

J. J. Gibson's Psychology of Perception from Zubiri's Standpoint

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Abstract

Although James J. Gibson (1904-1979) and Xavier Zubiri (1898-1983) were never acquainted, the harmony between the two is remarkable: the *power of truth*, the *power of reality* holds them. The author is highly critical of authors such as Fodor and Pylyshyn, and he is in the passionate defense of the positions of Gibson and the *ecological psychology*, albeit with important nuances from Zubiri, the Spanish philosopher, disciple of Husserl, Heidegger and Ortega y Gasset, among others. *Perception* is *direct* and not mediated by *inferences* of any kind, because it is *direct at its root*: the *primordial apprehension of reality*. We perceive in the *field of reality*, in which we “*are*” *fluently*, and where things are *among* others: it is the *duality* of the *logos* that *involves* primordial apprehension. The inferences of Gibson's critics would approach to this duality, but leaves untouched the primordial apprehension. Our *senses considered as perceptual systems* “*come out*” (Gibson) and *feel reality directly*. That is, *human sensing is intellective* (Zubiri). Indeed, *sentient intelligence* is the other side of *intellective sensing*. Perceiving is the simplest and best way of knowing (Gibson). Although he did not elaborate anything like Zubiri's *logos* and *reason*, our hypothesis is that his theory of direct perception would approach the primordial apprehension of Zubiri. The *ecological approach* to perception is in line with the *physical-sentient* in Zubiri, as a “*phenomenology*” prior to the level of *scientific explanation* at the level of *reason*. This phenomenology can be understood as a philosophical dimension in the context of *scientific psychology*. There is nothing like Zubiri's *noology* for this joining of philosophy and science. Gibson and Zubiri could well be a prelude to a revolution in cognitive sciences. It always takes time. They are destined to become classics.

Resumen

Aunque James J. Gibson (1904-1979) y Xavier Zubiri (1898-1983) no llegaron a conocerse, es asombrosa la sintonía entre ambos: la *fuerza* de la *verdad*, la fuerza de la *realidad* los sostiene. Contra autores como *Fodor* y *Pylyshyn*, el autor es fuertemente crítico y se sitúa en la defensa apasionada de las posiciones de *Gibson* y la *psicología ecológica*, si bien con importantes matices provenientes del filósofo español, *Zubiri*, discípulo de *Husserl*, *Heidegger* y *Ortega y Gasset*, entre otros. La percepción es *directa*, y no mediada por *inferencias* de ningún tipo, porque lo es en su *raíz*: la *aprehensión primordial de realidad*. Percibimos en el *campo* de *realidad*, en el que estamos *fluentemente*, y donde las cosas están *entre* otras: es la dualidad del *logos* que envuelve la *aprehensión primordial*. Las *inferencias* de los críticos con Gibson apuntan a esta *dualidad*, pero resbalan sobre la *aprehensión primordial*. Nuestros *sentidos considerados como sistemas perceptivos* “*salen afuera*” (Gibson) y *sienten la realidad directamente*. Esto es, el *sentir humano* es *intelectivo* (Zubiri). Se supera el origen de todos los *dualismos*, provenientes de las *operaciones* de la *mente* sobre

las *entregas* de los *sentidos*. En su lugar, la *inteligencia sentiente* es la otra cara del *sentir intelectual*. Percibir es la forma más simple y mejor de conocer (Gibson). Si bien éste no elaboró nada parecido al *logos* y la *razón* zubirianas, nuestra hipótesis es que su teoría de la *percepción directa* “apunta” a la *aprehensión primordial* de Zubiri. La *aproximación ecológica* a la percepción estaría en línea con lo *físico-sentiente* en Zubiri, como una “fenomenología” previa al nivel de *explicación científica* al nivel de la *razón*. Dicha fenomenología puede entenderse como una *dimensión filosófica* en el contexto de la *psicología científica*. Nada como la *noología* zubiriana para esta *articulación filosofía-ciencia*. Gibson y Zubiri, bien podrían ser el preludio de una *revolución en ciencias cognitivas*. Esto siempre requiere *tiempo*. Estarían destinados a convertirse en *clásicos*.

Introduction: Philosophy and Science

What makes Gibson’s works so attractive, so resistant to critics, to neglect, and to the passage of time? As much as it provokes many “*cognitive scientists*,” ignorant of Zubiri’s *philosophy*, to smile in a condescending way, let us respond: “The *strength of truth*, the strength of *reality*, which imposes itself upon us!”¹

Although Gibson usually inspires respect, the most frequent accusation made against him is that of lacking solid experimental underpinnings. Yet it would seem not to matter to Gibson whether authors he read were scientists or not, judging from the frequency of his quotes from Berkeley, Locke, Kant and other philosophers. It would seem that only the *reality* he confronted mattered to him. It would also seem that Gibson ignored the considerable baggage of philosophy that went with the most essential part of his work. He performed many experiments, but it seems that his critics have not accorded them much value.² Nonetheless, as we shall see, Gibson’s alleged unawareness was only relative. In our opinion, the origins of the misunderstandings of Gibson’s work stem from the context of scientific psychology in which he moved. His explicit critiques of the categories of science in his *ecological approach* to perception bear witness to this. Let us examine this point.

J. J. Gibson’s Ecological Approach to Perception

To date physical science has mainly concerned itself with what is very, very large, astronomical, or what is very, very

small, atomic. But for perception, Gibson holds, what is *relevant* is “the animal level”: this is the *ecological level*.

What is ecological is necessarily linked to *direct perception* and vice versa. It is a question of the *unity* of the *act of perception*. We will also see this when we establish the comparison with Zubiri. Every perception that is not direct loses the unity of that act and necessarily implies a *projective (transmitting) logic*³ instead of a logic of “*field simultaneity*”; it is what I call “the *constructivist journey*.”⁴ This journey, moreover, implies the utilization of categories of modern science that are in the forefront, as we shall see; that is to say, the contrary of the ecological level, “the animal level.”

In fact, that projective logic is marked beforehand by the basic problem of space, which characterized Gibson’s initial break with traditional theories, and with contemporary theories as well, as seen from his first book onward.⁵

It was as a psychologist of the United States Air Force that Gibson began revolutionizing one of the pillars of both traditional and contemporary: spatial perception. As paradoxical as it seems to us, he tells us, the space of the airplane pilot is determined by the *earth* and the *horizon*, not by the “air” through which he flies. It was then that *ground theory* took the place of *air theory* for spatial perception. This decisive fact—the lack of *sensible impressions* for the perception of the *dimension of depth*—is what traditionally has been taken as evidence for the largely unquestioned presumption in philosophy and

psychology that all perception, as Kant said, is given in space, and needs *something from the mind* to be complete. From here also derives the traditional distinction between *sensation* and *perception*. But Gibson's conclusion is that empty space, besides being a *geometric abstraction*, is unperceivable. We can only perceive the spatial dimension from *longitudinal surfaces*. It is important to point out here, as we shall see in the comparison with Zubiri, that what is *sensibly concrete*, such as the terrain or the horizon, is what we can perceive.

Now, starting from objects situated in "empty space," the logic of the "constructivist journey" is produced: light rays falling on objects that reflect them, *transductions* of *energy* in our interior, *nerve impulses*, *sensory organization*... We therefore see that the problem starts from the abstraction of geometric space and begins with scientific categories and units. Perception is seen as a *product* and *result* of the facts being categorized scientifically (photons, waves, receptors, nerve impulse...). The unavoidable result is the construction of the "*terminal image*" in the "theatre of consciousness." Even at the outset Gibson analyzed and mercilessly criticized the popular belief—common to not a few scientists—that the retinal image is transmitted to the brain. For him already in his time there were more sophisticated versions of the same fallacy, which necessarily presupposed the theory of the *homunculus*, i.e., "someone" or "something" becomes necessary in the inside of our mind-brain, that sees (directly, of course) that "*terminal image*." To speak, as is done today, of *neuronal engrams* representing the "*psychological subject*," would be seen by Gibson, once again, as a more sophisticated version of the same fallacy.

Assumed scientific categories, constructivism, and indirect perception mediated by *mental representations* necessarily go together. So also do the ecological level and direct perception.⁶

In SCPS Gibson broaches physiology in harmony with the foregoing. The earlier vision implies that the senses stop being *mere organs* of a brain and that the nerves stop being mere channels for sensation. Also, Johannes Müller's nineteenth-century doctrine of specific nervous energies is left behind. Then the senses come to be considered as *perceptive systems*. They cease to be conceived in isolation and become integrated with the whole organism, with the whole human being, who it is that perceives, actively exploring and *in movement*. But what is most important and a consequence of all the foregoing is that the perceptive systems begin the process of perceiving directly; they are integrated with the totality of the human being, which is, in the last analysis, what directly perceives. *Mechanicism* has been surmounted by means of fully embodied and integrated senses. The *dichotomy sensation-perception* has been surmounted. With this, projective logic is also surmounted, and we accede to "field simultaneity." Then, when we *communicate directly* with things in *field simultaneity*, our nerve structures *resound* with the *information*. Gibson is aware that this resounding is a *metaphor*,⁷ but he counters that it is a better and more coherent metaphor than those of transmitting logic.

Ecological optics and the *pickup information theory* complete Gibson's vision.⁸ Given the ecological-psychophysical approach, light cannot be considered as a function of classical optics or as a function of the physiological optics inaugurated by Helmholtz for the interior of the eye. In its place, Gibson proposes a new optics, something previously nonexistent, but whose basic lines he began to establish in SCPS and continued to mature in EAVP. To clarify with an example, he establishes a difference between *radiant light*, which is transmitted and measured by scientific units, and *ambient light*, that type of static "sea," the product of infinite reflections of light and forming part of the *ecological medium* of light as that by means of which we see.⁹ It is not something transmitted

but something that *is situated* (this sounds so much like Zubiri). The ambient light contains the *invariants*¹⁰ of optical structure that would be directly captured¹¹ by our *perceptual systems*. Gibson's metaphor states that our senses "go outside" and directly capture *ambient optical distribution*. Finally, he assigns special importance to what he calls the *principles of reversible occlusion*, and the *occluding edge*. These principles require very little description, since almost everything appears in their names. Nevertheless, they express in condensed form an essential nucleus of the ecological optics¹² of direct perception. In addition, they hold very important consequences for psychology and epistemology. What underlies this is that what is seen *now* and what is seen *from here* is specified by the *ego*, not the *environment*. While admitting the perception of the ego on the same footing as the perception of the environment, Gibson suggests that the latter perception is timeless, and that the past-present-future distinctions are relevant only for the consciousness of the ego. He proposes surmounting the doctrine whereby *perception* is to be restricted to the present moment, and everything else is *memory*. Perception can extend to past and future because it is given in *time* and in *movement*. Kaplan's experiment of 1969 decisively demonstrated, according to Gibson, that we also perceive things of which we have no sensation at the present moment (hidden), and that these things cannot any under circumstances be described as *remembered*.¹³

In accordance with this posing of the issue, according to Gibson, the old problems of the *permanence of the object*, *perceptual constancy*, and so many other perplexing points that for centuries have resisted analysis of philosophers and psychologists vanish forever like mist.

Finally, we can ask how Gibson describes what is *postulated* as *mental representations*. For Gibson his theory does not rest on itself. It implies a new theory of knowledge in general. "To know" is an *extension* of "to perceive." To perceive is

the simplest and best form of knowledge.¹⁴ All this also implies a new theory about the non-perceptual forms of consciousness, such as dreams, hallucinations, memories, etc. He responds that the visual system that extracts certain *invariants*¹⁵ from the flow of stimulation can function without the constrictions of that flow while separating later from the stimulation.

He returns to the idea of *affordances* that he earlier introduced in SCPS. We might define them as *impelling possibilities of stimulation as a function of the structures and needs of the animal*. In the human being they include meanings and values. And they are directly perceived. This supposes for him the apex of his ecological optics and a new *approach* to psychology.

