hear a group of frequencies at once. The vibration which has the slowest rate is called the fundamental frequency; the other frequencies are the overtones or partials. A cluster of overtones formed by harmonics is constituted by frequencies of integer multiples with respect to the fundamental. The frequencies which differ from the fundamental are called partials,

whether they are multiple integers or not. It is quite easy to individuate the fundamental of a sound in the case of musical instruments, such as a violin or a piano, and thus to establish what its pitch is. For example, in the case of an A4 played by the second chord of a violin, we have the fundamental at 440Hz, and on this frequency is superimposed a determinate sequence of harmonics. The first three harmonics of the A4 are the A5 at 880Hz, the E6 at 1320Hz and the A6 at 1360Hz.
However, for more complex tones, such as jiggles, African percussions or chimes, pitch is substantially indefinite. For instance, in the case of unpitched percussion instruments, such as a timbal or a cimbal, we do not have a definite pitch. The same applies for the snare drum, an instrument in which we have a drum with a membrane stretched over it. This instrument is a drum head which (differently from a vibrating strings whose overtones are at multiple integers with respect to the fundamental) produces a sound containing overtones at irrational ratios with respect to the fundamental. The frequency theory, according to which to an increase in frequency corresponds a rise in pitch and a decrease to a fall in pitch, explains not only the ordering of pitches, but also offers the basis for musical relations and intervals, both of which are based on ratios of frequencies. Therefore, an octave has a frequency ratio of 1:2, the fifth of 2:3 and the fourth of 3:4.
Nevertheless, even if wave frequency mirrors perceived pitch quite exhaustively and thus explained the dependency of pitch on frequency, the way in which the wave vibrates depends on the material and on the manner in which the source is stimulated. If we considered the strings of a violin, for example, we would see that the length, the tension and the density of the strings are responsible for frequency and that as the length of the strings changes, the frequency also changes. A long string, such as the E1 of a double bass, will have a low pitch, while the E5 of a violin will produce a higher tone in relation to this. A string with a lower tension will produce a lower sound than the same string with a higher tension. In fact, when a violin player tunes her violin, she needs to calibrate the tension of the strings by turning the pegs at the scroll. If the note is sharp, she will loosen the string by turning the peg down; whereas, if the note is flat, she will have to turn the peg down.
Finally, frequency could also be modified by variations in the density of the strings. A heavy string produces a low sound, while a light string of the same length and tension produces a high one. For example, in philological interpretations of baroque music, string instruments use gut strings instead of metal strings. Two strings, a metal A4 and a gut A4, of the same length but made of different materials, will have the same frequency only if the lighter one, namely the gut, is tightened more than the metal one.
Moreover, a wave's frequency depends not only on intensity, density and length, but also on the way in which the source is stimulated. Suppose you are playing the G on the forth string of a violin with a bow and that this G is perfectly tuned at 196 Hz. It happens that if you slide the bow on the string with too much pressure, the sound you hear will not be perfectly in tune and it will be slightly sharp. Or, suppose you are playing a clarinet or a recorder, it happens that, in a similar case to that of the violin, if you blow too much air in the instrument with an exaggerated pressure of your lips, the resulting sound may be out of tune. The vibration of the object has a frequency which is determined by the material constitution of the object and by the way in which the object is stimulated, but this frequency is also a property of the sound wave and it is by virtue of the latter that it becomes audible.
Pitch is a cue which allows us to recover some information on the source which produced it. For example, the simple fact that we recognize a sound as having a definite pitch allows us to draw the distinction between the sounds of musical instruments and environmental sounds. In fact, whereas in the first case we hear a clear pitch, in the second one, because of in-harmonic partials which compose the complex sound produced by environmental objects, we hear an indefinite pitch. Therefore, the idea is that when we are able to detect the exact pitch of a sound, it is because we are hearing a musical instrument; on the contrary, when we are not able to do so, it is because we are hearing an environmental sound. There are borderline cases, such as particular African percussions, where

the pitch oscillates from a clear note to an indefinite one, so that we cannot say if they are musical instrument sounds proper or environmental sounds. These border line cases belong to a third category: the un-pitched percussion instruments category, which cannot be easily distinguished from the categories of musical instruments and environmental objects, just by hearing the pitch of a sound.
We can go a step further, stating that through pitch we can not only tell the difference between environmental sounds and instrumental sounds but, within the category of instrumental sounds, we can also find additional elements related to pitch which help us to obtain some more precise information on the sources. For example, when we discriminate between a high pitch and a low pitch, we can appropriately say what the instruments involved in the production of these sounds are. Considering the specific extension of musical instruments, you might be able to say that if we heard a very high sound, say an A7, we could exclude the possibility that instruments such as the double bass or the bassoon could have produced it. At the same time, if we heard an A2, it is unlikely that a piccolo or a violin could have produced it, but it is more probable that the appropriate sources could have been a tuba or a bass clarinet.
I am not claiming that, merely through pitch, we could recognize the actual source, in its totality, of the sound we hear, rather, I claim that pitch is, at least, a way for us to discriminate between different source groups, i.e. environmental sounds, musical instrument sounds and un-pitched percussion instrument sounds. In order to acquire more elements of sound sources, we also need loudness and timbre.

Pitch is an audible quality determined by the frequency of sound waves. Both frequency and pitch depend on the mechanics and the constitution of the thing source. But since we can also attribute a frequency to the vibration of the source, we can say that pitch is already present in a vacuum, in which – even if we cannot have sound waves and, therefore, cannot hear pitch – we can still register the frequency of the vibration of the source. Pitch enables us to recover some information about the instruments which produced it. Finally, I did not answer to the third question I proposed at the beginning of the essay – namely, how we perceive the pitch be – since I leave the study of particular auditory effects (i.e. Tartini's third sound and the virtual pitch) – where it seems that how we perceive audible qualities to be is not how these properties really are in the world – for further investigation.

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SENSE AND SUBJECTIVITY
A VERY SHORT – AND PARTIAL – HISTORY OF THE LOSS AND RECOVERY OF THE BODILY SELF

abstract

Empirically minded and naturalistically inclined post-Cartesian philosophers have refused to accept the idea that we human persons are immaterial, senseless souls. This rejection has led to a fragmentation of the self and eventually to its theoretical disappearence. A way to resist this eliminativist trend is to see the self as an embodied entity, a promising thesis which has assumed prominence in contemporary debates. The paper is a (fairly partisan) reconstruction of this post-Cartesian scenario.

keywords

Body, soul, person, no-self theories

1. From a Senseless Self to a Selfless World

1.1. I Have no Hands

"I will think that the sky, the air, the earth, colours, shapes, sounds, and all the external things are no different from the illusions of our dreams [...]. I will consider myself as having no hands, no eyes, no flesh, no blood, and no senses, but yet as falsely believing that I have all these".[1]

This is, of course, a well-known passage from Descartes' *Meditations*: an evil spirit is perhaps deceiving the author – and the reader, and all of us: we have no hands, no senses, no body, and 'our little life is rounded with a sleep'.

But there is no evil spirit, and the sky, the air, and the bodies are there where we think they are, created by a perfectly good God. This is the conclusion that, eventually, the *Meditations* come to.

And yet, for Descartes, there is a clear sense, the strictest sense, according to which we indeed have no body and no senses, neither flesh nor blood. "I find in myself faculties of thinking in various specific ways – namely the faculties of imagination and sensation – without which I can understand myself clearly and distinctly as a whole".[2] Imagination and sensations do not belong to the whole of me, as it were: I have sensations and I see images of various sorts, but these 'sensuous thoughts' are generated by faculties that do not exist in myself. I myself do not have the passive faculty of sensation, and I am not a sensible thing at all: I am an 'intellectual' substance, a soul or a mind, which is really distinct from the body which I call mine.

This is not to say that we, human persons are not stricly united to a material body and that emotions and sensations are not a pervasive part of our lives. On the contrary, Descartes says, the passions of the soul, such as perceptions, sensual love, hatred, wonder, melancholy, joy, desire and various bodily feelings are eveywhere; and for some it can even be difficult to conceive of ourselves as devoid of these kinds of experience which would seem to be the actual constituents of our very humanity.

But not so. A human person is identical with an immaterial soul, and, for example, it is 'rational love' alone that properly belongs to it, a 'pure' form of love which is not generated by any bodily movement. Descartes' real self, the mind/soul, is therefore completely outside the physical order of nature and it is strikingly different, as a metaphysical principle, from 'aristotelian souls'. It is a pure immaterial and rational substance and not the form of the body, which – according to aristotelians – bestows on the body itself not just the power of rational thinking but also its vegetative and animal life.

1 Descartes (2008), p. 16.
2 Descartes (2008), p. 56.

Many scholarly cautions notwithstanding, it is indeed quite difficult to avoid the notorious image of the ghost in the machine when one thinks of Descartes' selves.
Now, there have been, in post-Cartesian philosophy, many ghost-friendly thinkers, happy to admit immaterial spirits – or perhaps transcendental egos – and to identify us with them; these 'idealist' philosophers will not be my concern here.
I will instead deal with the empiricist and naturalist tradition which felt, and feels, uncomfortable with immaterial souls and the like: Cartesian – or Kantian – selves are too rarefied, too thin, to content down-to-earth temperaments; and yet, if human persons are not simple, senseless souls, what are they? If not souls, and not bodies – Descartes' ban has been a powerful one – well, perhaps nothing at all. And indeed, in the naturalistic field, so the story has gone.

1.2. Nothing but Consciousness, and Perhpars Nothing at All

According to Descartes, we are immaterial thinking substances and we persist through time exactly when the same immaterial substance exists at different times. Locke disagreed.
That is not to say that according to Locke thinking does not concern human persons; on the contrary, he famously wrote that "a person is a thinking intelligent being that has reason and reflection and can consider itself as itself, the same thinking thing, in different times and places; which it does only by that consciousness which is inseparable from thinking, and, as it seems to me, essential to it". [3]
So, according to this picture, there are thinking things and these are persons. But Locke, the empiricist, is not able to establish the nature of these thinking substances: "We have the ideas of matter and thinking, but possibly shall never be able to know, whether any mere material being thinks or no; it being impossible for us, by the contemplation of our own ideas, without revelation, to discover whether omnipotency has given to some systems of matter, fitly disposed, a power to perceive and think, or else, joined and fixed to matter so disposed, a thinking immaterial substance".[4]
So, as far as knowledge is concerned, thought and consciousness are properties of substances whose material or spiritual nature is beyond our reach. And yet, it would seem, we are identical with these mysterious subjects of experience. But, somewhat surprisingly and somewhat incoherently, Locke is not of this opinion: these subjects of experience cannot be identical with human persons because they have different identity conditions. Suppose 'the bearer' of my thinking is actually a soul: according to Locke, I could acquire a new soul and my soul could become the soul of someone else: our identity as person does not depend upon the identity of any thinking substance. Sameness of substance, Locke says, does not concern personal identity at all: the same substance without the same consciousness no more makes the same person: "Consciousness alone makes self - Nothing but consciousness can unite remote existence into the same person: the identity of substance will not do it".[5]
So we are something like a continuous stream of consciousness which, at least in principle, could be transferred from one thinking substance to another. We belong, as it were, to a pure realm of ideas, and are quite separate from the substances that we happen to inhabit.
According to Locke, one cannot know whether Cartesian souls do exist, but this does not threaten the knowledge we have of ourselves: we *are*, one could almost say, our own experiences, and *these* are certainly not beyond our epistemic possibilities. The Cartesian ghost is separate from ourselves, and we are identified with a non-substantial stream of ideas.
But are we really a stream of consciousness? Not exactly, said Hume: what is there consists, more properly, of a flux. "Setting aside some metaphysicians [...] I may venture to affirm of the rest of mankind that they are nothing but a bundle or collection of different perceptions, which succeed each other with an inconceivable rapidity and are in perpetual flux and movement".[6]

3 Locke (1975), p. 335.
4 Locke (1975), p. 542.
5 Locke (1975), p. 344.
6 Hume (1978), p. 252.

It is worth noting that this Humean flux is composed of many particular mental states which seem to be substances on their own, capable of separate existence and in no need of a material body or an immaterial soul as their 'support'. "All our particular perceptions [...] are different, and distinguishable, and separable from each other, and may be separately considered, and may exist separately, and have no need of any thing to support their existence".[7]
The mind, Hume says, is *constituted* by many different perceptions and there is no place for a simple, enduring individual to whom these perception belong - even though there is a clear and inevitable propensity to feign the continued existence of an invariable substance: myself.
So one could say that Hume goes further than Locke in denying the very existence of a thinking, though mysterious, substance; but, nonetheless, in the Humean picture we do exist and in a somewhat Lockean form: at every moment of our personal lives there is a certain collection of perception and this collection is nothing but a stage in the sparkling flux of mental events that is to be identified with a person persisting in time. Not quite so, however.
According to Hume it is a mistake to think that an object can gain or lose a part. Gaining a part brings something new into existence, losing a part brings the object under consideration to an end, and one should not confuse the relation of strict identity with the relation of similarity, which holds between successive objects 'born' after the loss or the gain of a part by a previously existing object. So the collection of perceptions that exists at one time is never identical with the collection of perceptions that exists one moment later: in a flux, many perceptions change, and so there cannot be strict identity. If a person has to be something capable of persistence over time, then, it seems, one should conclude that there are no persons after all.
And the idea suggests itself that there are not even instantaneous persons. Indeed, in the Humean picture, a person existing at a certain time should probably be viewed as a collection of perceptions existing at that time. But even that is problematic: Hume is quite clear in saying that these collections are *bundles of separate items*, with no real bond among them. So if an instantaneous person is something endowed with a unitary mental life, it seems that one should conclude that there are not even instantaneous persons.
Hume's *Treatise*, I think, directly suggests these radical conclusions, but we should note that Hume himself did not unambiguously state these unsettling ideas. Contemporary Humeans have not been so cautious.

