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ON THE WAY TO A VISION OF SITUATED COGNITION THROUGH HEIDEGGER'S
CONCEPT OF BEING-IN-THE-WORLD

by

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On the Way to a Vision of Situated Cognition Through Heidegger’s Concept of Being-In-The-World

The purpose of this thesis is to understand Heidegger’s concept of being-in-the-world from Division One of Being and Time, by undertaking an analysis of its central features. We will do this in order to demonstrate in detail how this illuminating insight, advanced through hermeneutic phenomenological ontology, offers a viable and convincing alternative for cognitive science to the either/or dichotomy of relativism vs. objectivism which the western philosophic tradition has usually arbitrarily presupposed. To do this, we will apply Heidegger’s notion of being-in-the-world to Varela, Thompson & Rosch’s work on embodied cognition in The Embodied Mind: Cognitive Science and Human Experience, focusing especially on their use of color as a paradigmatic case study. Here we will show how Varela, et al.’s claim that "knowledge depends on being in a world that is inseparable from our bodies, our language, and our social history—in short, from our embodiment" is correct.

Varela, et al., of course, attribute this idea to Heidegger in important ways, but they only make the statement that this claim is based on the early work of Heidegger, since they choose, instead, to explore the Eastern Buddhist tradition as their major supporting philosophic ground. So naturally, they do not show exactly how and why Heidegger’s position works to support their claim. Our central purpose here, then, will be to do precisely that, by giving an account of Heidegger’s pre-eminent idea, and by showing how it strongly supports a drive to investigate human understanding as embodied cognition.

In making this detailed inspection of the relevant central issues of Heidegger’s being-in-the-world and applying it to color vision being supported by embodiment, we will have shown why it is necessary to abandon the subject/object dichotomy and venture beyond objectivism, relativism, realism, and idealism in order to engage in cognitive science as situated cognition. If we can find our way to a vision of situated cognition through Heidegger’s concept of being-in-the-world, we may be able to enjoy the enviable prospect of grasping a more rich and satisfying understanding of human intelligibility which is relatively free of the metaphysical monsters of foundationalism.
INTRODUCTION

The purpose of this thesis is to understand Heidegger's concept of being-in-the-world from Division One of *Being and Time*, by undertaking an analysis of its central features. We will do this in order to demonstrate in detail how this illuminating insight, advanced through hermeneutic phenomenological ontology, offers a viable and convincing alternative for cognitive science to the either/or dichotomy of relativism vs. objectivism which the western philosophic tradition has usually arbitrarily presupposed. To do this, we will apply Heidegger's notion of being-in-the-world to Varela, Thompson & Rosch's work on embodied cognition in *The Embodied Mind: Cognitive Science and Human Experience*, focusing especially on their use of color as a paradigmatic case study. Here we will show how Varela, et al.'s claim that "knowledge depends on being in a world that is inseparable from our bodies, our language, and our social history—in short, from our embodiment" is correct.

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So I withdrew and thought to myself: "I am wiser than this man: it is likely that neither of us knows anything worthwhile, but he thinks he knows something when he does not, whereas when I do not know, neither do I think I know; so I am likely to be wiser than he to this small extent, that I do not think I know what I do not know."1

Socrates, *The Apology*
this, we will have accomplished our main goal, which is to appropriate Heidegger's concept of being-in-the-world through the investigation of a contemporary case study in situated cognition.

Color as a case study, further elaborated by Evan Thompson in *Colour Vision: A study in Cognitive Science and the Philosophy of Perception*, will be used as the concrete empirical occasion to show how Heidegger's concept of being-in-the-world is crucial to any meaningful and useful understanding of human cognition and how it works for us. We will also discuss Richard Bernstein's *Beyond Objectivism and Relativism: Science, Hermeneutics, And Praxis* and its claim that the “Cartesian Anxiety”, which has bewitched the modern philosophical enterprise, must be exorcised in order to clear a horizon for an optimal understanding of human intelligibility and the possible ways for human beings to exist. This Cartesian Anxiety manifests itself in the exclusive Either/Or dichotomy which we will thoroughly refute using Heidegger's idea of human existence as being-in-the-world. Finally, we will conclude with a vision of situated cognition as enaction through the beyond of being-in-the-world.

To be more precise then, here is the roadmap we will follow to accomplish our task. First, we will explain in detail the key elements of being-in-the-world, using support from Herbert Dreyfus' commentary on Heidegger entitled *Being-in-the- World, A Commentary on Heidegger's Being And Time, Division 1*. The priority of the question of being as the most originary ontological perspective and its precedence over all epistemological considerations will be presented as Heidegger’s point of departure. The tradition has forgotten what it means to exist as human beings, and Heidegger offers the exciting prospect of illuminating this fundamental aspect of understanding, thereby dissolving many perplexing philosophical “problems” such as mind-body dualism and epistemological foundationalism. These
problems are a direct result of the absentmindedness which, as we shall see, Heidegger views as a falling/fleeing from the truth about the human way to be.

The method for Heidegger's ontology is hermeneutic phenomenology. Here hermeneutics is expanded from its limited preoccupation with ancient texts to a more general application showing the manifest importance of interpretation in human understanding. Heidegger also reveals the circular nature of such an approach, and, as we shall see, he cajoles us to embrace this hermeneutic circle as the necessary means of gaining a rich insight into Da-sein (the human way to be), rather than regard this circle as a hopeless and "vicious" merry-go-round, forever forbidding us to gain useful access to the understanding of being.  

As we shall see in our detailed discussion later, by phenomenology, Heidegger means a pure "self showing in itself." He rejects other forms of phenomenology which are paralyzed by concepts of mental states corresponding to occurrent entities in favor of this more originary self showing. With the explication of this method to follow, we will see the revelation that as human beings, in our human way of being which is Da-sein, we "always already" exist together in the world and with a world. Moreover, we are always already amidst a world and together with "the-they." As Heidegger says, "By reason of this with-like being-in-the-world, the world is always the one that I share with others. The world of Da-sein is a with-world. Being-in is being-with others." We always already find ourselves in a situation where things matter to us, where we always already have know-how about our situation, and where we always already have fallen into the situation we are in (that is, the human mode of being-in-the-world).

Heidegger also gives us a crucial insight into a concept of truth which supplants the traditional meaning that we inherit in Western philosophy from Plato's idea of theory as meta-foundation and Descartes' construction upon this metaphysical foundation of
epistemology as the correspondence of mental states with occurrent entities. In what follows, we will explore Heidegger’s deconstruction of this received view and see that he proposes the concept of a more originary truth which emphasizes disclosedness, unconcealedness and revelation. This truth, which precedes the traditional idea of truth as agreement, allows the rich possibility of finite human being seeing and exploring the indefinite horizon of possible ways to be human. We will unpack these ideas in detail in preparation for our sojourn into cognitive science, so we can be prepared to develop the position presented by Varela, et al. that if cognitive science wants to understand human understanding, then it must understand being-in-the-world and allow that understanding to inform its conceptualization of the projects it undertakes in order to grasp that understanding.

First, however, we will address the Cartesian Anxiety which results from traditional attempts to solve philosophic problems created by the arbitrary presupposition of the subject/object dichotomy which is pervasive in the modern Western thought referred to above. An understanding of the Cartesian Anxiety is essential in realizing how Heideggerian being-in-the-world can inform cognitive science as situated cognition. Basically, in tacit acceptance of the Cartesian call for an absolute foundational point from which certainty about the world can emanate, we find ourselves trapped into thinking that either a certain foundation actually does exist, or else we are doomed to the free falling dread of a world in which nothing really matters because there is no real reason that it could matter. This is the Either/Or dichotomy. Because the threat of the chaos and confusion of nihilism seems unbearable, we tend to demand that somehow, somewhere, there must be some basic foundational point that is absolutely certain and from which all genuine meaning flows. We will unpack these ideas in detail in this section and see that the Cartesian foundational presupposition is epitomized by a world filled with thinking things (subjects) and substantive
things (objects in the world), so that we find ourselves looking for an absolute ground either in the mind of the subject (idealism) or in the essence of the object (realism). Modern philosophy has in many ways been a graveyard of failed attempts to discover this certain foundational ground, but since it has never succeeded in this endeavor, this has led, as Neitzsche has starkly informed us, to the inevitable conclusion of nihilism, which is precisely what philosophy has tried to flee from in the first place. Through Heidegger’s concept of being in the world, we will herald the dissolution of this Either/Or dichotomy and present the possibility of undertaking a way of human being that is “beyond objectivism and relativism.”

This dissolution opens a clearing for the idea of situated cognition which is presented by Varela, et al. as “enaction.” Enaction is embodied cognition in which “knower and known, mind and world, stand in relation to each other through mutual specification or dependent coorigination.” It offers cognitive science a chance to recover common sense in the understanding of human intelligibility. Though citing Heidegger and his inspiree Merleau-Ponty as the Western pioneers of this possibility for cognitive science, they offer no detailed description of how being-in-the-world provides an essential demonstration of this perspective. That, as we have said, is our main goal here. Indeed, it would be tempting to include a detailed account of Merleau-Ponty, who himself uses color as a referential phenomenon for Heidegger’s being in the world, and who himself addresses many of the points we will develop with Heidegger, but this would easily require an effort similar in scope to the present task at hand, and for the sake of clarity, manageability, and focus, we will leave that for another day.

One of Heidegger’s most important philosophic entreaties, which he adopted, of course, from his teacher Edmund Hussurl, but which he changed in fundamental ways by
replacing the knowing conscious subject with Da-sein’s being-in-the-world, is to look to the phenomena; always look “to the things themselves.” He insisted that the best way to do phenomenology is to investigate human action “concretely” in its “average everydayness.” We will follow this recommendation in considering Varela, et al. and through Evan Thompson’s development of the ecological view of color vision substantiated by what he refers to as his comparative argument. Here, he holds that color as a case study clearly demonstrates, in the Heideggerian phenomenological sense, that “living beings and their environments stand in relation to each other through mutual specification or codetermination.” This mutual specification, implication and determination is easily seen, as we shall see, as a basic element of Da-sein, our hallmark human way of being as being-in-the-world.

In making this detailed inspection of the relevant central issues of Heidegger’s being-in-the-world and applying it to color vision being supported by embodiment, we will have shown why it is necessary to abandon the subject/object dichotomy and venture beyond objectivism, relativism, realism, and idealism in order to engage in cognitive science as situated cognition. If we can find our way to a vision of situated cognition through Heidegger’s concept of being-in-the-world, we may be able to enjoy the enviable prospect of grasping a more rich and satisfying understanding of human intelligibility which is relatively free of the metaphysical monsters of foundationalism.
HEIDEGGER’S BEING IN THE WORLD: A BRIEF OVERVIEW

Da-Sein And The Question Of Being

The point of departure for Heidegger in Being and Time is the priority of the question of being. In order to get clear about the method he uses to investigate the question, which eventually results in the concept of being-in-the-world, we first need to understand this question and why it is important. Heidegger reasons that the tradition has grossly misunderstood the fundamental nature of what it means to exist as a human being and that, therefore, it has become incapable of understanding what human understanding is at its most basic level. Heidegger announces the priority of the question of being as follows.

. . . It is true that ontological inquiry is more original than the ontic inquiry of the positive sciences. But it remains naive and opaque if its investigations into the being of beings leave the meaning of being in general undiscussed. And precisely the ontological task . . . requires a preliminary understanding of “what we really mean by this expression ‘being.’” . . . All ontology, no matter how rich and tightly knit a system of categories it has at its disposal, remains fundamentally blind and perverts its innermost intent if it has not previously clarified the meaning of being sufficiently and grasped this clarification as its fundamental task.19

What Heidegger is saying is that we must first understand what it really means to exist because this question comes before any other question, even the questions of the sciences. Whatever else we come up within all our endeavors presupposes what it means to exist as a human being, and what it means to be a human being “colors” all our thought processes and everything that we can possibly think, feel, convey, or articulate. The claim that this question is more original than the ontic sciences is crucial to our task here because cognitive science, which can be construed as the science of understanding human understanding by grasping the basic features of intelligibility, has traditionally completely ignored this question. If Heidegger is right, then, as Hubert Dreyfus says, “it should be obvious that one cannot understand something unless one has an accurate account of what it
is one is trying to understand. Thus, for example, if one thinks of man as a rational animal
solving problems and acting on the basis of beliefs and desires, as the tradition has done since
Aristotle, one will develop a theory of mind, decision-making, rule-following, etc., to
account for this way of being. If this description of human reality turns out to be superficial,
all that hard work will have been in vain.20 We must get the question of what it means to
exist as human beings examined first before any other investigations concerning reality and
humanity can hope to make sense in any fundamental or important way.

So what does it mean to exist as a human being? For Heidegger, it means Da-sein.
Da-sein is human existence, but it is not a what. It is the how of the way it is to be human.
This how precedes all whats. How we are human, and how we make sense of the world in
which we find ourselves, allows us to think about, articulate and experience the world in
which we make a way for ourselves, making a way for ourselves. Da-sein is “the site of the
understanding of being.”21 As this site of understanding, Da-sein precedes and makes
possible the idea of self realization through the perspective of viewing ourselves as conscious
human subjects, not the other way around.22 By this we mean that we are not conscious
human subjects first, before we exist as Da-sein being-in-the-world. Rather, we are
conscious human subjects because existing as Da-sein being-in-the-world makes
consciousness as a human subject possible as a possible self interpretation. Our purpose here
is not to undertake a detailed account of human consciousness which would take us too far
afield from our express focus. Heidegger accomplishes this later in Being and Time with his
detailed discussion of ecstatic temporality as the fundamental ground of human
consciousness.23 Our point is to insist that we can interpret ourselves as conscious human
subjects because our way of being is the focal point of understanding ourselves and is
wrapped up in our making our way about the world.
Included in our normal everyday understanding of ourselves, as we have said, is the idea of something like a world. The world is where we find ourselves making our way. Da-sein and the world co-implicate each other and together co-designate the human way of being. If Da-sein is how we are, and how we are, are beings intricately involved in concern about how we make our way in the world, then there must be a world within which we conspire to be ourselves. We will talk about this much more in what follows, but early on Heidegger announces that an understanding of something like a world is crucial for the understanding of Da-sein. “But being in a world belongs essentially to Da-sein. Thus the understanding of being that belongs to Da-sein just as originally implies the understanding of something like ‘world’ and the understanding of the being of beings accessible within the world.”

Heidegger continues by saying,

Dasein is a being that does not simply occur among other beings. Rather it is ontically distinguished by the fact that in its being this being is concerned about its very being. Thus it is constitutive of the being of Da-sein to have, in its very being, a relation of being to this being. Understanding of being is itself a determination of being of Da-sein.

Da-sein, then, is not essentially a thinking thing, a mental substance which stands in relation to physical substances, which it represents to itself. It can be construed as this manifestation when this perspective is chosen, but it is not a necessary condition. Da-sein, the human way of being, which is concerned about how it exists and about the relation of itself to itself, is best understood in terms of its prior conditions as the site of this relation. All other manifestations of human being emanate from this site. This is the essence of human existence according to Heidegger.

“We shall call the very being to which Da-sein can relate in one way or another, and somehow always does relate, existence... Da-sein always understands itself in terms of its existence, in terms of its possibility to be itself or not to be itself... We come to terms with the question of existence always only through existence itself.”
Da-sein is a very special kind of being. It is a being that "is concerned about its very being." Da-sein relates to itself in that it is concerned with its relation to its being. This is how Da-sein manifests itself, in the relation. It understands itself, and it is this understanding of itself as being that makes it what it is. In this way, Da-sein is a self-interpreting being.