Gibson Seen from Zubiri's Perspective¹⁶

Our second¹⁷ major *hypothesis* is that "ecological" in Gibson is equivalent to the *physical-sentient* in Zubiri. Gibson makes it clear he is dealing with an *approach* both to perception and to psychology. Today in *cognitive sciences* it is said that the model of mind is determined by the model of perception. I would say that they co-determine each other, since perception, according to Zubiri, is a *psycho-organic act*. These are the philosophical suppositions of modern science. If the *first philosophy* fails, the search loses orientation, and the reception of empirical data is misplaced.¹⁸

The theories criticized by Gibson use the categories of science at the outset. They begin by conceiving *space* as physics does, as a geometric abstraction that shelters bodies, for which we have no sensible impressions, and continue with light conceived in terms of photons or electromagnetic waves, passing through receptors and nerve cells until reaching the *postulation* of inner *images*. But in the ecological approach, there is no space¹⁹ but the *medium*, no *radiant* but *ambient* light, no physical but ecological optics. Sensations are merely incidental and the senses are

perceptual systems that extract the *information* in “field simultaneity” of *environmental optical distribution*. There is no *transmission*, but we enter into direct communication with the things we see. Our nerve structures “resound” with them. Of course there are no mental representations in the “inner theatre of consciousness.” Speaking of the ecological approach, Gibson intends for this to encompass all necessary levels through which the study of perception can be broached, by which one must begin. It is a question, hence, of a phenomenology which we see greatly in tune with Zubiri's realism. The level of *scientific reason*, let us recall, is always something lying beyond.²⁰

Our third major hypothesis constitutes a development of the first: it is the radical philosophical supposition, conscious or not, which errs in theories that Gibson criticizes, and also in those that criticize him.²¹ If perception is conceived as a synthesis of subject and object, we have dualism right from the outset, and our attempts to free ourselves from it will be in vain, because the unity of the perceptual act has been lost at the point of departure. We say this because it is impossible to escape a “transmitting” or “projective” logic. It is what I call “the *constructivist journey*”, with the light rays hitting the objects that reflect them, the *transductions of energy* in our interior, the *nerve impulses, sensory organization*, and the *construction of the terminal image* in the “theatre of consciousness,” where, to be sure, the *homunculus* will be necessary or—but which, in the final analysis, would be a more sophisticated version of the same fallacy, according to Gibson—the *neuronal engrams* that represent the “*psychological subject*.” As can be seen, this entire heap of nonsense originates with the duality of the point of departure. Perception would then be irremediably *indirect*, that is, mediated by *mental representations, inferences*, etc., in sum, by the *addition of the mind*. All this also implies inexorably *mechanicism* and *mind-body dualism*.

Instead, contrariwise, Zubiri tells us that it is perception that breaks into the unfortunately denoted “subject” and “object.” Zubiri's sentient intelligence (or intellectual sensing), as well as the ecological approach, preserve the unity of the act of perception, because perception is *direct*. The underlying logic is that of *field simultaneity*. This is only possible with what Zubiri calls *actuality*.

Actuality does not mean the condition of being an *act* (actuity). The condition of being an *act* (actuity) would come from the *act* of Aristotelian potential. It would be real and effective fullness of being, which in our context we can correlate, among other things, with the level of *actuations* of things in receptors, with their interactions. But actuality on the level at which perception takes place is not the condition of being an act. Actuality means “*being here-and-now present*” from the standpoint of oneself because of being real, while emphasizing the “*being*” of “*being here-and-now present*.”²² It is something *noergic*.²³ It apprehends the real, it is intellectual,²⁴ and at the same time something *physical*,²⁵ something *sentient*. It does not need to come to reality, because it is already situated within it and is “at one,” a situation of the thing in us, and our being situated in the thing. This is unity. In reality it is a question of a co-actuality. The thing *qua* perceived and I *qua* perceiver are in the same act of perception. This is unity. It is also unity of what is *intentional* (intelligence or *nous*) and what is physical (*ergon*) in the *noergic* part of actuality. Sentient intelligence is no longer merely intentional. The dualism sensing/making intelligible, expressed in psychology as sensation and perception, and in many other forms, has been surmounted.

This means that the *actualizations of the condition of being an act*²⁶ will always *go too far afield*²⁷ with respect to the actualizations of actuality.²⁸ Hence, we could correlate Gibson's relationship *stimulus information* with Zubiri's notion of *actuality*, and the relationship *stimulus energy*²⁹ with the *state of being an act (actuity)*, just

as *radiant light*, measured by the categories of physical science, go hand in hand with the condition of *being an act (actuity)*, while *ambient light* and *ecological optics* go hand in hand with *actuality*.

For the human being, *affordances* would be the equivalent of Zubiri's idea of the *meaning-thing*, which would go "mounted" atop the *reality-thing*. We are on the level of socio-cultural symbolic meanings, which in Zubiri is given in the logos. Let us recall that they are neither physical nor phenomenal, but ecological. Perception is a psycho-organic act. This leads us to the *construct system* of human *substantivity* in Zubiri, with its organic and physic subsystems. Only from this standpoint can the dualisms be coherently surmounted. In Zubiri *co-herence* is what is proper to the construct system of human *substantivity*, wherein every note is a note-of-all-the-others, *co-herent* with all of them; *substantivity* in Zubiri's philosophy takes the place of *substance/subject* of *inherent* properties. Thus what is *psychic* or *mental* and what is *organic* are only *subsystems* without *substantivity*. Only the human being as a *system* has *constitutive sufficiency*, which defines *substantivity*. Thus everything organic is psychic and everything psychic is organic. What is psychic would be our turn toward reality. Co-herence surmounts the *dualisms* because only in it is there *system*, that is, *unity*.

In intimate connection with what has already been said, in Zubiri would there be no mental representations and this would harmonize with the alternative that Gibson offers to non-perceptual psychic phenomena: dreams, hallucinations, memories...

There exist, though, some critical observations to make of Gibson from Zubiri's standpoint. Let us focus on perceptual learning. We call to mind the stages of the development of intelligence according to Piaget, which involve an entire perceptual learning, as a function of different mentalities or mental structures that the child has been building in his interaction with the world. It is obvious that a newborn

does not perceive the same as a six-year-old child, as an adolescent of sixteen, as an adult of sixty. Where does the difference lie? Apparently, the mental structures so acquired make the difference. The issue here would be the role that *simple apprehensions* play, the roll through *unreality*, in Zubiri, in perceptual learning, in the sense that we have remarked about Piaget. Though Gibson concerned himself to a degree about the theme of learning in his first book PVW, usually insists stubbornly that there is no enrichment of the *input*, but that what basically progresses is the education of attention and the ability to extract the inexhaustible wealth of information contained in the environmental light of the ambiance. Here Gibson seems to need some important corrections and qualifications. These would be along the lines that, although the origin of all learning is in reality itself—we believe that *direct perception*, the impassioned intuition of Gibson, would point toward *primordial apprehension*³⁰ as understood by Zubiri—nonetheless not everything is simply a question of progress of attention. Or at least the latter would have to be grounded on the duality of the logos: simple apprehensions play a role, although ultimately they must be realized in what is primordially apprehended. And in perceptual learning, acquired mentality, constituted by the building of cerebro-mental structures as Piaget shows, would have to play a role and would correspond to the gradual improvement of those simple apprehensions. We will consider this at greater length below. But before that we will characterize the two important positions.

Let us follow a symbolism, inspired in Gestalt psychology,³¹ and consider the *figure-ground* dichotomy. The concrete discussion is going to play the role of the *figure*; and Gibson and Zubiri's opposition to—let us say—the dominant ideology in the fields of psychology and philosophy in respect to the problem of our concerns, is going to play the role of the *background*. We pretend, then, that the contrast between figure and ground offers us a depth

dimension perspective of our question by the lines connecting them. Let us start with the ground of our two opposing mentalities:

The two positions

Let us start with Fodor and Pylyshyn's famous article (1981, see bibliography) in which they think they have argued strongly that there will not be a Gibsonian revolution in cognitive psychology. In contrast to this view our modest study is pointing in the same direction as the words of the great neurologist Edelman:

But I must also add that the cognitive enterprise rests on a set of unexamined assumptions. One of its most curious deficiencies is that it makes only marginal reference to the biological foundations that underlie the mechanisms it purports to explain. The result is a scientific deviation as great as that of the behaviorism it has attempted to supplant. The critical errors underlying this deviation are as unperceived by most cognitive scientist as relativity was before Einstein and heliocentrism was before Copernicus."³²

Gibson himself repeatedly expressed similar opinions, saying that the many experiments done by constructivist cognitive psychology were focused wrongly. He did not say they lack any value, but argued that they must be reinterpreted. We believe, with the disciples of Gibson, authors of the 1981 work *Ecological Laws of perceiving and acting: In reply to Fodor and Pylyshyn*, that his ecological approach to perception is revolutionary, and basically correct.³³ Why then, this state of erroneous theories, put forth by a significant minority? This is not the place to try to formulate a response to this great and complex question. Gibson's disciples correctly point out that the debate between the position of the Establishment, represented by Fodor and Pylyshyn at that time, and the ecological stance they advocate, should be considered part of a larger

controversy that has been endlessly debated by philosophers and scientists.³⁴ We note that, in his way, Zubiri tries to answer it throughout his last work, the trilogy on *sentient intelligence*, which retrospectively illuminates all his former work, and thereby also illuminates our question. According to Zubiri, the origin of much of Western philosophy's dualisms comes in no small measure from the dualism between *sensing* and *intellection*. However, this trilogy forcefully establishes that, though sensing and intellection are formally distinct, human sensing, unlike animal sensing, is intellectual³⁵. Or, what is the same, intellectual knowing is sentient. The problems that have crystallized as a result of this confusion are called by Zubiri *logification of intellection* and the congeneric *entification of reality*,³⁶ to which we alluded earlier. When Gibson characterizes the theories that he criticizes as theories of perception based on sensation, he says that it is a question of "the deliveries of the senses to the mind." Coincidences between Gibson and Zubiri are striking. The latter characterizes this mentality as *conceiving intelligence*, unlike his *sentient intelligence*. In Gibson, all his work, but very expressively the title of his second book, is fully in line with this: *The Senses Considered as Perceptual Systems* (SCPS), not as mere channels of sensation. Gibson also dedicated considerable efforts to trying to imagine how and why this wrong state of affairs has historically been produced, given its volume. And so back in pre-historic times, there was the projective nature of shadows, whether from sunlight or fire, and later, the myth of Plato's cave, at the origin of Western philosophy, in which the shadows of objects also project on the wall of the cave. This is what he calls the "fundamental graphic act," at first scribbles, and then drawing and paintings on the cave walls, until the invention of writing, up through the discovery of perspective by Renaissance painters, and the invasion of all kind of representations (paintings, photographs, film, television, symbols of all kinds in two dimen-

sions, etc.) in modern culture. This secular tradition would be at the origin of the *picture theory of perception*. In modern philosophy and psychology that yielded the *representational theory of perception*, the idea that we perceive through mental images in two dimensions (representations), to which the action of the mind must be added in order to perceive three dimensions. It is not that traces of distance and depth dimension are not found in stimuli, but rather that mechanism in modern culture has produced the pernicious effect of the distorting influence of technology in the popular mind and in a great number of scientists. So Gibson is engaged in dismantling one of the biggest fallacies in this field: that the image of the retina is transmitted to the brain. This fallacy may adopt sophisticated ways, but it is the basis of all conceptions of *projective logic* we have grouped under the term “*constructivist journey*.”

Even the more sophisticated theory that the retinal image is transmitted as signals in the fiber of the optic nerve has the lurking implication of a little man in the brain. For these signals must be in code and therefore have to be decoded; signals are messages and messages have to be interpreted. In both theories, the eye sends, the nerve transmits, and a mind or spirit receives. Both theories carry the implication of a mind that is separate from a body.³⁷

Let us also quote the eloquent words of the book *Ecological Psychology in Context* (Harry Heft, 2001) to illustrate the influence of technology on current theories of perception and cognition, especially in psychology:

The practice by philosophers and psychologists of using the idea of representation to describe an essential feature of mind reflects a long-standing tendency to import as concepts artifacts found in the world “into” the black box of the mind, and to use

these concepts as inferred mental structures or processes. Conceptualizing vision along the lines of a *camera obscura* is an early instance of this tendency. More modern examples include viewing the mind/brain as a telephone switchboard, a sequential processing computer, or most recently, as a parallel processing system. Like these developments –although perhaps less obviously –mental representations, now so central to cognitive theories, are in the first instance, features of the world...

...What the emphasis on mental representations has succeeded in doing is to deflect attention away from the role that *representations as features of our environment* play in our daily transactions. In turn, this emphasis on mental representation has misled us about the nature of cognition itself.”³⁸

But let us focus on what the title of our epigraph says to try to make a concrete contribution to the debate. Let us go beyond the *background* problem, and illustrate with the *figure* of a specific problem, which, by the way, we believe represents something nuclear.

