

Consciousness₃ and Gibson's Concept of Awareness

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Currently in psychology, after a long hiatus, there exists an accelerating interest in the nature and character of consciousness. As might be expected at this early point in our return to consciousness, much of the relevant discussion among psychologists proceeds at the commonsense level of understanding. However, some psychologies are already moving beyond ordinary thought, and providing one or more technical concepts of consciousness. Such psychologies may be useful in improving psychologists' conceptual grasp of the referents of our ordinary concepts of consciousness. Among the ordinary concepts of consciousness, probably the most basic one is the concept of consciousness₃ (awareness). Among the psychologies that could be helpful is the influential ecological approach developed by James J. Gibson. This article is propaedeutic to putting Gibson's technical concept of awareness to work in improving the concept of consciousness₃. First, features of the latter concept are identified; and then, with this concept firmly in mind, Gibson's concept of awareness, mainly its perceptual application, is made explicit and discussed with regard to a number of its important features. In both these ways, and others to follow based on the same materials, I hope to contribute to the conceptual sophistication of psychologists as they again seek to address the topic of consciousness.

A recent article of mine bears the title "The Concept of Consciousness₃: The Awareness Meaning" (Natsoulas, 1992b).¹ It is devoted in large part to a discussion of the third meaning that the OED identifies under *consciousness*. In the concluding section of that article, I write that, after all is said about the third OED concept, the question of *what the referent of the concept of consciousness₃ (awareness) exactly is*

is ultimately a scientific question. Everyday thought gives us some idea of what that kind of "thing" is to which the concept of consciousness₃ [awareness] refers. But it

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¹That article belongs to a series (Natsoulas, 1991a, 1991b, 1992b) successively focusing on the six concepts defined under *consciousness* in *The Oxford English Dictionary* (1989; henceforth, "the OED"; see also Dewey [1906], Lewis [1967], and Natsoulas [1978, 1983a, 1983b, 1986-1987]). The six articles' subtitles are: "The interpersonal meaning," "The personal meaning," "The awareness meaning," "The reflective meaning," "The unitive meaning," and "The general state meaning."

remains for us to determine its nature scientifically. The instances of consciousness₃ [awareness] do not wear their nature on their sleeve so that we can read it off when we are conscious₄ of them [i.e., when they themselves are immediate, inner objects of our consciousness₃] . . . Behind what consciousness seems to us to be . . . there is more to be told about consciousness that is not immediately accessible to us. Even our most familiar instances of consciousness₃ [awareness] are not only as we encounter them firsthand. (Natsoulas, 1992b, pp. 222–223).

In this statement (which I only partially quote here), I express, as well, the view, which is by no means unique to me, that awareness consists of occurrences in human and certain animal brains (cf. Hebb, 1968). And I imply that it is the neurosciences that, in time, will reveal to us what an awareness ultimately is.² However, I do not bring out in that article that, also, some nonphysiological psychologies can help us to move beyond a merely commonsensical understanding of awareness. I have in mind both (a) phenomenologically oriented psychologies, which seek to provide us with a better account of awareness “from the inside” (i.e., the contents of awareness) than does commonsense or the firsthand access that we all have to that portion of our mental functioning which is our stream of consciousness (in James’s [1890] sense), and (b) psychologies that, though they ignore or do not operate at the neurological level of description, nevertheless include — in their theoretical accounts of perception, cognition, motivation, emotion, or behavior — scientific concepts that refer to the same referents as the concept of consciousness₃ does (i.e., to awarenesses).

People talk about the same existents even when they possess and exercise, in their speech and thought, different concepts of those existents. I do not mean to imply that the (scientific) concept of awareness that is at work in one or another of the above mentioned psychologies (e.g., Gibson, 1979/1986; see later) is the same concept as the OED’s concept of consciousness₃. The distinction between, on the one hand, concepts and, on the other hand, the referents of those concepts must be respected, on pain of theoretical or communicative confusion. It does not matter how good a concept it is, how well it picks out the distinguishing properties of its referent. The concept of consciousness₃ is one thing and consciousness₃ itself is another, different thing.

Therefore, a psychologist errs who, in one way or another, claims that consciousness is a concept (e.g., an “inferred concept”) or is another kind of intellectual product of human thought (e.g., a “construct”). The error

²Contrast Searle’s (1992) arguing conscious states are brain occurrences yet asserting *what consciousness exactly is* is a philosophical not a neurobiological question (see Natsoulas [1994] for criticism). Probably just exaggerating for emphasis, Freud (1938/1964, p. 145) might be similarly understood: “An exact localization [in the brain] of the processes of consciousness . . . would give us no help towards understanding them.”

becomes obvious when the psychologist goes on to propose an investigation of the properties of his or her subjects' consciousness — rather than (a) an explication of the psychologist's own concept of consciousness or (b) an investigation the subjects' concepts of consciousness. A different kind of empirical study is called for if consciousness is a mere concept, as opposed to being something that takes place in people's and animals' minds or brains.

Even in those cases where the would-be referent of a concept does not, has not, and will not exist, it does not follow that the concept itself serves as or amounts to its own referent. Rather, in such cases, the concept fails of reference; it just has no referent, in my view. Compare Searle's (1983, p. 30) same point about mental states and their referents, as well as Husserl (1913/1983), who writes, "Obviously the centaur itself is nothing psychical; it exists neither in the soul nor in consciousness, nor does it exist somewhere else: the centaur is indeed 'nothing'" (p. 43).

Gibson's psychology (e.g., 1979/1986) is among those psychologies that I mentioned above as being probably helpful. That is, his psychology may be of help to us in our effort to advance beyond a commonsense understanding of awareness. Our everyday concept of awareness may itself become modified and improved if Gibson's treatment of awareness turns out to be on the right track. After all, Gibson's psychology is concerned with *how the world is experienced* — where *world* stands for the environment that literally surrounds us as it is structured at the molar, ecological level of the physical world's existence. Perceiving is, according to Gibson (1979/1986), "a keeping-in-touch with the world, an experiencing of things rather than a having of experiences" (p. 239). That is, perceptual experiencing (or being perceptually aware; see later) is of those environmental entities, events, and properties thereof, that contribute to the causal determination of those experiences.