Existence is the way Da-sein relates itself to itself. This is the way of being human, the way human beings relate themselves to themselves. As Dreyfus says, "For Heidegger, existence does not mean simply to be real. Stones and even God do not exist in his sense of the term. Only self-interpreting beings exist." Stones and God do not "exist" as such, because their being for Da-sein depends on Da-sein. It is possible that they are "out there" "in themselves," but how they are to Da-sein, depends on Da-sein and how it "sees" them. They cannot exist in this sense, because Da-sein is self-interpretation and this embodied sense of self understanding determines what they can be for it.

A more lengthy passage from Dreyfus will help deepen our grasp of Heidegger's concept of existence:

We are now in a position to draw out the implications of Dasein's special way of being, which is existence. Cultures and cultural institutions have existence as their way of being, and so does each of us. To exist is to take a stand on what is essential about one's being and to be defined by that stand. Thus Da-sein is what, in its social activity, it interprets itself to be. Human beings do not already have some specific nature. It makes no sense to ask whether we are essentially rational animals, creatures of God, organisms with built-in needs, sexual beings, or complex computers. Human beings can interpret themselves in any of these ways and many more, and they can, in varying degrees, become any of these, but to be human is not to be essentially any of them. Human being is essentially simply self-interpreting.

By self-interpreting, Dreyfus does not mean that Da-sein is an individual, conscious human being standing alone in solitary contemplation, freely deciding in any way he chooses how to interpret his perspective on the world. What he means is that the human way of being is essentially a self-interpreting enterprise in its totality. In our existence, we find ourselves in a world, and in our heedful coping with ourselves and this world in which we find
ourselves, we become the kind of beings we are, and the world becomes the kind of world that it is for us. To repeat a crucial idea, “To exist is to take a stand on what is essential about one’s being and to be defined by that stand.” World and human being co-implicate each other in this how to become what they are for us. This process in never finished. Da-sein and world, which are inseparably intertwined, are characterized by the how of self-interpretation through and through. Again, this self-interpretation is not a capricious or pernicious relativization in the sense that a conscious subject can decide to be what he wants in any world that he likes. Da-sein is “bound,” in a sense, by its past as it projects itself into the future, and it is what it is by virtue of the how of the co-implication and self-interpretation.

The Hermeneutic Phenomenological Method

Now that Heidegger has shown us that “fundamental ontology, from which alone all other ontologies can originate, must be sought in the existential analysis of Da-sein,” we will examine the method that he employs in undertaking this analysis. This method is hermeneutic phenomenology. Heidegger begins by explaining his version of phenomenology, and, as we have already introduced above, his method emphasizes the how of Da-sien not the what of traditional philosophical finality.

With the guiding question of the meaning of being the investigation arrives at the fundamental questions of philosophy in general. The treatment of this question is phenomenological. The expression “phenomenology” signifies primarily a concept of method. It does not characterize the ‘what’ of the objects of philosophical research in terms of their content but the ‘how’ of such research.

Heidegger tells us that the meaning of this how comes from the original Greek idea of phenomenon, which means a self-showing. “The Greek expression phainomenon, from which the term ‘phenomenon’ derives, comes from the verb phainesthai, meaning to ‘show itself.’ Thus phainomemon means what shows itself, the self-showing, the manifest.”
how that is emphasized here is a bringing to light, an illumination of how something shows itself. It is a revealing of the concealed which brings it into an open clearing providing the possibility for experiencing it.

But what counts as phenomena? According to Heidegger, “the simple sense perception of something . . . the straightforwardly observant apprehension of the simplest determinations of the being of beings as such.” Anything that manifests a self-showing from the simplest form of experience constitutes the concept of phenomena. Here Heidegger wants to highlight that his approach seeks the appropriation of the attributes of anything we encounter in its simplest disclosure by way of the least vitiated sense perception of the thing. By least vitiated, we mean as far removed as possible from abstract, speculative, metaphysical conceptualization. All we need do is go out and simply apprehend things in the world in the way that they reveal themselves to us through a simple self showing, and this constitutes an encounter with the phenomenal world. In short, we need to go “to the things themselves.”

Heidegger summarizes his concept of phenomenology as follows:

Hence phenomenology means: to let what shows itself be seen from itself, just as it shows itself from itself. That is the formal meaning of the type of research that calls itself “phenomenology.” But this expresses nothing other than the maxim formulated above: “To the things themselves!”

Phenomenology, then, is the most originary approach to ontology because it lets a being be seen in its most originary manifestation from the perspective of Da-sein. Phenomenology offers an insight into ontology which highlights a simple self-showing of that which comes out of concealment in all the ways that it can be revealed to us. As such, phenomenology opens a clearing for ontology.

Phenomenology is the way of access to, and the demonstrative manner of determination of, what is to become the theme of ontology. Ontology is possible only as phenomenology. The phenomenological concept of phenomenon, as self showing, means the being of beings-its meaning, modifications, and derivatives.
So far, we have been directed to “look to the things themselves” in the simplest and most direct determination of the things in all their “meanings, modifications, and derivatives.” But we have also learned that Da-sein, which is the site of understanding, is interpretation all the way through. This means that phenomenology must engage interpretation because it is the method of the interpretive being. And this is exactly what Heidegger tells us. Previously, hermeneutics had been used by academics and scholars as a method to interpret ancient texts as a form of exegesis, but Heidegger greatly expands this idea and incorporates it into mainstream philosophic consideration by applying it as a universal attribute of Da-sein.

As Heidegger says:

From the investigation itself we shall see that the methodological meaning of phenomenological description is interpretation. The logos of the phenomenology of Da-sein has the character of hermeneuein, through which the proper meaning of being and the basic structures of the very being of Da-sein are made known to the understanding of being that belongs to Da-sein itself. Phenomenology of Da-sein is hermeneutics in the original signification of that word, which designates the work of interpretation.35

Heidegger is not interested in what it means to be a human being in a particular culture or time in history; he wants to give a universal definition of what it means to be a human being in general and across all possibilities. His aim, as Dreyfus says, is to “account for all modes of intelligibility,” and his claim is that hermeneutic phenomenology, rightly understood, is up to the task. Indeed, in his mind, it is the only current candidate that could be up to the challenge, because it simply looks to the phenomenon first, with no reliance upon prior conceptual baggage to influence it or corrupt it. As we have seen and as Dreyfus summarizes, “hermeneutic phenomenology, then, is an interpretation of human beings as essentially self-interpreting, thereby showing that interpretation is the proper method for studying human beings.”36
Heidegger wants to go even farther than this though. He has already told us that the question of being is the most fundamental question for us, because it colors and determines all our other considerations. The question of how we exist determines all other questions, because it shows how we make our world and everything in it, including ourselves, intelligible to ourselves. If this is the case, then philosophy is ontology by way of the hermeneutic phenomenological method. According to Heidegger, if we search for the most fundamental aspects of what it means to be human and also the fundamental aspects of the most originary approach to investigate our humanity, then:

Ontology and phenomenology are not two different disciplines which among others belong to philosophy. Both terms characterize philosophy itself, its object and procedure. Philosophy is universal phenomenological ontology, taking its departure from the hermeneutic of Da-sein, which, as an analysis of existence, has fastened the end of the guideline of all philosophical inquiry as the point from which it arises and to which it returns.  

For Heidegger, there is no more basic endeavor in understanding human understanding than philosophy as ontology by way of hermeneutic phenomenology. This enterprise preordains all others.

It is important now to point out two potential "problems" with Heidegger's method. First, from the perspective of positive logical rigor, hermeneutic phenomenology seems to present a problem of circular reasoning. This is a problem for logic and rational rigor because the arbitrary goal of these disciplines is foundational clarity. We say "arbitrary," because there is apparently no absolute foundational rationale upon which to base this truth claim, at least none that has been heretofore presented by anyone making the claim. Nevertheless, logic and rationality need to find the right answer in order to accomplish their goal. To claim, as Heidegger does, that whatever answer we find is subject to a constant process of reevaluation and reinterpretation via the method of hermeneutic phenomenology is blasphemy. Dreyfus presents the problem as follows:
When applied to hermeneutic disciplines, Heidegger's account of the fore-structure of interpretation raises the problem of the hermeneutic circle. If all interpreting takes place on a background understanding that it presupposes—a background, moreover, that conditions from the start what questions can be formulated and what counts as a satisfactory interpretation, yet that can never be made completely explicit and called into question—all interpreting is necessarily circular. If Heidegger were to borrow a term from modern popular psychology, he might say that the hermeneutic circle is a problem only if one is "in denial" about Da-sein, about what it means to be human. He says by "going to the things themselves" and by understanding ontology by way of hermeneutic phenomenology, we simply find that our understanding of our understanding is circular. It is not a problem; it is just what we find when we do philosophy. The circle is not "vicious," because it does not preclude us from doing the job that philosophy is supposed to do, which is to give us the best way to understand what it means to be a human being and, therefore, to give us the best insight into how we understand ourselves and the world within which we find ourselves. Heidegger responds to the "problem" as follows:

But to see a vitium in this circle and to look for ways to avoid it, even to "feel" that is an inevitable imperfection, is to misunderstand understanding from the ground up. It is not a matter of assimilating understanding and interpretation to a particular ideal of knowledge which is itself only a degeneration of understanding which has strayed into the legitimate grasping what is objectively present in its essential unintelligibility... What is decisive is not to get out of the circle in which any random kind of knowledge operates, but to get in it in the right way.

Regarding the hermeneutic circle as a "problem" is to "misunderstand understanding from the ground up." Circularity is not a problem to be solved but an existential of Da-sein which occasions the opportunity for a continual process of enrichment in understanding the general and particular manifestations of our human way of being. Circularity is only a problem for a "degeneration of understanding" which demands that knowledge about Da-sein must necessarily reveal a "once and for all" ground of certainty. We must instead, get in the circle "in the right way." We can do this by seeing it as a positive attribute of the more rich
and satisfying prospect of encountering Da-sein in the unending process of discovering that which has been heretofore concealed. One particularly insightful articulation of appropriating the hermeneutic circle in a positive way is offered by Dreyfus as he says that Da-sein can then choose "the social possibilities available to it in such a way as to manifest in the style of its activity its understanding of the groundlessness of its own existence." So being in the circle is not only not vicious, it is not even a problem. It is just where we find ourselves, if we are honest about where we are. This does not mean we cannot "know things for sure"; it just means that knowing for sure is occasioned by Da-sein which prefigures all "once and for alls." In other words, "knowing for sure" is preconditioned by the how of our way of being which is self-interpretation through and through in existing as Da-sein.

It is important now to acknowledge a potential contradiction in Heidegger’s depiction of the hermeneutic phenomenological method. Heidegger issues several disclaimers about his project taking on the stature of metaphysical finality such as the following:

In this field where “the matter itself is deeply veiled,” any investigation will avoid overestimating its results. For such inquiry is constantly forced to face the possibility of disclosing a still more original and more universal horizon from which it could draw the answer to the question “What does ‘being’ mean?”

But even though he has made this caveat, he seems to be unable to resist the temptation to fall into the claim of a fundamental universal ground. As Dreyfus says, in important ways, “Heidegger seems to imply that his fundamental ontology in Being and Time will be a full clarification of the understanding of being, and even a science of being as such. This idea conflicts with the presuppositions of hermeneutics.” In order to be true to Heidegger’s own program, we must avoid this temptation, understandable as it may be, and remember that the business of ontology through hermeneutic phenomenology is an existential, a possible way of seeing things and not a final conclusion. It necessarily doubles

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back upon itself and opens itself up into a clearing for potential revision and further interpretation.

Being-In-The-World: The World: Worldliness And Absorbed Intentionality

Thus far, we have uncovered with Heidegger the priority of the question of being, the fundamental nature of Da-sein, and the proper method to investigate philosophy (ontology), which is hermeneutic phenomenology. It is now time to reveal with this method the fundamental nature of how Da-sein is situated within the world in which it finds itself. Da-sein “dwells” in the world, and Heidegger appropriates the phrase “being-in-the-world” to describe this dwelling. “These determinations of being of Da-sein, however, must now be seen and understood a priori as grounded upon that constitution of being which we call being-in-the-world.” Da-sein dwells in the world as being-in-the-world in a “unified” phenomenon. As Dreyfus tells us, this dwelling means that we are “amidst” the world. We do not stand next to it or beside it. We are amidst it in the form of an “inhabiting” which is a dwelling. This relationship is pervasive and cannot be accurately understood by any model using a subject-object juxtaposition. “When we inhabit something, it is no longer an object for us but becomes part of us and pervades our relation to other objects in the world.” And the relationship of world with human existence has always already been. We did not crash land in the world at some point and suddenly begin taking up relations with it. We have been “within it” all along. Thus, the world is a horizon of understanding for Da-sein manifested by a dwelling and an inhabiting. As Heidegger says:

As an existential, “being with” the world never means anything like the being-objectively-present-together of things that occur. There is no such thing as the “being next to each other” of a being called “Da-sein” with another being called “world.”
According to what we have said, being-in is not a “quality” which Da-sein sometimes has and sometimes does not have, without which it could be just as well as it could with it. It is not the case that human being “is,” and then on top of that has a relation of being to the “world” which it sometimes takes upon itself. Da-sein is never “initially” a sort of being which is free from being-in, but which at times is in the mood to take up a “relation” to the world. Taking up of relations to the world is possible only because, as being-in-the-world, Da-sein is as it is. 46

So Da-sein, the site of human existence, which takes a stand on what is decisive for itself and is defined by that stand, now finds itself wrapped up inextricably with a world amidst which it must make its way. The next step, then, in the existential analytic of Da-sein is to use the hermeneutic, phenomenological method to explore the nature of the world and the things in it, and see how Da-sein relates to (with) them. “World is ontologically not a determination of those beings which Da-sein essentially is not, but rather a characteristic of Da-sein itself. This does not preclude the fact that the path of the investigation of the phenomenon of world must be taken by way of innerworldly beings and their being.” 47

With this part of Heidegger’s analytic, we will see that he reveals that the best way to look at the world and the things in it in relation to human existence is not by way of the traditional idea of representational intentionality, but by way of what Dreyfus calls “absorbed intentionality.” We will clarify and develop this idea more fully shortly as this idea will be very important later in this investigation when we turn to the empirical study of color vision as an enactive case study in situated cognition, because it will reveal why most traditional approaches are inadequate in facing the task of understanding human intelligibility, since they begin with an inaccurate idea of how human beings understand. “Thus, Heidegger seeks to supplant the tradition by showing that the ways of being of equipment and substances, and of actors and contemplators, presuppose a background understanding of being—originary transcendence or being-in-the-world.” 48

What Dreyfus is getting at here is that if we use the best method we have at our disposal for investigating the way human beings exist in the world by looking at how we
relate to the world and the things in it, then we must conclude that the most fundamental
description of Da-sein and world manifests the idea of mutual co-embodiment. Human
existence co-specifies the world and visa versa. The hermeneutic, phenomenological method
with its disclosedness through the simple self-showing of being demonstrates that how we are
in the world, in our “average everydayness,” is that we are embodied within a world, and
how the world is, is that it is always already a horizon of understanding for Da-sein. This
characterization obviously precludes categorizing Da-sein and the world as the juxtaposition
of a detached contemplative subject gazing upon a totally independent objective reality. As
Heidegger says, “If being-in-the-world is a fundamental constitution of Da-sein, and one in
which it moves not only in general but especially in the mode of everydayness, it must
always already have been experienced ontically... subject and object are not the same as
Da-sein and world.”