2. There is no Self: Some Contemporary Humeans

2.1. The Way of Cognitive Science

"The no self alternative" is the telling title of a recent paper by the neuropsychologist and philosopher Thomas Metzinger; and it is no surprise to find in it an approving mention of Hume's 'bundle theory of the self'.[8]
Metzinger considers Hume's position as a prominent example of a non-substantialist approach to the nature of the self, and according to him denying the substantiality of the self is no different from denying its very existence. I think the last point is far from obvious, but let us concede it for present purposes.
Metzinger thinks that Hume's model of the self, indeed Hume's elimination of the self is on the right track and that present-day cognitive neuroscience offers an empirically adequate account and a vindication of these old philosophical intuitions. According to him there is a common experience of something like a self-subsistent enduring entity, a self, forming a non-exchangeable and irreducible part of the world, a 'nugget of reality'. But this 'phenomenology of substantiality', by itself, has no metaphysical value, and the principle of parsimony demands a deflationist explanation of such a phenomenology, an explanation that, following Hume, accounts for our tendency to feign a fictional and stable character behind the flux of thoughts. Contemporary cognitive science, Metzinger holds, offers such an explanation and such an account.

7 Hume (1978), p. 252.
8 Metzinger (2011) , p. 282. The core ideas of Metzinger's two books, *Being No-one* (Metzinger 2004) and *The* Ego *Tunnel* (Metzinger 2009), are usefully summarized in this article.

"All technical details aside [...] science offers conceptually clear models of functional mechanisms which could parsimoniously explain the *integration* of individual property-representations into a unified self-representation. This theoretical model requires no transcendental subject to stand behind the appearance of 'a' self as consciously represented, because it gradually emerges out of the self-organizing interaction between a large number of simpler components. This possibility [...] simply was not available to thinkers in the past, it is a novelty in the history of ideas. [...] dynamical self-organization is a new theoretical option for the bundle theorist".[9]

There is a *representation* of a substantial self, Metzinger claims, but not the substantial self itself: nothing in the available scientific data obliges us to posit persons as unchangeable bearers of mental states – and Metzinger, a paradigmatic naturaliser, is implicitly suggesting that science has to be the measure of all things.

Such an attitude is by no means rare in the contemporary science of mind, and one of its well-known champions is certainly Daniel Dennett, who, of course, thinks there are no persons at all.

The centrepiece of Dennett's eliminativist strategy is a theory of the mind based on a sustained and empirically based critique of the so-called 'myth of the Cartesian theatre' – empirically minded scholars very much like pick on Descartes.

Neuro-cognitive sciences, Dennett believes, have finally dispelled this ancient myth, namely the idea of an 'interior boss', the controller of the body and the privileged, Cartesian viewer of all mental states which play their roles on the stage of our mental theatre. This tenacious myth still has a strong persuasive force, but contemporary cognitive sciences have, at last, allowed us the resources to free ourselves from it. What they teach us is that the brain's processes are parallel and distributed ones, and there is no place in the brain where it all comes together. What happens is that some processed bits of information sometimes gain a more or less stable 'cerebral celebrity': temporary, in-the-limelight goings-on which have no guarantee of keeping their privileged position in the Humean flux of the mind/brain's activities. These temporary 'celebrities' constitute a sort of linear order, a brain narrative whose main character is what Dennett calls "the virtual captain". And this character is represented by the narrative as a substantive Cartesian boss, but really it is nothing: its illusory existence is just the product of the brain's *impersonal* processes. "If asked what a centre of gravity was made of [physicists] would say, 'Nothing'";[10] the virtual captain, the seeming self, is - Dennett says - *a centre of narrative gravity*, and if one asked what a self is, one should reply as physicists do in the case of physical centres of gravity: "nothing at all". But if the self is nothing but a centre of narrative gravity – and so, Dennett says, nothing at all –, what about what we think of as our introspected selves? From Dennett's perspective, clearly, no substantial self is the object of a special interior faculty called "introspection": there is just a usefully deceptive mental representation of a unitary subject, allegedly responsible for the actions of complex cognitive systems – a misleading and yet convenient illusion, and nothing more.

The main points of the theory just outlined are summed up in this notable passage, which introduces some more powerful metaphors, the very trademark of Dennett's style of thinking: "In our brains there is a cobbled-together collection of specialist brain circuits, which thanks to a family of habits inculcated partly by culture and partly by individual self-exploration, conspire together to produce a more or less orderly, more or less effective, more or less well-designed virtual machine, the *Joycean machine*. [...] this virtual machine, this software of the brain, performs a sort of internal political miracle: it creates a virtual captain of the crew".[11]

2.2. The Way of Philosophy

Contemporary cognitive science, we have just seen, has lent us empirical arguments for the theoretical elimination of subjects from the book of the world. But the Humean attitude has been alive, and indeed

9 Metzinger (2011), p. 282.
10 Dennett (1991), p. 95.
11 Dennett (1991), p. 228.

dominant, even in the strictly philosophical field, or at least in the philosophical tradition which has been closer to empirical sciences, namely analytic philosophy. Indeed, in the last forty years or so, Derek Parfit's ideas – in which there are distinct echoes of Hume – have been a true landmark for every analytic philosopher trying to make sense of the puzzles of personal identity.

As is well-known, Parfit is a very sophisticated thinker and the intricacy of his discussions is not always open to a straightforward interpretation. Nevertheless an eliminativist reading of his ideas is quite easy, and I think quite correct.

According to Parfit we use the language of personal identity when we think there is an appropriate psychological continuity: we say, for example, that the person who is now writing this paper is the same person who was writing it ten minutes ago because between the mental lives of these 'two' persons there is a relation of psychological continuity.

Now consider the following case, concerning three identical twins. "My Division. My body is fatally injured, as are the brains of my two brothers. My brain is divided, and each half is successfully transplanted into the body of one of my brothers. Each of the resulting people believes that he is me, seems to remember living my life, has my character, and is in every other way psychologically continuous with me. And he has a body that is very like mine".[12]

What happens to me after the transplant? There seem to be only three possibilities.

(1) Given that the criteria of personal identity we actually use are grounded in psychological continuity, it seems that I should be identical with at least one of the two persons – let us say A and B – existing after the surgery. But my psychological continuity with A is the same as that I have with B. Why should I be one of the two, and not the other?

(2) One could then think that I am identical with both A and B; but if so, since A and B are different, A and B would be at the same time identical *and* different persons, which is of course impossible.

So (3) perhaps I have not survived the transplant. And yet, if half of my brain had been successfully transplanted and the other half destroyed, I would have survived, I would have been A for example. But, if this is so, how is it possible that the mere existence of B prevents me from existing? A double success cannot be such a failure: if creating A grants my survival, why on earth should the creation of A *and B* cause my death?

There is no way out, it seems, even though the question concerning my survival and identity after the transplant is perfectly clear and, plausibly, it should have a perfectly determinate answer. Parfit disagrees on the last point: "we are naturally inclined to believe that our identity must always be determinate. We are inclined to believe, strongly, that this must be so. I [...] argue that this natural belief cannot be true unless we are separately existing entities"[13] namely unless we are something like a Cartesian soul.

Therefore, if there are no Cartesian souls – as Parfit thinks –, then there will be cases in which questions about our persistence over time do not have a determinate answer. The 'my division situation' is one of these cases. "We know what this outcome [i.e.: the transplant's outcome] is. There will be two future people, each of whom will have the body of one of my brothers, and will be fully psychologically continuous with me, because he has half of my brain. Knowing this, we know everything. I may ask: 'But shall I be one of these two people, or the other, or neither?' But I should regard this as an empty question".[14]

So, according to Parfit, even an omniscient being could not give a definite answer to the question concerning my survival in the transplant case, and this is so because there is no fact of the matter to be known. This is, indeed, a quite bewildering idea because it suggests that the world itself could be indeterminate with regard to my existence. But things are not exactly like this, I think.

12 Parfit (1984), p. 253.
13 Parfit (1984), p. 216.
14 Parfit (1984), p. 258-259.

As I understand what Parfit is saying, the world cannot be indeterminate with regard to my existence and this is because, in a strict and literal sense, there is no such thing as myself. The whole of reality is completely describable in an impersonal way, and nothing in this description can be identified with a person. To be sure, one talks about persons and their identity over time, and there are certain criteria of correctness for such talk. In many cases it is possible, at least in principle, to talk about persons and their persistence through time in a correct and determinate way; but there are cases – such as the 'my division situation' – that are "not covered by the criteria of personal identity that we actually use".[15] In such cases, Parfit suggests, questions concerning the continued existence of people are empty and so unanswerable, and we should simply abandon the language of identity. Yet the world, a selfless world, is perfectly determined. "Buddha would have agreed", Parfit writes,[16] and referring to a classical buddhist source he approvingly quotes: "O Brethren, actions do exist, and also their consequences, but the person that acts does not".[17]

At this point one noteworthy thing has to be underlined. The contemporary eliminativist theories we have discussed so far seem to share an implicit assumption: a human person, if it exists, has a 'purely mental' nature and, in particular, it cannot be identified with a living body.[18] In this respect, Hume's heirs agree with a fundamental tenet of Cartesian philosophy: the self is not a bodily self, if it exists at all - and Metzinger, Dennett and Parfit say it does not. But perhaps one could avoid the disappereance of people, of ourselves, simply by restoring our forgotten material dimension. Let us look at two recent ways of doing exactly this.

3. Embodying the Self: Two Notable Attempts

3.1. Mind and Body: The Quasi-Identity Theory

A human person cannot be identical with a living body, or so many philosophers think, offering an argument along the following lines. Suppose I am indeed identical with my living body; so I should exist exactly where and when my body exists as a living organism. (But if my brain is seriously and irreparably damaged, my body can still exist although there is no longer a person: I myself have disappeared. A body does not essentially have a mental life; I do. So I, the person, am not identical with my body.

And yet I am intimately related to a body: indeed, when my brain is irreparably damaged I disappear. So what relationship might there be between me and my body?