The pickup of information and the invariants of optical structure (Gibson)/recurrences and simple apprehensions (Zubiri)

This section title expresses something related to—but is not identical with—the fundamental point of disagreement between the two mentalities,³⁹ focusing especially on how the article by Fodor and Pylyshyn represents the Establishment.⁴⁰ Criticism of this article and the prompt response of Gibson’s disciples M.T. Turvey, R.E. Shaw, E.S. Reed and W.M. Mace, 1981 (see bibliography), are full of important nuances, some of which we will discuss. This is where Zubiri comes in. While we are unequivocally with Gibson’s followers in this controversy, we have yet to pinpoint why we think that the criticism of Fodor and Pylyshyn is understandable

(though we do not agree with it in the end). The Gibsonian position is passionate because it has captured the root of the error of the widespread opposite mentality. And it has to do with realism. It is not surprising that one of the major intellectual roots of Gibson was the radical empiricism of William James, albeit mostly through his disciple Edwin B. Holt and his philosophical behaviorism.⁴¹ Fodor and Pylyshyn insist that, however interpreted, in the end we will run into the problem of the inevitability of *inferences*, or *mental representations*, or *intentionality*.⁴² Let us quote them towards the end of their article:

Missing the point about inference, missing the point about mental representations, and missing the point about intentionality are thus all aspects of missing the same point.⁴³

What do we think is right in Gibson? He is right: perception, *ultimately*,⁴⁴ is direct. But it is not only because of that, but because of the overall coherence of all his analysis and proposals, and because of his focus on the ecological approach, which is the right point of departure. Otherwise, as he used to say, we would be "putting the cart before the horse". What fails in Gibson, and why do we think he needs Zubiri's critical foundation?⁴⁵ We describe it as follows: the profound truth of his radical intuition, his defense of a new original model of perception, and the light that this sheds on a new approach to psychology, have led him to underestimate the relevance of some arguments of his opponents. These arguments contain portions of truth, and so are worth more patient consideration by him. Of course, the purpose is not to take them literally, but to reinterpret their criticism in a way that, we think, lends them the attention they deserved. In this way they would have been able to provide a non-negligible role in the consolidation of his basically correct intuitions. We believe that his *theory of information pickup* in conjunction with his theory of perceptual *invariants* needs im-

portant subtle modifications. And these would come, in our view, following Zubiri, by the hand of *recurrences* which inevitably put our being fluently in reality, and which, in turn, inexorably require the detour by irreality. It is the irreality of *simple apprehensions* (*percepts*, *ficta*⁴⁶ and *concepts*), which play a role in all perception. Let's look a little more in detail the issue.

It is not that perception is indirect, it is not. To begin we must clarify what we mean by *perception*. While Zubiri sometimes uses this term, the term used preferably in his most definitive and mature work, the trilogy on the sentient intelligence, is *apprehension*. This is also a philosophical context of *noology*,⁴⁷ or philosophy of intellectual knowing. Zubiri states that *noology* (philosophy of intellectual knowing), and metaphysics (philosophy of reality) are strictly *congeneric*. We cannot speak of our apprehension of reality without necessarily referring to the reality we apprehend. Both the charters of intelligence and the charters of reality are involved in the act of apprehension, as Zubiri likes to say. This means that man communicates directly with reality. Moreover, he says:

And indeed, by the mere fact of here-and-now apprehending things as reality ... man finds himself inexorably bound to reality. Bound to reality, but also, secondly, swollen with reality. So swollen, that nothing, not even the irreal, falls outside reality. He is bound to and swollen with reality, but also driven by *the real*, and physically dragged along. Now, none of these three characteristics is formally the distinction between the *character* of *reality* and its *contents*....The distinction between the *character* of *reality* and its *content* becomes, in the intellectual act, something different; it turs into the creation of the *scope*, the *scope of reality*, where man will include not only the things he actually perceives, but also the things that he

creates. It is the real scope of irrealization.⁴⁸

We need never “come to reality”, but we are already and always installed, irrefutably, in reality. We are reality, everything is reality, and there is nothing that is not reality. Even the irreal, simple apprehensions, are “really irreal”, they are reality, although in the form of irreality.⁴⁹ The human being inexorably forges the irreal (percepts, ficta and concepts) in order to be in reality fluently, because of a functional necessity. The human being has to make its life; it has to choose between possibilities, freely. This way it also builds the figure of its substantive being. And for that it must to rely on things. But for that it needs to recognize them: this is where, inevitably, our being fluent in reality cannot consist in mere sensing, in the flow of always-new content in the stream of consciousness, to use William James’ famous expression. If so, Zubiri says, instead of living and making our lives, choosing between options, and relying on things, “we would just let ourselves live.” With reference to psychologists, let us mention the classically so-called *perceptual constancy*, which has to do with what Gibson called the direct *pickup of invariants*, and what Zubiri called *recurrences*.⁵⁰ This is where one can introduce an important nuance. While in some contexts Zubiri used the terms *apprehension* and *perception* interchangeably, there is a difference between the two in his work. In his course, published as a book, *Man, the Real and the Unreal* (HRI), Zubiri does study perception, and characterizes it as *perceptual experience*. Before doing so, he explores the meaning of *experience*, distinguishing up to five meanings. Finally he defines the one we are interested in here thus:

Experience is constitutive and formal testing, testing if things indeed are or are not as we have esteemed them—and not by reasoning, but precisely by immediate contact with them....For this reason experience is not mere

sensing. Neither that purely sensible sensing that empiricists talk about, nor even the intellective sensing of the impression of reality. Because that would be to sense; but it would not be to have experience....The integration of the irreal, a figuration, into the real, is just this: experience. ⁵¹

And he defines perceiving thus:

Now, testing in this case is not simply to capture what I have ahead. This would be purely and simply to feel. But it consists in noticing⁵² that is exactly the same. However, to notice is the vulgar manner of expressing what the Latin verb *per-captare* means, from *per-caeptio*, which is just *perception*....That is the first mode of experience: the experience of the sameness of a recurring object is precisely what we call the *per-caeptio*, perception; this is the direct perception of the sensed, with respect to what is figured in recurrence. In this sense, experience is the experience of sameness⁵³, not in an incidental way, but formally. Perhaps psychologists would disagree with that, but I would argue with them about it.⁵⁴

That is to say, to perceive is an experience *of us*, which would put us in the charters of intelligence, which, as we have explained, are the charters of our sensing, which is an intellective sensing. What does it mean to say that it is *our* experience, although an *immediate* experience? It means that to make our life, to choose among possibilities, we approach things, in the recurrences, *figuring out* what *they would be*, and integrating our figuration (the irreal) into the moment of *primordial apprehension* of the directly sensed. Our *simple apprehensions* (*percepts, ficta*⁵⁵and *concepts*) ultimately come from our experience with reality. They constitute that which earlier in this paper—recalling Piaget’s, theories—I have called the “mentality gained mentality by an ‘experienced’ perceiver,” that mentality with which things are perceived; it may not be the same as

that of an inexperienced perceiver, say a newborn.

Gibson, and especially his first wife, Eleanor J. Gibson, addressed the issue of perceptual learning, and thought specifically on the topic: "What do we learn when we learn to perceive? In articles prior to his last book, the most definitive, Gibson focuses, in collaboration with his wife, on the central issue of whether there is an enrichment of a poor input or a progressive differentiation.⁵⁶ The conclusion falls on the side of progressive differentiation.

And in his last book, published shortly before his death, he summarizes the issue of perceptual learning in terms of *exploration* and especially *education of attention*, as a result of which pickups of information become finer and more elaborate; that is, one achieves finer and more elaborate distinctions, which are always made directly to the inexhaustible information contained in our environment.

We think that Gibson could not recognize any kind of duality in perception. The consistency of all his proposals and theories was at stake. However Zubiri said that inherently there are dualities in perceptual experience. Above all there is the duality between the real thing and its field of reality.⁵⁷ Each real thing grounds its field of reality, every thing is in reality itself. There is a cyclical respectivity between each thing and its field.⁵⁸ Things are *inter alia*. As we are midfield, then it would be the duality between the perceived and the perceiver. Today it is well known that in 20th century philosophy all phenomenological theories as well as others have gone beyond the subject-object dichotomy in the theory of knowledge, and, therefore, in the conception of perception. It has to do with what we said earlier on that there is in Zubiri a *congeneric relationship* between the jurisdictions of intellectual knowing (or *intellective sensing*, say perception), and the charters of reality (the perceived). Sentient intelligence (or intellective sensing) is *here-and-now* in the real perceived, and the perceived is *here-and-now* in our intellectual sensing.⁵⁹ But it is the same "*being*

here-and-now", in which the two jurisdictions are compactly, because this is what constitutes sensing. Gibson for his part quotes the Scottish philosopher Thomas Reid who drew attention to the two regions opened by our senses. Thus we see that not always, although almost always, philosophy went astray on the *otherness* of *human sensing, qua sensing*, as Zubiri used to say. A philosopher who inspired Gibson affirmed it and is worth quoting literally⁶⁰:

The external senses have a double province; to make us feel, and to make us perceive. They furnish us with a variety of sensations, some pleasant, others painful, and others indifferent; at the same time they give us a conception, and an invincible belief of the existence of external objects. This conception of external objects is the work of nature. The belief of their existence, which our senses give, is the work of nature; so likewise is the sensation that accompanies it. This conception and belief which nature produces by means of the senses, we call perception. The feeling that goes along with the perception, we call sensation. The perception and its corresponding sensation are produced at the same time. In our experience we never find them disjoined. Hence we are led to consider them as one thing, to give them one name, and to confound their different attributes. It becomes very difficult to separate them in thought, to attend to each by itself, and to attribute nothing to it which belongs to the other (*Essays on the Intellectual Powers of Man*, II, p. 17).⁶¹

When I touch a piece of cold metal, in the same sensing is how it affects me, my skin, my flesh, and me as a whole, whether the cold metal touches me or I touch it. On the other hand—but in the same sensing—there is the region of the other-than-me that I sense in my sensing, in this case, the metal that I am sensing in its hardness, in its texture and in its cold-

ness. Admirable, but no doubt there are “two things in one” in the “starting point,” two realities, analytically distinguishable, but not separate, because they are in the same sentient act. Here we have the *duality* in a *unitary* act of *direct* perception. We give the name “apprehension” to this *direct communication* with reality, unmediated (by mental representations or the like), and direct in this sense, not indirect, unmediated. But duality is also at the root. It is not, as in Kant, some kind of experience by synthesis of the perceiver and the perceived. Rather on the contrary, and in line with phenomenology,⁶² Zubiri will say, it is rather a dis-integration of the poorly-named “subject” and the poorly-named “object”, as already explained. And that is because we start from the radical unity of the perceptive act. From the epistemic point of view this unity is prior and more fundamental than the aforementioned duality, as we have just expressed. It is from this phenomenological unity that we have called “apprehension,” which puts us into direct communication with the real, that we can subsequently access either the charters of reality or the charters of sentient intelligence (that is to say intellectual sensing; it could also be read as “perception”). In our being fluent in reality, with different contents streaming, we live moving, even when we seem to be still. In this flow recurrences are inevitable, and according to Zubiri this occurs continuously, viz. the merger or integration of the real and the unreal of our simple apprehensions (percepts, *ficta* and concepts). We perceive, we have the perceptual experience of the new merged with what we recognize. Gibson and the ecological psychology speak about “persistence and change,” for example, in our locomotion. We perceive when we recognize, or when we capture what remains and does not change in the middle of changes (as Gibson would say), or (as Zubiri says) one thing from the standpoint of another thing. Zubiri says that in the field of reality we perceive a thing *among* others.⁶³ But we can also say that we perceive one thing *from the standpoint*

of other things. We do not have the same appearance when dressed in a particular way, or hair arranged in a certain way, than we do in other ways. And, as an essential part of the field of reality, we are as *midfield*; as we said the perceived in and the perceiver are inseparable in apprehension. Things have *relations* (in the language of ecological psychology) or have *respectivities* (in the language of Zubiri), between them, and between them and us.⁶⁴ Finally, Zubiri says, man is the *geometrical locus of reality*. The first respectivities would be integrated into our perception. That is, we perceive a thing from the standpoint of other, previously perceived things, even to form the elemental and constitutive experience of all perception that psychologists call *object permanence*, *perceptual constancy*. Not only constancy of the *who* (the individual), but constancy of the *what* (the species). The perceptual experience always carries constitutively inherent the experience of these same-nesses. And William James said, according to Harry Heft, that percepts and concepts are continuously melded. And perceiving a thing in terms of other previously perceived things, we have, according to Zubiri, at once a primordial apprehension of reality, involved, or encapsulated, as it were, in the duality alluded to earlier. That is to say, there is the duality of, first, the simple apprehensions (percepts, *ficta* and concepts, or the unreality of the charters of intelligence), with, on the other side (but cast or integrated with the above), what was previously apprehended in primordial apprehension (that is to say, the charters of the reality in which we are installed). Another metaphor to express it would be to say that in perception, which is always *direct* and *unitary*, a root, a primordial apprehension of reality, is always given; although this root is displayed unfolding in certain branches (which Zubiri called the “duality of logos,” because one thing is perceived in terms of others) that are the charters of intelligence: percepts, *ficta* and concepts.