Gibson's psychology is not behavioristic. It is not concerned simply with how our senses are stimulated and how we respond to stimulation — as though all of our responding to the world takes place quite blindly, without our being aware of that to which we are responding or of anything at all.³ Note Gibson's (1979/1986) acknowledgement of his theoretical debt to the Gestalt psychologists, and especially to Kurt Koffka — who is well known for

³Cf. Skinner (1980): "One sees *where* a thing is by acquiring the behavior of reaching for it. One sees *what* a thing is by acquiring all the behavior under its control as a stimulus" (p. 309). Skinner (1987) would assign to physiology investigation of brain processes during seeing, not to speak of all else that occurs in the brain. This would keep psychology sanitary and safe against criticism from the "superior" sciences (as is important to psychologists). The price is an artificially restricted psychology permitted to speak only of stimuli and responses — just in order to exorcise the soul. See the radical behaviorist view that a pain experience must be either stimulus or response (or both — Skinner recognizes a problem); it cannot be anything else since Skinner's philosophy disallows other choices (Natsoulas, 1988). Conscious scientists do not require such drastic measures to make good progress in their work.

distinguishing between the geographical (or physical) environment and the behavioral (or experiential) environment (Koffka, 1935). Note, too, Gibson's statement, "Actually, [the ecological approach] is a new approach to the whole field of psychology, for it involves rejecting the stimulus-response formula" (p. 2). Gibson's concept of awareness is embedded in a scientific theory that makes claims about particular awarenesses and categories of awarenesses, claims sometimes based on good experimental evidence. These scientific claims both resemble and differ from the beliefs, implicit and explicit, belonging to everyday thought about the same referent. Although Gibson's theory rarely focuses on the processing that takes place internally to a perceptual system,⁴ his theory repeatedly addresses *that on which action with respect to the environment is based*. In Gibson's view, environmental action is not based on stimulation or properties of stimulation. In fact, Gibson argues that stimulation is not itself perceivable, that is, stimulation understood as events occurring at or in sensory receptors:

Just as the stimulation of the receptors in the retina cannot be seen, so the mechanical stimulation of the receptors in the skin cannot be felt, and the stimulation of the hair cells in the inner ear cannot be heard. So also the chemical stimulation of the receptors in the tongue cannot be tasted, and the stimulation of the receptors in the nasal membrane cannot be smelled. We do not perceive stimuli. (p. 55)

The light by which we see the surfaces around us, including the structural invariants and variants that characterize the "flow" of the ambient optic array as we move, is not itself perceivable. Rather, only the constituents of the environment and oneself as inhabiting the environment are perceivable. This is what our perceptual systems have evolved to accomplish, in order for us to adapt to the environment. In sum, our actions are based on how the environment perceptually seems (i.e., appears) to us and on how that seeming (i.e., the environment's appearing) changes as we actively locomote through the environment or as we manipulate a part of the environment.⁵

⁴When Gibson focuses on internal processes, he does so very sketchily (e.g., Gibson, 1979/1986, p. 249, third paragraph).

⁵The latter expresses a controversial interpretation of Gibson's (1979/1986, chapter 13) analysis of locomotion. My interpretation provides the most consistent understanding of what Gibson proposes (Natsoulas, 1991c). The perceptual bases of action are apprehensions of the contents, as such, of a certain kind of perceptual experience (see Natsoulas [1990, 1992c] on perceptual reflective experience). Psychologists do not associate Gibson with the latter kind of view, and he rejects anything's appearing to us when we have perceptual awareness of it (see next main section). The first sentence in the above paragraph of text, about variants and invariants, also will be rejected unless one recalls Gibson's ambient optic array is potential when not actual stimulation, and stimulation cannot be perceived.

Gibson's psychology makes reference to instances of awareness though, as will be seen, not commonsensically, not in terms of any ordinary concept of consciousness or awareness. At one point, for example, Gibson (1979/1986) likens his concept of awareness to that of "the act psychology of the nineteenth century" (p. 239). The Gibsonian concept of awareness is not the concept of consciousness₃ (awareness), which I discuss in the article mentioned at the start of the present article (Natsoulas, 1992b; see next section). The Gibsonian concept differs from the OED concept in ways that are supposed to be an improvement over the latter concept. That is, the Gibsonian concept does a better job of distinguishing essential features of, at least, some kinds of awareness, most notably perceptual awareness.

Perceptual awareness is the kind of awareness that (a) occurs whenever we perceive anything and (b) is a part and product of the process of our perceiving the latter.⁶ Moreover, it would seem that Gibson's theory of perception has as a main explanandum not merely the process or activity of perceiving *but also perception per se* — by which I understand perceptual awareness (of the environment and of oneself) as part and product of the process of perceiving; that is, as an achievement of the living observer, to use Gibson's words.

Expressing what is new about his theory of information pickup, Gibson (1979/1986) mentions that the theory includes "a new notion of perception." And then he quickly provides "a redefinition of perception" — partly in terms of awareness. However, inasmuch as Gibson regrettably does not provide an explicit definition of his concept of awareness — rather, he uses his undefined concept of awareness to explicate the new notion of perception that he is proposing — we must make a special effort to grasp the particular technical sense of awareness that is at work in Gibson's psychology. We should not assume that we can determine what Gibson means by *awareness* simply by consulting dictionaries of the English language, however complete these may be.

Nevertheless, in order better to grasp Gibson's sense of awareness, it is useful to begin here with the OED's concept of consciousness₃ (awareness). Then, I spell out Gibson's technical concept with the OED's concept firmly in mind as I do so. The emphasis of the present article is on the properties of perceptual awareness, since Gibson's theory of perception, especially visual perception, is the most developed part of Gibson's psychology. Owing to considerations of length, I do not discuss here, but in a future article, how Gibsonian thought can modify the concept of consciousness₃ so that this concept might better distinguish the essential properties of awareness itself.

⁶I use the distinction between perceiving and its component stream of perceptual experience (awareness) in a number of articles. Natsoulas (1989b, 1993b) contain the greatest detail, with the latter arguing the distinction's presence in Gibson.

The Concept of Awareness (Consciousness₃)

First, I enumerate for subsequent use some of the features of the OED concept of consciousness₃. This same concept is also what we ordinarily mean by *awareness* in a large proportion of cases in which we ordinarily use the latter word. In choosing the features that comprise the list below, and in identifying each of them, I rely on my previously published discussion of the concept of consciousness₃ (Natsoulas, 1992b). Also, until the present section is concluded, I refrain from drawing parallels or contrasts to Gibson's concept of awareness. Since I am guided by my previous discussion (Natsoulas, 1992b), what I say in this section can be traced in large part to the third OED entry under *consciousness* — which reads in full as follows.