Constitution theorists have a surprising answer:[19] a human person is constituted by a human body to which the person itself is not identical. Here is the usual – and useful – analogy: a piece of marble constitutes a statue but the statue is not identical with it; in fact, if they were identical, they would have the same persistence conditions: neither could exist without the other; but they have different persistence conditions: the piece of marble can change its form and can exist without constituting a statue, and the statue can change many parts and can exist without being constituted by the original piece of marble. So a statue and the piece of marble that constitutes it are not identical. And the same holds for my body and myself. When a piece of marble is suitably shaped, and perhaps is suitably related to an artworld, a new thing, a statue, comes into existence. When a human organism comes to a suitable degree of biological development it constitutes a new thing, a person, which is essentially endowed with a sophisticated mental life. And it can happen that, when the constituting organism is seriously damaged, the person disappears, no longer constituted by a suitable organism.

The picture that emerges is therefore quite peculiar. On the one hand, persons are essentially thinking beings distinct from any material body. On the other hand, however, human organisms constitute persons who are intimately related to material bodies, so intimately that one can correctly assign to

15 Parfit (1971), p. 3.
16 Parfit (1984), p. 272.
17 Parfit (1984), p. 501.
18 This assumption is indeed explicit in Metzinger (2011), p. 281.
19 Among the 'constitutionalists' one may recall Baker (2000, 2007), Corcoran (2006), Johnston (1987, 1997), and Shoemaker (1999).

a human person a spatial location, just as we do with statues. Constitution theorists look for a duality without dualism, as it were, a fascinating and seemingly impossible compromise between our rational nature and our bodily roots. This sounds like a miracle and indeed it has attracted its share of (rational) disbelievers.

Consider, to begin with, the mental life of a human person. This is the mental life of an entity which is distinct from the organism that constitutes it and so, it seems, the organism itself, in the strictest sense, has no mental life. But why should this be so? A fully developed human organism seems able to think in every respect: it appears to have all the thought-enabling features one would expect; and yet, the constitution theory says, these features are just sufficient conditions for constituting a different entity which is the unique owner of a personal mental life. This sounds quite implausible. On the other hand, if one concedes that human organisms are indeed able to think, then we have two distinct thinkers, the organism and the person it constitutes. And this is even worse. So the constitution theorist seems to be forced to defend the odd thesis according to which a fully developed human organism is unable to think.

But now consider non-human animals, such as cats, dogs, cows, and so forth. Everybody agrees that these animals, these living organisms, are indeed endowed with a mental life, although (probably) not the mental life of a person. So *there are* thinking organisms after all, and excluding fully developed human organisms from thinking seems a rather dubious move.

At this point one could perhaps suppose that human organisms *are* indeed able to think: they simply do not have personal mental lives, but nevertheless they do have perceptions, feelings, desires, and possibly an elementary ability to reason. If so, however, what would the relationship between these animal thoughts and the mental life of the person constituted by the animal be? Should we say that humans have a 'broken' mental life – perceptions and feelings belonging to the animal and, say, theorising belonging to the person? Or should we say that when the animal constitutes a person its mental life is 'transferred' in some way to the person? These are not exactly promising ideas.

But even setting aside this metaphysical maze, a fundamental question remains to be answered: when, why and in which cases something constitutes something else? My parrot has never mimicked a human voice; but suppose that from tomorrow on it recites "The Waste Land" for two years. Does the parrot constitute a new entity for two years, the reciter, which is essentially a speaking being? Perhaps not, one would say. But why? Constitution theorists have been quite elusive on questions like this.[20]

3.2. Animals

Constitutionalists say I am not an organism, even though I am intimately related with the human animal that constitutes me: a fascinating view, to be sure, but also a perplexing one. So one could maybe prefer an obvious alternative: I am not constituted by a human animal, I am simply identical with it. This is what so-called 'animalists' maintain.[21]

Are all persons identical with human animals according to this view? Not necessarily. If God, angels, and a certain kind of alien do exist, they are persons but not human animals.

And notice: biologically alive human organisms in a permanent vegetative state, whose mental capacities are permanently destroyed, are certainly human animals but not persons – if a person is to have certain mental qualities such as rationality, self-consciousness, memory and so on. So not every human organism is a person, animalists say.

This point, however, seem very puzzling indeed. The human organism to which I am identical could exist without being a person – if, for example, it enters a permanent vegetative state; so I could exist without being a person; but this, one would think, is certainly absurd: whenever I exist I am a person,

20 One can find a sustained critique of the constitution theory in Olson (2007).
21 Prominent animalists are Merricks (2011), Olson (1997), Snowdon (1990), and Van Inwagen (1990, 2007, 2008).

I am essentially a person; how could animalists deny this? They can. Animalism is precisely the view according to which people like you and me are identical with thinking organisms and therefore we are not essentially thinking beings; just as a former president of the United States can exist without being a president, so you and I can exist without a personal mental life and without being a person.

"But", so the protest goes, "surely I am not a mere animal!". Human persons cannot be animals, it is said, because in many respects they are absolutely special beings. They compose quartets, have complicated love affairs, write novels, discover bosons and are rational and morally responsible beings – they can be so, at least. How could an animal be like that? This line of argument I think – and animalists think so as well – is rhetorically quite strong but not exactly a very compelling one. We may simply be very peculiar animals, and nothing more: our being special – an undeniable feature of us – does not call for a special metaphysical status. And indeed in an unreflective mood we seem obviously inclined to admit that we are animals; we ordinarily say that *we* have hands, *we* are sitting on the chair, *we* get fat and so on and so forth; but, of course, human animals too have hands, sit on chairs and get fat: it seems no coincidence. Animalism, after all, seems like a sensible and down-to-earth idea.

And yet consider this case. Your cerebrum is put into another head and the being who gets that organ is mentally continuous with you: she has your memory, your feelings, your tastes, and so forth. She is you, one would say. So you have gone along with your transplanted cerebrum while no animal has moved from one head to another. Therefore you are not an animal.

Many people, and many philosophers have found this argument inescapable: animalism must be false. But animalists have an answer.[22] In ordinary life we are mainly interested in the mental lives of people and, ordinarily, whenever there is the same mental life, there is the same person. But this does not hold on every occasion. In extraordinary cases, such as the cerebrum transplant, a mental life is transferred from a person to another: there are one mental life and two persons. Metaphysically speaking, a kidney transplant is no different, even though, of course, the cerebrum case makes for a dramatic practical difference (our interest will shift from the donor to the recipient).

I think this is a quite convincing reply, and, more generally, I think animalism is quite a convincing idea. If you are skeptical about Cartesian souls and transcendental egos, and if you want to avoid our theoretical disappearance, you'd do best to admit we are robustly embodied things. And the most straightforward and promising thesis concerning our bodily nature is that we are identical with living bodies. Or so I suggest, if you trust an animal like me.

22 See Olson (1997).

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EMBODIED SIMULATION AND TOUCH: THE *SENSE* OF TOUCH IN SOCIAL COGNITION

abstract

This paper explores the sense of touch in relation to social cognition offering a new take on multisensory integration in the brain, within the framework of Embodied simulation (ES) theory. ES provides a new empirically based notion of intersubjectivity, viewed first and foremost as intercorporeality. In relation to touch, by means of ES we do not just "see" a sensation experienced by someone else and then understand it through an inference by analogy. By means of ES we can map others' sensations by re-using our own motor, somatosensory and viscero-motor representations. ES provides an original and unitary account of basic aspects of intersubjectivity, demonstrating how deeply our making sense of others' living and acting bodies is rooted in the power of re-using our own motor, somatosensory and viscero-motor resources.

keywords

Empathy, embodied simulation, mirror neurons, multisensory integration, social cognition, touch

1. Introduction

In our title "The *sense* of touch" the word 'sense' is written in italic to emphasize how the sensory modality of touch is crucially involved in the constitution of the sense we attribute to the world.
In his *The Visible and the Invisible* (1968) the French philosopher Merleau-Ponty wrote: "What there is then are not things firs identical with themselves, which would then offer themselves to the seer [...] – but something to which we could not be closer than by palpating it with our look, things we could not dream of seeing 'all naked' because the gaze itself envelopes them, clothes them with its own flesh" (p. 131). In this famous passage Merleau-Ponty notably emphasizes, on the one hand, the haptic quality of our gaze and, on the other, the intrinsic motor nature of our sensory explorations of the world. As aptly noted by Derrida (2005, p.143), Merleau-Ponty when writing about touch was influenced, beside Husserl, also by the French philosopher Maine de Biran (1766-1823) to whom he devoted a series of lectures in 1947-48. Maine de Biran, whose philosophy challenged the standard *sensist* notion of the senses and consciousness as mere passive perceptions, emphasizing instead the central role of effort and motor will, indeed wrote: "It is only, therefore, as a motor organ that touch contributes essentially to putting the individual in communication with external nature; it is because it combines the two faculties in the most exact proportion that it is susceptible of such nice, such detailed, such persistent impressions; in short, it is in virtue of this that it opens a feeding ground for intellect and furnishes it with its more substantial nourishment" (1929, p. 61). And two pages later continues: "For that matter, we can apply to sight almost all that we have said of touch. In the natural state and in the ordinary exercise of the organ, the two functions – sensory and motor – correspond with and balance each other with no mutual disturbance" (ibid., p. 63).
As we show in the present article, Maine de Biran's words are not metaphors, since they envisage what cognitive neuroscience has demonstrated during the last two decades: the pervasiveness of multimodal integration in our brain and the crucial role of action and of the motor system in enabling multimodal sensory integration. The results of the empirical brain research we present here demonstrate how vision, touch and action are inextricably related, so that our visual perception of the tactile experience of others systematically leads to the activation of our motor and somatosensory systems. Before addressing these issues, however, we offer a brief overview of how the cortical somatosensory system is organized and how such organization relates to the notions of unimodality and multimodality.

2. The Somatosensory System and Multimodality

'Tactile stimuli', like a caress on our hand or a slap on our face, are indeed mechanical events occurring at the periphery of our body, where specialized neurons, called receptors, transduce mechanical energy into action potentials. Several pathways originating by somatosensory receptors variously distributed all over the body travel within the central nervous system and the third cranial nerve. After several relays at the level of the brainstem and of specific thalamic nuclei, they reach the neocortex. The human neocortex is traditionally subdivided in different, functionally and anatomically segregated regions. Behind the central sulcus sits the primary somatosensory area, also known as SI composed of 4 distinct cytoarchitectonic areas, Brodmann's Area (BA) 3a, 3b, 1 and 2. The secondary somatosensory area, SII, is buried within the depth of the lateral sulcus. Both SI and SII receive the somatosensory-related thalamic inputs, and are traditionally considered to be unimodally related to the processing of somatosensory stimuli, like touch, proprioception, pain and temperature. As we show in the present article, this unimodal modular view doesn't hold anymore.

Thus, sensory and motor circuits in the brain that directly guide the interactions between our body and the external world through action and perception also likely contribute to the conceptualization of what we observe in the world around us (Gallese and Lakoff 2005; Gallese and Sinigaglia 2011). In other words, they are supposed to neurally generate bodily formatted representational content about what we perceive in that world.

The body typified by the German philosopher Edmund Husserl as "a thing inserted between the rest of the material world and the subjective sphere" (1989, p.161), clearly accentuates the unique and central position of the *lived body* between the mental/subjective and the physical/objective (Husserl, 1989). Or, as put by Merleau-Ponty (1962), "I perceive with my body" (p. 326), "we are in the world through our body and in so far as we perceive the world with our body [...] perceiving as we do with our body, the body is a natural self and, as it were, the subject of perception" (p. 239). Consequently, the body overcomes the divide between the physical and the mental "if we introduce the phenomenal body beside the objective one, if we make a knowing body of it" (p. 278).

At the neural level, a necessary condition to meet for sensory and motor systems in order to serve our knowledge of the world is multimodality (e.g., Gallese and Lakoff 2005). That is, in order to entertain the capacity to generate knowledge, like knowledge about others' mental states and behaviors, neurons should respond to more than one modality. This view is completely different from the still dominant view in classic cognitive science, according to which our conceptual knowledge of the world is supported by amodal representations that result from abstract, symbolic computation (Fodor 1975, 1983). Traditionally, a clear distinction was made between modular structures for action and perception, and supramodal association areas linking different modality specific areas. However, accumulating empirical evidence suggests that sensory and motor systems are multimodal and directly linked systems, responding to and processing information associated with multiple modalities. Not coincidentally, the interactions of our body with the external world, including other living bodies, are actually multimodal. For instance, in the case of action, one could argue that action performance contains motor components as well as various perceptual contents, like vision (what does the action look like, what are the visuospatial characteristics of the object), sounds (what kind of sound accompanies a particular action), somatosensations (body-object interaction, proprioception) and localization in space. The same applies to ouch. In the following sections we show how the sensory modality of touch, both when subjectively experienced and when observed being experienced by others, relies on dynamic processes of multimodal integration, encompassing the activation of somatomotor and visceromotor cortical networks.