However, this integration or realization of the unreal (percepts, ficta, concepts) in the real previously perceived in primordial apprehension, which has to do with perceptual constancy (and, therefore, with what Gibson called the direct pickup of invariants), is directly involved in the constitution of reality. This is the important concept of *formalization* in the philosophy of Zubiri, which has to do with the concept explained above, *formality*. *Formality* is the way that content stays in the sentient apprehension. And we saw two basic ways of formality: *formality of stimulus*, in the mere animal, and the *formality of reality*, in the human animal. Formalization is the modulation of formality, modulation of the independence or autonomy of the sensed content, in respect to other contents, and in respect to the apprehendor. Formalization is precisely the "unity" of the sensed content.⁶⁵ And therefore it will have everything to do with elaboration of the *real*, which is no stranger to the so called "perceptual constancy," (which the direct pickup of invariants in Gibson accounts for). There are *variations* and *invariances* in *recurrences*, uniting in this phrase Zubiri's recurrences with variations and invariance in Gibson. According to Zubiri (Gibson also used this term) to come to perceive "the same" table, there is a process, not of abstraction but *selection*:

Indeed, certain recurring moments are selected in order to say, "these are this table, the same table, and the other are events that happen to the same table: different lighting, different distances, different perspective, etc."⁶⁶

Zubiri tells us that we proceed by leaving these vicissitudes aside, and that formalization is precisely the factor playing a crucial role on it. And in the human animal, psycho-physiological structures are *hyper-formalized*, i.e., formalizing the stimuli apprehended as *real*. The formalization depends on the psycho-physiological structures of the animal. "Real" means that the unity of the sensed possesses the cutting or unitary profile of

the notes perceived as something that is "in its own right". *In its own right* here means autonomy or independence in respect to anything, and in respect to the apprehendor itself, as a *prius*. But for this to happen, to constitute the real in perception, human beings inexorably need, according to Zubiri, being surrounded by the unreal:

In this perception, so quickly described, we are dealing with a testing or experience. We are not talking about opening one's eyes and seeing the world in just any way, but in a perfect and direct testing. Man goes about assembling the chain recurring and substantive things based on testings; so a moment of unreality intervenes: just what I esteem is the thing, the same thing. And secondly, there is a moment of presentation of the real thing in perception.⁶⁷

But let us go back to the root, the primordial apprehension, and its branches. These branches are not only enrichment of the content because of the logos, but also by reason. But let us give some minimum references to the reader not familiar with Zubiri, on the latter point.

For Zubiri, perception is given in the logos, involving primordial apprehension. This primordial apprehension of reality is the basic form of sentient intellection (or intellective sensing); and it is the root of all intellection, although it is never given alone, but, as it were, with its branches. The logos, where the phenomenon of perception is given, is a modalization or deployment of primordial apprehension; it is a mode of *ulterior* actualization of what is already intelligized (sensed) in primordial apprehension, but without leaving the apprehension. If intellection is for Zubiri the mere actuality of the real in the sentient intelligence, the logos is nothing but a reactualization of what was previously intelligized (sensed). And what is *actuality* for Zubiri? We saw briefly in the first part of the article: actuality means "*being here-and-now* present" from the standpoint of

oneself because of being real (while accenting the “*being here-and-now*” of “*being here-and-now present*”). Present to what? It depends on the context, on what you consider.⁶⁸ But in our case, let us think of our sentient intelligence. And so *actuality*, translated as “*being here-and-now present*”, communicates directly, in *apprehension*, the real as perceived (the *being*), with the sensor, to which it makes *present*. We put the accent on the *being here-and-now* to emphasize the *apprehensive* character of our direct communication with the real of the environment. As we said earlier, in this apprehension there are “two things in one”, although the apprehension is the *unitary* root of our direct and immediate contact with reality. But this root is split into a duality. Or we could say that the root continues to a stalk from which a branch sprouts. That branch would be the logos we have mentioned above. And it is in the logos where our everyday perception occurs. So we said that perception is given in the logos “that involves the primordial apprehension”. We also said that the deployment, or modalization or reactualization of what was previously intelligized (sensed) in primordial apprehension, was given “without leaving the apprehension”. And reason? This is another question.

Reason will be of paramount importance in the study of perception, in the critical foundation of Gibson’s ecological approach to perception. To rescue ecological psychology from the margins⁶⁹ the level of reason is also primary. For in reason, yes we escape from apprehension, in the conceptualization of Zubiri, and we access reality in depth, categorized by science. Though the logos enriches the content⁷⁰ of primordial apprehension, maintaining the same formality of reality, and without leaving apprehension, in reason, we progress from the *field* to the *world*. Or, if preferred, we progress from “reality at the surface level” to “reality in depth”. We think this latter formulation is clearer to psychologists, scientists and philosophers in general, and for all readers. It has the virtue

of overcoming the insurmountable dichotomy, harshly criticized by our two authors, and to which both proposed solid solutions. It is—recalling the famous example cited by Gibson in SCPS⁷¹—to overcome the paradox of the two tables of Eddington.⁷² One would be the *familiar table*, on which I study, or I write, or I eat. The other is the *scientific table*, composed of atoms, molecules, energy. Eddington said, according to Gibson, that the table is only “a swarm of atoms,” and that, according to physics, the objects that are on it do not really touch it; there would be a bombardment of molecules, and that, in fact, the familiar table, like “the earthly world of surfaces, objects, places and events”, is a fiction, because to the world of physics only those particles exist. Zubiri has echoed this major problem and has spoken of the scandal of modern science.⁷³ For many scientists and philosophers sensible qualities are subjective:

If it is an ingenuous realism—and it is—to make sensible qualities into properties of things outside of perception, it is an ingenuous subjectivism to declare them simply subjective. Real things are set off in some zone beyond perception, and everything else is put into the zone of the subjective.⁷⁴

So in our issue of perception, neither psychologists or physicists, biologists or physiologists, or philosophers (though it depends on whom you ask) know where to house the color.⁷⁵ The scandal is—to mention another aspect of the same thing—that science has ignored explanation of sensible qualities, and does not tell us a word about how the physicochemical and psycho-physiological processes inside our bodies produce sensible qualities such as color or sound, or what these qualities in their formal reality are. Phenomenology merely describes them. Zubiri qualifies as scandalous that what is ignored is what, in the last analysis, is the foundation of all real knowledge. This situation is science’s responsibility, according to Zubiri.⁷⁶ In the

same vein two young followers of Gibson said as early as 1981:

A good measure of philosophical thinking will be needed just to generate the questions about the essential nature of a knowing agent that theory and experiment will address. It is not that the problem is a new one; it is not. Nevertheless, the problem has often been avoided, perhaps because of the apparent recalcitrance of the problems of purpose and intentionality for a science trying to deal with observables.

However, in the face of the seemingly obvious truths that knowing implies someone who knows, and that what is known and how it is known cannot be indifferent to who knows, the time has come to squarely face these issues. Psychologists who are hesitant to tread on this *terra incognita* or who feel that the ecological psychologists' "obvious truths" above are misty or spiritual exhortations should recognize that similar exhortations have been coming from the other side of science. Quantum mechanics has its own "algorithmic problems" in trying to understand what it means *to observe*. Shaw and McIntyre (1974) quote Winger (1970):

...the basic concept in the epistemological structure of physics is the concept of observation and ... psychology is not yet ready for providing concepts and idealizations of such precision as are expected in mathematics or even physics. (p.37)⁷⁷

It can be seen that some people are aware of the philosophical problems that underlie modern science, including psychology; problems, moreover, that are old and recalcitrant in themselves, which Gibson himself said have occupied the most prominent thinkers of history. We simply say—though humbly and modestly—that the Spanish philosopher Xavier Zubiri, is, in our view, one of those heads in Gibson's

mind; and we consider that the solution he brings to us is not only highly solvent and solid, but fascinating. Stemming from remote origins in ancient Greece, the problem goes back centuries in modernity. Let us recall again the problem of the division of sensible qualities into primary and secondary by Descartes and Galileo. From there it went to other philosophers and scientists like Locke. It is interesting to quote the above authors, Michaels and Carello, regarding the dualism of "the perceiver and the perceived" that represents the division of the qualities as primary and secondary mentioned before, dualism that has covered much of the history of philosophical and scientific thought:

Perhaps the most fundamental premise to which we would object is that objects have certain properties while ideas about objects have certain other properties. At issue for us is not so much whether the object in the head (idea) and the object in the world have different properties, but whether it makes sense to consider them as two objects.⁷⁸

The interesting thing that these authors are telling us here for us is their brilliant intuition along the lines not just of Gibson, but of Zubiri and his primordial apprehension. Not that they or Gibson noticed the difference between the primordial apprehension and the logos (this is one of the main shortcomings of Gibson and ecological psychology, but fortunately we have Zubiri), but they do make a conceptualization that confronts the dominant positions (wrong in their judgment and in ours) based on a direct perception which they do not withdraw, and that in our view points towards Zubiri's primordial apprehension. And then they make a conceptualization that we see consistent with the primordial apprehension, where there would be compactly the charters of intelligence (or intellective sense) and the charters of reality, in the same being, in the same sensing, as explained. This is what makes the question consistent whether it

would make sense to consider two different objects. According to Zubiri, from this compaction we can try to access either the charters of intelligence or the charters of reality. It is the same spirit in which the above mentioned Scottish philosopher Thomas Reid expresses himself. But let us return to the topic of reason and to our *progression*, according to Zubiri, from apprehension of the *logos* to the *world*, moving out of *apprehension*. I said that the formulation of the progression from reality at the surface level to reality in depth, in the context of our article, seems to us preferable here, because, among other things, it has the potential to connect together the two tables of Eddington. Because, of course, there is only one table: Gibson would agree. What we perceive first is the familiar table, which, according to Zubiri, is not only real, but it is the real table *par excellence*. The scientific table only represents an enrichment of content, progressing from reality at the surface level of the table (the familiar table), to reality in depth of the table (the scientific table). We say “real table *par excellence*,” because, for Zubiri, as we said, in all perception of reality we can distinguish *content* and *formality of reality*. All they do, *logos* and reason, is to enrich the *content*, maintaining the same *formality of reality*. They are *modalizations* or *re-actualizations* of the *primordial apprehension of reality* (which would occur in the perception of the familiar table; this perception occurs in the *logos*, but involving the primordial apprehension). But of the two aspects, content and formality of reality, the moment that has primacy is the moment of reality. So Zubiri says that the *logos* and reason, ulterior modes of intellection, are successive:

It is therein that all of the enrichments of the intellection of what something is in reality have to be inscribed. Hence, despite its enormous volume and richness, the intellection of the ulterior modes is unutterably poor with respect to the way in which

the primordial apprehension apprehends reality. The intellection of the most poor reality intellectually known in the primordial apprehension is immensely richer as intellection than the intellection of reality in its ulterior modes. It is only as referred to the primordial apprehension of reality that the ulterior modes are what they are, viz. intellections of the real. It is because of this that these ulterior modes are just succedaneous.”⁷⁹

That is why we say that Gibson is ultimately right about his critics. We think his stubborn defense of perception as direct and not mediated by mental representations or any such thing (which Zubiri says almost in the same terms) points precisely to this fact, that the root of all perception, primordial apprehension (but ulteriorly deployed into a duality) makes of perception always something direct and immediate, makes what is perceived a presentation and not a representation,⁸⁰ and makes the basis of all perception a direct communication with reality, in which we are always irrefutably installed:

In this apprehension, then, we apprehend the reality of the real impressively.⁸¹ For this reason I call it the *primordial apprehension of reality*. In it the formality of reality is apprehended *directly*, and not by way of representations or the like. It is apprehended *immediately*, not in virtue of other apprehensive acts or reasoning processes of whatever sort. It is apprehended *unitarily*; that is, the real, which can and does have a great richness and variability of content (in general), is in its content apprehended unitarily as formality of reality *pro indiviso*, so to speak. Later I shall speak of this content; for now I refer only to the formality itself of reality. It is in the unity of these three aspects (directly, immediately, and unitarily) that the fact that the formality of the real is apprehended *in and through itself* consists.

In the primordial apprehension of reality, the real is apprehended in and through itself. By virtue of being an apprehension, in it we “are actually” in reality itself. And this apprehension is primordial because every other apprehension of reality is constitutively grounded on this primordial apprehension and involves it formally. It is the impression which primarily and constitutively installs us in the real. And this is essential. One does not have a primordial impression and *besides* it another apprehension; rather, what we have is a primordial modalized apprehension which is, at the same time, in distinct forms. The real, apprehended in and through itself, is always the primordial thing and the essential nucleus of every apprehension of reality. This is what the expression “primordial apprehension of reality” signifies.⁸²

Zubiri says that in the issue before us, perception, the electromagnetic waves, or photons, do not *produce* color (because here we would still have two things or a duality) but that the electromagnetic wave of light *is* the color *in* perception. Therefore, in perception, when we progress from apprehension of the logos to *the world* (or the in-depth dimension of reality itself, for example the table), we go from the perceived color to the study of the foundation of this reality in the world, that is to say, in depth, where we categorize the aforementioned foundation in several possible ways. One of them—and very important for Zubiri—is the categorization that science does; therefore we would be proceeding from the perceived color to the wavelengths or photons. All this puts before us Zubiri's concept of reality.