All “knowing” for Da-sein, therefore, takes place against this backdrop of embodied
being-in-the-world, because everything for Da-sein takes place against this embodiment. Da-
sein can never escape the world or itself in order to see how the world and the things in it are
in themselves. How they are for Da-sein will always be colored, substantiated, and defined
by already-being-in-the-world. “We must remember that knowing itself is grounded
beforehand in already-being-in-the-world which essentially constitutes the being of Da-
sein.” There is no avoiding this hermeneutic circle, but as we have said before, we can
understand it in the right way and give ourselves the richest possibility for understanding
ourselves and our relation to the world. Understanding in the right way here means looking
“to the things themselves” in their simplest manifestation, uncorrupted by superfluous
metaphysical speculation, and simply accepting that this just is how being-in-the-world for
humans is. In doing this, as Dreyfus says, “Heidegger proposes to demonstrate that the
situated use of equipment is in some sense prior to just looking at things and that what is revealed by use is ontologically more fundamental than the substances with determinate, context-free properties revealed by detached contemplation.\textsuperscript{51}

Naturally then, Heidegger launches his phenomenological description of Da-sein already-being-in-the-world by focusing on the most originary form of that being, which is the average everyday comportment of its activities in the world. The fundamental question for Heidegger here is, what is the normal average everyday way in which humans beings exit in the world? As we have said, it is not in isolated, deep, philosophical contemplation about objects in the world and how they match mental states that we think we are having. Our average everyday comportment, the way we go about the business of being human almost all of the time, is rather more of an unreflective immersion in utilizing the common skills we have developed in coping with the world and everything that is in it which presents itself to us. Again, we turn to Dreyfus to substantiate our interpretation:

So Heidegger begins his phenomenological account of Da-sein by turning to the beings with which Da-sein is involved and the way in which it is involved with them. Since we cannot take the traditional account of subjects knowing objects for granted as the basis for our investigations of being-in-the-world, we must look instead at what we do in our everyday concernful coping.\textsuperscript{52}

As we encounter the world and the things in it, we do so with a careful comportment. Things in the world reveal themselves as "useful things" in their "handiness" against a background of their total relevance of usefulness and handiness. We take care of ourselves by taking care of things and seeing how they are useful and handy for us. How they are useful and handy for us, as we take care of them in order to take care of ourselves, depends on being-in-the-world. Our basic human comportment, then, is the "circumspect absorption" of taking care of things in an unreflective coping directed by the common skills developed by Da-sein in co-origination with the world. (We will explicate this idea of common shared coping skills in the next section on "the they.") And as Heidegger says, this unreflective
coping reveals the things being taken care of in a manner of transparency. In our everyday activity, we do not notice the useful things with which we engage; they are essentially invisible. "When we are using equipment, it has a tendency to 'disappear.' We are not aware of it having any characteristics at all." Though it seems odd to make this claim that the most basic description of our mental activities is an unreflective coping based on shared comportment in caring for useful things in their handiness to us, we must ask the simple, phenomenological question: is this not the way it is? Heidegger's summary is as follows:

According to our foregoing interpretation, being-in-the-world signifies the unthematic, circumspect absorption in the references constitutive for the handiness of the totality of useful things. Taking care of things always already occurs on the basis of a familiarity with the world. In this familiarity Da-sein can lose itself in what it encounters within the world and be numbed by it.

Da-sein, the world, and all the useful things in it in their handiness "hang together" in an inseparable bond of actualization. If we are trying to articulate Da-sein in its totality in order, for example, to investigate cognitive science as the understanding of human understanding, then it makes no sense to try to separate one of these elements out from its "being amidst" the others in order to get clear about exactly what it is as a detached, self contained, metaphysical reality. The "being amidst" is the reality. And in a dense but particularly revealing passage, Heidegger emphasizes how Da-sein signifies to itself through the self-showing an overall dependence upon a referential whole or "primordial totality" of the context of world and things, which are always already referred to beforehand.

The for-the-sake-of-which signifies an in-order-to, the in-order-to signifies a what-for, that what-for signifies a what-in of letting something be relevant, and the latter a what-with of relevance. These relations are interlocked among themselves as a primordial totality. As such, Da-sein always means that a context of things at hand is already essentially discovered with its being. In that it is, Da-sein has always already referred itself to an encounter with a "world."

Phenomenological honesty demands that we answer the above question (Is this not the way it is?) in the negative. We are normally engaged in an involved, unreflective, careful coping with our world, and we do not really "notice" anything at all, whether it be the
handiness of the useful things or the background of total relevance, unless there is a purposeful disengagement through a conscious shift from the unreflective to the reflective or through some sort of a disturbance. If this is the normal comportment for human being, then it seems only reasonable that this self-showing should hold center court in any depiction of the human way to be, and especially in any reckoning of what it means to understand human understanding. As Dreyfus says, "We should try to impress on ourselves what a huge amount of our lives—dressing, working, getting around, talking, eating, etc.—is spent in this state, and what a small part is spent in the deliberate, effortful, subject/object mode, which is, of course, the mode we tend to notice, and which has therefore been studied in detail by philosophers."56

It is very important here to make note of what Heidegger has done with the traditional concept of an individual, conscious subject who has the problem of wondering how it is that his mind, with its representational content in the form of mental states, can correspond to the isolated and totally independent objects of the outside world. Heidegger has, in effect, dissolved this problem by supplanting it with a more primordial and, therefore, more originary account that does not have to worry about the problem, because it merely goes out "to the things themselves" and reports what it sees. What it sees is a being engaged in unreflective, shared, coping skills most of the time. Again we defer to Dreyfus for support. "The above description of the skilled use of equipment enables Heidegger to introduce both a new kind of intentionality (absorbed coping) which is not that of a mind with content directed toward objects, and a new sort of entity encountered (transparent equipment) which is not a determinate, isolable substance."57 This introduction by Heidegger of a new, absorbed, coping intentionality will be extremely important to us later when we demonstrate why
traditional accounts of cognitive science which employ representational intentionality can be useful but not fundamental in understanding human understanding.

It is also very important here to discuss why representational intentionality can be useful. Heidegger does not say that the traditional epistemology characterized by the subject/object dichotomy is completely worthless. Rather, his claim is that it is not fundamental. It does have a certain utility in being-in-the-world for Da-sein. It, however, just is not the essence of what it means for Da-sein to understand itself in being-in-the-world. In other words, traditional epistemology is useful but limited. We can and do cordon off a world in a sort of “de-worlding” in order to gain a special insight into something from a limited perspective. De-worlding in this way can be a thoroughly positive and successful enterprise. This is what happens, for example, when we step back from being-in-the-world in the usual way and assume a specifically reflective position in order to contemplate a perspective on the world characterized by the depiction of nature as an amalgam of laws governed by mathematics and the physical sciences. In bracketing off our perspective in order to ascertain what the physical world is all about from the viewpoint of physics, we see a world in which physics reigns supreme. Why should we be surprised by this, since by predetermined, perspectival prerogative, we have decided that the only world we will count is the physical world according to the laws of physics and mathematics? In short, when we decide arbitrarily to look at the world according to the laws of mathematics, we will necessarily see a mathematically governed world. The only drawback is that this world is not our world. Understanding the world this way always produces philosophical conundrums when applied to human being as being-in-the-world in its totality. In other words, it simply cannot do the whole job of understanding human-being-in-the-world, because by definitional function it has abnormally bracketed off a world via representational intentionality, which
denies the everyday absorption in the world of human existence. Mathematics works well, as such, in the cordoned off world of mathematics, but it is completely inadequate in explaining being-in-the-world, because it is but a miniscule element in the totality of the indefinite possibilities of being-in-the-world.

How and when does traditional, representational intentionality come into play? It comes into play in an aberration of being-in-the-world which can be very useful but is always extremely limited. Heidegger explains as follows:

But in a disturbance of reference . . . when something at hand is missing whose everyday presence was so much a matter of course that we never even paid attention to it, this constitutes a breach in the context of references discovered in our circumspection. Circumspection comes up with emptiness and now sees for the first time what the missing thing was at hand for and at hand with. Again, the surrounding world makes itself known. What appears in this way is not itself one thing at hand among others and certainly not something objectively present which lies at the basis of the useful thing at hand. It is “there” before anyone has observed or ascertained it.

So Heidegger leaves a space for representational intentionality at the place where there is a disturbance. Disturbances are not the norm. They are exceptions to the everyday mode of human existence in its usual mode of unreflective, absorbed, careful coping comportment. Because they are disturbances, however, we tend to notice them, since everydayness is defined by a not noticing. The temptation to make this noticing the primary concern in understanding what it means to exist as a human being is understandable, but no more accurate because of that understanding. When there is a breakdown, we take on the unnatural comportment of an individual, conscious subject in contemplation of the isolated, outerworldly object which is causing the breakdown. In this way, Da-sein and the world are subiectified and objectified. Hence, ontology as the existential analytic of Da-sein through hermeneutic phenomenology, because it is more originary and investigates our existence in its entirety, is more fundamental and takes precedence in the endeavor to understand understanding.

Dreyfus summarizes the Heideggerian position as follows:
Thus, understanding is not in our minds, but in Da-sein—in the skillful ways we are accustomed to comport ourselves. Thus even when mental content such as rules, beliefs, and desires arise on the unavailable level, they cannot be analyzed as self-contained representations as the tradition supposed. Deliberative activity remains dependent upon Da-sein’s involvement in a transparent background of coping skills.60

Dreyfus goes on to conclude that it is very difficult to argue against Heidegger’s claims here. What would we be arguing against? We would have to argue against a simple, phenomenological self-showing of what is revealed when anyone honestly looks at human existence, reporting what they see and how they see it in the most basic act of noticing and pointing out. There seems to be no dispute possible, because no argument is given to dispute, only an originary self-showing of the how of being-in-the-world. Since there seems to be no more basic description that claims a greater accuracy, we seem forced to accept the idea of absorbed coping as the most fundamental analysis available to us at this time. As Dreyfus says:

All this does not prove that mental states need not be involved in everyday activity, but it does shift the burden of proof to those who want to give priority to mental representations, since they are now in the unphenomenological, although rather typical, philosophical position of claiming that in order for their theories to be true, our way of being must be totally different from what it appears to be.61

We have now given a detailed account of Heidegger’s analytic of human existence in relation to the world and seen that it reveals Da-sein as always already-being-in-the-world with anything it engages as a caring-for through heedful but unreflective coping skills, amidst a backdrop of total relevance. We will now focus on the final aspect of Heidegger’s being-in-the-world that we will consider, which, as indicated earlier, constitutes the “shared” element of already-being-in-the-world characterized by what Heidegger calls “being-with” the “they.”

25
With Heidegger’s program so far, we have seen that Da-sein’s absorbed intentionality, manifested by unreflective coping skills, is more basic than the Western philosophic tradition’s reliance on the idea of representational intentionality. Representational intentionality functions in an important, albeit isolated and abnormal, way for human beings, and it always depends upon the prior condition of existence as comportment absorbed in worldliness. We are now on our way to the possibility of thinking about an understanding of being that is liberated from the constraints and dysfunctional contradictions associated with the subject/object dichotomy. As Dreyfus says, “So the phenomenological description of coping skills has freed us from the idea of a self-contained, occurrent subject... and even from the universality of the mind/world representational relation.” The cash value of this development is that Heidegger seems poised to deliver a convincing death blow to Cartesian foundationalism. “If Heidegger can show that the source of meaning does not reside in each particular Dasein, he will have taken the last step toward overcoming the ‘illusion’ fostered by the Cartesian tradition.” We will discuss Heidegger’s ontology in relation to the “Cartesian Anxiety” in detail in the next section. But for now, we see that he has already given us a strong demonstration of the priority of Da-sein over the idea of an independent, conscious subject and its being-with the world in a selfsame oneness, and now he embarks on a description of the “who” of this Da-sein that is inextricably embedded as being-in-the-world.

Initially and for the most part, Da-sein is taken in by its world. This mode of being, being absorbed in the world, and thus being-in which underlies it, essentially determine the phenomenon which we shall now pursue with the question: Who is it who is in the everydayness of Da-sein?... By investigating in the direction of the phenomenon which allows us to answer the question of the who, we are led to structures of Da-sein which are equiprimordial with being-in-the-world: being-with and Mitda-sein. In this kind of being, the mode of everyday being a self is grounded whose explication makes visible what we might call the “subject” of everydayness, the they.
As usual, Heidegger beseeches us to look to the everyday phenomenon in order to retrieve the most basic understanding possible for "how" it is like to understand human existence. When we do this, we see that Da-sein is being-in-the-world which always already arrives on the scene being-with the they of its fellows in a condition of Mitda-sein which can be understood as a sort of co-existing with the "others." Fundamental phenomenology illuminates our condition as one which is specified by being embedded in a world and embedded with the they. The way that we act in our average everydayness, our common comportment, is a function of our socialization amidst the they. The they is how we are who we are. In this sense, then, the they is who we are. We are the they collectively and individually in the existential sense that the they provides us with the definition of how we take a stand on ourselves and how we are defined by that stand. Heidegger reiterates that the they cannot be understood in its most basic sense with reference to, or with reliance upon, the idea of objective presence in much the same way that Da-sein and the world are excluded from that reference.

This being-there-too with them does not have the ontological character of being objectively present "with" them within a world. The "with" is of the character of Da-sein, the "also" means the sameness of being as circumspect, heedful being-in-the-world. "With" and "also" are to be understood existentially, not categorically. On the basis of this like-with being-in-the-world, the world is always already the one that I share with the others. The world of Da-sein is a with-world. Being-in is being-with others. The innerworldly being-in-itself of others is Mitda-sein.  

As Dreyfus says, "Heidegger's basic point is that the background familiarity that underlies all coping and all intentional states is not a plurality of subjective belief systems including mutual beliefs about each others' beliefs, but rather an agreement in ways of acting and judging into which human beings, by the time they have Dasein in them, are always already socialized." Therefore, Heidegger is not suggesting some sort of sophisticated notion of intersubjectivity as a form of common subjective comportment when he refers to Da-sein being-in-the-world with the they. We are not a "they" because we, as a collection of
independent subjects, agree on acceptable ways of being human. We are a they because we
have always already agreed on ways of behaving by virtue of dwelling with and being bound
up in the community of humanity. We have a common way of dealing with the world, its
equipment, and with each other that is always already underway by taking us on our way
through being-in-the-world. Through this average, everyday, shared, unreflective, skillful,
coping capability that is bound up amidst a world and a they, we find ourselves in a situation.
This situation is not “fixed” so to speak. It is, as it were, dynamic and in progress. In this
sense, being-in-the-world in a situation is underway, and it has always already been
underway. “Da-sein is always somehow directed and underway.”67 The underwayness
means that even though we are creatures of our past who are always ahead of ourselves into
the future, the possibility of transformation according to the contingencies inherent in the
constitution of Da-sein, world, and the they, dwells, as Heidegger would say, ready in the
open clearing. This means that human beings are always on their way to an existence which
is beholding to the how of the past and the present, but this how is always underway to a
horizon which can never be wholly determined, because it proceeds on its way amidst the
burgeoning indefiniteness of being-in-the-world.

But we might ask, just what is the phenomenological evidence that demonstrates that
Da-sein is a manifestation of the they? When we considered the self-shown disclosedness of
the worldliness of the human way to be, we saw that our basic comportment with equipment
revealed the how of a skillful but unreflective, absorbed coping. When we consider the
manifestations of theyness, we find an equally revealing aspect of being-in-the-world that
epitomizes being-with the they. As Heidegger asks us, when we go out into the everyday,
common they-world and simply observe what we find according to our method of
hermeneutic phenomenology, what do we find? We see that:
We enjoy ourselves and have fun the way they enjoy themselves. We read, see, and judge literature and art the way they see and judge. But we also withdraw from the “great mass” the way they withdraw, we find “shocking” what they find shocking. The they, which is nothing definite and which all are, though not as a sum, prescribes the kind of being of everydayness.  