3. Multimodal Processing in Sensory and Motor Systems

Empirical evidence consistently supports multimodal properties of sensory and motor systems as they appear not exclusively dedicated to inputs from a specific modality. By contrast, they rather tend to respond to more than one modality. Concerning somatosensory systems, a number of studies showed that tactile processing is not confined to somatosensory cortex, but that other brain

regions, traditionaly thought to subserve sensory modalities other than touch, are indeed involved in somatosensory processing too. For instance, Bolognini et al. (2010) demonstrated by means of transcranial magnetic stimulation (TMS) that the cortical region of the superior temporal gyrus, generally considered an auditory modality-specific area, is involved not only in auditory processing, but also in temporal aspects of somatosensory processing. Furthermore, a functional magnetic resonance imaging (fMRI) study reported that also primary visual cortex responds to tactile input (Merabet et al. 2007). In addition, by using neural tracers, it was shown that the primary visual cortex of macaques receives both direct and indirect connections from auditory and somatosensory cortices, providing an anatomical basis for a highly integrative functioning among sensory systems (see Borra and Rockland 2011).

Likewise, also the motor system is endowed with multisensory properties. Several studies consistently showed that premotor and parietal areas contain neurons that perceptually respond to visual, auditory and somatosensory inputs (Fogassi et al. 1992, 1996; Gentilucci et al. 1983, 1988; Rizzolatti et al. 1988, 1997; Graziano et al. 1994, 1997, 1999).

A peculiar example in this context is ventral premotor area F4 in macaque monkeys' agranular frontal cortex (Matelli et al. 1985), part of a circuit that maps specific sensory events in the space near the body onto arm and head movements (Rizzolatti and Luppino 2001). A large proportion of F4 neurons has bimodal properties responding to both somatosensory and visual stimuli (Fogassi et al. 1996). Visual receptive fields of F4 neurons are mostly located in the space near the monkey (peripersonal space) and typically extend in the space adjacent to the tactile receptive fields of the same neurons.

Based on their somatocentered receptive fields (RFs), neurons in F4 are suggested to be involved in space perception. In particular, their RFs are anchored to a particular body part and when the body part is moved, the RF moves along with it (Fogassi et al. 1996; Graziano and Gross 1998). Hence, it has been proposed that area F4 could be involved in the integration of multisensory information from vision, touch and proprioception onto the motor representations of different body parts (Fogassi et al. 1996; Graziano 2001; Rizzolatti et al. 2002).

Several studies identified a putative human homologue of monkey area F4 in premotor cortex. With respect to its multisensory properties, Bremmer et al. (2001) demonstrated by means of fMRI that the ventral aspect of human premotor cortex responds to visual, auditory and tactile stimuli. More recently, a repetitive TMS study showed a specific disruption of audio-tactile interactions around the hand, showing the crucial role of human premotor cortex in the processing of multisensory stimuli within peripersonal space (Serino et al. 2011).

Beside providing evidence for multimodal processing in the sensory-motor system, these findings bear more general significance. Let's ask the following question: how do premotor F4 neurons "perceptually" work?

A likely and intriguing answer to this question is, by means of embodied simulation. That is, perceiving an object or event through one of the senses at a given location within peripersonal space evokes the motor simulation of the most appropriate actions towards that very same spatial location (Rizzolatti et al. 1997; Gallese 2005). The embodied simulation hypothesis is supported by the fact that F4 neurons discharge not only when an object is present in the peripersonal space, but also when the monkey *believes* the object is still present, while the object has been removed without the knowledge of the monkey (Graziano et al. 1997). Thus, space representation in the premotor cortex can be generated not only as a consequence of an external, multisensory stimulation, but also internally on the basis of previous experience.

4. Mirror Mechanisms and Embodied Simulation

Although the recognition of the contribution of first-person bodily experiences to consciousness and knowledge can be traced back in modern times to the philosophical school of phenomenology (e.g., Edmund Husserl, Merleau-Ponty), or to 19th century psychology (e.g., William James), it is mainly since the discovery of mirror neurons in area F5 within the ventral premotor cortex of macaque monkeys

(di Pellegrino et al. 1992; Gallese et al. 1996; Rizzolatti et al. 1996) that the idea of understanding the world around us in terms of the way we function with our bodies in that world gained wide attention in neuroscience. Neurons in premotor area F5 are known to code goal-related motor acts, like hand and mouth grasping. Surprisingly, many of these neurons (called, mirror neurons) were found to be activated not only when the monkey performed a particular object-related action, but also when the monkey observed someone else performing the same action. Neurons with similar mirror properties were later on also found in regions of the inferior parietal lobe reciprocally connected with area F5 (Fogassi et al. 2005; Petrides & Pandya 1984; Rozzi et al. 2006).

In accordance with these findings in monkeys, a similar mirror mechanism mapping action perception on motor representations of the observer's brain was revealed in humans by many studies through different methodologies, including fMRI, PET, MEG, EEG, TMS (Rizzolatti et al. 1996; see for reviews Rizzolatti and Sinigaglia 2010; Rizzolatti and Craighero 2004; Gallese and Sinigaglia 2011). It was proposed that the mirror mechanism might underpin basic aspects of social cognition and empathy (Gallese 2003; Gallese et al. 2004) on the basis of its documanted involvement in the understanding of action goals (Umiltà et al. 2001, 2008; Rizzolatti and Sinigaglia 2007; Gazzola et al. 2007) and basic motor intentions (Iacoboni et al. 2005; Fogassi et al. 2005), with behaviors like imitation (Iacoboni et al. 1999; Rizzolatti et al. 2001), complementary actions (Newman-Norlund et al. 2007) and with the semantics of action-related words and sentences (Hauk et al. 2004; Tettamanti et al. 2005; Aziz-Zadeh et al. 2006; Pulvermuller et al. 2005).

The multisensory properties of mirror neurons are highlighted by studies showing that they not only respond to visual input, but also to the sounds of specific actions (Kohler et al. 2002; Keysers et al. 2003; Gazzola et al. 2006). The relevance of this discovery is that it allows a direct mapping of the perception of an action onto the perceiver's motor representation of the same action. The sensory representation of another's action is mapped onto one's own motor representation of the same action (e.g., Rizzolatti et al. 2001). In other words, one's own motor knowledge is used to understand the action of another agent by means of embodied simulation (see Gallese 2003 2005; Gallese and Sinigaglia 2011).

Probably, mirror neurons for action are just the tip of the iceberg, representing one specific aspect of a more general mirror mechanism (MM) that uses bodily formatted representations of goals, emotions, body states and sensations to map the same states in other individuals (Goldman and Gallese 2000; Gallese 2003, 2005; Gallese et al. 2004; Gallese and Sinigaglia 2011). Indeed, empirical evidence from numerous neurophysiological, neuroimaging and behavioral studies confirmed this initial hypothesis that a similar mirror mechanism could be applied to the social perception of other mental states and bodily experiences as well (see Keysers and Gazzola 2009; Gallese and Sinigaglia 2011).

By using different techniques and methodologies, a vast series of studies corroborates this conclusion by showing that the same cortical regions underlying the first-person experience of emotions and sensations are also activated when witnessing others' emotions (Carr et al. 2003; Wicker et al. 2003; Leslie et al. 2004; Pfeifer et al. 2008) and sensations, like touch (see Keysers et al., 2010), pain (Hutchison et al. 1999; Morrison et al. 2004; Singer et al. 2004; Botvinick et al. 2005; Jackson et al. 2005; Avenanti et al. 2005) and pleasant touch (McCabe et al. 2008).

The theory of embodied simulation (Gallese 2003, 2005; Gallese and Sinigaglia 2011) provides a unified theoretical framework for all of these phenomena. It proposes that our social perceptions become meaningful by means of re-using our own mental states or processes in functionally attributing them to others. Here, we refer to simulation as an automatic, unconscious, pre-reflective mechanism of the brain-body system, whose function is to model, objects, agents and events, and which is triggered by perception (Gallese 2005), although is plastically modulated by contextual, cognitive and personal identity-related factors. This neurobiological perspective on the notion of simulation holds that the same neural structures involved in our own bodily self-experiences are also involved with the pre-reflective understanding of the behaviors and of some mental states of other individuals.

5. Tactile Sociality

The tactile dimension, i.e., touch, plays a peculiar role in our interaction with the external world. The sense of touch is the first to develop before all other senses, and is the most important sense allowing infants to initially learn about their inanimate and animate environment, and their bonds with it. Concerning the animate world, touch plays a pivotal role in social interactions subserving a nonverbal communication of intentions and affect through somatosensory stimulation of another individual. In contrast to the other senses, it is present all over the body. Moreover, it is crucial for the awareness of our own body in relationship with the external world based on both external perceptions (i.e., touch) and internal perceptions (i.e., proprioception). As posited by Edmund Husserl, everything we see, we also see it as a tactile object, as something directly related to the *lived body*, and not just by virtue of its visibility (Husserl 1989).

A substantial amount of studies points to manifold functions accommodated by the somatosensory system. For example, Zhou and Fuster (2000) found that monkeys' SI neurons responded also to visual stimuli, if these were previously associated with tactile experiences. A very recent study revealed within macaque monkeys' area SII the presence of purely motor, hand grasping-related neurons (Ishida et al. 2013). Since lesion of SII produces tactile agnosia (Caselli 1991; Reed and Caselli 1994, 1996), that is, the inability to recognize objects by means of their haptic exploration (Valenza et al. 2001), these newly discovered neurons might likely provide the somato-motor binding principle enabling the translation of diachronic somatosensory inputs fed by peripheral receptors into a coherent image of the explored object. Indeed, the German philosopher Hans Jonas (1973) posited that tactile qualities like roughness and smoothness, in order to be experienced, require a series of dynamic somatosensory sensations obtained by means of friction and pressure of the fingers, that is, by means of movement.

Moreover, if we move to the domain of social cognition, a series of fMRI studies demonstrated activation of a shared neural circuitry in primary (SI) and secondary (SII) somatosensory cortices, which is normally involved in our experience of touch, during the observation of another person being touched (Keysers et al. 2004; Blakemore et al. 2005; Ebisch et al. 2008, 2011; Schaefer et al. 2009; Meyer et al. 2011; Kuehn et al. 2012, 2013). The involvement of somatosensory cortex in touch observation was subsequently replicated by means of somatosensory-evoked potentials (Bufalari et al. 2007), magnetoencephalography (Pikho et al. 2010) as well as TMS and lesion studies (Bolognini et al. 2011, 2012; Rossetti et al. 2012). Whereas MEG provides a more direct, but still correlational measure of neural activity related to a given function at a high temporal resolution, TMS and lesion data suggest a causal role of brain regions in specific functions.

Keysers et al. (2004) additionally demonstrated that activation of this shared mechanism for touch in SII also occurred for the sight of an object being touched. Thus, in order to activate a shared neural circuitry for touch by vision, it does not matter what is being touched (animate or inanimate) as long as touch occurs. In accordance with the latter finding, action observation studies consistently show somatosensory activation when witnessing bodies interacting with objects (Gazzola et al. 2009; Ramsay et al. 2011; Turella et al. 2012).