3. The state or fact of being mentally conscious or aware of anything. Cf. CONSCIOUS 6.

1746-7 HERVEY *Medit.* (1818) 215 Let it . . . become one with the very consciousness of my existence! 1776 ADAM SMITH *W.N.* 1. xi. (1869) I. 164 The anxiety of the proprietors . . . seems to indicate a consciousness . . . that this species of cultivation is . . . more profitable than any other. 1863 FR. A. KEMBLE *Resid. in Georgia* 9 It is only to the consciousness of these evils that knowledge and reflection awaken him. 1864 LEWES *Hist. Philos.* II. 142 The consciousness of my existence is to me the assurance of my existence. 1883 G. LLOYD *Ebb & Flow* II. 18 For a few moments he lost the consciousness of why he was miserable.

The concept of consciousness₃ possesses, among others, the features enumerated next. I do not say all that might be said regarding this meaning of *consciousness*. Also, the statements that bring out this ordinary sense are not scientific statements, and some may not be more precisely explicable. For example, being conscious₃ of a fact is “having the fact before one's mind” (feature 5). But what is it to have a fact before the mind?

1. Any instance or case of consciousness₃ necessarily has an “object” — by which I do not mean a goal or purpose. As the OED's third definition for *consciousness* states, consciousness₃ is a kind of state or occurrence wherein one is conscious₃ (or mentally aware) of something. And this is so whether or not one also desires that “object.” Consciousness₃ is always consciousness₃ of something (or consciousness₃ that something is the case [see feature 4]). That is, consciousness₃ is always “transitive” in Malcolm's (1984) sense. *Intentionality* is the usual technical word for this commonsense idea of, so to speak, “ofness” or “aboutness.” There is a large philosophical literature that addresses intentionality, though very little such literature in psychology because intentionality does not seem amenable to study by the traditional kind of empirical investigation. Sometimes, to my surprise, I hear a psychologist say that intentionality is merely a useful, or not so useful, fiction. However, denial of the existence of intentionality implies the nonexistence

as well of all cases of consciousness₃, and all other mental occurrences that are about anything. In the absence of the property of intentionality, nothing could seem in any way to anyone.

2. Consciousness₃ is never “intransitive.” That is, it never simply occurs without its giving consciousness₃ of something.⁷ An objectless consciousness₃ is impossible except that, not infrequently, it occurs that one is conscious₃ of something that has no existence (see feature 6). That is, the concept of consciousness₃ does not require that the object of consciousness₃ be real or true — although its objects are always taken as real or true in one’s being conscious₃ of them (see feature 9).

3. The something of which one is conscious₃ can be anything at all — one can so read the OED’s third explicit definition of *consciousness* (see above). Or perhaps not; the OED leaves some doubt. The corresponding OED subentry for *conscious* (referred to in the third OED subentry for *consciousness*) lists several kinds of possible objects of consciousness, namely, facts, mental occurrences, and external objects (see features 4, 11 and 12). But these categories, it would seem, do not subsume all things that it is possible to have thoughts about or to perceive. Does this mean that it is possible to have a thought about something without being conscious₃ of the latter? It might be held that having a thought about something, about anything, is quintessentially a case of consciousness₃, no matter what the thought’s object may be. However, see feature 9.

4. Among the possible objects of consciousness₃, among those things of which one can be conscious₃, are facts, including facts about oneself and facts about the world. For example, the fact that you exist can, for a brief or longer time, occupy your mind, meaning that your present mental states are directed on this fact. Your consciousness₃ is about the fact that you exist, and this fact is about you. A double intentionality seems to be involved. However, note that you are an ingredient of the fact about you, but this fact, in contrast, is a transitive object of your consciousness₃, and not an ingredient of the latter occurrence. The fact of your existence is no more or less than your existing, that you exist. Your existing is a feature of the present state of the world, not a feature of your consciousness₃ of existing. The fact that you exist is not something else that stands in a relation (of aboutness) to

⁷However, there is another kind of consciousness, to which only the OED’s concept of consciousness₆ refers, that does not itself give consciousness of anything. Speaking of this kind, O’Shaughnessy (1986) argues to the conclusion that

this psychological state seems to be undirected, let alone directed under an aspect. In a word, consciousness seems not to exhibit *intentionality*. Consciousness is not a perception of something, not a putative awareness of something, not even a directed phenomenon. The model of the empty canvas seems not all that far from the truth. (p. 52)

your existing. The fact that you exist is not, for example, an instance of consciousness₃ or a property thereof.

5. At any moment when you are conscious₃ of existing or of any other personal fact or fact belonging to the world, you have a fact before your mind. Whatever you may be conscious₃ of, whether this is a fact or something else, it comes before your mind when you are conscious₃ of it. Of course, something's coming before your eyes (or senses) is not necessarily its coming before your mind. The latter, unlike the former, does not necessarily involve a physical relation. For instance, something may now come before your mind though it went out of existence a long time ago.

6. Your existence is not merely apparent. It is an actual fact about yourself that you are conscious₃ of in the example. But you can be conscious₃, as well, of "facts" that do not exist. Such "facts" are merely (and necessarily [see feature 8]) apparently such to the one who is conscious₃ of them. That is, consciousness₃ requires belief; it affirms its object or takes it as real. To avoid the appearance of contradiction, "false facts" or "apparent facts" might better be designated "factlike nonfacts."

7. A single state of consciousness₃ may relate one fact to another fact. Thus, one can be conscious₃ simultaneously of two or more facts, conscious of them together. The object of an instance of consciousness₃ can be the relation between two or more facts. Thus, the concept of consciousness₃ allows for mentally grasping objects of some complexity all at once, without the necessity of undergoing a number of instances of consciousness₃ in order to grasp successively the various dimensions of that complexity.

8. In being conscious₃ of a fact, in what relation to the fact does one stand? Consciousness₃ is a mental apprehension of its object, which may be a fact. A fact may be before the mind (a passive-sounding relation) but the mind is also active with respect to the fact. To what kind of relation does this metaphor (mental apprehension), based on physical grasping, purport to refer? It would seem that mental apprehension of a fact involves the following. (a) The fact must be known or believed (see feature 9). The mental grasp of the fact is cognitive, a matter of "cognizing" the fact — though perhaps not exclusively so. (b) There are occasions on which you do not simply grasp the fact of your existence but, also, you "feel" your existence. If you are occurrently believing your existence to be the case, you may be doing so with feeling, you may be occurrently believing in a feeling manner. The "very consciousness" of your existence may be, in this regard, more than a kind of mental assertion of your existence, more than just a cool, purely "informational," cognitive apprehension of the fact of your existing.