So we are what they are because we are how they are. Moreover, it does not matter if all the others are not around, or if they are somehow eliminated and gone forever. We would still be constituted by the they because the they gave us ourselves in the first place.

“Everyone is the other, and no one is himself. The they, which supplies the answer to the who of everyday Da-sein, is the nobody to whom every Da-sein has always already surrendered itself, in its being-among-one-another.” To lend credence to this phenomenological claim, let any of us try to imagine anything in our experiences, feelings, or thought processes that does not in some way succumb to this they way of being-in-the-world. For that matter, let any of us try to imagine anything that does not in some way succumb to the being-with of worldliness. It seems difficult to conceive of what such an experience could possibly be.

This brings us to the interconnection of being-with the they and worldliness. As we have alluded to previously, these aspects can be considered as one in the same, for all practical purposes, because these aspects are so thoroughly interdependent that it is impossible to imagine them as completely separate phenomenal processes. In fact, by following Heidegger’s rationale, we can easily see that Da-sein, world, and the they are inextricably interrelated through a mutual multi-specification, multi-origination, and multi-determination. They necessarily implicate each other. They make up each other’s way of being by being each other’s way of being. From a hermeneutic, phenomenological point of view, these can not be designated as separate entities because they are so intricately related to each other that they cannot be understood except through this interrelation. This dynamic
interrelation of Da-sein, world, and the they constitutes existence and all meaning for human beings. Heidegger interlaces the three into one as follows:

In being with as the existential for-the-sake-of-others, these others are already disclosed in their Da-sein. This previously constituted disclosedness of others together with being-with thus helps to constitute significance, that is, worldliness. As this worldliness, disclosedness is anchored in the existential for-the-sake-of-which. Hence the worldliness of the world thus constituted in which Da-sein always already essentially is, lets things at hand be encountered in the surrounding world in such a way that the Mitda-sein of others is encountered at the same time with them as circumspectly taken care of. The structure of the wordiness of the world is such that others are not initially objectively present as unattached subjects along with other things, but show themselves in their heedful being in the surrounding world in terms of the things at hand in that world.70

As we see here again, the understanding of this relationship is not made by a conscious human being standing independently in contemplation of Da-sein; Da-sein, world, and the they are all with each other. The being doing this cognizing is always already in this relation. It is impossible for us to get clear of it. We are this relation through and through. We are, as we have concluded already, destined to an understanding of understanding from the finitude of an encapsulation within the hermeneutic circle. “This understanding, like all understanding, is not a knowledge derived from cognition, but a primordially existential kind of being which first makes knowledge and cognition possible.”71 This realization can be shocking. As many existential philosophers have sometimes over dramatized, it tends to lead to a sense of hopelessness and despair associated with the abyss of nothingness resulting from the free fall of foundationlessness. Anxiety, so often evoked in entertaining the abyss of nothingness, may be real enough at times, but it need not be permanently or unreasonably debilitating, quite the contrary. It is precisely because we are in the world in our way of being-in-the-world that we can do and be all the things that we can and become. As Dreyfrus says:

Philosophers seek an ultimate ground. When they discover there is none, even modern philosophers like Sartre and Derrida seem to think that they have fallen into an abyss—that the lack of an ultimate ground has catastrophic consequences for human activity. Whereas . . . Heidegger in division I sees that the nonground is not an abyss. Counting on the shared agreement in our practices, we can do anything we want to: understand the world, understand each other, have language, have families, have science, etc.72
By simply understanding the human way of understanding in the light of the existential analytic of Da-sein through the hermeneutic phenomenological method, we can get into the hermeneutic circle of finitude "in the right way." Getting in, in the right way, is simply understanding this human way of understanding, and understanding that though it manifests an inherent element of finitude, this finitude paradoxically signals the horizon of a world of indefinite possibilities. By understanding that understanding is never "finally getting it exactly right," we are in the circle in the right way, because we see that this means the world of possibility is then never finally closed off. If we existed in the final groundedness of absolute, determinable reality, instead of in the foundationlessness of existentially being-in-the-world, then a final solution would be a forgone conclusion and human being would be finished. But because we are constantly underway in the open clearing of human existence evidenced by Da-sein, worldliness, and the they, our being-in-the-world is always already open to possibility. Thus, finitude paradoxically heralds indefinite possibility.

Summary

Here we have briefly reviewed Heidegger’s seminal concept of being-in-the-world in Division One of Being and Time. We have seen that he has made his point of departure the question of being because this question is prior to all other questions that we, as human beings-in-the-world, can pose. Heidegger’s method for considering the question, circular, hermeneutic phenomenology, embodies a similarly primordial legitimization by a regression to the simple, basic practice of everyday observance and pointing out, relatively uncorrupted by arbitrary metaphysical speculation. With this method, we conclude that our way of being
is Da-sein, meaning a way of being which takes a stand on itself and is defined by that stand. Da-sein dwells in a world amidst the world and its things by way of a shared comportment of common coping skills characterized by unreflective, absorbed intentionality. Da-sein, the world, and the they are inextricably interrelated with one another in a relationship of finitude which occasions the prospect for indefinite possibility.

With the understanding of these aspects of human being-in-the-world, we are equiprimordally ready to examine, in a general way, cognitive science, the modern investigation of thinking and understanding. Our goal is to legitimize a recent perspective on cognitive science by Varela, et al. which interprets the human way of thinking and understanding as an embodied form of situated cognition defined as enaction. The specific empirical occasion for this general consideration will be the study of color vision envisioned as an ecological interpretation. We will, therefore, legitimize the idea of situated cognition through the empirical investigation of color vision as a manifestation of enaction.

First, however, we need to consider how Heidegger’s philosophy is situated amidst other philosophic enterprises which support the traditional concept of cognitive science, so we can justify our claim that being in the circle in the right way for cognitive science means embracing cognition as situated understanding through our being-in-the-world. With this justification, we will develop our main idea on the way to a vision of situated cognition through Heidegger’s concept of being-in-the-world.
BEYOND THE CARTESIAN ANXIETY

The Either/Or Dichotomy: Objectivism vs. Relativism

We have, heretofore, alluded to the Cartesian presupposition that true epistemological investigation must assume that a separate, individual, conscious subject contemplates a pre-given, fixed world through mental representations as cognitive states. This is the model that mainstream cognitive science still defends today. We must ask the questions: Where did this model come from, and why has it been able to preoccupy and effectively hypnotize the modern philosophic enterprise? The modern form of this position is, of course, attributable to Descartes in his famous quest for philosophic certainty. He searched for one focal point of absolute certainty upon which he could build a foundation of knowledge which would then be free from the shadows of opinion and speculation. He wanted to escape the terrible anxiety inherent in living in a world where nothing could be know “for sure.” As Richard Bernstein tells us in Beyond Objectivism and Relativism, Descartes’ quest was a struggle to settle, once and for all, “the grand and seductive Either/Or.” Either we can find a solid bedrock of certainty upon which we can build a certain foundation of knowledge for ourselves in this world, or we are doomed to an existence ultimately terrorized by endless chaos and horrifying madness.

Reading the Meditations as a journey of the soul helps us to appreciate that Descartes’ search for a foundation or Archimedean point is more than a device to solve metaphysical and epistemological problems. It is the quest for some fixed point, some stable rock upon which we can secure our lives against the vicissitudes that constantly threaten us. The specter that hovers in the background of this journey is not just radical epistemological skepticism but the dread of madness and chaos where nothing is fixed, where we can neither touch bottom nor support ourselves on the surface. With a chilling clarity Descartes leads us with an apparent and ineluctable necessity to a grand and seductive Either/Or. Either there is some support for our being, a fixed foundation for our knowledge, or we cannot escape the forces of darkness that envelop us with madness, with intellectual and moral chaos.
Bernstein's point here is that Descartes is searching for an incontrovertible epistemological foundation upon which to build a system of certain knowledge. This search leads to his ultimate speculation that man, the metaphysically independent, thinking thing, apprehends the world, the metaphysically independent, substantial thing. This separation of mind and world has in many ways dominated all scientific and philosophical enterprises since then, and for much of the modern era has positioned philosophy, for all practical purposes, as a form of science. The so called post-modern era has successfully challenged this foundation of absolute epistemological certainty, but as we will see in the case of cognitive science and the philosophy of mind, these Cartesian presuppositions stubbornly remain as the driving forces behind most “serious” philosophical enterprises.

Perhaps the most important aspect of Cartesian epistemology that Bernstein is trying to expose here is the motivation for the undertaking in the first place. As he says, it is this grand Either/Or. The Either/Or demands that there must be either some way to be in the world that enjoys the prospect of a certain and knowable foundational ground, or else we are doomed to chaos, madness, and a plunge into the abyss of incomprehensible demoralization. This grand Either/Or still dominates the philosophic mainstream. As Bernstein tells us, “there is still an underlying belief that in the final analysis the only viable alternatives open to us are either some form of objectivism, foundationalism, ultimate grounding of knowledge, science, philosophy, and language or that we are ineluctably led to relativism, skepticism, historicism, and nihilism.”74 The reason, then, that we find ourselves in a constant state of epistemological masochism is because we tacitly accept the Either/Or dichotomy as if it were cast in metaphysical concrete. There seems to be a tendency for unquestioning acquiescence to these two extreme alternatives, as if no other possibility were feasible. As we shall see, one of the main goals of this thesis is to dispel this arbitrary Either/Or presupposition and
offer an alternative based on an understanding of human existence as Da-sein being-in-the-world.

Now, however, let us analyze in detail exactly what Bernstein is referring to when he speaks of objectivism and relativism. Here we defer again to Bernstein directly:

By "objectivism," I mean the basic conviction that there is or must be some permanent, ahistorical matrix or framework to which we can ultimately appeal in determining the nature of rationality, knowledge, truth, reality, goodness, or rightness. Objectivism is closely related to foundationalism and the search for an Archimedean point. The objectivist maintains that unless we can ground philosophy, knowledge, or language in a rigorous manner we cannot avoid radical skepticism.

Objectivism must be grounded in a certain knowable foundation from which all truth about the world emanates. In Heideggarian language, this view places extreme emphasis on the world in itself to the exclusion of Da-sein with the they, and completely ignores the fundamental priority of the question of being, as well as the apparent phenomenological fact that we are always already here, not only with the world, but with ourselves as Da-sein and the they. Instead, as we have indicated, the arbitrary Cartesian assumption of the dualism of mind and world is absentmindedly posited, as if the question of what it is to exist as a human being were forgotten altogether. The Either/Or dichotomy has thus precipitated Cartesian dualism to form the modern subject/object characterization of reality. As Bernstein says, "In modern times objectivism has been closely linked with an acceptance of a basic metaphysical or epistemological distinction between subject and object. What is 'out there' (objective) is presumed to be independent of us (subjects), and knowledge is achieved when a subject correctly mirrors or represents objective reality."

The obvious assumption, then, is that there is a certain Archimedean point which can be found, for who wants to entertain the possibility that we are doomed to pointless chaos and endless madness? However, despite this seemingly dismal alternative, the advent of various forms of existentialism, pragmatism, deconstructive literary criticism, and positivism
has initiated serious challenges to the enterprise of Cartesian foundationalism. Therefore, “as we follow the internal development in the twentieth century of both Anglo-American and continental philosophy, we can detect increasing doubts about the project of grounding philosophy, knowledge, and language.”

But as Bernstein also reveals, these movements have precipitated what could be described as a severe over reaction in favor of the various potential forms of radical relativism inherent in each. In their extreme forms, these movements have propelled the social sciences, literary criticism, continental and pragmatic philosophy, and even the hallowed doctrines of the pure sciences themselves, into “almost a rush to embrace various forms of relativism. Whether we reflect on the nature of science, or alien societies, or different historical epochs, or sacred and literary texts, we hear voices telling us that there are no hard ‘facts of the matter’ and that ‘almost anything goes.’”

Again, just as with objectivism, let us also be clear about what Bernstein means by relativism:

“In its strongest form, relativism is the basic conviction that when we turn to the examination of those concepts that philosophers have taken to be the most fundamental—whether it is the concept of rationality, truth, reality, right, the good, or norms—we are forced to recognize that in the final analysis all such concepts must be understood as relative to a specific conceptual scheme, theoretical framework, paradigm, form of life, society, or culture. Since the relativist believes that there is (or can be) a nonreducible plurality of such conceptual schemes, he or she challenges the claim that these concepts can have a determinate and univocal significance.”

This rush to embrace radical relativism, in opposition to its arch enemy objectivism, effects much more than the comfortable banter exchanged between the social and intellectual elite in the seminar rooms of the academy. This grand Either/Or dichotomy seems to invade all areas of our lives. “At issue are some of the most perplexing questions concerning human beings: What we are, what we can know, what norms ought to bind us, what are the grounds for hope. The malaise penetrates our everyday moral, social, and political experiences.”

This demand for the Either/Or of objectivism vs. relativism, then, is what Bernstein labels the
Cartesian Anxiety, and, as we have noted, this affliction seems to pervade most modern philosophic and cognitive investigation. This opposition initiates a seemingly endless confrontation between the two sides, as each is quick to point out the inherent weaknesses of the other without adequately being able to counter the allegations highlighting its own drawbacks. The objectivist unapologetically charges that the relativist argument necessarily manifests a contradiction, because the relativist must be asserting that his position is “true,” while at the same time claiming that there is no real truth of the matter. How then, the objectivist blasts, can there be a truth claim that there is no truth of the matter, since that claim itself would not then be true. The relativist, with equally unabashed denunciation, counters that the objectivist position is a miserable failure, because no objectivist, nor anyone else for that matter, has ever been able to find anything like a perfect, provable, ultimate foundation.

This bickering seems to go on forever. But what is the reason for the impossible stalemate? As Bernstein asks:

Why have relativists been unconvinced when objectivists argue, as they almost invariably do, that relativism is self-referentially inconsistent, self-defeating, and incoherent? Why have objectivists been unmoved when time and time again it is shown that they have failed to make the case for the objective foundations for philosophy, knowledge, or language, and that the history of attempts to reveal such foundations must be judged thus far to be a history of failures?

The answer to these questions and the reason for the impossible stalemate rests squarely in the arbitrary foundational insistence in the first place upon the Either/Or dichotomy based in the Cartesian Anxiety. In Hedeggerian terminology, the objectivist has “fallen prey” by “taking flight.” Because Da-sein is “uncanny,” meaning it cannot know with absolute certainty what it is precisely because it is it, it suffers the terrible Cartesian Anxiety of the Either/Or and, therefore, falls away from itself into the publicness of the they. This publicness comforts itself by seeking refuge in the occurrent innerworldly things of objectivism.
Now, however, what falling prey, as flight, is fleeing from becomes phenomenally visible. It is not a flight from innerworldly beings, but precisely toward them as the beings among which taking care of things, lost in the they, can linger in tranquilized familiarity. Entangled flight into the being-at-home of publicness is flight from not-being-at-home, that is, from the uncanniness which lies in Da-sein as thrown, as being-in-the-world entrusted to itself in its being. This uncanniness constantly pursues Da-sein and threatens its everyday lostness in the they.83

Since the uncanniness of Da-sein is constantly present with us, we are constantly subjected to falling prey to and becoming mesmerized by the tranquilization of allowing ourselves to get lost inauthentically in the they by pursuing objectivity in order to secure peace of mind in being-in-the-world. As Dreyfus says, this is the sort of structural falling inherent in being-in-the-world. But we are also plagued by a form of psychological falling which Heidegger calls fleeing. “Da-sein’s structural tendency to fall away from itself in absorption, and even its failure to resist this tendency, are strikingly different from Dasein’s psychological temptation actively to embrace absorption in order to hide its unsettling nullity, i.e., in order to flee from anxiety.”84 Dreyfus claims, for reasons which are too technical to explain in detail for our current purposes, that it is unfortunate that Heidegger conflates the two, but that does not negate the force of the revelation of the falling-fleeing phenomenon.85 We are always already predisposed to this falling, and as Dreyfus says, “Structural falling-away produces a tendency or pull (Zug) toward interpreting Dasein in terms of the world. If not resisted this pull leads Da-sein to turn away from itself.”86

Psychological fleeing, on the other hand, designates the active cover-up of an attempt to escape the Cartesian Anxiety associated with the realization that being-in-the-world can never have the sort of assurances that the Either/Or dichotomy demands. In a desperate attempt to find safety and security in an inherently unknowable and insecure world, we flee from the problem altogether and “create” a world of safety and security. This fleeing carries with it the illusion of temporary tranquillization, but as we shall see momentarily, it thrusts us into a never ending vicious cycle of deception, resulting in renewed frustration, anxiety, and
nihilism. As Dreyfus notes of the Heideggerian revelation, "Resisting falling requires constant effort." Da-sein can never fully resist the pull of the they and the world, for it has always already fallen away. It, nevertheless, can understand itself in the right way as such and resist the active cover-up inherent in inauthentic psychological fleeing.