Although not systematically investigated, psychological evidence supports a role of mental simulation also in the predictive coding of others' peripheral sensations (Bosbach et al. 2005). Neuroimaging studies suggested that predicting the consequences of observed object-directed actions involves the somatosensory cortex (Ramsey et al. 2011; Morrison et al. 2012). Further studies using fMRI showed that SI is activated both when participants view a hand being stimulated by an object as well as when an object is moving in the space close to the hand, but not when moving far from the hand (Schaefer et al. 2012). One independent set of data further support the notion that predictive responses of multimodal somatosensory-related areas map the augmented probability for touch to occur for movements within others' peripersonal space, on the basis of embodied simulation. Indeed, single neurons recordings in macaque monkeys showed that parietal area 7b and the ventral intraparietal

area (VIP), contain visuo-tactile neurons that respond both to visual stimuli moved within monkeys' peripersonal space, approaching tacile RFs on the monkey's body and to the observation of similar stimuli approaching equivalent parts of the experimenter's body (Ishida et al. 2010).
In another fMRI study, when directly contrasting the observation of animate and inanimate touch, stronger SI responses were detected by fMRI for the sight of intentional, animate touch, compared to accidental, inanimate touch (Ebisch et al. 2008). The intensity of neural activation in this area significantly correlated with the degree of intentionality of the observed touching stimuli as rated by participants, even when intentionality only was assumed by the observer. This finding suggests that SI, in addition to simulation of others' tactile experiences, could also be involved in the simulation of the proprioceptive aspects related to the act of touching. Indeed, Brodmann's area 2 in SI has been associated with proprioceptive functions, in addition to tactile perception (Gardner and Kandel, 2000).
With respect to more affective aspects of social perception, somatosensory cortex function has also been linked to empathic ability (Zaki et al. 2009; Schaefer et al. 2012) or the recognition of emotional expressions (Adolphs et al. 2000; Pitcher et al. 2008). Few studies reported modulation of the activation either of SI (Bufalari et al. 2007; Bolognini et al. 2013) or of posterior SII (Ebisch et al. 2011) by the affective valence or intensity of observed social touch.
Finally, few studies further supported the hypothesis that embodied simulation processes in somatosensory cortex contribute to the conceptualization of our perceptions in the external world, even in the absence of animate involvement. Ebisch et al. (2008) showed that an automatic tendency to activate brain areas involved in the processing of our own experience of touch applies to the observation of any touch. Specifically, SII activation occurred independently of whether the observed touch was intentional or accidental, and independent of whether an observed touched object was animate or inanimate. This may suggest that embodied simulation principles apply to the understanding of more abstract events, too (see Keysers et al. 2004; Gallese 2005; Ebisch et al. 2008). Accordingly, an fMRI study by Lacey et al. (2012) provided evidence for activation in somatosensory cortex associated with the processing of metaphors from the domain of texture, suggesting that comprehension of metaphors could be perceptually grounded by means of embodied simulation in sensory systems. These findings therefore support the activation of an "abstract" notion of touch in somatosensory cortices, building on the neural mechanisms for interpreting actual touch even for inanimate contact and metaphors, where abstraction is the likely prelinguistic outcome of a multimodal integration mechanism (see Lakoff and Gallese 2005; Gallese 2008). It is worth noting that already in the XVIII century the Italian philospher Gianbattista Vico wrote that "...n'tutte le lingue la maggior parte dell'espressioni d'intorno a cose inanimate son fatte con trasporti del corpo umano e delle sue parti e degli umani sensi e dell'umane passioni" (1725-1744, p. 284).[1]
Thus, although the somatosensory system is obviously endowed with tactile properties (e.g., Kaas 1983; Ferretti et al. 2003), the data here concisely reviewed suggest that its functions extend well beyond its classic role in the personal perception of somatic sensations. Regarding the social domain, a somatosensory mirror mechanism may allow individuals to map others' bodily experiences on their own bodily formatted somatosensory representations. In other words, by exploiting the same neural circuits as those recruited for first-person bodily experiences, a direct inter-subjective link is established between self and other allowing an experiential understanding of others bodily feelings (Gallese 2003).

6. Self Versus Other in (Tactile) Social Perception

Although a vast amount of empirical studies shows that neural circuits allowing first-person bodily experiences contribute to the understanding of similar experiences in other individuals (Keysers and Gazzola 2009; Gallese 2003, 2005), an intriguing, but poorly investigated issue remains how a self-other distinction is established. In addition to the importance of a pre-reflective, experiential

1 "Thus we discover the important principle that every language, no matter how copious and learned, encounters the hard necessity of expressing spiritual things by means of relationships with corporeal things."

understanding of others' by re-using our own mental states and processes, one could argue that it would be equally crucial to discriminate to whom these feelings and experiences belong (e.g., Banissy et al. 2009; Eisenberg et al. 1989; Batson et al. 1987). In other words, in functional empathic experiences, there is no complete overlap between one's own and others' mental states. Others' experiences, which are empathically shared, nevertheless are experienced as belonging to the other. From a phenomenological perspective, such self-other discrimination is considered constitutive for the perception and understanding of others' behavior and mental states, a crucial aspect of empathy. For instance, Edith Stein (1989) defined *empathy as "the experience of foreign* consciousness in general" (p. 11). Here, she not solely emphasized the experiential aspect of empathy, like an intersubjective sharing of the experiences of others as similar to us, but she also emphasized the preservation of otherness. As stated by Stein (1989), "the subject of empathizing is not the subject empathizing, but another, a foreign mind" (p.10) and so "the experience of foreign consciousness can only be the non-primordial experience which announces a primordial one" (p. 14). Thus, unlike our own experiences, which are primordially given, empathy does not have this primordiality. As further emphasized by Zahavi (2010, 2001), it is because of this asymmetry, that the minds we experience are experienced as *other minds*. Also according to Husserl, "had one had the same access to the other's consciousness as to one's own, the other would have ceased being another, and would instead have become a part of oneself" (Husserl 1973, p. 139, transl. Zahavi 2010). Thus, empathy does not consist of experiencing the other's behaviors and mental states in the same way as the other does. Others' mental states are essentially experienced as belonging to a foreign mind, without being in the same state as the other. In other words, we do not necessarily experience the specific contents of others' (tactile) experiences, but experience others as having (tactile) experiences similar to ours.

How can this self-other discrimination be reconciled with an empathic sharing of others' states based on vicarious brain activity in the sensory-motor system and be translated into brain function? Part of the answer can be found in the intensity of vicarious activity. Blakemore and colleagues (2005) investigated by means of fMRI scanning brain activation for the observation of touch in a case of vision-touch synaesthesia, that is, a person for whom the observation of another person being touched is experienced as tactile stimulation on the equivalent part of her own body. The sensory-motor system including somatosensory cortex, premotor cortex and anterior insula, responsible for first-person tactile experiences, showed stronger activation for the vision of touch in the case of vision-touch synaesthesia, compared to participants not affected by this condition. This led the authors to conclude that an abnormal intensity of vicarious activation may lead to the actual experience of first-person bodily experiences, even though not primordially given.

Furthermore, it has been proposed that the extent of vicarious activity could contribute to the distinction between self and other as well. Usually, there is no complete overlap between first-person tactile experiences and the observation of similar experiences in other individuals. Studies showed that witnessing others being touched only activated part of somatosensory cortex that is activated when actually experiencing touch (Keysers et al. 2010). In particular, neuroimaging studies reviewed by Keysers et al. (2010) show vicarious activation in SII as well as in BA 1 and 2 (part of SI), while BA 3 seems to be reserved for processing tactile perceptions of one's own body. The absence of vicarious activation in certain regions of primary sensory cortex could be co-responsible for the absence of real bodily perceptions when just witnessing them in others.

Finally, this issue was recently more specifically addressed by means of fMRI (Ebisch et al. 2011). In this study, healthy participants watched other individuals being touched on their hands in different ways and, at the end of the experiment, were touched on their hands themselves. The results demonstrated overlapping activation for the experience and observation of touch in several sensory-motor regions, including SII and premotor cortex. However, differential activation was found for the experience and observation of touch in the posterior insular cortex (pIC). Specifically,

neural activation in pIC was positively modulated when participants were touched themselves, but negatively modulated (i.e., suppressed compared to baseline) when they observed social-affective touch in other individuals.
pIC is considered central to interoceptive functions (Craig 2002). Anatomically, thalamo-cortical pathways that provide afferent information to pIC, and interactions with limbic, somatosensory and motor regions could be at the basis of the role of pIC in the awareness of bodily feelings, including threatening or comforting information from the skin (Augustine 1996; Saper 2002; Critchley 2005; Craig 2009; Olausson et al. 2002; Loken et al. 2009). In accordance with the idea of pIC as a central cortical node in a system constituting a neural representation of 'the material me' (Craig 2002), a series of studies also show that pIC contributes to self-awareness. Tsakiris et al. (2007) found a relationship between neural activation in pIC and the subjective experience of the rubber hand illusion (RHI: a condition in which an observed rubber hand synchronously stroked with participants' unseen hand is subjectively experienced as if it actually were one's own hand).
In line with the proposed pIC function in the awareness of the physiological state of the body, a close link between the awareness of the physical and the physiological self was suggested during the RHI (Moseley et al. 2008). pIC has further been related to the awareness of body parts in anosognosia patients with hemiplegia/hemiparesis (Karnath et al. 2005), and to the sense of agency (Farrer et al. 2003).
Taking into account the view of pIC as a brain region crucially involved with body-related feelings and body awareness, the opposite activation pattern we reported for the experience and observation of touch in pIC (Ebisch et al. 2011) could reflect its role in the differentiation between self and other tactile conditions. Such a function is further corroborated by a recent lesion study investigating the neural basis of illusory own-body perceptions (Heydrich and Blanke 2013). Specifically, heautoscopy, a condition associated with the visual perception of a second own body, a strong self-identification with that second own body, and the experience of existing at and perceiving the world from two places at the same time, could be related to lesions in left pIC. Importantly, autoscopic hallucinations where a second own body is seen without any changes in bodily self-consciousness, are related to lesions in right occipital cortex, but not in pIC.

7. Conclusions

On the basis of the evidence summarized in this article, it can be proposed that the pre-reflective side of (tactile) social perception as captured by the theory of embodied simulation and by phenomenology may emerge as a rather multifaceted function that relies on a dynamic interaction between, on the one hand, embodied simulation processes within shared neural networks grounding an implicit understanding of others' behaviors and mental states (Gallese, Keysers, and Rizzolatti, 2004; Gallese 2003), and, on the other, processes allowing one to maintain a coherent and unique sense of self, comprising self-other discrimination (Ebisch et al. 2011, 2012; de Waal, 2008; Cheng et al. 2007; Lamm et al. 2007; Batson et al. 1987). According to this perspective, identity and alterity – together with reciprocity – are necessary and intertwined dimensions of intersubjectivity.

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THE NATURE OF SENSORY EXPERIENCE: THE CASE OF TASTE AND TASTING

abstract

Recently, psychologists and neuroscientists have provided a great deal of evidence showing that perceptual experiences are mostly multimodal. As perceivers, we don't usually recognize them as such. We think of the experiences we are having as either visual, or auditory or tactile, not realising that they often arise from the fusion of different sensory inputs. The experience of tasting something is one such case. What we call 'taste' is the result of the multisensory integration of touch taste and smell. These unified flavour experiences provide a challenge when trying to reconcile the underlying processing story with the conscious experience of subjects, but they also challenge assumptions about our access to our own experiences and whether how we conceive of those experiences plays any in role in accounting for their ultimate nature.

keywords

Multisensory, flavour, taste, smell

1. Sensory Experience

Our most fundamental contact with the world comes through our senses. They inform us about our immediate surroundings and our embodied selves. But as many philosophers have pointed out, they can also mislead and distort. The unreliability of the senses convinced the Rationalist philosopher Rene Descartes that that they could not provide a firm basis for our knowledge of the external world. Instead, he thought a purely rational faculty was necessary to provide us with knowledge of reality. By contrast, the Empiricists believed that the contents of the mind were all derived from the senses, and taking this position to its ultimate end, David Hume adopted a thoroughgoing agnosticism about the causes of our sensory impressions. Working from within experience, he argued that there was no standpoint from which to compare items before the mind with things in the outer world; so anything we said about that outer realm would be mere speculation.