We have seen that for Zubiri, we do not need to reach reality. For Zubiri sensible qualities are real, and, as stated above, are part of reality *par excellence*. Zubiri does not say that they are real beyond apprehension. They are real *in* apprehension, they are real *in* perception. Reality is not a zone of things. Reality is what is *de*

*suyo*⁸³ or “in its own right”. And this begins in the apprehension, since in apprehension are compactly the charters of intellectual knowing and the charters of reality, at one and the same time and undivided, in the co-actuality of a same being here-and-now. In the example of the table the real starts in the apprehension of the familiar table. From there we can progress, through reason, towards its foundation in the world: photons, electromagnetic waves, wavelengths, rods and cones in the retina, occipital region of the brain,⁸⁴ etc. The character of being *de suyo* or “in its own right”, would be common to all forms of intellectual sensing (or sentient intellection): be it primordial apprehension, logos, or reason (where scientific categories would reside). Thus, the colors, or the causal level of functionality in the logos, or the differential equations of quantum physics, are all *de* real, not for being here or there, but for being what they are, *de suyo* or “in their own right”, absolutely independent of everything else and of all possible apprehender, as a *prius*, which, where appropriate, grounds its own apprehension and *imposes* itself with a certain *force* in the *impression of reality*. However in the case of differential equations at the level of reason, they must be tested; though what is tested is not the truth of they affirm (it would not be verification, which is not needed in mathematics) but it would be the very presence of the *reality apprehended* in line with the *deduced truth*.⁸⁵ All this, as shown, is in perfect harmony with Gibson's ecological approach to the psychology of perception. Therefore, since his second book, SCPS, he said and emphasized to the various students studying perception that scientific categories were not relevant at this level of study. Therefore he also insisted that we should “not put the cart before the horse”. By this he meant not to start with abstract geometric space, with electromagnetic waves (with the categories of science); as Zubiri says, “at the starting line.” That reality in depth you reach by *marching* from the apprehension of logos

to *the world*. It is the work of reason, where Zubiri locates the scientific categories. But let us finish outlining the nuances that we think the theory of *pickup information* and the *invariants* of Gibson needs.

We have previously analyzed the nuances that, we think, the *theory of information pickup* needs. Having presented his second book in his new conception of the senses considered as *perceptual systems*, we do not now need the *plus* of the mind, namely, the operations of the mind on the delivery of the senses. Zubiri would have said that with this it is presented a conceptualization of the senses in line, not with a *conceiving intelligence*, but with a *sentient intelligence*. The environment is perceived directly by direct uptake of information by our senses, which “get out there” and, for example for visual perception, pick up the information contained in the *sea of ambient light*. Instead of saying that coded information on our retina is projected, producing an image that, in one way or another is transmitted to the brain, where finally a picture or terminal representation would occur, we say that *we see* not pictures but the real thing viewed directly through the *optical environmental structure*, and our nerve centers, just *resonate* in field simultaneity to capture *information*. We have resolved the problem when, as Gibson says, we have superceded classical theories of perceptual constancy, recognizing that our visual system captures and extracts the invariant optical structure directly. We think this “capturing or extracting” invariant optical structure *directly* needs elaboration. It is something that Harry Hefst recognizes in the book mentioned, quoting an important author, Ulric Neisser:

In the case of the present problem, it is hypothesized that what specifies object shape that structure in the reflected light that remains constant across transformations generated from a moving point of observation. Because this structure remains invar-

iant, and because it is specific to a particular object shape (i.e., there is a one-to-one mapping relation between the two), it could be said with justification that this invariant structure in reflected light can serve as information for the presence of this object (rather than some other object) in the immediate environment.

But this statement does not go far enough. The next step must be taken and this invariant must be identified, which is a difficult task. It is toward this effort that much basic work in an ecological approach to vision has been directed, and a great deal of this work remains to be done.⁸⁶

So as we said before, this is where we come to Zubiri. But for the “discussion” between our two authors, it is necessary to sharpen the analysis. This is where Zubiri speaks of *recurrences* and the integration of simple apprehensions (percepts, ficta and concepts), which belong to “the charters of intelligence”, in the real thing, previously apprehended in primordial apprehension (the charters of reality). This is where we are *recognizing*. But the integration of percepts, ficta and concepts in the real thing apprehended in primordial apprehension is *realized* in the context of a *direct, immediate and unitary* perception.⁸⁷ In this sense, it is something quite different from the *inferences* of Helmholtz, and with him of many scientists of visual perception who followed him in this, such as Fodor and Pylyshyn’s cognitive science. The conception of these authors is prey to the *projective logic* of what I have called the “constructivist journey.” Instead, Gibson and Zubiri are in the orbit of logic of “field simultaneity” of direct perception. However, as mentioned, there is still an important point for discussion, and it has to do with the *integration* or *realization* of simple apprehensions (percepts, ficta and concepts) in the real previously intelligized (sensed) in primordial apprehension. Let us see:

How would this integration or realization be? How would these simple apprehensions or gained mentality of an experienced perceiver be in us? Let us recall that Gibson said that in perceptual learning there is no enrichment of the *input*, but a progressive differentiation which is a result of *exploring*, and an *education of attention*. In that way Gibson was fighting against classical theories of perception based on sensation; Zubiri called these conceptions "conceiving intelligence". Expressing this in a way similar to that of both authors, we would say that it is to overcome conceptions that are based on "the operations of the mind on the delivery of the senses". It is something that comes from the *dualism at the starting point*, which is superceded by our two authors, who are based on the *unity of the perceptive act*.

Gibson also disputes that memory plays some role in perception. With this he was opposed to the theories that conceive perception as a series of snapshots which must then be integrated into a sequence—theories which are unable to account for motion, either coming from the world, or from movement of the observer. It would require a continual recalling of appropriate representations from memory store. Gibson is opposed, and Zubiri also, to conceive memories or memory contents of thought in the form of representations or mental images. The issue also has to do with the *stream of thought* of William James and the fact that our perception, is not only in motion, but in time. Let us quote them:

Because we are led to separate the present from the past, we found ourselves in what I have called "the muddle of memory" (Gibson 1966a)⁸⁸. We think that the past ceases to exist unless it is "preserved" in memory. We assume that memory is the bridge between the past and the present. We assume that memories accumulate and are stored somewhere; that they are images or pictures, or representa-

tions of the past; or that memory is actually physiological, not mental, consisting of engrams or traces; or that it actually consists of neural connections, not engrams; that memory is the basis of all learning; that memory is the basis of habit; that memories live on in the unconscious; that heredity is a form of memory; that cultural heredity is another form of memory; that any effect of the past on the present is memory, including hysteresis. If we cannot do any better than this, we should stop using the word.⁸⁹

Zubiri, in general, did not deal with memory in his writings. Why? We tend to think that just as—to take one significant example—the word *culture* hardly appears in his writings, the word *memory*, like the word *culture*, would be heavily loaded with connotations that he wished to avoid. Zubiri, however, spoke of the meaning-thing, which could be considered as a basic ingredient of culture.⁹⁰ Therefore, we believe that most likely he would be on guard regarding the tremendous complication around memory—possibly, we are speculating, in a way similar to that expressed by Gibson here. Let us quote a text that we consider very important in this regard:

... The brain configures the mind, but the mind also configures the brain. And just as the psyche does not receive "traces" from the brain, so neither does the brain have traces of the psyche. For configuring does not mean "impressing traces", but configuring a mode of being and acting in the field of reality. And this "availability" for action is psycho-organic, brain-mental. In the brain neither situation nor memories are deposited, but the brain acquires more or less new "ways of functioning," which furthermore are not privative of the option that has determined them."⁹¹

The issue of integration or realization of simple apprehensions (percepts, ficta

and concepts) as previously intellectually known in primordial apprehension is something that Zubiri deals with in HRI; but its final version is in IL. However, the above quotation is from SH, where Zubiri extensively treats the mind-brain relationship. As perception is a psycho-organic act, like all human activity, it involves brain-mental act, and therefore we can find in SH very valuable suggestions for our subject of perception. In particular we have seen the issue of integration or realization of the unreal in the real, clarifying step-by-step all its aspects.

In parallel to our problem at hand, Gibson shows consequences of his *theory of information pickup*, which is to say his theory of *direct perception*, very much in tune with those of Zubiri and other, and upon which we wish to comment. We present, first, a text that shows Gibson's awareness of the contradictions of conceptions that fall within what we call "*projective logic*", prey to mechanism and dualism. From here the texts that take more direct consequences of his conception of direct perception "in field simultaneity" will become more apparent to us:

But the ancient Cartesian doctrine still hangs on, that animals are reflex machines and that humans are the same except for a soul that rules the body by switching impulses at the center of the brain. The doctrine will not do. Locomotion and manipulation are not triggered by stimuli from outside the body, nor are they initiated by commands from inside the brain. Even the classification of incoming impulses in nerves as *sensory* and outgoing impulses as *motor* is based on the old doctrine of mental sensations and physical movements. Neurophysiologists, most of them, are still under the influence of dualism, however much they deny philosophizing. They still assume that the brain is the seat of the mind. To say in modern parlance, that it is a computer, with a program either inherited or acquired, that plans a voluntary action and

then commands the muscles to move is only a little better than Descartes's theory, for to say this is still to remain confined within the doctrine of responses."⁹²

The philosophical criticism of Cartesian dualism and mechanism can be seen in this text, as a background—theories that implicitly or explicitly underlie projective logic as embodied in what he calls the doctrine of responses. From there it continues by considering the brain as the place of mind. Gibson sees the senses as systems, or, if you like, subsystems embedded in another, and so on until the last system is reached, which is not the isolated human being but the *organism-ecological niche* system, according to the principle of mutuality between the animal and its environment. This Zubiri calls congenereity between intelligence and reality, or coactuality between sentient intelligence and perceived reality. For Zubiri the *sentient intelligence* is a *systemic* property of the whole human *substantivity*, which in its dynamism *turns towards reality*, and this is its *psychic* character.⁹³ Otherwise, the text has the virtue of making clear that the current trend of "computer as a model of mind-brain" is a contemporary version of mechanism, which historically stems from Descartes.

Here are two texts containing the basic problem to be treated, to be conceptualized classically by theories of perceptual constancy, and that is replaced by Gibson's pickup information theory, according to his general approach wherein invariants of optical structure are extracted directly from the flow of environmental stimulation. This was to deal with the enormous difficulty of accounting for both *persistence* and *change* at the same time:

Finally, fifth, optical information theory entails an activity of the system not heretofore imagined by any visual scientist, the concurrent registering of both persistence and change in the flow of structured stimulation."⁹⁴

"The perceiver extracts the invariants of structure from the flux of stimulation while still noticing the flux. For the visual system in particular he tunes in on the invariant structure of the optic array that underlies the changing perspective structure caused by his movements."⁹⁵

Now we present Gibson's answer to the question we asked at the beginning: if not in the store of memory, if not in the form of images or mental representations, etc., how are our memories, fantasies, dreams, fictions, hallucinations in us? How are percepts, ficta and concepts in us? These are what Zubiri called the "simply apprehended". Gibson's response will involve a theory of cognition in general. Referring to: "(a) remembering...such as items in the story of one's own life; (b) to expect, anticipate, plan, or imagine creatively... within what we call the limits of possibility; (c) to daydream, dream, or imagine wishfully (or fearfully) ... that are outside the limits of possibility", he says:

These three kinds of nonperceptual awareness are not explained, I think, by the traditional hypothesis of mental imagery. They are better explained by some such hypothesis as this: a perceptual system that has become sensitized to certain invariants and can extract them from the stimulus flux can also operate without the constraints of the stimulus flux. Information becomes further detached from stimulation. The adjustment loops for looking around, looking at, scanning, and focusing, are then inoperative. The visual system visualizes. But this is still an activity of the system, not an appearance in the theater of consciousness.⁹⁶

Knowing is an *extension* of perceiving.⁹⁷ ...

The process of pickup involves not only overt moments that can be measured, such as orienting, exploring, and adjusting, but also more general

activities, such as optimizing, resonating, and extracting invariants, that cannot so easily be measured.

The ecological theory of direct perception cannot stand by itself. It implies a new theory of cognition in general. In turn, that implies a new theory of noncognitive kinds of awareness – fictions, fantasies, dreams, and hallucinations.

Perceiving is the simplest and best kind of knowing. ...⁹⁸

Moreover, as can be seen, Gibson postulates a hypothesis to explain, according to his theories, how would it be consistent to think conscious non-perceptual contents, going beyond the representationist conception of mental content (such as dreams, dreams, imaginations, etc.) as images or the like appearing "within the theater of consciousness." On the other hand he leaves clear continuity between perceiving and knowing. But the final statement, that "perceiving is the simplest and best way of knowing", very much in line with the primordial apprehension of Zubiri we've seen before, is even more interesting.⁹⁹ Again the similarities between our two authors, who did not know each other, and whose theories are so counter to many psychological, cognitive and philosophical theories still in force, gives one pause.¹⁰⁰

Gibson explicitly states that his ecological theory of direct perception does not rely on itself but requires a new theory of cognition in general.¹⁰¹ Not only that, but this requires a new theory of non-cognitive forms of consciousness—fictions, fantasies, dreams and hallucinations. So we again arrive—it must be for some reason—at the issue with which we began the last analysis, viz. about memory, the relevant mind-brain relations in perception, and in general, and how the so-called mental representations (images, etc.) are possible.