Thus the objectivist is caught in the grips of a massive self deception ignited by the Grand Either/Or of Cartesian Anxiety which constantly challenges it with the threat of a falling/fleeing in order to try to secure itself. The constant struggling only begets more falling/fleeing. But the relativist is no better off because he has also followed the herd mentality of blind adherence to the Either/Or by believing that since objectivism is obviously impossibly inept and even pernicious, then radical relativism must be the only other available option. As we have already implied, however, but not yet fully explicated, Heidegger's existential analytic of Da-sein being-in-the-world offers a different perspective and a different option to the exclusivity of the Either/Or. Heidegger offers a paradigmatic example "beyond objectivism and relativism" through being-in-the-world. And even though a die hard objectivist will, of course, argue that being-in-the-world is precisely a relativist position, since every Da-sein's situation is in many ways different form the situation of other Da-seins, this claim is an unwarranted misinterpretation of the concept of Da-sein symptomatic of the Grand Either/Or. What is most essential about being-in-the-world is the commonality of the how. This how is the how of human existence. To claim that this is a relative position means the same as claiming some human beings are human beings and some human beings are not human beings.

Understood correctly, being-in-the-world inclusively opens a clearing for what we will call a non-foundational ground by showing how the human way of being and understanding conjoins various useful aspects of each of the extremes of objectivism and
relativism in their readiness and their availableness. By suggesting a non-foundational
ground, we do not mean to suggest that everything in the "opposing camps" can be
reconciled. What we mean is that all these oppositions contain aspects that warrant
phenomenological merit, and we aim to accentuate the practical use of these aspects
inclusively in accordance with how it is for us to be in the world. We will show the economy
of this non-foundational ground designation soon by demonstrating its usefulness to our
ongoing investigation. But first, we will further examine the paralyzing features of what we
will call the Cartesian Anxiety circle, as we begin to reveal its dramatic effects on cognitive
science, the contemporary inquiry into understanding understanding.

The Cartesian Anxiety Circle: Realism-Idealism-Nihilism

In The Embodied Mind: Cognitive Science and Human Experience Varela,
Thompson, and Rosch describe the current milieu in modern cognitive science as essentially
still trapped in the nightmare of the Cartesian Anxiety demand for the Either/Or. We have
chosen to investigate cognitive science as the philosophy of mind in its relation to
Heidegger's being-in-the-world because the concept of being-in-the-world, in its essential
capacity of understanding the human way of being, necessarily offers insight into any
philosophic enterprise attempting to understand this understanding. That cognitive science
has apparently largely failed to do so lends credence to a call to return to the priority of the
question of being and the phenomenological self showing of the open clearing in order to
understand understanding in the most basic way possible. To this end, Varela, et al. ask the
question: "What actually is the scientific basis for the idea that the mind is some kind of
information-processing device that responds selectively to pregiven features of the
environment? Why do we assume that cognitive science cannot call into question these notions of representation and information processing not just philosophically but in its day-to-day research? The only answer we can find is the unquestioning complacency rooted in the sanctimonious homage to the Either/Or occasioned by the Cartesian Anxiety caused by structural falling and psychological fleeing. Varela, et al. warn of the consequences of this blind homage as it continues to impair any advance in the understanding of human understanding. “This unreflective stance is one of the greatest dangers facing the field of cognitive science: it limits the range of theories and ideas and so prevents a broader vision and future for the field.”

In laying the groundwork for their main idea of enaction, they venture an assessment of the modern philosophy of mind known as cognitive science which is essentially a description of Cartesian dualism. We must cite some lengthy passages here in order to capture this important verification:

The ontological and epistemological commitments are basically twofold: We assume that the world is pregiven, that its features can be specified prior to any cognitive activity. Then to explain the relation between this cognitive activity and a pregiven world, we hypothesize the existence of mental representations inside the cognitive system (whether these be images, symbols, or subsymbolic patterns of activity distributed across a network does not matter for the moment). We then have a full-fledged theory that says (1) the world is pregiven, (2) our cognition is of this world—even if only to a partial extent, and (3) the way in which we cognize this pregiven world is to represent its features and then act on the basis of these representations. . . the idea of a cognitive agent that is parachuted into a pregiven world.

It seems almost unbelievable that the philosophy of mind has been unable or unwilling to disengage this apparent Cartesian myopia. Even though, as we have noted with Heidegger, through disturbance, we can usefully detach into the abnormal condition of Cartesian dualism via representational intentionality, this process can never hope to understand human understanding as it exists phenomenologically in being-in-the-world, because by definition, it has cut itself off from this understanding already. To remedy this situation, cognitive science, as such, must seriously entertain the suggestion that it can better
understand human being and, therefore, itself as situated cognition through being-in-the-world.

But because cognitive science has continued to fall for the fleeting view of the philosophy of mind, it has continuously embraced objectivism and, therefore, some form of the standard opposition between realism and idealism with its ultimate and inescapable nihilistic conclusion. As if in deep denial, cognitive science has seemed to hope against hope that somehow, somewhere, sometime, it will be able to finally find the once-and-for-all answer to its questions about the ultimate nature of the "real" world, apparently because the only other alternative it can fathom is what it considers to be the hopelessness of radical relativity. Again we turn to Varela, et al. to affirm this opposition:

The classic opposition between realism and idealism... is based in the traditional notion of representation as a “veil of ideas” that stands between us and the world. On the one hand, the realist naturally thinks that there is a distinction between our ideas or concepts and that which they represent, namely, the world. The ultimate court of appeal for judging the validity of our representations is this independent world... The idealist, on the other hand, quickly points out that we have no access to such an independent world except through our representations. We cannot stand outside of ourselves to behold the degree of fit that our representations might have with the world. In fact, we simply have no idea of what the outside world is except that it is the presumed object of our representations... Our sense of an outer ground thus slips away, and we are left grasping for our internal representations, as if these could provide a sure and stable reference point.

So we find ourselves forced to search for foundations, and because of our structural falling, we turn to the world in an outer search for certainty. This search necessitates realism. Realism insists that the world is “out there,” pre-given, and that we have somehow parachuted into it as independent conscious subjects ready to apprehend it with conscious mental states. These mental states represent the world in a pattern of correspondence between mental state and real world. Thus, we see the world objectively, based entirely on this correspondence. Unfortunately, we find that we can know nothing “for certain,” because our mind, by definition, is always already itself, and can never get away from itself because it is essentially uncanny. By this we mean that we must use our mind to try to grasp the nature of
our mind. What we are looking for is what we are looking with. We are, therefore, lead by the Cartesian Anxiety to the inescapable Either/Or, which forces us into a hard core foundationalism. This foundationalism leads us first to the outer search of realism in its quest for certain grounds. We become tranquilized by the subject/object dualism manifested by objectivism. We are tranquilized because we want to believe we can find certainty and security in an inherently insecure world, and subject/object dualism offers this seductive illusion which acts as a sedative. The operant “controlling” reality is the world “out there” which we mirror with our mind “in here.” We eventually, however, find nothing at all is certain, because the “veil” stands between the world and us, and we are left with the hopelessness and anxiety of nihilism, which is exactly what we were running from in the first place.

Nihilism is obviously unacceptable, so we find conventional philosophy (which has assigned itself the task of finding ultimate foundational grounds) forced to shift its focus to an inner search for ultimate foundational grounds through idealism. Idealism, as we have seen, informs realism that it has no direct access to the world and insists instead that the search for metaphysical certainty must be an internal search. The mind of the subject, where the representations are, must be the answer. In this approach the subject/object dichotomy is dominated by the subject side, and subjectivity replaces objectivity as the main explanatory process. We find nothing resembling ultimate foundational certainty, however, because we are trapped in our own head unable to gain access to anything directly. Once again, the “veil” stands in our way because the ideas in our head are always subject to the mental machinery which produces them, denying them direct access to the world. In *The Critique of Pure Reason*, Kant made a valiant attempt to bridge this gap between the ideas in the mind and the world through his famous “categories.” The categories were meant as a conduit
providing a direct connection between the mind and the world. Though an ingenious conceptualization, his “ideas” about the categories are themselves subject to the same limitations as any other ideas. The ideas simply cannot get free from the mind that creates them. Just as with objectivism, “we cannot stand outside of ourselves to behold what the outside world is except that it is the presumed object of our representations.” With idealism, all we have left are representations. These representations hardly provide anything remotely resembling concrete foundational clarification. In fact, we find essentially nothing except speculation, and we are forced to the inevitable nihilistic conclusion once again.

If we continue to accept the Cartesian Either/Or, then the only other alternative to the maddening oscillation back and forth between realism and idealism, with their accompanying subject/object dualisms, is the radical relativity of total foundationlessness. With radical relativity, we have no diversions at all like realism and idealism to temporarily comfort us, and we find ourselves quickly faced with nihilism. The real choice, then, we are forced to conclude, is not between the solid bedrock of certain foundations and the madness of nihilistic chaos where anything goes and where there are no facts of the matter. The choice is between nihilism by way of foundationalism through either realism or idealism or nihilism by way of foundationless radical relativity. Neither one of these options seems remotely familiar to the simple phenomenological reality of how we actually are in the world through being-in-the-world.

Diagram 1 describes this vicious cycle of circles and epitomizes what Heidegger would describe as getting into the circle in the wrong way. Fortunately, there is another alternative, and, even though we have already described in detail the basic features of its insights, we will soon explain exactly how it can dissolve this seemingly hopeless dilemma by offering a solution beyond the vicious Cartesian Anxiety circle. It seems odd that the
philosophy of mind would not rush to embrace the possibility of escape from this vicious condition, but as Varela, et al. explain, contemporary cognitive science cannot seem to free itself of the idea of an individual, conscious subject parachuting into an independent pregiven world.

On the contrary, a crucial feature of this image remains alive in contemporary cognitive science—the idea of a world or environment with extrinsic, pregiven features that are recovered through a process of representation. In some ways cognitivism is the strongest statement yet of the representational view of the mind inaugurated by Descartes... Indeed, Jerry Fodor, one of cognitivism's leading and most eloquent exponents, goes so far as to say that the only respect in which cognitivism is a major advance over eighteenth- and nineteenth-century representationalism is in its use of the computer as a mode of mind.93

**Diagram 1: Cartesian Anxiety Circle (Vicious).**
Being-In-The-World As Beyond

It should be obvious by now that, "We need to exorcise the Cartesian Anxiety and liberate ourselves from its seductive appeal." In order to escape the vicious Cartesian Anxiety circle, we need to look beyond objectivism and relativism and beyond realism and idealism in order to escape their inevitable, nihilistic conclusions. Incidentally, we should make it clear that we are not rejecting nihilism because we abhor the madness and chaos that it necessarily implies. We are rejecting it because when we investigate how it is that we exist in the world, we find a phenomenological, non-foundational ground of being-in-the-world which precludes this nihilistic inevitability. Bernstein cites many examples of contemporary philosophers whose work manifests his call to exorcism. His favorite example is Hans-Georg Gadamer, and he frequently acknowledges Gadamer's debt to Heidegger in the development of his thought. We will follow Bernstein's lead, but we will go directly to the source of the inspiration and concentrate on Heidegger's concept of being-in-the-world and his existential analytic of Da-sein as the marquee exemplar in transcending the vicious Cartesian Anxiety circle into the beyond away from nihilism.

Instead of the mutual exclusion and resultant futility commensurate with the vicious Cartesian Anxiety circle with its Either/Or dichotomy, Heidegger offers the openness of the clearing of self showing in a mutual inclusivity which we will designate as the non-foundational ground of being-in-the-world. In place of the vicious circle, we will offer the enriching circle of being-in-the-world as shown in Diagram 2. We need to "get into the circle in the right way," and this means we need to supplant the vicious circle with the enriching circle.
By first acknowledging the priority of the question of being, we see that all other considerations are subsequent to how we exist in the world. If we take this approach, then we cannot make the mistake of understanding human beings as if they were parachuted into a pregiven, fixed, independent world and somehow assigned the task of understanding themselves and the world as individual subjects utilizing mental representations to contemplate an independent objective reality. Da-sein exists as the site of human understanding; Da-sein is a how that precedes all whats. Da-sein is intimately interested in its being in relation to being, and, as such, Da-sein is essentially self interpreting being. This is how Da-sein exists, and this existence is the human way to be. Only self interpreting beings “exist” in the technical Heideggerian sense of being-in-the-world, and Da-sein exists by taking a stand on itself and by being defined by that stand.
Because of the how of the human way of existence, hermeneutic phenomenology is the most fundamental approach to understanding the way Da-sein understands. Hermeneutic phenomenology is a simple self-showing of the everyday, observant apprehension of the unconcealment of the undisclosed into the open clearing. Because Da-sein is interpretation through and through, our method of understanding Da-sein is characterized by interpretation. As we have said, for Heidegger there is no more basic method in understanding human understanding than philosophy as ontology by way of hermeneutic phenomenology. This enterprise preordains all others. It is true that we cannot escape the hermeneutic circle and somehow get clear of it in order to get clear about ourselves because we are always already constituted by being-with the they as inauthentic understanding. But this is not an impossible problem, because by understanding this in the first place, we can strive for a more authentic perspective on Da-sein and ourselves. We can, therefore, get on with our lives and avoid difficulty with impossible, metaphysical conundrums like the mind/body dualism, the subject/object dichotomy, the grand Either/Or, or the inescapable abyss of chaos, madness, and nihilism.

By being in the circle in the right way, we go beyond objectivism and relativism. We see ourselves always already dwelling in a world by existing amidst the world and its things, and we see ourselves always already bound up with the world and its things in a mutual co-specification of Da-sein and world. The world and its things are, thus, not merely constructions of Da-sein. That interpretation lends too much emphasis to the human subject aspect of Da-sein and not enough to the world object aspect. The world and its things co-conspire with Da-sein in a mutual co-specification in order to bring reality to light. In like fashion, Da-sein, together with its world, is always already together with the they. Thus, through an average, everyday, shared, unreflective, skillful, coping comportment, we are
bound up amidst a world and a they, and we find ourselves in a situation for ourselves. Our basic human way of being-in-the-world, then, is the circumspect absorption of taking care of things in an unreflective coping, directed by the common skills developed by Da-sein in mutual origination and specification through the world and the they. We see, therefore, a mutual multi-embodiment of inclusivity amongst Da-sein, world, and the they.

