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ANDREA ZHOK

Università degli Studi di Milano

andrea.zhok@unimi.it

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# ON THE REALITY OF PERCEPTS: HUSSERL AND GIBSON

## *abstract*

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*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*

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*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, 1<sup>st</sup> 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 imaginal 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 proprioceptive 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 "kinaesthesia" 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 (conductive 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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