9. To be conscious₃ of a fact or factlike nonfact is mentally to affirm it — though I do not mean that consciousness₃ must be a linguistic affirmation or a deliberate one (i.e., done on purpose). Thus, the concept of consciousness₃

would seem to allow only indirectly for being conscious₃ of a fact that one does not believe is true.⁸ This might occur by one's being conscious₃ of a factlike nonfact that is contrary to a certain fact that one does not believe to be true. Although the latter fact may come to one's mind, one will deny its truth; therefore, by definition, one is not conscious₃ of it, which requires that one mentally affirm it. Take for example the fact that a certain married couple is considering applying for a divorce. This is an actual fact though, let us assume, one does not believe that it is true. When one has (skeptical) thoughts about this fact, these thoughts may be accompanied by appropriate instances of consciousness₃. But these instances of consciousness₃ cannot be about that fact, since one does not believe that the fact is true. Instead, one may be conscious₃ of such factlike nonfacts as that the two people are on good terms with each other or that they choose to spend much of their leisure time in each other's company.

10. Consciousness₃ can be efficacious. It is not simply a (passive) state of one's being aware of something in the sense of knowing it, possessing knowledge of it. Possessing knowledge will not have effects unless there takes place a mental or behavioral occurrence that, as it were, contains or embodies the knowledge. As Wittgenstein (1947/1980) stated, having a piece of knowledge cannot disturb me in my work, whereas a consciousness of something that I know can disturb my work. Knowing something does not necessarily involve, or result in, something's coming before the mind — as consciousness₃ does, each time that it occurs. Of course, I am not referring to what takes place when knowledge is acquired. I am referring to the knowledge that one already possesses; and I am saying that its "activation" — in the form of behavior or mental happening, in a form that is not itself the knowledge — is necessary for knowledge to have effects.

11. In addition to ostensible facts (i.e., facts and factlike nonfacts that one takes as true), you may also be conscious₃ of your mental occurrences. Evidently, in this case, consciousness₃ does not have to be mediated by ostensible facts. It is not ostensible facts alone that we may be conscious₃ of, ostensible facts about mental occurrences, but also of particular mental occurrences themselves.

12. However, the same may not be true in the case of external objects. The OED describes the sense of being conscious₃ of an external object as a poetical sense. Since, in contrast, the OED does allow for being conscious₃ of facts pertaining to external objects, the implication may be that our consciousness₃ of external objects always has a propositional content. That

⁸Which does not mean a fact one believes not to be true cannot come before one's mind. Consciousness₃ of a fact involves more than its coming before the mind.

is, we are never conscious₃ of an external object without being conscious₃ of it as something, of something about it, of a fact or nonfact involving this external object.

13. An instance of consciousness₃ of a fact can occur at a great causal distance from this fact of which one is conscious₃. A fact may have briefly existed many millions of years ago and before any creature existed who could be conscious₃ of it. But, also, one can be conscious₃ of something that is causally responsible for one's being conscious₃ of it, such as a certain environmental object that one is perceiving here and now. Or, at least, a certain fact about the environmental object is both cause and object of one's present perceptual awareness of the fact.

14. The mere exercise of the concept of consciousness₃, with no qualification appended, does not imply any particular way in which the instance of consciousness₃ must come to occur. In whatever way that it may happen to occur, it is an instance of consciousness₃ if it possesses the necessary features, none of which involves reference to how the instance of consciousness₃ takes place. None of these features requires that the instance of consciousness₃ comes to occur in any particular way. For example, it does not distort the concept of consciousness₃ to say that a person was conscious₃ of a particular fact owing to an extrasensory perceptual ability that he or she possesses (e.g., so-called "remote viewing"). And we are sometimes conscious₃ of a fact, or so it seems to us, completely out of the blue, as we say. Note, also, that to be conscious₃ of a mental occurrence is not necessarily to be conscious₄ of the mental occurrence. The latter is to have an immediate awareness of it as it occurs (see the fourth OED definition under consciousness). One may now be conscious₃, for example, of how one felt years ago when one received a certain piece of news. And, if Freud is right, one can be, by inference, conscious₃ of a mental occurrence that is going on now unconsciously in one's mind though one cannot be conscious₄ of it since it is unconscious.

15. Being conscious₃ of a certain fact, one does not remain conscious₃ of it. There is no analogy here between consciousness₃ and having learned something that sticks, no analogy to becoming aware of (coming to know) some fact that remains part of one's store of knowledge. Rather, consciousness₃ moves on to something else, keeps on changing its object and, often, its general topic as well — although consciousness₃ may return, even obsessively and aversively, to one of its earlier objects or topics. Consider, for example, your being conscious₃ of the fact that a great pleasure is shortly in store for you. As you eagerly await it, you become conscious₃ repeatedly of this highly pleasurable fact to be. Or consider how often, nearly daily and sometimes several times a day, the fact of my eventual death comes back again to my consciousness₃. Consider, too, first being conscious₃ of where you have left an important possession but shortly thereafter being unable, not for want of

trying, to be conscious₃ again of that same fact. This is a case in which you seek to undergo a certain instance of consciousness₃, as a means of finding a possession, and is relevant to the efficacy of consciousness₃.

Gibson's Concept of Awareness

The remainder of this article is devoted to spelling out Gibson's concept of awareness. As I proceed, I keep in the forefront of my mind the features of the OED's concept of consciousness₃ that I enumerated and described in the last section. However, it is not my purpose to compare and contrast the two concepts in the present article. Rather, I seek an improved understanding of Gibson's scientific concept of awareness, and a greater ability to deploy, to extend, and to develop his concept. As I previously mentioned, Gibson's concept of awareness may be of help to us in progressing beyond the commonsense concept of consciousness₃, which seems to pick out some of the same referents as Gibson's concept does. Also, with Gibson's assistance, we may learn to speak commonsensically of awareness in greater correspondence than we do now to awareness as it actually is. In the meantime, the OED's concept of consciousness₃ can help us to take notice of various features that we might otherwise miss of Gibson's scientific concept of awareness.

A Distinction Between Awareness and Consciousness

I first consider a statement of Gibson's (1979/1986) into which there enter both his concept of "awareness" and a concept of "consciousness." Such a statement is unusual in Gibson's writings, perhaps even unique. Gibson's statement is the first part of a very brief summary of his visual perception theory (which he calls "the theory of information pickup").

According to the theory being proposed, *perceiving* is a registering of certain dimensions of invariance in the stimulus flux together with definite parameters of disturbance. The invariants are invariants of structure, and the disturbances are disturbances of structure. The structure, for vision, is that of the ambient optic array. The invariants specify the persistence of the environment and of oneself. The disturbances specify the changes in the environment and of oneself. A perceiver is aware of her existence in a persisting environment and is also aware of her movements relative to the environment, along with the motions of objects and nonrigid surfaces relative to the environment. The term *awareness* is used to imply a direct pickup of the information, not necessarily to imply consciousness. (pp. 249–250)

Thus, "awareness" and "consciousness" are clearly not the same thing. "Awareness" can occur in the absence of "consciousness." Perhaps, too, "consciousness" can occur without "awareness" in the sense that Gibson means. Does Gibson mean there is "awareness" that is not "conscious" when it

occurs? Does one live through occurrent "awareness" of which one has no "consciousness?" Might one sometimes, without being "conscious," be "aware" of a part of the environment or of oneself in the environment? What does Gibson have in mind here?