Thus, we are in the position to supplant the vicious circle characterized by the exclusivity of the grand Either/Or of objectivism vs. relativism and realism vs. idealism with the mutual inclusivity of the enriching circle of being-in-the-world characterized by Da-sein, world, and the they. In this way, we see being-in-the-world as a non-foundational ground. Being-in-the-world provides a reality for Da-sein, mutually specified by itself, the world, and the they in their inclusive unity. Being-in-the-world thus acts in many ways and for all practical purposes just like the bedrock we need in order to get on with our existence, but it is not a permanent, ahistorical pre-given reality into which we parachute. In answer to the objectivist's main objection that we reviewed above with Bernstein, we can ground philosophy, knowledge, and language and still avoid radical skepticism. We simply drop the arbitrary demand that the grounding be accomplished within the confines of an exclusive form of "rigor." The bedrock is not a bedrock at all per se, but is a "floating" foundation preordained by the finitude of Da-sein amidst a horizon of indefinite possibilities. This idea of being-in-the-world as a non-foundational ground likewise answers the main relativist objection that existence cannot maintain any determinate or univocal significance, for despite the fact that the bedrock is floating, it is still foundational in an important phenomenological sense. The determination and univocal significance come from the mutual specificity of Da-sein, worldliness, and the they. By accounting for the way we actually exist in the world as human beings with Da-sein understood as being-in-the-world, we acknowledge that certain

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elements of objectivism do come into play in the form of the mutual specificity. This, however, does not exclude us from acknowledging that certain elements of relativism also come into play in the form of the contingencies of being-in-the-world. In short, the beyond accepts aspects of both objectivism and relativism as phenomenological possibilities. Indeed, it admits these as actualities in the way in which Da-sein, world, and the they always already are amidst each other in mutual, multiple specification and origination.

Again, as we have made clear already, being-in-the-circle in this right way is not only not vicious, it is not even a problem. We can and do do all the things that we can and do in this mode of being-in-the-world always already anyway. It is most important, therefore, to remember that this way of understanding understanding does not in any way threaten our ability to undertake traditional science. It simply limits it to a particular mode of being-in-the-world as a de-worlding. Science is extremely important to our human way of being and has literally transformed our existence. To deny this would be to take leave of our senses. But we do not do science as our primary mode of existence as detached, individual, conscious subjects in contemplation of an independent pre-given reality. We are always already in a world with the they, taking a stand on ourselves and being defined by that stand, prior to our detachment into the subject/object mode in the de-worlding necessary to engage in scientific activity. So while we do engage in the highly successful enterprise of this sort of detached, abnormal intelligibility by way of representational intentionality in many appropriate de-worlding scenarios, we cannot hope to understand understanding itself in its entirety with this technique, because we can only accomplish authentic understanding from within the hermeneutic circle. Cognitive science, then, is always already a misnomer of sorts. The much more accurate and useful terminology for the philosophy of mind is “situated cognition,” because, in order to have any hope of “getting it right,” the philosophy
of mind must dwell in the multiple origination and specification of Da-sein, world, and the
they.

One thing is certain. Neither a hard line objectivist, nor a hard line relativist will be
able to accept this non-foundational ground of inclusivity in the opening of the unconcealed.
The dyed-in-the-wool objectivist, whether he be tranquilized by radical realism or idealism,
will trumpet the canonical edict that any deviation from his form of rigor, no matter how
reasonable, automatically results in an unthinkable, radical relativity. He will admonish our
being-in-the-world pejoratively as a sort of pseudo-intellectualization or “folk psychology,”
with the particularly vitriolic fervor reminiscent of evangelism. Similarly, the dyed-in-the-
wool radical relativist will sarcastically counter with calculated irony that any attempt to
structure existence with any ground whatsoever is tantamount to full blown, speculative,
metaphysical foundationalism. To these attacks we can only respond as we already have, that
such uncompromising fundamentalism is endlessly vicious, begetting only dogmatism or
anarchy in apparent stubborn refusal to acknowledge the way we actually do exist
phenomenologically as human beings being-in-the-world.

We have now seen that we can get into the circle in the right way and provide
ourselves the best opportunity to understand understanding in the human way of being. We
now turn directly to the contemporary enterprise of the philosophy of mind, which has,
heretofore, largely understood itself as Cartesian cognitive science. Our hope is to present
the possibility of an open circle of enrichment for cognitive science as situated cognition
through the understanding of being-in-the-world, thereby liberating it from the ineptitude of
the vicious Cartesian Anxiety circle.
Cognitive Science As Situated Cognition Through Enaction

In the *Embodied Mind*, Varela, Thompson, and Rosch present a general method for getting into the circle in the right way in their study of human understanding which they label "enaction." Their goal is to show that cognitive science can and should reject the Cartesian Anxiety circle and, therefore, escape the hopeless malaise demonstrated in diagram 1 above. To do this, they propose that cognitive science abandon the idea that human beings somehow parachute into a pre-given, independent world as individual, conscious subjects whose main objective is to reconcile this world with mental representations as pictures of reality. Instead, as they say, "We propose the term *enactive* for this new approach. In the enactive program, we explicitly call into question the assumption—prevalent throughout cognitive science—that cognition consists of the representation of a world that is independent of our perceptual and cognitive capacities by a cognitive system that exists independent of the world. We outline instead a view of cognition as *embodied action*." By "embodied action," they mean the idea that a human being is the site of everyday, lived experience, as well as the locus of cognitive processes. These cognitive processes are embedded in the action of the everyday, lived experience of human beings as they encounter the world in which they find themselves. The lived experience is, thus, embodied in a larger context of our shared, mutual, everyday, coping skills which are constantly impressing themselves upon the situation, just as we, in the form of embodied human beings, are constantly pressing ourselves upon the larger context. We are, therefore, always already experiencing ourselves among each other as a they, amidst a world in its worldliness.
What Varela, et al. want to do, then, is advance the idea that cognitive science, viewed as situated cognition through enaction, can actually incorporate this idea of the lived experience of human everyday action into a scientific approach in order to begin to realize the best possibility available for us to understand human understanding. In other words, they want to abandon Cartesian dualism and the Cartesian Anxiety circle while not abandoning the Western scientific approach as a useful instrument in this liberation. In this way, cognitive science can be situated amidst the everyday, existential, lived reality of Da-sein as being-in-the-world. Up to now, cognitive science has been largely mired in the foundationalism of the Cartesian Either/Or and has, therefore, given itself only two choices. Either we are able to get absolutely clear about a certain ground for us "in here" on the way to a "once and for all" right answer about what the reality of the human mind is in relation to the real world "out there," or we are forever doomed to the hopeless chaos of radical relativity. Varela, et al., offer enaction as a how program, beyond objectivism and relativism, which can free cognitive science from the vicious circle of realism and/or idealism without resort to the aforementioned madness of radical relativity. In other words, as we reviewed thoroughly in the last section, we can escape the abyss demonstrated in diagram 1. by taking refuge in the enrichment depicted in diagram 2.

Through enaction, Varela, et al., want to join science with everyday lived experience, and they are painfully aware that, for the most part, Western philosophy of mind as cognitive science has completely ignored this possibility and even regarded it as sacrilegious. Conversely, they are also aware that recent human traditions such as some of the more radical forms of psychology, sociology, literary criticism, and existentialism, have perhaps swung too far in opposition to the world centered perspective of Western science. "If we examine the current situation today, with the exception of a few largely academic discussions,
cognitive science has had virtually nothing to say about what it means to be human in everyday, lived situations. On the other hand, those human traditions that have focused on the analysis, understanding, and possibilities for transformation of ordinary life need to be presented in a context that makes them available to science. In the following section, we will offer the concrete, paradigmatic example of color vision as a prototypical instance of how this can and is being done. The message from Varela, et al. is that cognitive science, as situated cognition through enaction, can offer philosophers and scientists alike the rich possibility of a deep and satisfying understanding of human understanding uncontaminated by the arbitrary confines of either the dizzying nausea of Cartesian dualism or radical relativism, both of which are encircled in the anxiety of the inwardly spiraling abyss of nothingness.

They are clear, however, as we have tried to show with Heidegger, that their goal is practical and not metaphysical. We all wish to open a space of possibility for the discoveredness of the unconcealed to present itself, not as a final answer, but as a method on the way to a continuing process of revelation and enlightenment concerning our understanding of ourselves and our relationship with our world. Along with Heidegger, we regard this endeavor to understand human understanding which offers insight into the possible human ways to be the highest enterprise for philosophy and, as such, it should necessarily acquire a practical flavor. By practical here, we do not mean that we want to appropriate American pragmatism which Heidegger says always misses the true nature of being. What we mean to emphasize is everyday lived experience as opposed to metaphysical foundationalism. As Varela, et al., say, "Let us emphasize that the overriding aim of our book is pragmatic. We do not intend to build some grand, unified theory, either scientific or philosophical, of the mind body relation. . . Our concern is to open a space of possibilities in
which the circulation between cognitive science and human experience can be fully appreciated and to foster the transformative possibilities of human experience in a scientific culture. So what Varela, et al. propose is a how. How we should go about the business of cognitive science is through the enaction of envisioning a world of active, embodied, and situated participants who are together with their world and together with themselves in mutual specification, designation, and origination.

But now we must ask, what has prompted this idea of enaction? It seems obvious that if current cognitive scientific practices instantiated by one of the various forms of realism or idealism were experiencing success in explaining human understanding, then all this talk about embodied action as enaction would be unnecessary. There has been no general success, however. Instead, cognitive science has apparently struggled in vain to somehow “prove” that the Cartesian Anxiety circle can finally be overcome. As Varela, et al. tell us, the philosophy of mind as cognitive science in contemporary times has worshipped the digital computer as the messiah of its Cartesian model of mind.

We begin... with the center or core of cognitive science, known generally as cognitivism. The central tool and guiding metaphor of cognitivism is the digital computer... Simplifying for the moment, we can say that cognitivism consists in the hypothesis that cognition—human cognition included—is the manipulation of symbols after the fashion of digital computers. In other words, cognition is mental representations: the mind is thought to operate by manipulating symbols that represent features of the world or represent the world as being a certain way.

Artificial Intelligence, so called, through the working of the digital computer, has been variously revered as the solution to a final understanding of the human mind understanding its pre-given world. The problem is that in trying to model and understand the everyday world where human beings actually find themselves being-in-the-world, the artificial intelligence of the digital computer has been stunningly ineffective. This is not to say that the artificial intelligence models have not produced extremely impressive and useful results in certain de-worlded scenarios. They have. But because they have not pursued the
idea of Da-sein being-in-the-world per se, they have been incapable of simulating human intelligence per se. We are not saying that it is impossible to make a machine that simulates Da-sein, although it currently seems beyond the reach of imaginable technology. We are saying that to have any hope of such a simulation and, therefore, hope of understanding the possible human ways to be, we must approach the simulation from the perspective of dynamic, situated being-in-the-world, and not from the perspective of traditional representational recovery.

The problem with cognitive science as current cognitivism through artificial intelligence is that we apparently cannot program a computer to be in a human situation. Even if we construct a computer that can theoretically contain every bit of information currently known to mankind, we cannot program it to “know” which pattern of background worldliness to make relevant in any given situation. What is relevant always depends on an ever receding background of shared relevant importance that itself depends on a further background of shared relevant importance and on and on ad infinitum. In order to make one particular relevance or set of relevant relations important in any given situation, human beings apply their judgement based on their background experience. This is why it is so difficult to hard-wire relevance considerations for a computer. The human judgement necessary is apparently not programmable. Being-in-the-world as an existing human being means being in a situation that always depends on a background of ever receding situations and making judgements about them, and computers apparently cannot be programmed for this endless ever recededness and judgmental process. It is sometimes intuitively assumed that technology will certainly someday overcome this problem because it will develop a computer that can know everything for all possible situations. Here we see the continuing denial of the truth of human finitude demonstrated by Heidegger in asserting the priority of
the question of being, showing us that we are always already existing in a situation. Our
existing situation is always already our point of departure which necessarily colors the world
we make for ourselves along with the world and the they. The assumption of infinitude, i.e.
the belief that a computer can know all situations, is symptomatic of Heideggerian falling and
fleeing. Paradoxically then, the greater the capability of the computer to “know” everything,
the more impossible it is for it to know anything about being-in-the-world, since it cannot,
therefore, ascertain which human situational details among the many it knows are actually
relevant to it in this situation.

We will venture a long passage from Dreyfus here in order to give us a real life
insight into this dilemma, which will show us why one would be AI guru has since
abandoned the Cartesian epistemological faith and turned to Heidegger’s being-in-the-world.

But how could the programmer define the current situation for a detached theoretical subject
like a cognitivist mind of a digital computer? Since a computer is not in a situation, the AI researcher
would have to try to represent being-in-a-situation by some artificial restriction on what pointers to
other facts should be followed out. Terry Winograd once attempted to work out just such an approach
for story understanding . . . Dasein is always already in a situation and is constantly moving into a new
one with its past experience going before it organizing what will next show up as relevant. The
computer, by contrast, keeps having to come into some surrogate of the current situations de novo.
Search limitation is no substitute for being already in an unfolding series of situations. . . . Winograd
now recognizes “the difficulty of formalizing the commonsense background that determines which
scripts, goals, and strategies are relevant and how they interact.” He has subsequently abandoned the
search limitation approach and having “lost faith” in AI now teaches Heidegger in his Stanford
Computer Sciences courses. 99

But let us be clear here about what we are saying and what we are not saying. We are
not saying that AI is worthless and totally misguided and can provide no useful means in
accumulating information that is important for human beings. Quite the contrary, AI can and
does offer a host of very useful but limited and de-worlded perspectives and possibilities for
advance in the science and philosophy of mind. But this de-worlded perspective can never
simulate Da-sein being-in-the-world in any fundamental way. This cannot be so because the
de-worlded, scientific perspective presupposes the being-in-the-world perspective. If the de-
worlded perspective could fundamentally simulate Da-sein being-in-the-world, then it would presumably be Da-sein being-in-the-world. What we are saying is that we should use AI and other forms of scientific research to enhance our understanding of the embodied Da-sein in its being-in-the-world. We can use the proceeds of representational intentionality to enrich our understanding of Da-sein as being-in-the-world through absorbed intentionality. As we have already mentioned, we will offer an exemplar of this program of enaction through color as a case study later in this section. And as Varela, et al. say:

It is only by having a sense of common ground between cognitive science and human experience that our understanding of cognition can be more complete and reach a satisfying level. Thus we propose a constructive task: to enlarge the horizon of cognitive science to include the broader panorama of human, lived experience in a disciplined, transformative analysis. As a constructive task, the search for this expansion becomes motivated by scientific research itself, as we will see.

Thus Varela, et al. propose to join body and mind together in very much the same fashion as Heidegger describes in his existential analytic of Da-sein through the interaction of the human being with its world via worldliness and the they. "We propose as a name the term enactive to emphasize the growing conviction that cognition is not the representation of a pregiven world by a pregiven mind, but is rather the enactment of a world and a mind on the basis of a history of the variety of actions that a being in the world performs. The enactive approach takes seriously, then, the philosophical critique of the idea that the mind is a mirror of nature but goes further by addressing this issue from within the heartland of science." In this way, as we have said, science is used for what it can offer to the how of being-in-the-world as enaction. The key is to remember that science is not a metaphysical panacea. Rather, it is a form of equipment in much the same way language can be seen as equipment used in order to understand the larger question of the equiprimordial priority of being seen through existence as Da-sein manifested by the world and the they. In particular, the way to remember this as it relates to cognitive science and the philosophy of mind is to be mindful of structural falling and/or psychological fleeing. We can do this by authentically
understanding that "The key point is that such systems do not operate by representation. Instead of representing an independent world, they enact a world as a domain of distinctions that is inseparable from the structure embodied by the cognitive system."102 We are not, therefore, paratroopers into a world that is distinctly separate from us. We are, rather, always already conjoined with the world, which becomes what it is for us at the same time we are becoming what we are. When we understand understanding as the enactment of being-in-the-world, we have the opportunity to avoid falling and fleeing and thus the prospect of the enrichment of the circle of being as opposed to the nauseating vertigo of the Cartesian Anxiety circle.