In accepting this epistemological gap between the mind and the world, Rationalists and Empiricists both took for granted that we had immediate knowledge of how our senses presented things to us; i.e. of how they appeared in the light of our senses. But for different reasons, they both thought that such sensory experiences could not provide a sufficient basis on which to conclude anything about the external realm. The distinction invoked here between appearance and reality coincided with the divide between mind and world, and although we could not be certain of how things were in reality, we could, on the basis of experience alone, be certain of how things appeared to us. Experience, was taken to be knowable through and through, and was, in effect, just a matter of things appearing a certain way to us as subjects. The philosophical task was to find a way to cross the divide between how experience presented things to us and how they really were; a task that Hume subsequently abandoned. However, both Descartes and Hume assumed that we had immediate knowledge of how things were in our experience, despite Descartes' method of doubt where he questioned everything that he had previously taken for granted.

It is the assumption that we can straightforwardly recognize how things are in our experience that I want to question. This is not because of the direct Realist's claim that appearances that present things as they are and those in which are just appearances are sometimes indistinguishable by subjects. Instead, the case I am interested in is where aspects of our experience go missing in how things appear

to us; i.e., a case where there are properties of our experience that we fail at first, to recognise. This is to suggest that an appearance-reality distinction operates within experience itself. To some, this will sound unintelligible. Surely, things appearing a certain way to a subject just is what it is for that subject to have a conscious experience. There is simply no room for a gap between appearance and reality within experience. And since the senses shape our perceptual experiences, we are bound to know their sensory character; i.e., they are either cases of seeing, hearing, smelling, touching or tasting.

This view, I will argue, is utterly mistaken. We can be misled by, and about, our perceptual experiences and can fail to recognise the senses we are exercising when having those experiences, as recent work on the senses in psychology and neuroscience shows. How things appear to us *within* experience is not always how they are. I will illustrate this general point by considering the case I know best: that involving tastes and tasting.

2. Acts of Tasting

Eating, or sipping something, will produce a distinctive experience in the mouth. These are fleeting experiences, quickly over and done with, that are hard to concentrate on but which leave us with an immediate hedonic reaction, of liking or disliking. What really goes on in tasting experiences, and what do they provide us with experiences of? These are the key question, and as we shall see later, liking and disliking are important distractors.

When tasting we think we are getting most of our information from the tongue. But in fact very little comes from there. Receptor firings on the tongue code for 'basic tastes' such as salt, sweet, sour, bitter, savoury, metallic. And yet these gustatory properties don't exhaust what we are capable of tasting. Think of tasting 'ripe mangoes, fresh figs, lemon, canteloupe melon, raspberries, coconut, green olives, ripe persimmon, onion, caraway, parsnip, peppermint, aniseed, cinnamon, fresh salmon' (Sibley 2006, p. 216). We don't have receptors for melon or onion, or any of these other things. These are not tastes: they are *flavours* and our ability to experience them depends on more than taste alone. Notice, that we cannot construct such flavours from combination of basic tastes alone. As Frank Sibley put it:

> *Coconut may be somewhat sweet, and lemon sour or acid, but what other tastes combine with sweetness to give coconut, or with sourness or acidity to give lemon? How could one construct a blend of distinguishable tastes...to yield that of coconut, or lemon, or mint? Try to imagine a recipe: 'To make the flavour of onion (or pepper, or raspberries, or olives), add the following [basic tastes] in the following proportions . . . ' (Sibley 2006, pp. 216-7).*

There is no such procedure. However, the act of tasting gives us knowledge of these easily identifiable flavours. So the objects of perception in tasting are not *tastes*, but *flavours*. Tastes proper are only a part of what contributes to our experience of tasting something. Taste exclusively concerns the gustatory dimension of flavour perception: it is the upshot of taste receptors firing in the oral cavity, on the tongue and in the gut.

In fact, the sensations that the tongue produces - gustatory sensations - are hard to experience alone save in experimental settings, for example, when drops are put on parts of an anaestheticed tongue and we prevent any other sensations, of smell say, from contributing to the subject's experience. So what we call 'taste' is not just sensations from the tongue but the perception of flavour, and even what we think of as experiences of the so-called basic tastes, like sweet, sour, salty, etc. may, in fact, be experiences of flavours. (See Spence, Auvray and Smith 2013). But what are flavours and how do we perceive them?

3. Taste and Flavour

Let's start by asking how tasting produces experiences that provide knowledge of flavours:

Although the experience of the sensory qualities of a food are often described in terms of how it "tastes", in practice this experience of flavour is a complex interaction (Yeomans et al. 2008)

It is in effect, a multi-sensory product: a fusion (confusion?) of different inputs. Yet, the seemingly unified experience of flavour gives us little clue that it is a complex interaction effect, which may be why we think of it as just taste. The missing element, along with taste, that contributes to the experience of flavour is smell. But it is easy to miss this when thinking of smell as we ordinarily do, as the sniffing of odours in the environment. This is *orthonasal* olfaction: the inhaling of odours from our surroundings. But we need to follow Paul Rozin in distinguishing two senses of smell: orthonasal olfaction and retronasal olfaction (Rozin 1982).

An odour molecule may reach the olfactory epithelium in the nose (orthonasal olfaction) or the mouth (retronasal olfaction). When an odor is sensed orthonasally, it is perceived as originating from the external world. In contrast, when an odour is sensed retronasally, it is perceived as [arising] from the mouth (Murphy et al. 1977; Rozin 1982) quoted in Small et al. 2005, p. 593.

Orthonsal olfaction allows us to detect environmental stimuli: predators, smoke, food, or mates. *Retronasal olfaction* allows us assess what we have just swallowed, letting us know whether to reject it or continue eating.

With orthonasal and retronasal olfaction, 'the same receptors in the olfactory epithelium are activated but depending on the direction of flow of odours they project to different cortical areas' (Small et al. 2005). This can result in different conscious experiences of the same odours. When airflow is from the mouth to the nose, we tend to get 'oral referral' with the smell turning up as an experience in the mouth classified as 'taste', perhaps due to the simultaneous presence in the oral cavity of touch, or a tastant. This is what Rozin calls 'the location illusion', and when it occurs we get an inseparable combination of taste and retronasal smell leading to a unified experience of flavour. This fusing (or confusing) of smell and taste was demonstrated by Murphy et al. (1977) in normal subjects with purely odour-induced tastes:

> *When an aqueous (but tasteless) olfactory stimulus is placed into the mouth, subjects consistently interpret the sensation as a taste, rather than a smell, and state that the flavour is centered on the tongue, even though the sensory perception is principally mediated via the olfactory system. (Gottfried 2005, p. 473)*

Conversely, there are taste-induced odours. When subjects chew mint-flavoured chewing gum until it loses its sweetness and 'taste' (odour) of mint, they can be asked to remove it from the mouth and rub it in icing sugar. When they put it back in the mouth, the mint returns even though there is no mint in icing sugar. Here, the recurrence of a taste boosts sub-threshold olfaction raising it to awareness.

Normally, the experience of flavour requires taste and *retronasal* olfaction, incorporating the smelling of odours arising from the mouth:

> *The use of the same word, 'taste', to refer to flavour and to the true gustatory sensations of salty, sweet, sour and bitter leads to a variety of confusions. For a clinical example, where patients lost olfaction, they often report that they cannot taste or smell. However, when questioned, patients acknowledge that they taste*

> *salty, sweet, sour and bitter, but 'nothing else'. The 'nothing else' is the contribution of retronasal olfaction to flavour. (Bartoshuk and Duffy 1998, p. 284)*

Thus, smell contributes most to what we call 'taste' and yet this element of smell goes missing in experience. So, not everything about the experience of tasting is immediately available as part of a subject's awareness. We are mistaken about the nature of these experiences: we tend to think they are tastes and due to sensations from the tongue. We think we know this because we think we have immediate access to these 'simple' sensations. Tasting was therefore thought to be thought rather simple, and until recently it remained vastly underexplored. The exception was Brillat-Savarin, writing in the nineteenth century, who was 'tempted to believe that smell & taste are in fact but a single sense, whose laboratory is in the mouth & whose chimney is the nose' (Brillat-Savarin 1835, p. 41).

4. The Nature of Flavour Experiences

We have concluded that what we call our experience of the 'taste' (flavour) of something arises through the multimodal integration of taste proper with retronasal olfaction. But to that we have to add somatosensory sensations, mechanoreceptors triggered by chewing, and trigeminal irritation. Chemical irritation of trigeminal nerve - the facial nerve that innervate the eyes, the nose and the mouth - is responsible for sensations of 'coolness' when eating peppermint, and the sensation of 'heat' when eating spicy food like mustard, even though there is no change of temperature in the mouth. Eating too much horseradish or wasabi mustard will burn at the bridge of the nose, not in the mouth, although the capsaicin in chilli will cause both trigeminal irritation and local oral burning. The trigeminal contribution is one of the hidden flavour senses, showing just how multisensory flavour perception really is:

> *Arguably, multi-sensory integration may be at its most extreme in the case of flavour perception since few other experiences offer the opportunity for concomitant stimulation of all the major senses: gustation through the five primary tastes, olfaction through both ortho- and retronasal stimulation of olfactory receptors by volatile compounds released from food, mechanoreception contributing to our perception of texture and providing information on temperature, pain arising from oral irritants and hearing that results from sounds and vibrations coming from the mouth contributing to our perception of aspects of texture. (Yeomans et al. 2008, p. 565)*

Notice that we can selectively attend to *some* of the multisensory components of flavour experience, such as the contribution touch makes to tasting: i.e. when a food or liquid's is described as being creamy, oily, crunchy, melting. But even the contribution of touch is not always so easily separable. Biscuits that 'taste' stale will have, at first, all the same taste and smell properties as fresh biscuits; it is simply that they crumble differently and this texture clue predicts decay and leads to us say they 'taste' stale. Similarly, the carbonation in fizzy drinks is a trigeminal irritant but it is hard to separate it from the way fizzy water, soda drinks or Champagne 'taste' to us.

Another reason for missing things in our tasting experiences is because, at first, we don't recognise that 'flavour perception is not a single event but a dynamic process with a series of events' (Piggott 1994). Tasting has a dynamic time course and slowing it down makes a difference to what we notice and what we can pick out. In this way, *how* we taste affects *what* we taste; and attending to each aspect of the dynamic time course changes the temporal scale of our tasting experience, allowing us to focus on particular qualities of the taste, texture and aroma of the foods and liquids we ingest. (It does not, however, mean that we can separate taste and retronasal olfaction.)

Taking these factors into account, how should we understand our experiences of flavour, what gives

them the modal signatures they have for us, and how much of are we aware of in those experiences? We usually consider what we are experiencing when tasting as *tastes*, though it is still far from clear why we classify them as such, or how we conceive as this classification. Tasting is the activity through which we perceive the flavours of foods and liquids, like lemon, chicken or onion that we (mis)classify as tastes. As Yeomans says (above), the experience of flavour is a complex interaction effect. And yet, in the phenomenology of tasting, the experiences we have can strike us as whole, unified percepts. On the basis of that phenomenology, we are often unable to distinguish the sensory components that feed into such experiences. There may be no distinguishable, separable parts to a single flavour experience of raspberry, say, although we may be able to recognise the presence of single flavours in a complex dish or wine. So how should we think of the parts that contribute to the experience of tasting a single flavour?[1]

Must we say that we are mistaken about the nature of such tasting experiences, treating them as simple and unimodal when they are in fact complex and multimodal? That depends on which kind of facts we should turn to in order to settle questions about the nature of flavour experiences. Are they answerable for their nature to facts about the sensory processing that gives rise to them, enabling us to view them as products of multisensory integration? Or, as conscious experiences, should we take them to be just *as* we experience them: whole, unified experiences that are, in effect, just as they appear?