Be that as it may, this is not the place to address this issue in all its depth. We believe that with what the texts cited make

clear, is enough that the reader will not confuse Zubiri's position with those of Gibson. In EAVP, when summarizing his *Pickup Information Theory*, he reviewed *The Traditional Theories of Perception: Input Processing*, and referred, among others¹⁰² to those in which there is the *Application of Memories to the Sensory Inputs*, with which he differed. All of them have to do with "mental processing of information", as it may be read in the title of the section. And if there is something characterizing Gibson's position, it is opposition to all theories consisting in information processing. All of them suffer a *projective logic*, which our two authors have called "the operations of the mind on the delivery of the senses." All of them are forced to a model of *indirect* perception, to the enrichment of the sensory *input* by the mind. Let us quote Gibson:

The fallacy is to assume that because inputs convey no knowledge, they can somehow be made to yield knowledge by "processing" them. Knowledge of the world must come from somewhere; the debate is over whether it comes from stored knowledge, from innate knowledge, or from reason. But all three doctrines beg the question. Knowledge of the world cannot be explained by supposing that knowledge of the world already exists. All forms of cognitive processing imply cognition so as to account for cognition.¹⁰³

While in Zubiri the issue of integration or realization of percepts, ficta and concepts in what was previously intellectually known in primordial apprehension could be confused with the stance criticized by Gibson as *The Application of Memories to the Sensory Inputs*, we believe that what has already been explained leaves it sufficiently clear that this is something quite different. In Zubiri knowledge of the world comes from the *primordial apprehension*, present in every perception. The simple apprehensions (percepts, ficta and concepts) come from the *irrealization* of a content apprehended in primordial apprehen-

sion; and *integration* or *realization* is done on *the root of the same apprehension*, which is *primordial apprehension*. Said primordial apprehension is the exigent basis of simple apprehensions (percepts, ficta and concepts) and where they are *integrated* or *realized*. We think these essential nuances (a paradox!) that Zubiri provides in his trilogy about *sentient intelligence* are what the too obvious *direct pickup of information invariants* of Gibson needs. In any case, I must say that the subject is difficult and requires a thorough analysis. Zubiri dedicated two books to it, HRI, and the second volume of the trilogy on the *Sentient Intelligence*, IL.

Conclusion

In Zubiri perception is a very complex phenomenon situated in the logos. Primordial apprehension in a pure state would never be given.¹⁰⁴ Nonetheless, it is constitutively implicated in the logos and, therefore, in every perception. The hypothesis I suggest is that direct perception in Gibson *would approach* primordial apprehension in Zubiri, although Gibson never elaborated anything like Zubiri's notion of logos. The thesis of his critics, that all perception implies some kind of *inference*, would approach, on the one hand, the duality of the logos, but, on the other hand, leaves untouched the primordial apprehension that all logos involves. We perceive in the field of reality in which we are situated in a state of flux. This is congruent with Gibson's theory that we perceive in motion, in time.¹⁰⁵ Gibson's affordances of things "would contain" their sociocultural meanings and would be in tune with Zubiri's notion of *habitude*, and with the *thing-meaning*.

Vis-à-vis theories that he criticizes and *vis-à-vis* his critics, Gibson basically is right. The powerful, well-elaborated philosophy of Xavier Zubiri, with which he is very much in tune, backs him up. This basically refers to his *ecological approach*, which we describe as *phenomenological* and prior to the level of scientific explanation. In this work we understand phenom-

enology as a philosophical dimension in the dimension of scientific psychology. There is nothing like Zubiri's noology for this joining of philosophy and science.

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Notes

- ¹ This article has deliberately many words in italics. At least once in the text expressions appears in italics that in the work of Gibson or of Zubiri have special significance, either by the strong condensation of meaning, for the importance of it, or to make clear important distinctions.
- ² See Fodor and Pylyshyn, 1981 or Nakayama, 1994.
- ³ The terms "projective or transmitting logic", "field simultaneity" or "constructivist journey" have been invented by me, in the sense that I have created them here, from my analysis of Gibson from Zubiri standpoint, ignoring if such expressions have ever come to the mind of anyone in these contexts, or if they have already been used by others (which could have happened, but it is not something that I know of, even if it were something well known in general). I am therefore responsible for its introduction here.
- ⁴ The term *constructivism* in psychology of perception denotes those theories in which the final product of our perception *is constructed* on the basis of stimuli originating from the outside in our mind. This term holds a very different meaning in Zubiri and in other contexts.
- ⁵ PVW: see bibliography
- ⁶ In parallel, we note that criticism of the opposite view, the Establishment, such as Fodor and Pylyshyn, represented in their article in 1981 (see bibliography), said on pg. 194: "*Missing the point about inference, missing the point about mental representations, and missing the point about intentionality are thus all aspects of missing the same point.*" (see note 44). We think, as do the disciples of Gibson, expressed in their article written in reply to the previous one of Fodor & Pylyshyn (Turvey, M.T., Shaw, R.E., Reed, E.S., Mace, W.M., 1981), in the final Postscript, that the controversy between defenders of ecological psychology and the article by Fodor and Pylyshyn representing the *Establishment*, is to be positioned in an argument repeated endlessly for centuries among philosophers and psychologists
- ⁷ See for a grounding of metaphor in cognitive sciences, in cognition in general, and in the thinking of Zubiri, Cope 2007.
- ⁸ In note 12 are additional references about ecological optics, and in our last long section, before the conclusion, by the second third of this writing, "The pickup of information ..." on the pickup information theory.
- ⁹ The *medium* (aerial for us...) in Gibson, together with *substances*, form the *environment*, and seem to be separated by *surfaces*. They are *ecological*.
- ¹⁰ We deal with the concept of invariants in note 14.
- ¹¹ The pickup information theory, central in Gibson's theory, will account for this, which we are only mentioning briefly here. In the second half of this article, we discuss in some detail this nuclear and controversial point about Gibson's theory from Zubiri standpoint—the direct pickup of optical invariant structure.
- ¹² The ecological perspective is central to Gibson's proposal. Introduced in his second book, SCPS, he made further developments in his last one, EAVP. Gibson acknowledges that it was nonexistent at the time that he created, but he considered it essential for his new theory. He is aware that, for now, he can only guess at its main lines. It is very different from the classical optics of physical science. It is in line with its *ecological approach*. And he says it will be interdisciplinary, and made of contributions from physical optics, lighting engineering, ecology and descriptive geometry. Instead of dealing with *radiant light*, it will deal with *ambient light*, which we discussed. There will be very important concepts in it, like *ambient optic array*, *optical structure*, *optical invariant structure*, and its culminating concept, the *affordances* (which we see in tune with the concept of *habitude* and *meaning-thing* in Zubiri). In our thesis, we study a *first* consideration of light, from

Gibson's ecological optics. This is in keeping with the theme of *ecological approach*, and with the *ulterior* access to the categories of science at the level of reason. In the case of light, access to *radiant* light as *energy*, and its electromagnetic waves, photons, etc. As ambient light is taken with reference to an organism; however the radiant light is taken with reference to the universe. (SCPS, p. 13).

¹³ We will discuss later, toward the end, how these statements have much in tune with the whole trilogy of Zubiri on the sentient intelligence (see bibliography: IRE, IL, IRA)

¹⁴ Gibson tells us that: "*The theory of the concurrent awareness of persistence and change requires the assumption of invariants that underlie change of the optic array.*" (EAVP, pg. 310). He postulates various kinds of invariants: "*those that underlie change of illumination, those that underlie change of the point of observation, those that underlie overlapping samples, and those that underlie a local disturbance of structure*" (EAVP, pg. 310). The theory of extracting invariants by a visual system plays the role, Gibson recalls, of the theories of "constancy". To illustrate, we point out some of these invariants within the different types; for example, the edge of the nose, or the horizon, would be *invariants* in line with the mutuality between the observer and the environment. The horizon, for example, is an invariant of all optical distributions and from all observation points; it is that to which all the optical movements refer. It is neither objective nor subjective.

¹⁵ To read this letter, in general, the best and most convenient, it is a certain familiarity with Zubiri, in addition to Gibson. To a first approximation to Gibson, we recommend the website of the Center for the Ecological Study of Perception and Action (CESPA) belonging to the University of Connecticut, in the US, where there are still some who were direct disciples of Gibson. For Zubiri we recommend the introductions of the website *The Zubiri Foundation of North America*, either in English or Spanish. Here one can find the online magazine *The Zubiri Review*. Of course, if the language of our author is mastered, the Spanish website is recommended, www.zubiri.net, for those able to take advantage of the joint use of both sites. In this article we have the current limitations, so

mostly we point to lines of convergence, but also we examine analytically in detail, to some extent, some points of special interest. In general we talk about hypotheses.

¹⁶ See also, Harry Heft, 2001, pgs. xxii and xiii of the Introduction, among others. Besides, the author has the power to note that one of the great problems of modern psychology of the scientific field is an inadequate philosophical heritage that permeates many of their historical developments: basically a metaphysics of Cartesian origin, and a physics of Newtonian origin, and, in general, a philosophy designed to natural things, not for humans, their psychology, their behavior. This is in line with the doctoral thesis that we are developing (Critical Foundations - from Zubiri standpoint- of JJ Gibson's ecological approach to psychology of perception) in which one of the hypotheses to study is the decisive non empirical component (philosophical) in theories of perception, both the ones criticized by Gibson, or the contemporary theories, we would say. Of course, decisive in Gibson: hence our research. In this line (what a coincidence!), Harry Heft argues that the intellectual roots of Gibson, being many, are one of the most important in William James, whose radical empiricism has been seen in line with the so-called "new realists". Edwin B. Holt, who decisively influenced Gibson, is one of them and, according to Harry Heft, through which the influence of William James came to Gibson. Zubiri was also interested in William James, whose pages *The Stream of Thought*, chapter nine of his *Principles of Psychology*, described as memorable, and the author as genial. We guess there is a great harmony in the characterization done by Zubiri in HRI of our "*being fluent in reality*", with the *stream of thought* of William James, as described by Harry Heft. And this coincidence commented by Zubiri in HRI is what has made us better understand the distinction, central to his philosophy, between *content* and *formality of reality*. Our apprehension flows from one content to another, "in reality", in the field of reality. Different contents are flowing, but all are part of the same *formality of reality*. Our *hyperformalized* neurophysiological structures, *formalize* all our apprehensions with the *formality of reality*. Hence, in Zubiri, *the field* will be considered as a *means of intellection*

- (or intellectual sensing); that is, considered as a means of perception. This will bring important consequences. You can also see the strong epistemological tensions in the study of perception and cognitive sciences in general in Monserrat, Javier, 1998, pgs. 41, 46, 79 and 105, among others (see bibliography).
- ¹⁷ We gave an exposition of the first hypothesis in the initial lines of our introduction.
- ¹⁸ This statement should be qualified. We follow here our convictions, influenced by Harry Heft, 2001, who in his pages. 114-119, and 169-171, adequately clarifies the issue. In the US the influence of the phenomenological tradition in psychology often had mentalist connotations. Gibson was identified, though openly and critically, in the behavioral and positivist tradition, namely William James line, which made him reject anything with those mentalist connotations. It was through the disciple of William James, Edwin B. Holt, that Gibson received this influence, although Gibson then drank directly from James's *Principles of Psychology*, and there is no evidence that he was familiar with many of James's writings other than the aforementioned. More inclined to the source of W. James than to the Gestalt, from which, however, he received a strong influence (Koffka, Heider), we could say that the phenomenological method of Gibson would come closer to the way of Merleau Ponty or Heidegger, than to the Husserlian line, which he did not get to know. Also Langfeld, influenced by Carl Stumpf, student of Brentano, and Robert MacLeod, influenced by David Katz, of experimentalist phenomenologists line, left their mark on Gibson in his formative years. Harry Heft concludes that there is a clear use of phenomenological ideas in Gibson, in his first phase, hence the search for conceptual frameworks derived from that experience, and to contrast hypotheses experimentally. This would make of Gibson someone away from classical behaviorism, rather an experimentalist phenomenologist, hardly with philosophical prejudices. For us this lands on the *ecological approach*. This, in turn, puts him in Zubirian terms, in line with the *ulteriority* of scientific categorization at the level of reason, beyond the first phenomenological level of perception at the level of logos that involves *primordial apprehension*.
- ¹⁹ For Zubiri all space, whether physical or geometrical, is to be ultimately referred to real space and to be inscribed in it and not vice versa. Space is grounded in *spaciousness* as a real property of things, sensed in primordial apprehension. Physical space and geometrical space are situated on the level of scientific reason and therefore lie in a status *lying beyond with respect* to real space, which is always something *sensed*.
- ²⁰ *Ulterior* is the expression used by Zubiri.
- ²¹ See Fodor & Pylyshyn, 1981, Nakayama, 1994.
- ²² In intimate connection the theme of *being*, the presence of the real in the world, prior to its presence in intellection, and the complex theme of the *entification of reality* and its related *logification of knowing*, are very important, but we cannot enter into these matters here. Suffice it to say here that the expression of the latter in psychology would be the duality sensation-perception.
- ²³ *Noergic* is a philosophical neologism of Zubiri that comes from melting two Greek terms: *nous* (intelligence) with *ergon* (activity, work, energy ... it's something physical, and this is the meaning given by Zubiri).
- ²⁴ *Intellective* in Zubiri means that it apprehends *reality*.
- ²⁵ Physical in accordance with its meaning in ancient philosophy, not what it means in modern science. See General Note in SE.
- ²⁶ The Spanish term used by Zubiri is *actuidad*.
- ²⁷ We could say that "the *actualizations* of the *condition of being an act* are *ulterior* with respect to the actualizations of actuality".
- ²⁸ As the phrase could lead to confusion, we clarify: *actualization* is a substantivation of the verb to *actualize*; *actuality* is the noun.
- ²⁹ Gibson distinguishes between *stimulus energy* and *stimulus information*. This is about, in the first case, the stimulus categorized as energy according to the magnitudes of physical science, and in the second, of its dimension of *ecological information* that *directly* the animal *captures*, and therefore is defined with reference to the animal, ie, the "ecological" level, according to the ecological principle of *mutuality between the animal and its environment*. The latter is explicitly defined by Gibson in his third book, EAVP, pg. 8.