Everyday, unreflective coping through absorbed intentionality, as we have already indicated, must replace traditional Cartesian representational intentionality as the way of indicating understanding understanding for human being-in-the-world. In general, we can use representational intentionality in special cases of disturbance where mind disembodies itself from being-in-the-world, but this disembodied representationalism is limited. For example, as we will discuss more fully shortly, when we de-world the experience of color perception in the laboratory by investigating it according to light wave/surface reflectance comparisons, we isolate it from our world of background settings. In doing so, we tend to forget that this de-worlding through representational intentionality is vastly different from the real world default case of the everyday perception of color which always occurs in a setting that has very important consequences for the perception. De-worlded laboratory representationalism cannot mirror the absorbed coping intentionality of being-in-the-world. "Indeed, if we wish to recover common sense, then we must invert the representationist attitude by treating context-dependent know-how not as a residual artifact that can be
progressively eliminated by the discovery of more sophisticated rules but as, in fact, the very essence of creative cognition."\(^{103}\)

Although Varela, et al. do attribute a growing awareness in the field of the inseparability of mind and world to Heidegger and the Continental philosophic movement of hermeneutic phenomenology, they provide no detailed account of Heidegger's existential analytic of Da-sein being-in-the-world through worldliness and the they.

This attitude toward common sense has begun to affect the field of cognitive science, especially in artificial intelligence. We should note, however, that the philosophical source for this attitude is to be found largely in recent Continental philosophy, especially in the school of philosophical hermeneutics, which is based in the early work of Martin Heidegger and his student Hans Gadamer. The term hermeneutics originally referred to the discipline of interpreting ancient texts, but it has been extended to denote the entire phenomenon of interpretation, understood as the enactment of bringing forth of meaning from a background of understanding... to produce detailed discussions that show how knowledge depends on being in a world that is inseparable from our bodies, our language, and our social history—in short, from our embodiment.\(^{104}\)

"Producing detailed discussions" is, of course, exactly what we have endeavored to do here. Already we have seen that Heidegger's program foretells and enriches every aspect of envisioning cognitive science as enaction through embodiment. Instead of emphasizing Heidegger, Varela, et al. choose instead to make an impressive appeal to the Eastern tradition of Zen Buddhism as the major impetus for their call to enaction for cognitive science. Essentially, they accomplish this by detailing the mindful awareness aspects of this Eastern philosophy which have been largely ignored by the West until recently. This Eastern tradition also gives strong support to getting beyond objectivism and relativism into the open clearing of unconcealedness. "What we are suggesting is a change in the nature of reflection from an abstract, disembodied activity to an embodied (mindful), open-ended reflection. By embodied, we mean reflection in which body and mind have been brought together... open to possibilities other than those contained in one's current representations of the life space. We call this form of reflection mindful, open-ended reflection."\(^{105}\) It is certainly not our mission to subvert this legitimization in any way. It is, rather, to point out that Heidegger, in...
his own right, also offers a tremendous opportunity for the philosophy of mind to appropriate a method for getting into the circle in the right way as demonstrated in diagram 2.

To summarize then, we begin with the concept of a non-foundational ground. This indefinite ground takes its point of departure from the priority of the question of being, which states that how we exist is prior to anything else we can conceptualize, including all our manifestations of what we are and what the world is. As we have tried to make clear, all these what of intelligibility are subject to the how of intelligibility. We can easily see the compatibility here with Varela, et al. who say, “Groundlessness, then, is not to be found in some far off, philosophically abstruse analysis but in everyday experience. Indeed, groundlessness is revealed in cognition as ‘common sense,’ that is, in knowing how to negotiate our way through a world that is not fixed and pregiven but that is continually shaped by the types of actions in which we engage.”106 Da-sein, then, which is our way of being as this comportment of actions in which we engage, is the site of understanding. This site of understanding is self interpreting in that it exists as a being that is concerned about its being and exists as this concern. In this way, Da-sein is the how that takes a stand on itself through its being-in-the-world, and it is defined by this stand that it takes. The stand, however, is not determined by Da-sein as human being alone but is mutually specified and originated by Da-sein amidst the world in which it finds itself and among the they with whom it is situated in the world. Enaction appropriates all these aspects of Da-sein through a hermeneutic, phenomenological method that stresses the open clearing of the simple self showing of unconcealment. As enaction says, we must pursue cognitive science through a conjoining of science and everyday human action, and a conjoining of mind and world to achieve an understanding worthy of how it means to be a human being being-in-the-world.

“If we are forced to admit that cognition cannot be properly understood without common
sense, and that common sense is none other than our bodily and social history, then the inevitable conclusion is that knower and known, mind and world, stand in relation to each other through mutual specification and coorigination.  

We have now investigated the general notion of cognitive science as the shared, absorbed, coping skills of everyday, lived experience through the idea of enaction as embodied action. Our discussion, however, has remained largely general. Now we must explore an actual, concrete example of cognitive science as enaction in order to see exactly how this idea can work in practice. By doing so, we can observe that the efficacy evident in this method can inspire us in realizing how it can occasion a call for further exploration in all other areas of cognitive science and philosophy of mind as well.

Color As A Case Study In Enaction: The Ecological View

In following Varela et al., let us now turn to color vision as a pertinent example of how cognitive science can be viewed as situated cognition through enaction manifesting Heidegger’s being-in-the-world. Let us be very clear here, however, that in investigating color as a case study we do not mean to suggest that this enterprise can somehow directly instantiate Heidegger’s fundamental hermeneutic ontology. Heidegger would clearly regard this sort of science as a parochial and necessarily de-worlded investigation. In this sense, as we have said before, it can be very useful but remains limited. We will try to be very careful about being too bold in yoking together what Heidegger would designate as mere ontic science from the much more fundamentally important priority of the ontology of being-in-the-world. Our point here is to show that armed with Heidegger’s pre-eminent existential analysis of Da-sein being-in-the-world, we can afford ourselves the possibility of engaging in
cognitive science as enaction much more authentically by grounding it in being-in-the-world and, therefore, provide ourselves the promise of a much more useful and meaningful endeavor. We also want to be clear that we are making only a very broad inroad into this sometimes controversial arena of color vision investigation. A detailed account of this highly technical field would take us too far afield for our present purposes. But in following Varela et al., we can see how color as a case study can support a call to situated cognition which stresses the non-foundational philosophic ground legitimated by Heidegger's concept of being-in-the-world.

First, let us consider, for example, what we would expect when considering color perception from the objectivist point of view, which, as we have seen, is still prevalent in much of cognitive science today. The typical objectivist would claim that when we view a scene which emanates certain colors, we are seeing the light reflected from objects in that scene, and this reflection faithfully transmits a quality in the object which projects the color. We then apprehend this color quality feature of the object by representing it in our minds, thus affording us a true picture of the object's color reality. We would expect, then, that under normal circumstances the light reflected from green foliage, for example, is not subject to either background influences in the world or to the interaction of the foliage and the background with the internal mechanisms of the viewer. In other words, green is green because it corresponds to a real quality of an external objective reality, no matter what the situation is with respect to the background setting or the viewer. Almost shockingly, however, this is not the case. When we actually go out and simply observe the everyday process of color perception, we find that our appropriation of color from the world we find ourselves amidst is stunningly consistent with the enactive approach which we have shown...
can be based on the non-foundational grounding of the fundamental ontology of being-in-the-world.

For instance, we see that the color of our foliage very much depends on its background environment as well as the interaction of the viewer’s perceptual mechanisms with that environment. As Varela, et al. tell us, the color green typically reflects more middle wave light than short and long wave light. What the phenomena reveal, though, is that this is only true in the limited case of viewing the foliage in isolation disembodied from an actual, everyday situation. When we view the foliage as part of a normal scene situated in the world, it will continue to look green, even if the illumination is greatly adjusted, resulting in spectral reflections consisting of more long wave or short wave light versus the middle wave light normally characteristic of the color green in isolation. In other words, there is no “one-to-one” correspondence between the qualities of light emanating from objects in the world and the colors we perceive the objects to possess. The objective qualities of the world per se are not determinable in human color vision.108

We see here, then, by virtue of our earlier discussions, that the cognitive process of color perception is much more accurately described by the idea of absorbed intentionality by way of being-in-the-world rather than by representational intentionality by way of objectivism. We do not parachute into the world as totally independent, contemplating subjects whose mission it is to apprehend a pre-given world “out there” through mental representations of reality “in here.” We may do this “abnormally” as in the case of viewing greenness in isolation. This process of isolation associated with representational intentionality, as we have reviewed with Heidegger, can be caused by a disturbance to everydayness. In this case, we are referring to the everydayness of foliage in its normal intimacy with a contextual, situated environment. The isolated perspective can be useful and
often is, but it is necessarily very limited, because it manifests a form of extreme de-worlded existence. Again, we realize that the entire practice of color vision investigation is a form of de-worlding, but if our premise for the activity is enaction via the non-foundationalism of being-in-the-world, we can aspire to more authentic and useful inquiry. In everyday being-in-the-world, the greenness of foliage that we experience through color vision is in a situation along with us. We are absorbed in the unreflective, shared, coping skills of common comportment amidst the world, and greenness is one contingent aspect of the totality of the interrelation. Let us quote Varela, et al. at length here to insure the realization of the import of this observation.

If we actually measure the light reflected from the world around us, we will discover that there simply is no one-to-one relationship between light flux at various wavelengths and the colors we perceive areas to have. Suppose, for example, that we perceive some area to be green. Areas that look green typically reflect a high percentage of middle-wave light and a low percentage of long-wave and short-wave light. We might suppose, then, that the area looks green because it reflects more middle-wave light to the eye. This supposition would be true, however, only in the limited case where the area is viewed in isolation, that is, if we exclude everything else from the field of view. But when this area is viewed as part of a complex scene, it will continue to look green even if it reflects more long wave and short wave light than middle wave light. In other words, when the area is viewed as part of a complex scene, the light that it locally reflects is not sufficient to predict its perceived color.\(^{109}\)

This phenomenon, where the color of things remains relatively constant despite large changes in illumination, is known as \textit{approximate color constancy}.\(^{110}\) Varela, et al.'s point here is that color is not "out there," nor is it "in here." Color is the result of Da-sein as self interpretation through and through being amidst its world and making a reality based on its everyday involvement in that world. Da-sein being-in-the-world implies a reality. The reality in this case is the green foliage. Nothing is "pre-given" per se except the how.

A complimentary phenomenon illuminates enaction as being-in-the-world in envisioning color as a case study. "Two areas that reflect light of the same spectral composition can be seen to have different colors depending on the surroundings in which they are placed. This phenomenon is known as \textit{simultaneous color contrast} or \textit{chromatic}
In this instance, our green foliage might appear more brown, for example, if placed in an altogether different setting, even though the illumination and the spectral light rays being emanated are identical. In other words, the setting and the interaction of the viewer with the setting are the difference that makes the difference. The color of the object is, in this sense, relative to the setting and the viewer. Note, however, that the color is not radically relative to the setting and the viewer. The color emanated is not capricious. It is determined by Da-sein being amidst its world. Thus, we must conclude with Varela, et al. that:

These two phenomena force us to conclude that we cannot account for our experience of color as an attribute of things in the world by appealing simply to the intensity and wavelength composition of the light reflected from an area. Instead, we need to consider the complex and only partially understood processes of cooperative comparison among multiple neuronal ensembles in the brain, which assign colors to objects according to the emergent, global states they reach given a retinal image.

What they mean here is that the complex processes in the viewer combine with the complex processes in the world to form the color of an object. Their point is that this conjoining is a dynamic, ongoing process in which the phenomenon of color vision has emerged over time and indeed emerges every time, though not capriciously. Furthermore, color vision is dynamic in that it is best understood as being “achieved” by the viewer as he makes his way amidst his world. We must stress heavily here that this achievement is together with the world in mutual specification and origination. It is not determined in accordance with a predetermined metaphysical fixity by one or the other. In this sense, the two, as we have discovered with Heidegger, are “one.” Varela, et al. go on to detail the extremely multifaceted structural ensembles in the viewer corresponding to the emergence of color perception. All these seemingly “inner” modalities are seen to be structurally coupled with the “outer” environmental aspects. Through the coupling relationship, we can see enaction through being-in-the-world. In perceiving the color of a thing in the world, all of
the particulars of an object in the world can be interpreted as dependent on a being situated in
the world, and all of the particulars for a being in the world can be interpreted as dependent
on the object situated in the world. This interaction "achieves" the reality for Da-sein.

... what counts as a surface may in fact involve tacit reference to a type of perceiver... we will see
that the natural reflectances correspond not only to the reflectance of typical objects from our human
environment, as opposed to the environments of considerably different visual creatures, but also that
these objects have been picked out or specified prior to the actual task of vision... The visual system
is never simply presented with pregiven objects. On the contrary, the determination of what and
where an object is, as well as its surface boundaries, texture, and relative orientation (and hence the
overall context of color as a perceived attribute), is a complex process that the visual system must
continually achieve.113

The action of the viewer is as crucial to the process of color vision as the aspect
contributions from the environment. In this sense, the actions of the viewer "make" the color
vision along with the phenomenon of world. Again, though we want to be cautious about
inappropriately yoking the transcendental ontological priority of Da-sein being-in-the-world,
with the subordinate ontic enterprise of envisioning color as a merely regional, de-worlded,
scientific endeavor, we can still see that in investigating color vision as enaction, something
like a notion of Da-sein and the world coupling in mutual codetermination to make a reality
announces itself. Moreover, as we see with Varela, et al. when we investigate all the
different modalities of vision, we see that many concurrent subnetworks of human being
seem to be at play which evidence the influence of the world upon the process.

In recent years, physiology has moved toward the study of vision as a patchwork of visual
modalities, including at least form (shape, size, rigidity), surface properties (color, texture, specular
reflectance, transparency), three-dimensional spatial relationships (relative positions, three-
dimensional orientation in space, distance), and three-dimensional movement (trajectory, rotation). It
has become evident that these different visual modalities are emergent properties of concurrent
subnetworks, which have a degree of independence and even anatomical separability but cross-
correlate and work together so that at almost every moment a visual percept is coherent.114

The point we are making here is that what counts as form, surface properties, three
dimensional spatial relationships, and three dimensional movements depend as much on the
viewer as the viewed, commensurate with the idea of enaction as being-in-the-world in an
existing situation. In fact, all of these relationships are apparently contingent by-products of this enactment. In other words, as we shall see momentarily with our discussion of comparative color vision, all these interrelationships which we count as aspects of reality are probably subject to very different dimensional perspectives and, therefore, very different perspectival interpretations. How a being behaves according to its actions through its basic unreflective, shared, coping skills “creates”, along with the world, these aspects of form, surface properties, three dimensional spatial relationships, and three dimensional movements. A surface, then, is apparently not always a surface but depends on how a being is in the world. This is why color vision can sometimes exhibit approximate color constancy by envisioning the same color even when the spectral light being emanated is different and sometimes exhibit simultaneous color contrast by envisioning different colors emanating from the same spectral illumination when situated in a different background setting. But as we have tried to make very clear, how a being is in the world and, therefore, what counts as a surface for him, is not subject to the fancy of the being and thus can appear to the being as an absolute foundational reality. “Thus, to reiterate one of our central points, the neuronal network does not function as a one-way street from perception to action. Perception and action, sensorium and motorium, are linked together as successively emergent and mutually selecting patterns.”