Those who take experiences to be simply a matter of how things appear consciously to a subject will suppose that a satisfactory account of their nature must be answerable to the phenomenological facts. Thus, it will be facts about the phenomenological character of those experiences that settles questions about the true extent and nature of those experiences. But how should we appeal to the facts about phenomenological character of our sensory experiences? What does it mean to reflect on them, and are the facts about their phenomenological character so transparently available to us Are they self-illuminating? Just a matter of what occurs in consciousness? That issue will depend in turn on how we think about consciousness, and whether, for example, we accept Ned Block's distinction between access and phenomenal consciousness (a-consciousness and p-consciousness, see Block 2002) How much within consciousness goings on falls within the scope of the subject's awareness at any moment? Is it only what we reflect on that features in the facts about our flavour experiences? (I doubt that this is the right way to think of them.) But more pertinently, do we have bare encounters with the phenomenological facts of sensory consciousness? Or is what's available to us when reflecting on our conscious experience largely a matter of the phenomenological taxonomy we deploy to classify our experiences? Remember, being in a mental state is one thing: knowing what mental state one is in is another. The phenomenology is there but how should we taxonomize it? Is it an itch or a pain I'm experiencing? Am I exhilarated or anxious? The felt state itself does not decide? Philosophers are wont to forget this, and assume that the character of experience is transparently available to subjects of experience, using misleading talk of 'what it is like' to undergo such experiences. Whereas, it much more accurate to think that what I bring into focus as a result of directing my attention to how things are with me, because of this current phenomenological state, is *what I take it to be like*. That is, hot on the heels of our experience, and almost inseparable from it, is how we *take* an experience to be, and our *take* on our own experience is so tightly wedded to the occurrence of that experience itself that we often don't notice there is an extra step to take and one which may be wrong in taking.

In the case of flavour experiences, our ordinary phenomenological taxonomy classifies them as unimodal experiences of taste; while psychology and neuroscience shows us that these seemingly simple

1 Notice, if such experiences are the result of a combination of "several inputs" coming from different sensory channels, there is a further far from easy to answer question about how these 'senses' are to be individuated (see Grice 1962).

'tastes' are, in fact, the upshot of multimodal processing of olfactory, gustatory and oral somatosensory, trigeminal (and according to some auditory and visual) information, modulated by tasting's dynamic time course. This neuroscientific classification of tasting experiences is at odds with our own take on them. So which of these classifications should we turn to when trying to understand the ultimate nature of those experiences? Must appearances (arising from our phenomenological taxonomy) be saved at all costs? Or should we see such appearances as getting something wrong about the ultimate nature of flavour experiences, thus requiring us to characterize them in another, more scientifically informed way?

This turns out to be an extraordinarily difficult question to answer. First of all, how do we *take* our experiences of tasting to be when we think of them as experiences of 'taste'? We ordinarily believe experiences of taste to come from the tongue, and about this we are definitely wrong. But why does it feel so natural to think so? It is not as though the experiences carry any trace of their causal origins in the processing order, otherwise we would be mistaking these signs. It may seem that they wear their sensory character on their sleeves but do they? Is the connection to the tongue just a way we *think* about our experiences? Or is that because we are receiving sensations of taste and touch from the tongue that other sensory attention is captured and the experience is referred to the oral cavity? It could also be because we think of 'tastes' as originating in the foods and liquids we consume and that therefore, because our tongue is in contact with those substances it must be transmitting what we experience.

On the other hand, we could say that we are simply confusing 'taste' and flavour, and that when we use the word 'taste' we are really talking about flavour. But then the mistake would be that we are thinking of flavour experiences as the upshot of one sense: as unimodal instead of multimodal experiences. Or, we could say that whatever word we use, we are really operating as though there was a distinct and distinguishable flavour sense –one the exercise of which gives rise to 'tastes' or flavour experiences, not realising how much that distinct sense draws on the senses of taste proper (gustation), smell (retronasal olfaction) and touch. (See Auvray and Spence 2007.)

It's certainly the case that whatever people say or think they actually *are* experiencing flavours – not tastes. There may be no such thing, experientially, as the taste proper of a peach. (See Spence, Auvray and Smith 2013.) Without retronasal olfaction to discern peach odours there would be just sweetness and slipperiness, indistinguishable from other soft fruits. We know the experience people call 'taste' depends in processing terms on gustation, olfaction, somatosensation and sometimes trigeminal stimulation, but is the unified experience of flavour always a phenomenologically inseparable fusion of elements in experience, or is it a single conscious product of the integration of different sensory elements at the underlying processing level? The answer to this question lies at the heart of the matter, for what we are asking is whether however multisensory the processing of flavour experiences is, are flavour experiences themselves multimodal?

We do not recognise separable components of those experiences, but are different sensory elements nevertheless present in experience? The importance of this issue goes far beyond flavour perception since many results from cognitive neuroscience recognise are showing us that multimodal perceptions are the rule, not the exception.

5. Multimodal Perception

There is reason to think our everyday perceptual experience is multimodal. We are simultaneously bombarded with sounds and sights, smells and feels, along with perhaps a taste in our mouths. We recognise distinct aspects of conscious experience, such as seeing or hearing, etc., but we are not aware of how interactive the senses are; not aware, that is, of cross-modal interactions where activ-

ity in one sense has an impact on another, nor of multisensory integration, where information from different sensory channels merge. In the case we are considering, namely, flavour perception, it is hard to recognise that tasting always involves at least taste, touch and smell. Unlike the component of touch, the fusion of retronasal olfaction and gustation seems to be inseparably combined in experience, as we've seen. Nevertheless, by having our attention directed to aspects of flavour perception we can *sometimes* bring to light elements in these seemingly unified experiences. Think of the flavour of menthol, involving as it does: a minty aroma; a slightly bitter taste; and a cool sensation in the mouth. All three elements create a single, unified percept of menthol flavour. Absent one of them and you no longer have the flavour of menthol. However, it is possible to concentrate on any one of these co-occurring elements. Though we still need to have our attention drawn to each component.

In this way, there is both unity and complexity to our flavour experiences, and perhaps these occur at different levels in our mental architecture. Normally, flavours cannot be phenomenologically decomposed into a taste and a retronasal smell. So perhaps, the unity of a flavour experience is due to their integration at a pre-perceptual processing level that does not depend in any way on what we consciously do when we reflect on, or think about such experiences. It is simply in consciousness that we recognise a single, unified percept. So if we are talking about binding that occurs at a processing level, prior to any decision about, or categorization of, the flavour in question, or its qualities, and maybe it is at the processing level where the complexity resides. And yet in some cases different sensory elements can be acknowledged as with perception of menthol.

It would be important to have a clear taxonomy of cases – those in which we can distinguish different components and those in which we cannot. In the case of menthol, we have something more akin to the unity of flavours we find in a well-cooked dish where we recognise several flavours as together creating a harmonious and appreciable whole. In this case, the combination is appreciable at the level of perceptual experience. The flavour of the dish is perceived as a complex entity, possessing multiple elements or parts. Though even here we have a limited ability to identify the single flavours - or even particular tastants and odourants - when presented with a mixture of tastants or odourants.[2] In some cases it may not be very determinate whether we are perceiving a single flavour or multiple flavours. However, with single flavours like lemon, banana, or onion we need to know what contributes to and creates the unity creates a percept of a single flavour element. Do the sensory elements that combine outside of consciousness still make a showing in the conscious experience of a flavour?

William James thought there could be experiences unified into whole but criticised what he called the "mind-dust theory":

Take a hundred (feelings), shuffle them and pack them as close together as you can (whatever that may mean); still each remains the same feeling it always was, shut in its own skin, windowless, ignorant of what the other feelings are and mean.

Importantly for the the case of multisensory perception, it is James' view that individual experiences can give rise to a more general experience, but that the new experience *does not contain* the individual ones:

> *There would be a hundred-and-first feeling there, if, when a group or series of such feelings were set up, a consciousness belonging to the group as such should emerge. And this 101st feeling would be a totally new*

2 See Laing, Link, Jinks and Hutchinson 2002; Marshall, Laing, Jinks, and Hutchinson 2006.

> *fact; the 100 original feelings might, by a curious physical law, be a signal for its creation, when they came together; but they would have no substantial identity with it, nor it with them, and one could never deduce the one from the others, or (in any intelligible sense) say that they evolved it. (James 1890)*

Applied to the general case of multimodal experience with simultaneous sensory inputs, a new experience of a made of auditory, visual and other components - components which could in other circumstances be experienced by themselves - but, are not figuring in the multimodal case as component parts within conscious experience. As Ophelia Deroy has put it: 'this supposes that consciousness can *host* unified objects, but is not what unifies the component experiences'.

The question is whether we should think of cases of multisensory perception - the result of multisensory integration - in this way. Can we experience the components of such experiences by themselves in other circumstances? Consider the experiment of holding one's nose while eating a jelly bean. This gives one the experience of sweetness or sourness alone, and when one lets go the nose the experience is transformed to reveal the flavour of strawberry, or pineapple, etc. previously unrevealed. At this point, the taste and retronasal smell have fused and they can no longer be separated even by special acts of attention. With nose held closed there is a taste of sweetness, then, after letting go a single, unified experience of a fruit flavour. So are taste and retronasal smell, nevertheless, both present in experience and just not recognised as such because of oral referral of the late: the location illusion where retronasal olfactory sensations are referred to the oral cavity? It's not clear. One can experience the sweetness or the sourness of the jelly bean, but one cannot, save for elaborate experimental set-ups involving inserted tubes, experience retronasal odours by themselves. Normally, one does not recognise this element of smell at all.

Of course, in the special case of menthol flavour, we are able to recognise the presence of both the slightly bitter taste and the minty aroma. Perhaps it's because a boost is given to the olfactory sensation by the trigeminally induced feeling of coolness due to the odour, thus alerting us to a lingering minty aroma in the nasal passages. Normally, however, we cannot achieve such isolation or awareness of the olfactory component, and tasters are usually surprised to learn that smell is involved so centrally in what they are tasting. Experience in tasting a single flavour comes as a whole, and only some parts of it could be experienced by themselves.

As all these effects demonstrate, the concoction of flavour experience is intricate and hard to focus on. But perhaps we should try to get at the nature of such experiences neither through a processing account nor the unified conscious result, but through what makes them *flavour* experiences as opposed to any other kind of experience. And the way to address this question would be to say more about what *flavours* are and try going on from there to give an account of how we experience them.

6. What are Flavours?

Let's start by considering some definitions of flavour:

(1) Flavour is a 'complex combination of the olfactory, gustatory and trigeminal sensations perceived during tasting. The flavour may be influenced by tactile, thermal, painful and/or kinaesthetic effects' (AFNOR 1992)

(2) 'Flavour perception....should be used as the term for the combinations of taste, smell, the trigeminal system, touch, and so on, that we perceive when tasting food' (Auvray and Spence 2008)

(3) "Taste" is often used as a synonym for "flavour". This usage of "taste" probably arose because the blend of true taste and retronasal olfaction is perceptually localized to the mouth via touch (Bartoshuk and Duffy 2005, p. 27).

Each of these definitions acknowledge that the flavour experiences we have when tasting depend on sensory interactions, but they differ in mentioning different elements in the interactions. And despite being offered as definitions of flavour, what they actually describe are flavour experiences or flavour perceptions rather than flavours *per se.* (The definition of Auvray and Spence is here more careful, but elsewhere they collapse flavour and flavour perception.) If this conflation was deliberate it could be because flavours were to thought of as inseparable from our experience of flavours. More strongly still, in a view prominent among many psychologists and neuroscientists, flavours are not something we perceive: they are just psychological constructs (Prescott 1999) or items that arise only in the brain (Shepard 2012, Small 2013). The idea here is that it is the brain that combined information from taste, touch and smell to create flavours. Such configurations are just are products of the brain that arise from the binding of different sensory elements. A fairly typical neuroscientific statement of this view is given by Dana Small (following Gordon Shepard):

> *flavour is in the brain, not the food. It is the brain that integrates the discrete sensory inputs from the food and drink we ingest to create flavour perceptions. (Small 2013, p. 540)*

The failure, here, to distinguish between flavours and flavour perceptions (c.f. colours and colour perception, sounds and sound perception) creates, as we shall see, problems for the individuation of flavour experiences. But for the moment let's pursue this view of flavours as arising in us because of sensory combinations produced by the brain.

Consider the three definitions of flavour (perceptions) just given. How are the different components mentioned in each definition bound together? The talk here is of a 'combination' or 'blend'. More importantly, exactly which components get bound together in flavour perceptions? In (1) there is mention of olfactory, gustatory and trigeminal sensations; in (2) there is the addition of 'touch, and so on'; while in (3) flavour is restricted to 'the blend of true taste and retronasal olfaction' where the blending is only mediated by touch.