Gibson does not pause in his summary to explain what "consciousness" it is that his use of *awareness* does not imply. And the respective section (titled "What is new about the pickup of information?") does not include the word *consciousness* except in passing (a) when the idea is rejected that what is perceived appears in the theatre of one's consciousness and (b) when James's (1890) description of the stream of consciousness — as temporally continuous from the subjective perspective — is said to apply objectively to perceiving. These two comments of Gibson's turn out to be informative regarding "awareness" (see below); but they do not contribute to our understanding of what the "consciousness" mentioned in the above quoted passage is. We are left to wonder what the difference is between those cases in which "consciousness" accompanies "awareness" and those cases of "awareness" which are not attended by "consciousness."

Before proceeding, let me note that Gibson's statement rules out, on its own, neither of the following two possibilities.

1. Whereas "awareness" does not imply "consciousness," "consciousness" itself is nonetheless a kind of "awareness." Thus, Gibson may be speaking of two kinds of "awareness" which sometimes occur together and sometimes do not. The first "awareness" is perceptual, of course; this is quite evident from the context. And Gibson's "consciousness" might be a certain kind of non-perceptual "awareness" that is distinct from and sometimes accompanies perceptual "awareness" (cf. Natsoulas, [1992a, 1993d] on appendage theory of consciousness₄; Rosenthal, 1986, 1990, 1993).

2. "Awareness"-with-"consciousness" is to be understood as intrinsically, in that respect, a different kind of "awareness" from "awareness"-without-"consciousness." That is, on this interpretation, Gibson's "consciousness" would be an intrinsic property of certain instances of "awareness" and not of other instances of "awareness." Thus, "awareness" would not imply "consciousness" unless the "awareness" was of that special kind which bodily involves "consciousness," of that special kind which is intrinsically "conscious" (cf. Natsoulas [1993a] on intrinsic theory of consciousness₄; Smith, 1986, 1988, 1989).

In the preceding main section and elsewhere (e.g., Natsoulas, 1992b), I equate with each other (a) the OED's concept of consciousness₃ and (b) the OED's concept of awareness that refers to an occurrent mental state, rather than to a state that is merely passively possessed (i.e., awareness as knowledge). Consequently, I am tempted to infer that Gibson (1979/1986, p. 250) is not using *consciousness* here to refer to instances of consciousness₃, or to certain referents of the OED's concept of consciousness₃. Gibson must have

something else in mind, other than just being affirmatively aware (as true or real, and by no required means) of a fact, an external object, or a mental occurrence. As I intimate just above, a possible alternative is that to which the OED's fourth concept under *consciousness* refers.

And indeed, Gibson's claim regarding "awareness" without "consciousness" makes good sense if Gibson is saying that perceptual awareness, or the awareness that takes place as part and product of the process or activity of perceiving, does not necessarily include any awareness of the "introspective" kind (in which one becomes aware, e.g., of "the seen-now and the seen-from-here" as such; Gibson, 1979/1986, p. 195). That is, in perceiving, the objects of perceptual awareness may be exclusively of the sort that Gibson attributes to the perceiver in the above quoted passage. Although the perceiver is aware of herself in the environment and of her movements, she is not necessarily aware of her perceptual awareness as well; in this sense, the perceptual awareness that occurs is not "conscious." One can be perceptually aware of the environment and of oneself without any consciousness of so being.

The latter sentence expresses what I take Gibson to be saying at the end of the above quoted passage regarding "awareness" and "consciousness" — although, to express my interpretation, I perforce use the OED's concept of consciousness₃ (awareness), as I am only now about to spell out Gibson's own concept of awareness.

The Error of Equating Pickup and Awareness

In the above quoted passage from Gibson, he does not make obvious what "awareness" is either. For some psychologists, Gibson's meaning is so unclear that they wrongly take Gibson, above and elsewhere, to be equating "awareness" with the pickup of stimulus information. This is a major error of interpretation, and a source of my dismay when a theorist falls into it while engaged in a serious effort to develop Gibson's perception theory. Also, the error obscures what I consider to be a crucial distinction for all perception theory. In these psychologists' view, there is no distinction to be drawn, within Gibson's theory, between (a) the perceptual registration of properties of the stimulus flux and (b) the perceptual awareness of the features, belonging to the environment or to oneself, that the picked-up properties of stimulation specify, in the sense of being nomically specific to them. Although Gibson's ecological approach is unambiguously opposed to the basic assumptions of information processing, it is a mistake to try to denude his approach of all references to the cognitive and experiential states that occur within the living observer.

Commenting on the above quoted passage from Gibson (1979/1986, pp. 249–250) in the light of certain psychologists' proposed equation of stimulus-

information pickup and perceptual awareness (e.g., Reed, 1988), Givner (1992) rightly states,

To say that one implies the other is not to say they are identical. Even if Gibson did mean that the detection of an invariant structure of the optic array constitutes an awareness of the environment, . . . it is not evident how the detection of one thing, the structure of light, can constitute an awareness of something else, the environment that is specified by the structure of light. Perhaps a case can be made for this claim, but the claim is one that needs to be justified. (pp. 100–101; cf. Natsoulas, 1984, 1993b)

Actually, there is no need for a Gibsonian case in favor of the claim that information pickup by a perceptual system constitutes awareness itself. Perceiving and perceptual awareness need not be conflated from the Gibsonian perspective. As Gibson (1979/1986, p. 239) expresses the relation between perceiving and perceptual awareness, perceiving “involves awareness-of,” “awareness” of something in the environment or “awareness” of something belonging to the perceiver or “awareness” of both at once (see item 1 below). To say, as Gibson does above, that perceiving is a registering of stimulus information is not to say that this registering, which is indeed necessary, is all that perceiving amounts to. Gibson also says in the same chapter, as I quote early in this article, that perceiving is “an experiencing of things.” But no one would jump from this statement to the conclusion that perceiving therefore does not involve the pickup of stimulus information, that perceiving is a purely phenomenological process. In addition to registering (or pickup or detection, all of which Gibson uses with respect to stimulus information), perceptual awareness also occurs and has as its object, not properties of stimulation or stimulatory structure over time, but always something in the environment or something belonging to the perceiver as inhabiting the environment. As can be seen in the passage from Gibson into which both “awareness” and “consciousness” enter, perceptual awareness and pickup have different objects (though not in the same sense of “object”). In fact, it is safe to say quite generally that whatever can be picked up, in Gibson’s sense, we do not have perceptual awareness of, and vice versa. This is true about Gibson’s theory notwithstanding contrary views in the literature about it. I return to this point in the next subsection.