- ³⁰ We deal specifically with *primordial apprehension* in the last third of our writing, letting Zubiri to speak by himself in the quoted passages corresponding to footnotes 91 and 94.
- ³¹ Gestalt psychology greatly influenced Gibson, though he criticized it decisively and superceded it. Gestalt psychology was also known to Zubiri.
- ³² Edelman, G. (1992). *Bright Air, Brilliant Fire: On the Matter of the Mind*. NY: Basic Books, p.14, cited by Cope, Theo, *The Xavier Zubiri Review*, Vol. 9, 2007, pp.133-154. It would be consistent with the words of Edelman to say that they contradict the view of Fodor and Pylyshyn who strongly conclude that “there will not be Gibsonian revolution in cognitive science”. We can say after reading his lengthy article, that Fodor and Pylyshyn, of the Establishment of cognitive science at that time, 1981, would be among the cognitive scientists disavowed by Edelman, and precisely because of their unchallenged philosophical assumptions. That is, it would not be inconsistent with the words of the great neurologist, considering that there remains the challenge of Gibson and his followers of ecological psychology to the dominant Establishment of cognitive science, and also there remains the challenge of radical empiricism of William James, which is not far removed in time, not to mention other themes from across the Atlantic, such as phenomenologically inspired currents, among which we would include Zubiri. According to Monserrat 1998, or the 17th International Conference on Perception and Action (ICPA) Estoril, Portugal, 2013; or the 13th European Workshop on Ecological Psychology (EWEP), Queen’s University, Northern Ireland, 2014), the challenge remains to the latter and present Establishment in cognitive science. For all the cited authors and currents, in our view, directly conflict with the positions of Establishment, narrated by Fodor and Pylyshyn. The consistency of this challenge means that it is not inconsistent—so to speak—to continue considering Gibson, at least, a prelude of that revolution. Diego Gracia, Director of The Zubiri Foundation in Madrid, in “Zubiri, Thirty Years Later”, explores the intellectual fashions and factors that make an author to pass or not into history. And he gets particularly acute at the phenomenon of revolutionary authors, breaking paradigms, as happens in the history of science, as Thomas F Kuhn analyzed. There he analyzes the complexity of the above factors and concludes that in the case of authors breaking the regular molds of interpretation, time is required. An author may be fashionable in life and not go down in history, and vice versa. Those who eschew fashion go down in history and become classics. Fashions do not pose serious interpretation problems, the classics continuously do it. So we continue to learn from them. Our conviction is that both Gibson, as Zubiri are destined to become classics, each in its field. We do not have the same conviction about Fodor and Pylyshyn.
- For the application of Kuhn’s concept of paradigm to psychology: Guedán Pècker, V.L. 2001.
- ³³ That was their final statement of their (1981) *Ecological Laws of Perceiving and acting: In reply to Fodor and Pylyshyn* (see bibliography).
- ³⁴ Despite the fact that the following point is not important here, because it depends on intellectual references of each cultural context and of each author, let’s say that we do not characterize said major controversy in the same way Gibson’s disciples -authors of the mentioned writing- do, although there are similarities. For example, we would not describe as arrogant Kantian positions, whether explicit or not their roots are, although we also disagree with them.
- ³⁵ For Zubiri *intellective* means apprehending *reality itself*. What is apprehended *stays* in the sentient with a particular *formality*, which is, in the human animal, *formality of reality*; however, in the mere animal, what is apprehended *stays* with a *formality of mere stimulus*; that is, as a mere “sign” of *tonic modification* and *response*. Being *real* is to be *de suyo* or *in its own right*, absolutely independent of the capturer, and anything else. This is possible because of the *hyperformalized* structures of the human animal, especially the nervous system. This being *in its own right* begins in the apprehension itself, but continues beyond apprehension, “in the world”. See later in this paper the example of Eddington’s two tables concerning “reality on the surface” and “reality in depth.”

³⁶ Zubiri explains that the *logification of intellection* makes the logos the fundamental mode of intellection. This entails that *being* is the fundamental mode of reality, that reality is *entity*; this is the *entification of reality*. But what one need to do is to "intelligize" the logos; and to reify being. For the fundamental mode of intellection is not the logos but *sentient intellection* in *primordial apprehension* of reality; and reality is not a mode of being, rather the reverse, being is a mode of reality. The logos is an *ulterior* mode of intellection and being is a *ulterior* mode of reality. Logification of intellection and entification of reality were from Parmenides onwards the two major assumptions of Greek philosophy, and they have dominated the entire western philosophical tradition up to Husserl and Heidegger. All this has had and has huge consequences, including conceptualism and idealism, secular evils of philosophy. In the present problem this immediately translates as the difference between *sensation* and *perception*. Or that time (all perception has its spatial dimensions and occurs over time) is something that, according to Zubiri, directly affects being, not reality; besides having more to do with the perceiver than with the perceived. And yet, it seems that William James, who inspired Gibson, has some concepts of sensation and perception that do not fall into the classic problems that almost all positions fell (Harry Heft, 2001, pgs.156-158). Nor does Gibson fall into the problems we denounce, as he is clear about the problems of postures representing "the operations of the mind on the delivery of the senses", as explained.

³⁷ EAVP, pg. 61.

³⁸ Harry Heft, 2001, pgs. 351-352.

³⁹ The two mentalities, of course, are not the ones of Gibson and Zubiri, as both are on the same side, but that of the group of which we consider them outstanding exponents, and that represented by Fodor and Pylyshyn, which they call *the Establishment*, in the specific field of cognitive science. The core of discrepancy, which in turn involves several points, we could say that is if perception is direct or indirect. The *pickup information theory* is, therefore, something unavoidable in keeping with the directness of perception, and so things, the direct pickup of invariants of optical structure is itself necessary, in Gibson's view, to give account for the phenomena known as perceptual constancy. But

this is where, in our view, the conceptualization of Zubiri, including *recurrences* and *simple apprehensions*, would be useful, qualifying coherently, to what Gibson left without sufficient explanation or elaboration.

⁴⁰ This expression is the one the authors used to position themselves in an exercise not lacking irony, given that the Kühnian background of "scientific revolutions" is guessed. Gibson himself said that his ecological approach to perception also aims to be a new approach to psychology. Coinciding with Zubiri Gibson in many of the general assumptions on which they rest -although both authors apparently didn't get to know each other- it is not for surprise the astonishing coincidence between them, and that we are determined to rescue Gibson from the margins (Harry Heft, 2001, inspired us this expression) through its critical foundation from the powerful and solvent philosophy of Zubiri.

⁴¹ See Harry Heft, 2001, especially chapters 1 and 2. And on pg. 73 says: "*The collective effort of the six philosophers who identified themselves as The New Realists can be seen mostly as an attempt to defend and expand James's radical empiricism and explore some of its implications.*" Edwin B. Holt was one of them.

⁴² Javier San Martín Sala points out in his article "*Psychology and Phenomenology*" that intentionality of most of cognitive science is anchored on its representationism. This author echoes the debate that occurred in the United States in the 70s and 80s about the two ways of interpreting Husserl: a Husserl who is a representationist theorist (which influence cognitive science), and a Husserl of experience (which influence Merleau Ponty and Heidegger), and where there are no representations.

⁴³ Fodor and Pylyshyn, 1981, pg. 194. (See note 4 pg. 2). The sentences of both notes condensed nuclear aspects of both opposing positions.

⁴⁴ We hope that this word does not confuse those who are not familiar with certain philosophical language. For to say that perception, *ultimately*, is direct, is said in a language that might suggest that, *first*, is indirect, which, all in all, sounds like nonsense. Perhaps this is better understood saying that

- it is, at its root, direct. As explained below, what happens is that, ulteriorly, a duality is given in perception, duality that has a direct root. This ulteriority is not temporary, but concerns foundations. The basis or root is direct, although the direct nature involves a duality. We explain in detail below.
- ⁴⁵ We know of no better philosophy, having the strength and creditworthiness of the philosophy of Zubiri, not only for the problem at hand, but for the great problems of human beings and contemporary culture.
- ⁴⁶ See the home page of The Xavier Zubiri Foundation of North America (<http://www.zubiri.org>). The Spanish Word used by Zubiri is *ficto*, the term for the mental entity of a fiction or creation, as *percept* is the term for the mental entity of a perception. The closest word in English could be *notional*.
- ⁴⁷ The word used by Zubiri in Spanish is *noología*, kind of philosophical neologism, coming from the Greek *nous*, which means intelligence.
- ⁴⁸ HRI, pp. 65-66 (Spanish original: to my knowledge there is no translation into English of HRI yet). Moreover, the scope of the irreal, which in its most definitive version by in IL consist of *percepts, ficta and concepts* (the *simple apprehensions*) as herein mentioned, and comes from the *irrealization of the content of what is apprehended in primordial apprehension in a retracting movement, while retaining the moment of formality of reality*.
- ⁴⁹ Of course, the above is not a truism, nor a simple game of words, but, in our view, an invaluable conceptualization which is a product of a thorough analysis, such as those of Zubiri. This is in contrast to many analyses in which reality is “a zone of things” (González, Antonio, 1994) not included in perception. In them the perceptive act lacks unity, e.g. those of the Establishment of Fodor and Pylyshyn’s article, or theories criticized by Gibson, based on sensation, or those of constructivists from the field of scientific psychology, or scientific or philosophical theories with a Kantian matrix, either expressed or implied.
- ⁵⁰ We refer to HRI.
- ⁵¹ HRI pp. 155-156. We have to clarify, to avoid susceptibilities of Zubiri’s connoisseurs, we are following in this article more the book HRI than IL, as it seems to us, for the problem at hand, the most enlightening book. Although, actually, as Jesus Conill warns us in the Introduction, the meaning of experience Zubiri offered in this book is not exactly the same as the one in IRA, or SH. But also he remembers Mary Riaza, who, in the following publications considered this book “a treaty of experience”, and this course as the most appropriate place to reconstruct a theory of experience in Zubiri: Riaza, María, “Una línea de experiencia que pasa por Kant”, in *Realitas I*, 1974, pp. 399-436, and “Sobre la experiencia en Zubiri”, *Realitas II* (1974-75) 1976, pp.245-312 . Cited by Jesus Conill, pg. x of the Presentation of HRI.
- ⁵² The Spanish word used by Zubiri is *percatarse*, which, etymologically, has exactly the same Latin root than *per-captare* (actually, the Spanish expressions *percatarse* and *percepción* come from the Latin *per-captare*).
- ⁵³ This note is ours. Later on we explain that sameness can be considered from the individual point of view that is the sameness of *who*, relative to the *percept*, or the sameness of *what*, from the point of view of the notes, relative to the *concept* (HRI, pgs. 178 and 179). We will see that this has everything to do with Gibson’s theory of invariants.
- ⁵⁴ HRI pg. 167.
- ⁵⁵ Remember this is our particular translation of a neologism created by Z to design that which corresponds to a fiction: *ficto* (the term used by Z); we have *percept* translating *percepto*, *concept* translating *concepto*; so we decided to translate *ficto* by *fict*.
- ⁵⁶ Gibson J.J. and Gibson Eleanor J., 1955a , and Gibson J.J. and Gibson Eleanor J., 1955b.
- ⁵⁷ Despite important differences—and there are many—any reader of issues of perception knows the figure-ground duality of Gestalt psychology. This is given as a reference to know what Zubiri is talking about here.
- ⁵⁸ Zubiri says that the *respectivity* (in respect to which we consider one thing, depending on what, etc.) is a deeper stratum than the simple *relationship*, to the point that it predates the related things, and grounds them. The

issue is complex and we can find it in *Respectividad de lo Real* in EM.