These different views about which sensory elements go into the multisensory integration that produces flavour perceptions require somewhat different processing stories regarding the how-part, ie. the *combining*, and the what-part, the *contributors* to the binding problem . The answer given to the HOW question and the WHAT question constrain one another: what is the ultimate product of combining inputs from different sensory systems, and how do the different sensory inputs combine?

7. Rules of Multisensory Integration

As we have seen, it is a non-trivial task to explain multisensory integration, and as was said above, any fully adequate account of how this happens in flavour perception would cast significant light on the nature of multisensory perception in general. Such an account is still out of reach but it is being pursued vigorously in the sensory sciences, and the literature contains many suggestions of the sorts of rules and properties that may be involved in multisensory integration. Prominent amongst these are the following:

(i) Spatio-temporal Unity
(ii) Superadditivity
(iii) Sensory Dominance
(iv) Semantic Congruence

(i) Spatio-temporal Unity
The spatio-temporal unity hypothesis is this: the unity of flavour comes from the fact that sensory information of various kinds, or from various origins is put together when presented as close in time

and space. So does the unity we find in the flavour experiences just come from the spatio-temporal conjunction of sensory inputs we have when eating and drinking? Not quite. The interaction between the multimodal components goes beyond mere co-occurrence in consciousness.

(ii) *Superadditivity*
We can see a plastic water bottle being crushed, and we can hear a plastic water bottle being crushed, but when we both see and hear the water bottle being crushed the neural activation of the perceiver is greater than the sum of the separate activations for the visual and the auditory stimuli. This is superadditivity: a clue to multisensory integration and a sign of how important such events are to the brain. However, superadditivity can also occur with out intergration, as in the case of cross-modal effects like sweetness enhancement. Combining vanilla aroma with a sucrose solution, where the aroma is sensed orthonasally by inhaling, will make that solution taste sweeter. This is the sweetness enhancement effect (Cliff and Noble 1990; Frank et. al 1991; Dalton et. al 2000). Now although we can recognise the presence of an odour and a taste, we are unaware of how they are interacting to boost the perception of sweetness. This cross-modal effect results in a conscious experience but is not the result of conscious combining. Being presented with just sub-threshold vanilla aroma and just sub-threshold sweetness for a sucrose solution will result in a conscious experience of sweetness. Other factors affect the perception of sweetness, such as a creamy texture which can enhance the perceived sweetness, and there are interactions between odours and textures. (Bult et al. 2007). Certain aromas make what's in the mouth taste creamier, and certain textures can change aroma profiles. Is this just due to spatio-temporal combining? It seems to go far beyond it is ways we could not have predicted from the co-occurrence of these sensory events.

Moreover, if space and time are the only factors of unity for a flavour F, then all information that is processed or perceived as close enough in time and space, or attributed to a single cause in space and time, will be components of F. So are the sounds heard during crunching an aple or a carrot part of its flavour. They can certainly affect the overall experience of the food (Zampini and Spence 2004) so should they therefore be treated as components of flavour. Is there such a thing as auditory flavour?

And what of visual properties of the eating environment, such as lighting, which can affect the experience of the food and therefore are components of flavour. Does this mean we need to recognise visual flavour?

Then there is the perceived weight of the food in the hand – different bowls of the same yogurt, one with a weight at the bottom, will, when handed to participants to try, affect their perception of the texture, thickness, richness of the yogurt in each bowl (Spence 2010). So is the weight of the container a component of flavour? Surely, we should say that these factors can causally affect our perception of flavours, but they are not constitutive (i.e., not components of) flavours or flavour perceptions. This is a philosophical point that needed to be stressed. Not every component or feature of our experience of an object or event reveals a constitutive part of that object or event. We need to distinguish co-co-occuring or causally affecting versus constitutive features of our experience of tasting. There is no agreement on WHAT is necessary or constitutive of flavour experience. This true for hedonics, too, because we could ask on the spatio-temporal unity hypothesis whether the hedonic - affective - component of eating and drinking is a constitutive part of flavour or flavour perception. Some have said yes (see Verhagen 2007) and others no (see Smith 2007, 2010), while for others it is indeterminate, though they go together and are tested together (see Yeomans 2008). Notice, that it would be hard to exclude this feature if we adopted the spatio-temporal unity hypothesis. But we should exclude it. The overall experience that we have when eating may overflow the experience or perception of flavour. Even if people think the main purpose of eating and drinking is to determine whether it is pleasur-

able or not, and whether they want more or want to stop, this is different from how the food or drink tastes and what its qualities are. If force-fed the same food repetitively, even a food we like such as chocolate, we may suddenly find the hedonics switching around from liked to disliked. This is stimulus specific satiety. The identity of the stimuli stay the same even when the hedonics vary, for if you were suddenly offered a different type of chocolate you would notice. (Kringelbach and Stein 2010; O'Docherty et al. 2000) Also, an experienced taster should be able to assess the character and quality of a wine even if it is not to his or her taste.

(iii) *Sensory Dominance*
We have seen that the spatio-temporal hypothesis does not explain superadditivity. Nor does it explain patterns of dominance, as when vision dominates audition in the vetrioloquist effect, where there is visual capture of auditory attention, re-locating our auditory experience to the location of the visual source. Nor does this hypothesis accommodate the role of 'expectations' in the explanation of perceived flavours since expectations exist prior to, and independently of, the actual occurrence of stimuli at that time or space. In the sensory and food literature, expectations can have a big impact on perceived flavours. Expectations generated by the color of a food or beverage, experienced *before* it is tasted (and stimulation occurs) can lead to enhanced (or diminished) perceptions of sweetness or sourness (see Spence et al. 2010), because linked to the recognition of a certain kind of food giving rise to expectations of corresponding kinds of flavours. For example, the more intense the color, the more intense the flavour. Expectations generated by different linguistic description of the same food (Yeomans et al. 2008) with smoked salmon ice cream tasting saltier and more savoury when labelled as a novel flavour of ice cream rather than as a "frozen savoury mousse".

Leaving aside these issues there are other problems for this hypothesis. How do we go from the spatio-temporal combining of multisensory elements to a unified percept (At what level does unity occur, and how it is manifest to the subject?) Perhaps, space-time and some unity assumption can explain why a *single object or event* is perceived, but how can they explain what we come to perceive this object or event as being (e.g. a taste or smell)? And notice, we have not answered the WHAT question about which elements from the range offered in definitions (1) to (3) above go into flavour perception. We should also ask what role is played by each of the components, for example touch, in (1) – (3)?

(iv) *Semantic Congruence*
In returning to the HOW – question, can focusing on semantic congruency reveal a necessary feature of the relation that constitutes flavour experience? According to some, it helps addressing the WHAT issue. Combinations of qualitative features (odour-taste, odour-colour) is conditioned by congruency. For example, strawberry odour + (congruent) sweet taste are combined into a flavour, but strawberry odour + (incongruent) salty taste are not, or less so. Congruency could also explain the role of expectation in flavour experiences. Colour-smell expectations depend on the congruency of the two pieces of information. Perceived intensity depends on congruency: a lime green drink should taste more sour, and a deep red, more sweet, than a neutral coloured drink. Sweetness enhancement effects are specific to certain congruent odour-tastant pairs. (see Prescott 2004). Eg: caramel odour + sweet tastant gives rise ot sweetness enhancement. Chicken odour + sweet tastant does not.
Can the congruency hypothesis explain oral referral? We get this, and so experience flavours for congruent pairs of taste-odours. Lim and Maxwell (2012) give preliminary results in which when a congruent taste(s) was added to an odour, referral to the oral cavity and tongue were significantly enhanced. The degree of congruency between taste and odour may modulate the degree of odour referral to the mouth. So congruency could help explain localisation too.
The Congruency Hypotheis is this: unified flavours are constituted by congruently related sensory

cues. Congruency is not to be thought of as 'all or nothing' - a sensory cue S1 is more or less congruent with sensory cue S2. Flavours would be constituted by these various 'more or less' congruency relations. Their role in determining flavours suggest they intervene at the level of processing and (somhow) determine categorisation. They can result in an determinate flavours (e.g. chicken). Or they can still be manifested as flavours with more or less resolution (e.g. chicken-like flavour, definitely not a citrus flavour. Could be a different poultry animal).

8. What is Congruency and What Explains It

If congruency of different sensory stimuli or inputs is supposed to explain the unity of flavour experiences, we need to ask what explains congruency?

It would be easy to explain congruency by saying when two features are considered to be attributes of the same kind of object: strawberry smell + sweet taste + red colour + strawberry-shape, they belong to one food or fruit. But this presupposes a unity and category to which these features belong as an ecologically valid part of the environment. However, if there are no such configurations in the world but only flavour made in the brain, the congruence of flavours cannot come from the outside. All we can fall back on are *sensory congruencies.* This means when two features 'match' so that the estimation of one will affect the estimation of the other: e.g. the darker the colour, the more intense the flavour (ripeness) the heavier, the thicker the yogurt (density correspondence. Why are some sensory pairings congruent? Without resort to semantic congruencies, determined by co-occuring configurations of texture, taste, odour and irritant properties of foods and liquids, giving them flavour profiles, we just have sensory congruencies where features 'match' and determine which bundles are flavours: These remain subjective, internal and unexplained; flavours as complex sensations, revealing nothing beyond themselves.

But rather than settle for this unexplanatory stopping point, with no way to prescribe precisely the set of flavour experiences, there is the option of positing flavours as properties of foods and liquids. On this view, we could see flavours as affordances which our capacities of flavour perception tracks so as to guide successful food choice.

By recognizing that flavours are external features of the environment we need not see flavours and flavour perceptions as always coinciding. How we taste affects what we taste: the dynamic time course in tasting affects what we can pick out when, and a series of perceptual events will allows us to build up a profile of the foods and liquids we experience. Tasting is the activity by which we assess what we ingest or imbibe hedonically, but this is done of the basis of perceptual experiences and these are perceptions of flavours. Each act of tasting is a snapshot of a flavour profile that we may explore by repeated tasting or experiments with flavours. The term *flavour* does not describe a construct of the brain, but it is a technical term used to describe the sapid and odourous properties of a solid or liquid, including properties of its temperature and texture, as well as the power to irritate the trigeminal nerve. Configurations of these properties are flavours and we use multiple senses to track them. Multi-sensory integration unites information from different sensory inputs into perceptual experiences of flavour, where the exact nature of these experiences depends on the precise arrangements of textures, odours, and tastants/ irritants that generate the sensory inputs. The more unified the configurations that make up flavours, the more unified but complex are the flavour experience whose parts we are unable to distinguish. The science of the HOW-WHAT questions about the nature of flavour perceptions leaves room for objective flavours. Flavours are more than a set of *congruent* relations between *congruent* sensory properties: such congruent sensory properties may track congruent real properties of foods and liquids that cause them. It's nature and chefs that make flavours, not brains. Finally, we must distinguish the hedonics of eating from the perceptual experience of tasting.

Eating experience overflows flavour perception. The sound of the crispness of an apple is not part of flavour, but it is part of the pleasurable experience of eating it. Many aspects that contribute to the hedonic responses that we suppose to be bound up with, and revealing of, the flavour or 'taste' of something may overflow flavour and professional tasters often have to set them aside.

9. Conclusion

We have seen a need to distinguish flavours from flavour experiences, and to see the latter as arising from the combined and integrated use of sensory inputs to keep track of the latter. Such experiences are mostly unified and yet hard to extricate, at times, from wider notions, such as the overall experience of eating or drinking, which includes a hedonic response. The case of flavour experiences presents a challenge to any philosophical theory that supposes we have immediate and authoritative knowledge of the nature and character of our own sensory experiences, or that our senses simply inform us about the character of our experience. It has taken much recent research in psychology and neuroscience to reveal the complexity and interactions between our sensory experiences and to direct our attention to aspects of those experiences that were overlooked in conscious awareness. Even now, we face a challenge to say how the integrations of sensory information in brain gives rise to unified percepts in conscious experience, and what the ultimate nature of those conscious mental items is. [3]

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