My understanding — which distinguishes perceiving and perceptual awareness (though, of course, the latter is a part and a product of the former) — finds support in Gibson’s acceptance of James’s (1890) description of the stream of consciousness as applicable to perceiving. On this point, Gibson (1979/1986) states, quoting James, “Discrete percepts, like discrete ideas, are ‘as mythical as the Jack of Spades’” (p. 240). James’s (1890) stream of consciousness consists not of processes of perceiving but of instances of

awareness (consciousness₃), perceptual and otherwise.⁹ Therefore, to make his parallel point, Gibson properly focuses on percepts, that is, on perceptual awarenesses.

Features of Perceptual Awareness

But what is perceptual awareness in Gibson's sense? I proceed here in a way somewhat like the preceding main section on the OED's concept of consciousness₃. I describe a number of features of perceptual awareness as Gibson conceives of it. The latter qualifying phrase applies throughout the following except where otherwise indicated. All page references included are to Gibson (1979/1986) except when identified.

Involvement in perceiving. As I mention above, perceptual awareness is a part of, is "involved" in, the activity or process of perceiving (p. 239). I take it that this involvement is general rather than occasional; it obtains in all cases of perceiving. One cannot be perceiving anything unless one's process of perceiving is producing perceptual awareness of it. Here are some reasons to interpret Gibson in the latter way. (a) Gibson mentions the involvement of awareness in perceiving early in his "redefinition of perception." He does so right after stating that perceiving is an experiencing of things. Thus, he gives the impression that perceptual awareness and perceptual experience are one and the same (cf. Givner, 1992, p. 98), and therefore that perceptual awareness is essential to perceiving. (b) Gibson defines perceiving as "psychosomatic," which means that perceiving uniformly has both a "psychic" and a "somatic" dimension. "Perceiving is," Gibson states, "a psychosomatic act, not of the mind or of the body but of a living observer" (p. 240). I take this to mean that perceptual awareness goes on for as long as perceiving goes on, since perceptual awareness is not only a product, or achievement, of the activity of perceiving; perceptual awareness is, also, an intrinsic dimension of perceiving. As Gibson (1970/1982) states, "For me, perception is an awareness of the world" (p. 89). (c) Moreover, Gibson notes a closeness of his "new notion" of perceptual awareness to the act psychology of the nineteenth century (p. 239). (d) The link that Gibson draws to James's stream of consciousness (p. 240) is also mentioned earlier in the present article. (e) At another point in the same chapter, Gibson discusses "the stream of experience" that

⁹A better fit to James's concept of consciousness is found in the OED's fourth subentry (second half) under *consciousness* (Natsoulas, in press). The components of the stream are better understood as "consciousnesses," or "states of consciousness," than as awarenesses in the OED's third sense of *consciousness*, though all "consciousnesses," or "states of consciousness," are awarenesses as well. All "consciousnesses" and the components of James's stream are, definitionally, actual or potential objects of consciousness₃; this is not clear about all instances of consciousness₃.

goes on during perceiving and remembering (p. 253). All of the above indicate that, indeed, perceptual awareness is an essential ingredient of perceiving according to Gibson's theory of information pickup (cf. Natsoulas, 1993b). Note that Gibson's perceptual awareness only takes place as a part and product of perceiving, whereas the OED's awareness (consciousness₃) need not occur in any particular way to qualify as such. Gibson does speak of other kinds of awareness than the perceptual kind, but he identifies them, too, in relation to the process that produces them. However, Gibson would probably extend his notion of perceiving to certain animals that he would not be willing to say have perceptual awareness. This would be a real extension of his concept of perceiving. The extended concept would be distinct from the concept of perceiving that Gibson usually has in mind, which implies that perceptual awareness goes on whenever a living observer is perceiving.

Against phenomenal objects. Whatever it may be that we are having perceptual awareness of when we are perceiving, this object of perceptual awareness does not make "an appearance in the theater of [our] consciousness" (p. 239). Because no such theater exists. There is no mental stage inside any perceptual system, or within any other part of us, upon which the objects, events, and so on, that populate a second, virtual reality pass for our review. Although we can have perceptual awareness of an environmental object as being in a different location than it actually is (e.g., by use of a mirror or telescope, or in the case of mirage), this is never a case of being aware, instead, of a different, virtual object. Nor is it awareness of a second, phenomenal environment wherein the same environmental objects make their appearance in altered, illusory spatial relations to each other and to the observer. The same can be said about other perceptual errors, of which we make many. The size of the error does not matter; in any case, it is something of the environment or self that is the object of perceptual awareness, not something belonging to consciousness or to the mind. In Gibson's theory, there is no phenomenal environment that is not the environment that physically surrounds us (p. 43). One should keep in mind that, although Gibson is heavily influenced by Gestalt psychology, he rejects the idea that it is perceptual experience itself, rather than the physical environment, that we have awareness of in perceiving. Moreover, his rejection of the idea of the phenomenal as perceived is extreme, to the point of his holding that nothing that we perceive appears to us. Rather, we have awareness of perceptual objects by picking up and extracting from the stimulus flux stimulus information that is specific to their various properties. Consequently, we are aware of these objects with their properties, but neither they nor their properties evoke appearances of them of which we would be aware. Appearances are mental pictures or the like. They would have to be perceived or apprehended in turn, doubling the problem of perception.

Nonperceptual awareness. Gibson makes his point against a theater of consciousness again, soon after, with respect to several categories of “nonperceptual awareness” produced by perceptual systems and only by them. In one category, whatever we have awareness of no longer exists when we are having awareness of it. In another, it cannot possibly exist. And in a third category, the object of nonperceptual awareness does not now exist but can come into existence. In all such cases, an activity of a perceptual system gives us nonperceptual awareness of something — for example, we visualize it. However, according to Gibson, this something of which we are aware, though it is not present to our senses, does not therefore put in an appearance in the theater of our consciousness (p. 256). There is nothing else we might, for example, look at, besides the various parts of the environment and ourselves as inhabiting it. Our visual system does not turn inward when we have visual imagery (nor even when we introspect [p. 286]; however, see “Viewing” later).