- ⁵⁹ The translation into Spanish of *is* here would be *está*, not *es*. Perhaps the sentence could have been expressed using the verb *to stay*, instead of *to be*. In Spanish, we distinguish between *ser* and *estar*, a difficult task for a beginner studying Spanish: both are translated by the verb *to be*. In Zubiri the difference between *ser* and *estar* yields a very important philosophical meaning which has much to do with our investigation, because in Western philosophy there was no important difference between being (*ser*) and reality (which in Zubiri's philosophy is often "represented" by the word *estar*). Actually, most times, instead of "reality" the term used was *being*. For Zubiri there is something beyond *being* which is more radical. *The ultimate is reality*, not *being*. *Being* is only a mode of *reality*, not *viceversa*, as in the Western tradition. That was called by Zubiri the *entification of reality*, which entailed its congeneric *logification of intellection*: because *logos* is not, for *Z*, the radical mode of intellection: the *primordial apprehension of reality* is instead. In psychology, as we have stated repeatedly in this work, this historical problem of the Western tradition has appeared in the form of the distinction between *sensation* and *perception*. As we have mentioned before, and will explain later on, the huge historical problem of *entification of reality* and *logification of intellection* is one of the main problems visited on the Western tradition by the separation of *sensing* and *intellection* in the human contact with reality. Gibson's theories, as we have shown in previous chapters, are in tune with all this, in his way.
- ⁶⁰ Among other things, worth, because Gibson is directly inspired by him in his revolutionary conception of the senses considered as perceptual systems (a revolution in tune with Zubiri; the authors did not know each other, but they had something important in common: the underlying truth, a genius to reveal it, and courage to proclaim it against the prevailing theories). Gibson's theory is the necessary conception consistent with his *ecological approach to direct perception*. In turn, attunement to the *sentient intelligence* (or *intellective sensing*) of Zubiri is important, as shown here, and generally, in this article.

Of course, not everything matches, because the wordy analysis of Zubiri we believe is unprecedented, and therefore, we could find important and not negligible differences, as in fact we do, which in certain contexts are important. But here we look at the lines of convergence.

- ⁶¹ Gibson quotes the Scottish philosopher Thomas Reid, who wrote this in 1785, in SCPS p.1.
- ⁶² We could characterize the philosophy of Zubiri, roughly, as a phenomenological realism.
- ⁶³ In order to give orienting references let us put this in connection with, for example, the Gestalt figure-ground phenomenon.
- ⁶⁴ Here *respectivities* is the noun in plural derived from *respect*, as *in respect to*, for example. One thing is considered *X in respect to* other thing.
- ⁶⁵ IRE, pp. 36-37.
- ⁶⁶ HRI, p. 168.
- ⁶⁷ HRI, p. 169.
- ⁶⁸ We are thinking here about the subject of *being*, that for Zubiri, is the *actuality of the real* in the *world*. That is, reality may and does have many respectivities or actualities; the actuality in the *sentient intelligence* is just one of them.
- ⁶⁹ It is an expression of Harry Heft, 2001, p. xxiv of the Introduction.
- ⁷⁰ Clarification for Gibsonians: The enrichment of the *content*, while maintaining the same *formality of reality* (thus, as it were, without losing the *primordial apprehension* of reality, which is at all times the demanding referent of the *simple apprehensions realizing it*) has nothing to do with the enrichment of a poor input to which Gibson and his tradition criticize and oppose. They do so because the latter would be qualified by Zubiri as *conceiving intelligence*: it starts from a duality and from an indirect perception mediated by mental representations. However, in Zubiri, this enrichment is *only of the content*, it belongs to a *sentient intelligence* frame, and starts from a *unitary and direct* perceptive act; and is a *presentation* and not a *representation*. Nevertheless, *primordial apprehension*, *direct and unitary* at its root, is *ulteriorly* split into a de-

ployment where we can see the *duality* of the logos.

⁷¹ SCPS, pp. 21 and 22, paragraph *The World of Physics and the Sources of Stimulation*. Furthermore, this issue is directly related to the *ecological approach*. Gibson always said that it is the level where you have to start ... because it is the level of the animal ... the reality being structured at all levels ... these are embedded (*nested* like Russian dolls) one into each other. Please continue now seeing how these levels—in which the environment and reality are structured—are the appropriate framework to use with Zubiri, as one of these levels, the one of the world, to which we access going from apprehension of *logos*, the level where perception occurs. It is worth noting that Gibson joined the General Systems Theory explicitly. We think that the philosophy of Zubiri, in general, is in tune with it; especially through his concepts of *system* and *structure*.

⁷² Eddington was a physicist, famous for spreading the theories of Einstein in England, who in 1929 published a book that had great impact, *The Nature of the Physical World*. Insurmountable differences were evident between the world described by physical science, and the one we see in our daily lives. Gibson echoes this controversy, since it has everything to do with his positions, and very specifically with the issue of the *ecological approach*.

⁷³ IRE, pg.177 (Spanish Version; English Version pp. 64-65).

⁷⁴ IRE, pp.177-178. What we have described formerly as *constructivist travel*, regarding theories that Gibson criticizes, seems something very similar to what Zubiri describes here by saying that it starts from the real things in the area beyond perception, and the rest is quartered in the area of the subjective.

⁷⁵ HRI, pp. 171-176.

⁷⁶ IRE, pp. 176-177.

⁷⁷ Michaels, Claire F. and Carello, Claudia, 1981, pgs. 168 and 169 (see bibliography). They are quoting Wigner, E.P. In W. Moore & M Scriven (Eds.) *Symmetries and Reflections: Scientific Essays in Honor of Eugene P. Wigner*. Cambridge, Mass.: MIT Press, 1970. The book *Direct Perception*, from the mentioned

authors, looks to be a compendium of reference today in Ecological Psychology. It can be found in the world wide web, on the website of the *Center for the Ecological Study of Perception and Action (CESPA)* of the University of Connecticut.

⁷⁸ Michaels, Claire F. and Carello, Claudia, 1981, pg.177.

⁷⁹ IRE, pg.267 (English version, pg. 97).

⁸⁰ For example, in IRA, pg.159 (Spanish version); English version, p. 299.

⁸¹ *Impressively* means, according to Zubiri, sentiently, through our senses, but not conceptualized in the classical manner, but as *intellective* sensing. By being *senses* they capture through *sensitive impression*, by being *intellective* they capture the stimuli as *real*, ie as *de suyo* or “*in their own right*”; which means, absolutely independently of the capturer, and of everything else. It is a sentient intelligence, not just sensible. This means, in line with Gibson (senses considered as perceptual systems, and knowledge as an extension of perception) having structurally three stages: in addition to the moment of *affection*—state of being affected, not as a feeling or emotion—a moment of *otherness*, and a moment of *force of imposition*. Zubiri insists that philosophy has overlooked impression, and was fixed almost exclusively on *affection* (in line with projective logic), neglecting the moments of *otherness* and *force of imposition* almost completely. The otherness was for the mind (“the operations of the mind on the delivery of the senses”), with the consequent problems regarding intentionality, or the correspondence between the mind and that otherness.

⁸² IRE pp. 64 and 65 (Spanish Version), English version, p. 26.

⁸³ We do not translate de Spanish expression *de suyo*, but it is equivalent to *en propio*, which we do translate (following the main translators of Zubiri into English—Nelson Orringer, Thomas B. Fowler, etc.—by *in its own right*).

⁸⁴ Is it right to have included in the world, both the wavelengths, etc., as well as the rods and cones of the retina and the occipital region of the brain In fact, all things considered, if reality is not a zone of things, and if “it begins in the apprehension”, which is also reality

- par excellence*, and the world is reality in depth, which is beyond apprehension. But also, in respect to the apprehension, in this case corresponding to the color of the table, it turns out that this “beyond” in respect to color is both electromagnetic waves and photons, as well as rods and cones of the retina and the occipital region of the brain.
- ⁸⁵ IRA, pp. 253-254 (Spanish version), English version, p. 332.
- ⁸⁶ Indeed, as Neisser (1978) pointed out some time ago, the identification of stimulus invariants is “the largest outstanding promissory note in ecological optics” (p.24). This statement remains only slightly less true today.
- ⁸⁷ In HRI, Zubiri speaks of *integration*. In IL, the second volume of the trilogy, he speaks of *realization*. Percepts, *ficta* and concepts come from the irrealization of the content of primordial apprehension. It is what Zubiri called, in HRI, *the forging of the unreal*.
- ⁸⁸ Gibson quotes himself: Gibson J.J. “The problem of temporal order is stimulation and perception”, *Journal of Psychology* 62, 141-149.
- ⁸⁹ EAVP, pg. 254.
- ⁹⁰ Something very important in the philosophy of Zubiri is the distinction in each real thing (most of which are surrounding us humans) of its dimension of *reality-thing* and its dimension of *meaning-thing*. Zubiri gives the example of a table. We never perceive a table as such, but the physical materiality of its notes, either wood or whatever material. To be a table is the dimension of meaning-thing, which would go mounted, so to speak, on its most radical dimension of reality-thing. For Zubiri, the meaning-thing is a constructed function of our lives, particularly our *being* (our personality), with the reality of the table, namely the reality-thing. We have, in that way, the reality of the table. Antonio Gonzalez points out in “Las cosas” (González Fernández, Antonio, 2008) that a significant virtuality of the philosophy of Zubiri, which distinguishes him from all phenomenological currents, is that it does not stay in the mere *sense*, but comes even to what is most radical, that is *reality*. And this has big consequences. This is also, in its conceptualization, an old problem that Gibson dealt with and was already treated by the Gestalt. We remember in EAVP, pp. 138-140, a reflection on this problem around a mailbox. It is the problem of meaning and values of things, that Gibson argues that we perceive directly, as they would be placed on the *affordances* of things, which are specified in *ambient light*. Given the dualism of the *phenomenal mail* and the *physical mail* of Koffka, Gibson concluded: “I prefer to say that the real post-box (the only one) affords letter-mailing to a letter-writing human in a community with a postal system”. Just note here that our hypothesis is that the concepts of Zubiri that are closer to, or have to do closely with, the *affordances* of Gibson are *meaning-thing* and *habitude*. But we cannot here go in depth in the confrontation of the positions of our authors on this point. Our first impression is that, although there would be differences, their conceptualizations on this point, in line with their general positions, which together are of great harmony and affinity, would not be a striking exception to that affinity.
- ⁹¹ SH, pg. 542.
- ⁹² EAVP, pg. 225.
- ⁹³ In his philosophy, Zubiri replaces, consistent with all his positions, the old concept of *substance* by the concept of *substantivity*. The substance is a *sub-jectum*, subject of in-inherent properties. Substantivity is a structural system of co-herent notes or properties, where each property or note is note-of-all others. There is an “in” and an “ex” which could be translated as *inner* and *outer*. The “in” is structurally reflected (structure) on the “ex”. But according to this, sentient intelligence is a systemic property of the whole substantivity, not *subjacent*, but in any case *super-shelf*. This is in line with, not a “projective logic” (as it would be the case of substance), but with a logic of “field simultaneity”.
- ⁹⁴ EAVP pg. 239.
- ⁹⁵ EAVP pg. 247.
- ⁹⁶ EAVP pg. 256.
- ⁹⁷ EAVP pg. 258.
- ⁹⁸ EAVP pg. 263.
- ⁹⁹ Obviously, this statement is our interpretation, standing on what was said here by Gibson, but from a view of the whole of his work. Gibson did not speak clearly of some-

thing like a primordial apprehension as Zubiri did, nor develop anything like logos and reason as Zubiri did, as we have repeatedly pointed out. Having his stubborn defense of direct perception in the background of our mind, against theories of perception defending that we perceive through mental images, we think that statements like the one upon which we are commenting, “are consistent with” or “suggest” something similar to the primordial apprehension of Zubiri. Moreover, the meaning of *knowing* in Zubiri is very accurate, as an ulterior mode of intellection ultimately anchored in the primordial apprehension. In Gibson, the meaning of *knowing* does not seem as precise as in Zubiri. Anyway, Gibson explicitly admits that “The ecological theory of direct perception cannot stand by itself. It implies a new theory of cognition in general”. We do think Zubiri has developed a philosophy which, among many other things, *self-gives* something that could be considered the grounds of a new theory of cognition in general. That is why we try to give critical foundation and support to Gibson through Zubiri. We believe that Gibson’s theory has enough strength to

stand by itself, but Zubiri’s support makes it patent.

¹⁰⁰ Hypothesis: is it the *truth* that underlies both by low?

¹⁰¹ Obviously, we think that this theory already exists. It is over a thousand pages of the trilogy of Zubiri on the *sentient intelligence*, with its three volumes: *Intelligence and Reality*, *Intelligence and Logos*, *Intelligence and Reason* (see bibliography). This is the subject of our interest and the subject of our doctoral thesis: *Critical Foundation—from Zubiri’s standpoint—of J. J Gibson’s Ecological Approach to Psychology of Perception*.

¹⁰² In addition to the above-specified, he mentions and analyzes the following ones in EAVP, pp. 251-253: *Mental Operations on the Sensory Inputs*, *Semilogical Operations on the Sensory Inputs*, *Decoding Operations on the Sensory Inputs*.

¹⁰³ EAVP p. 253.

¹⁰⁴ Or hardly ever?

¹⁰⁵ Time in Zubiri is in intimate connection with being, but, as we said, we cannot enter here into this very important but complex and deep theme.