Mental pictures and representations. In other words, the objects of Gibsonian awareness, whether these are perceptual or nonperceptual, do not come before the mind — as the objects of the OED’s consciousness₃ are supposed to do, it will be recalled from the preceding main section. Psychologists who hold that environmental objects do come before the mind usually assume that, in order for these objects (which exist at a physical distance from the mind) to come before the mind, they must be mentally pictured or mentally represented. In their view, awareness of environmental objects has to be not only causally mediated, but also mediated by something that stands in for those objects at the mind’s locus. But, I ask, would not the mental picture or mental representation itself then be the immediate object of awareness, rather than the object pictured or represented? And would not awareness of a mental picture or mental representation require a further mental picture or mental representation of the first mental picture or mental representation, that is, the same kind of mediation claimed to be necessary in order for the environmental object pictured or represented to come before the mind (cf. p. 60)? And so on ad infinitum? How do we have awareness of mental pictures or mental representations? Do we perceive them? Do we have an inner perceptual system that is directed on our mental pictures or mental representations? Does this inner perceptual system work with mental pictures or mental representations of that of which it gives awareness? Answering questions about “inner perception” may be no less difficult than explaining the perceptual awareness of environmental objects. Psychologists who postulate mental pictures or mental representations cannot, simply by casting aspersions on introspection, avoid explaining how we have awareness of the postulated inner pictures and representations. It should be kept in mind that, for a picture or representation to do any psychological explanatory work, it must

itself be treated of as an object of awareness in the consciousness, sense, or in a technical sense that resembles the latter sense. A mental picture or mental representation cannot be an awareness of anything, any more than a picture hanging in an art gallery or a word printed on a sign is an awareness of anything. Instead, Gibson holds that perceptual and “nonperceptual” awareness is the product of a different kind of activity — one that works without entities analogous to pictures or analogous to any other kind of representation (e.g., words). Perceptual systems work with (informational) properties belonging to the stimulus flux, properties of which we cannot be aware (except in theorizing or thinking about them). Any cognitive or mental interpretation of how such properties figure in the process that results in perceptual awareness would not be true according to Gibson.

Stimulation unperceivable. It follows that Gibson (1979/1986) is not speaking literally at all points of the following passage.

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 ambient optic array that underlies the changing perspective structure caused by his movements. (p. 247)

According to Gibson’s own theory, what Gibson states here is not literally possible. As I mention early in the present article, we cannot have visual perceptual awareness of the light by which we see the surfaces and events of our environment (pp. 54–55). The following perceptual actions mentioned in the above quoted statement are therefore impossible: (a) *extracting structural invariants of stimulation* — if this process is understood as the perceiver’s performing an action, as distinct from the noncognitive functioning of the particular perceptual system so that informational invariants get extracted from the stimulation, (b) *noticing the flux of stimulation* — in the sense of being aware of stimulation firsthand, (c) *tuning in on the ambient optic array or its invariant structure* — the visual system’s giving the perceiver awareness of the optic array itself or properties thereof, in addition to the environment and himself or herself. A perceptual system functions (its “internal loops”) in a similar way when it is producing “nonperceptual awareness.” That is, it functions as though it were resonating to informational properties of a stimulus flux (p. 256). Thus, in the case of “nonperceptual awareness” too, there are no appearances in the theater of our consciousness. Everything that we can have awareness of is distinct from our awareness of it (cf. p. 239). The latter rule applies even in the case of our visualizing something that cannot possibly exist (e.g., a fire-breathing dragon). At the time of our being aware of them, the objects of our visual nonperceptual awareness do not exist externally to our visual system. Nor do they exist internally to it. How could a fire-breathing dragon, or a long-destroyed possession, or a relative’s pending

arrival in town exist internally to the human visual system by means of which it is now imagined?

Anticipating physiological reactions. If the object of your awareness does not exist, your awareness of it does not bring it into any kind of existence — only into that *nonexistence* which we attribute when we say that something (e.g., a ghost) merely has an “existence for you.” There may come to the reader’s mind a kind of exception to the latter statement that is not really an exception. Being aware of certain physiological reactions of one’s body, in an anticipatory way, sometimes has the effect of producing such reactions. However, in such cases, it is not one’s awareness of the physiological reactions that all by itself brings the reactions into existence. Those physiological reactions do not exist simply because they are objects of awareness; rather, awareness of them somehow is a cause of their taking place.

Viewing. “Everything that we can have awareness of is distinct from our awareness of it” is surely Gibson’s explicit position. But it may require qualification given Gibson’s understanding of what occurs when we adopt an introspective attitude with respect to our activity of visual perceiving. Gibson holds that, adopting an introspective attitude, we engage in an activity of the visual perceptual system that he calls “viewing the world in perspective, or noticing the perspectives of things” (p. 196). We consequently have visual awareness of “the seen-now and the seen-from-here” (p. 195). These are the surfaces (belonging to the environment) that lie within our field of view and face our point of observation straight on or at some angle. However, in being visually aware of these surfaces as such, that is, as surfaces we are seeing now from here, our visual awareness must give us awareness as well of our seeing them, not of the surfaces alone. But this amounts, after all, to visual awareness giving us awareness of itself; and is an exception to the rule stated at the start of this paragraph. Gibson does not say as much, but I believe that the implication I have drawn is very much there (Natsoulas, 1989).

Determinants over time. However, Gibson does say that what we have perceptual awareness of is not merely whatever, or some of whatever, is determining the stimulus energy flux at our receptors at the moment. Gibson is trying to express this aspect of his theory when he states seemingly paradoxically, “A perception, in fact, does not *have* an end. Perceiving goes on” (p. 253). Perceptual awareness, and what it is that we therein have perceptual awareness of, is not determined entirely by the particular stimulus-informational properties that our perceptual system is in the process of picking up at the time. Perceptual awareness is part and product of an activity of perceiving that proceeds as it does also because of the stimulus-informational properties that it has picked up prior to this point. Thus, for example, standing midway along a corridor and looking back and forth at different temporally extended events which are taking place simultaneously at each end of the

corridor, we do not stop having perceptual awareness of what is going on at one end as we turn to look toward the other end of the corridor.

Awareness of a continuous environment. It may be argued against Gibson that when we turn our head away, we put a halt to our visual sensations being determined by the events proceeding at one end of the corridor. In his reply, Gibson would partially agree: "A special sense impression clearly ceases when the sensory excitation ends, but a perception does not" (p. 253). That is, we continue to be perceptually aware of what is no longer determining our sensory excitation; though, commonsensically, we are supposed to say — in accordance with a theory of perceiving that is contrary to Gibson's — that our perceptual awareness of the one event has stopped, that we are no longer seeing, but only remembering, what is still taking place at the other end of the corridor. Similarly, Gibson also argues that we have perceptual awareness of surfaces not now projecting to our point of observation when we orient ourselves to the larger environment, for example, to the environmental layout of rooms, buildings, enclosures, and streets just beyond the room in which we now find ourselves (p. 198). Thus, perceptual awareness is held by Gibson not to include or to depend on sensations. As I argue in an earlier article (Natsoulas, 1984), perceptual awareness is, for Gibson, purely informational and, therefore, nonqualitative. While we are undergoing visual sensory activity produced by one vista, our visual perceptual awareness is not only of this vista but of precedingly encountered vistas as well. The part of the environment now determining the effective stimulation at our visual receptors is perceptually apprehended not in isolation but as continuous with other vistas and part of a single environment with them (p. 198).

Nonconceptual. But perceptual awareness is not to be understood, therefore, as involving concepts. Perceiving the present vista as continuous with the rest of the environment is not reducible to one's thinking this vista to be so. Looking at a part of the environment while also thinking about it at the same time, we seldom confuse the thoughts we have about it with our visual perceptual awareness. Nevertheless, the present resonance of the perceptual system is determined not simply by what is now being picked up but also by what has been previously picked up, very recently as well as long ago. Perceptual resonance is an ongoing process, which does not begin afresh with every change in stimulation at the receptors. And it is a process that depends also on how, over long temporal stretches of perceiving, the functioning of the perceptual system gets modified by the pickup and extraction of stimulus-informational variables, both in the present perceptual situation and in previously encountered perceptual situations that adjoin or resemble the present situation. Gibson urges us to abandon the dogma that "percepts without concepts are blind" (p. 3). Perceptual awareness is not a matter of categorizing the contents of the environment or ourselves as part of the envi-

ronment. Rather than categorizing them as part of perceiving them, we have perceptual awareness of them, which is a different kind of occurrence from categorizing. Perceptual awareness is a distinct occurrence from that additional, conceptual apprehension which we undergo when we engage in activities in which we apply concepts to a part of the world — since, for one thing, no concepts are involved in perceptual awareness per se; perceptual awareness is not a conceptualizing kind of occurrence. Note well that anything to which we apply a concept must already be an object of awareness; concepts are not wielded in the dark, so to speak; they do not latch on indiscriminately to that which instantiates them.

Perceiving is not something else. The nature of perceptual awareness is not explained by invoking a different process (from perceiving) that involves awareness at its core, such as the process of categorizing something as being a certain something or as being somehow. Theories purporting to say what perceptual awareness is often identify perceptual awareness with something else that belongs to a different activity than perceiving — as though our scientific understanding of perceptual awareness can be advanced by our assimilating, smoothing over differences between, different psychological processes. Gibson does state, “To perceive the environment and to conceive it are different in degree but not in kind” (p. 258). But, contrary to the practice of other psychologists, rather than treating of perceiving as a kind of conceiving, Gibson would treat of conceiving the environment as resembling how perceiving the environment proceeds according to his theory. For it is perceiving that is “the simplest and best kind of knowing” (p. 263).

Verbalizing. To be perceptually aware of something is not to predicate something of it, which does require concepts. Nevertheless, perceptual awareness can be verbalized (p. 260) — which would seem to have implications regarding the nature of perceptual awareness as conceived of by Gibson. Gibsonian perceptual awareness is such that, though perceptual awareness need not be verbalized, it can be verbalized given possession of the necessary ability. Gibson explains verbalizing one’s perceptual awareness in terms of one’s making explicit some of the knowledge that is tacit in one’s perceptual awareness (p. 260). Perceiving is a kind of “knowing,” in the sense that something about something is tacitly learned in the process of perceiving it. In conveying Gibson’s explicit view, it might seem sufficient, instead, to describe the human perceiver as having perceptual awareness of the environment, and being able to verbalize not his or her perceptual awareness, but whatever the objects of perceptual awareness happen to be, that is, to describe a part of the environment or oneself in the environment. Gibson states, “There has to be awareness of the world before it can be put into words” (p. 260). However, Gibson implies that there occurs, as well, awareness of one’s perceptual awareness in producing the kind of verbalization that

he is referring to. One "puts into words" not simply that which one perceives, but also one's perceptual awareness of it. The fact that one is perceptually aware of whatever it is that one is perceiving is part of what one puts into words when one verbalizes one's perceptual awareness.

Perceptual reports. In other words, one reports one's perceptual awareness. But perceptual reports require that one have awareness not only of the environment but of the perceptual awareness itself. For example, to report seeing something (X), it does not suffice that one sees X. If seeing X is all that occurs, if there is no awareness as well of seeing X, then it is subjectively as though one does not see X. In that case, one cannot act in such a way that takes X into account (Natsoulas, in press). Cases like a subject with blindsight (S) are no exception. X is presented to S in a part of S's field of view that corresponds to a locus of damage to S's occipital cortex. Although S's relevant actions (e.g., guesses regarding certain properties of X) are positively affected by X's stimulatory presence, S does not perform the actions by taking X into account. In fact, when asked about it, S reports not seeing X. The present paragraph extends Gibson's notion of "verbalizing one's awareness" in a direction that perhaps Gibson would resist, but the alternative understanding of perceptual reports, which Gibson might proffer, is not at all clear.

Conceptual determinants. Any perceptual situation provides an inexhaustible amount of stimulus information, so that all perceiving is selective. The selectivity of perceiving is affected by many factors, among them ones that cannot be properly described as perceptual or stimulatory. From the proposition that perceptual awareness is not a conceptualizing occurrence, it does not follow that there cannot be conceptual determinants of which particular perceptual awarenesses one has in a particular situation. Compare the fact that perceptual awarenesses are not themselves motivational occurrences or desires. It does not follow that desires cannot help to determine which perceptual awarenesses one has in a particular situation. They do so by affecting how one deploys one's perceptual system. Gibson (1979/1986) states,

The child becomes aware of the world by looking around and looking at, by listening, feeling, smelling, and tasting, but she begins to be *made* aware of the world as well. She is shown things, and told things, and given models and pictures of things, and then instruments and tools and books, and finally rules and short cuts for finding out more things . . . The extracting and the abstracting of the invariants that specify the environment are made vastly easier with these aids to comprehension. (p. 258)

Afterwards, the child continues to find things out perceptually, but the process of perceiving may be modified by what she has heard or read or seen a picture of, so that different stimulus information than before is now picked up and extracted from the stimulus flux. And perceptual awarenesses now

come to take place, consequently, that would not likely have taken place, or taken place as often as they do now.

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