This point about achievement of a visual world through the combined mutual specification and origination of world and viewer conjoined can be punctuated by the study of the visual systems of other creatures. With this investigation into comparative visual processes, we find that other creatures have developed quite different visual worlds as a result of the structural coupling of their cognitive visual capacities with the world that they have encountered. It is revealed that other creatures actually “see” in different dimensions
than we do. As Varela, et al. report, and as Evan Thompson separately develops in great
detail in his later work, *Color Vision: A Study in Cognitive Science and the Philosophy of
Perception*, various groups of animals have enacted far different visual worlds because their
experience of interaction with the world in which they find themselves has proceeded
contingently along different paths. Here we must make it clear that this enactment of a
visual world has nothing to do with individual choice or the life experiences of any
individual. Individual experience plays no role in determining one’s visual world. But over
time, different groups have enacted different visual worlds. “Our color vision is
*trichromatic*: our visual system comprises three types of photoreceptors cross connected to
three color channels… More interestingly, however, is that some animals are *dichromats*,
others are *tetrachromats* and some may even be *pentachromats*… Whereas two dimensions
are needed to represent dichromatic vision, four are needed for tetrachromatic vision, and
five for pentachromatic vision.” This phenomenal evidence shows us that the color vision
aspect of cognition which human beings, in comparison to those beings which are intimately
related to us in our biological heritage, depends upon the emergent capacities enacted through
the structural coupling of a being’s being with its environment. “It should be apparent, then,
that the vastly different histories of structural coupling for birds, fishes, insects, and primates
have enacted or brought forth different perceived worlds of color… Our perceived world of
color is, rather, a result of one possible and viable phylogenic pathway among many others
realized in the evolutionary history of living beings.”

So far, we have been able to see that through an interpretation that recognizes
situation in a specific case like color vision, we can inspire ontic de-worlded cognitive
science into a greater authenticity by way of the non-foundational ground of being-in-the-
world. Let us further investigate additional striking phenomenological evidence that further
demonstrates this relation. We can find justification for enaction in both species specific and culturally specific instances. In other words, even though we have just seen that color perception can be very different for other creatures than it is for us, for us it does function as a universal. As such, this universality of color vision acts in accordance with our previously established principle of a non-foundational grounding. As it turns out, color categories for all human beings in general are not merely arbitrary specifications as might be expected, but are universal across the species in general. In particular there are designations that vary according to individual cultures and histories, but in a very revealing study Brent Berlin and Paul Kay show that color categorization exhibits a “pan-human universal” quality consistent with what we would expect with the enactive approach. Again, both Varela, et al. and Evan Thompson in his later work detail this study.

We might suppose that color categories are ultimately arbitrary, that is, that nothing compels us to categorize colors in one way rather than another. Indeed, this view was at one time dominant within the fields of linguistics and anthropology. . . This view was dramatically challenged in 1969 with the publication of a now classic work by Brent Berlin and Paul Kay. In the work, Berlin and Kay specified a set of linguistic criteria for determining which color names in a given language constitute “basic” color terms. These basic color terms name the basic color categories in a given language. Then, in an examination of over ninety languages, Berlin and Kay determined that there are at most eleven basic color categories encoded in any language. . . Since these central members are universally agreed upon, Berlin and Kay concluded that “the eleven basic color categories are pan-human perceptual universals.”

We can envision this cultural and species specific interrelation in color vision as what we will call inter-viewer structural coupling. Da-sein, as a human being-in-the-world, is structurally coupled with its fellows in its cognitive apperceptive capabilities. So, “we see” colors the way “they see” colors. This is not the only way to see colors, it just happens to be the way Da-sein has come to see them through its structural coupling with the world under the ubiquitous influence of its structural coupling through being-in-the-world. Obviously, Da-sein cannot choose to see any color it wishes. It must see the colors it does. But this seeing is not the apperception of an absolute quality of the world, rather, it is a contingent
development of being-in-the-world. Thus, we have now seen that color as a case study in
enaction appropriates an interpretation of human existence as being-in-the-world even though
it remains an ontic enterprise. Da-sein, which is the site of understanding for a being taking a
stand on its existence and being defined by that stand, is always already together with a
world. As such, they mutually designate, specify, and originate each other through the
conjoining of each to the other.

Color categorization in its entirety depends upon a tangled hierarchy of perceptual and cognitive
processes, some species specific and others culture specific. They also serve to illustrate the point that
color categories are not to be found in some pregiven world that is independent of our perceptual and
cognitive capacities. The categories . . . are experiential, consensual, and embodied: they depend upon
our biological and cultural history of structural coupling . . . We can now appreciate, then, how color
provides a paradigm of a cognitive domain that is neither pregiven nor represented but rather
experiential and enacted.1 2 0

In his investigation of comparative color vision for humans and other animals, Evan
Thompson further develops the idea of enaction in presenting his discussion regarding what
he calls the ecological view. Here again, we can easily see how this view follows an enactive
approach supported by being-in-the-world with its mutual implication and origination.
Thompson recognizes that an animal, whether it be a human being or any other animal,
always already dwells in its world, and that the only phenomenally accurate way to consider
a creature in its world, is to view it as a being being-in-its-world. As such, the sensory motor
capacities of the being are shaped by the world and visa versa. The being and its world must
be considered together as comprising what he calls an animal-environment ecosystem.

"Because of this mutual dependence between and animal and its environment, the two can be
described as jointly composing a larger system—an animal—environment ecosystem. . . The
environment, taken as a component in an animal-environment ecosystem, does not coincide
with the physical world as it might be understood independent of animal life. Instead, the
environment is the world so described that it implicates the sensorimotor capacities and
evolutionary history of animal life."121
Thompson takes his cue from an earlier work by J.J. Gibson, *The Ecological Approach to Visual perception*, in which Gibson argues against the traditional representational dualism characteristic of the Cartesian Anxiety circle that we have thoroughly detailed. Thompson enlarges the perspective considerably with his discussion of comparative color vision and offers specific details about the shortcomings of the traditional cognitive, scientific approach characteristic of cognitivism. Thompson tells us that any explication that wants to capture the phenomenal truth about color vision in particular, and implicitly, therefore, cognitive processes in general, must not only conjoin the animal with its world in a mutual cospecification and coorigination, but must also conjoin, in similar fashion, the structural systems in the animal such as its perception and motor capabilities. "By thus shifting the emphasis from an animal-independent world to the visuomotor behaviour of the animal in its environment the action-based paradigm brings both computational vision and neuroscience in alignment with what Levins and Lewontin (1985) call the 'codetermination' of animal and environment—the idea that during evolution animal and environment 'construct' each other."

In other words, the comportment of the animal must be mutually viewed in its totality and together with its world. Not only can the animal not be separated from its world, but the systems comprising its perception and action cannot be separated from each other. This idea of what we will call *intra-viewer* structural coupling (emergent intertwined internal animal networks) can be combined with the idea of *viewer-world* structural coupling (animal-world interdependence) and *inter-viewer* structural coupling (pan species universals) in order to recover common sense in understanding color vision, which can be seen as a microcosm of understanding understanding itself. Thompson continually refers to "the animal," because he is presenting his discussion in the context of comparative color vision, but, for our
purposes, everything he says here pertaining to color vision and, therefore, to cognitive
processes in general is easily applied to our overall analysis of enaction. Thus, what
Thompson reiterates here in a new way for us is that the world cannot be separated from the
animal because both are really part of the same dynamic existence, and the inner workings of
individuals cannot be separated from each other or their environment because this perverts
the ecological understanding. In rejecting standard Cartesian Anxiety, he tells us:

The problem with this contemporary form of representationism is that it does not do justice to
the ecological relation between the perceiving animal and the world. First, the animal and its
environment are treated as fundamentally separate systems. Second, perceptual and motor
capacities are treated as fundamentally distinct subsystems of the animal. Third, visual perception
does not shape the environment: it merely recovers the physical world. Any theory that wishes to
understand visual perception within an ecological context must refuse to separate perception from
action.123

So perception and action are mutually co-specifying, and the perceptually guided
enactive being mutually specifies its world, and visa versa, in an inter-ecologically
complimentary determination. An animal and the world, thus, create each other out of the
contingencies of their ecological interrelation. The individual cannot make any reality it
wishes because the ecological reality that is being made functions as a ground. This ground,
however, is a non-foundational ground in that there is no way to get beyond its circle of
enrichment to make a final determination of what a permanent, ahistorical, metaphysical
bedrock would be “once and for all.” In other words, the bedrock is floating. As we have
seen, there may always be another “dimension” through being-in-the-world which could add
to our mutual coorigination. Thus, as we have stated previously, our finitude paradoxically
heralds seemingly indefinite possibility. “Our reality,” therefore, is not the only possible
reality, as we see demonstrated by the multidimensional perspectival elements of the
comparative discussion, but is achieved by our peculiar situation being-in-the-world.

We have now focused on at least five phenomenal aspects of enaction inspired by
being-in-the-world: approximate color constancy, simultaneous color contrast, inter-viewer
structural coupling, intra-viewer structural coupling, and world-viewer structural coupling.

Approximate color constancy shows that despite large variations in illumination and, therefore, spectral light emanation from a particular object in a setting, the color of the object will remain approximately constant because of its embeddedness in that setting. Simultaneous color contrast, on the other hand, demonstrates that objects emanating the same spectral light waves can, nevertheless, display different colors depending on the background setting of the object. Through intra-viewer structural coupling, we see that the complex interconnection of the various modalities within a viewer emerge together to form a unity of processes which are mutually specific. Inter-viewer structural coupling reveals how the individual viewer is coupled with the they (here meant in Heidegger’s sense of Da-sein’s mutual cultural commonality versus his sense of the fallen public) through cultural and species specific mutuality. Finally, viewer-world structural coupling shows that the viewer is coupled with its environment as the aspects of each always already unfold together and are mutually cooriginative of each other.

CONCLUSION: SITUATED COGNITION AS ENACTION THROUGH THE BEYOND OF BEING-IN-THE-WORLD

The natural world may be conceived of as a system of concentric circles, and we now and then detect in nature slight dislocations, which apprize us that this surface on which we now stand, is not fixed, but sliding... In nature, every moment is new; the past is always swallowed and forgotten; the coming only is sacred. Nothing is secure but life, transition, the energizing spirit. No love can be bound by oath or covenant to secure it against a higher love. No truth so sublime but it may be trivial tomorrow in the light of new thoughts. People wish to be settled: only as far as they are unsettled, is there any hope for them.124

Ralph Waldo Emerson, *Circles*
Let us now propose another circle. We shall call it the enriching enactive being-in-the-world circle. Here we will superimpose the basic ideas of the recommendations we have proposed for cognitive science by the enactive and ecological approach upon our previous being-in-the-world circle. We recognize that this yoking is necessarily a perversion of
Heidegger's existential analytic because mere ontic science is always already de-worlded, but the useful point we are trying to make is that the ontic science of situated cognition can appropriate a prior understanding of being via Heidegger's ontology on its way to gaining a more rich and satisfying understanding of what it is doing and how it can most authentically edify the human experience. By recognizing this, we can get beyond the Cartesian Anxiety circle in understanding understanding.

Let us venture a long quote here from Thompson in which he summarizes his ecological perspective, offering legitimization for our depiction above.

In an ecological context perception is always perceptually guided activity. Perception and action have evolved together, coupled to each other: perceptual systems serve to guide activity and motor systems serve to direct perception. Thus perception and action coordinate to form a basic functional unity. The processes that compose this unity have a causal order that is fundamentally circular: it is perceptually guided bodily activity of the animal that typically brings about the stimulation and sensory response that in turn initiate perceptually guided activity. . . At the ecological level, the environment is already significant for the animal. . . Because it thus implicates the animal, the environment supports certain kinds of animal-significant properties that would not be revealed in a neutral physical description. . . These properties result form the “mutuality of animal and environment”, and so require an ecological level for their specification.125

The idea of the priority of the question of being, which says that how we exist preordains all other considerations, announces the idea of the circularity of emergent, global, structural interrelations. The circular unity of these structures show that how we exist influences the globally emergent, structural interrelations of being which then influence how we exist. This determination displays our human finitude but also paradoxically trumpets the specter of indefinite possibility. Da-sein, which is the site of human understanding and which takes a stand on itself and understands that it is taking this stand and is defined by it, is therefore, in the case of human being, the site of perceptually guided action through the interviewer structural coupling of the emergent modalities of envisioning. Da-sein, through the simple, everyday self showing of unconcealedness illuminated by the hermeneutic, self interpreting, phenomenological method, can recognize and understand the relevance of the
circular unity in the globally emergent, structural interrelation of the priority of the question of being. It can understand its perceptually guided action as intra-viewer structural coupling and how this coupling is interconnected structurally through environmental mutuality to the worldliness of the viewer. This viewer-world coupling shows that Da-sein is always already situated in a world, and it is situated in a world together with the they by way of inter-viewer structural coupling. Because of this situation with the they, Da-sein cannot avoid falling into the circle, but it can prevent itself from falling radically in the form of fleeing. By virtue of its constitution, Da-sein is authentically capable of understanding this structural unity. It can get into the circle in the right way and, thereby, understand how it exists as being-in-the-world.

We have seen how this understanding can be manifested as an enactive approach to cognitive science and that this manifestation is phenomenally warranted by color vision as a case study. The enactive being-in-the-world, circular perspective takes as its beginning and its end the non-foundational ground instantiated by the ecological view which circles us back upon ourselves to the priority of the question of being.

Thus, our enactive, being-in-the-world circle is enriching. It continually affords us the rich and satisfying opportunity of a sojourn beyond objectivism and relativism in understanding ourselves amidst the world in which we find ourselves making our existence on our way to “God knows what” through the how of continually being underway. This how preordains everything, and, though it would be nice to finally someday settle something, the only final settlement seems to be the existential understanding that there can probably never be a final settlement. We have, therefore, unwittingly circled back to Socrates and the sometimes unnerving, sometimes tranquilizing realization that the wisest conclusion may be that we know that we do not know.
Notes


7 Heidegger, *Being and Time*, 143.

8 Ibid., 27.

9 Ibid., 4.

10 Ibid., 111.


13 Bernstein, *Beyond Objectivism and Relativism*.

14 Varela, Thompson and Rosch, *The Embodied Mind*. 150.


17 Ibid., 15.

18 Varela, Thompson and Rosch, *The Embodied Mind*, 198.


24 Ibid., 11.

25 Ibid., 10.

26 Ibid.


28 Ibid., 23.


30 Ibid., 24.

31 Ibid., 25.

32 Ibid., 31.

33 Ibid., 30.

34 Ibid., 31.

35 Ibid., 33.


37 Heidegger, *Being and Time*, 34.


43 Heidegger, *Being and Time*, 49.


46 Ibid., 54.

47 Ibid., 59.


49 Heidegger, *Being and Time*, 56.

50 Ibid., 57.


55 Ibid., 81.


57 Ibid., 69.


59 Ibid., 70.


61 Ibid., 87.

62 Ibid., 141.

63 Ibid., 142.


65 Ibid., 111.


68 Ibid., 119.

69 Ibid., 120.


71 Ibid., 116.


73 Bernstein, *Beyond Objectionism and Relativism*, 18.

74 Ibid., 3.

75 Ibid., 8.

76 Ibid., 9.

77 Ibid., 3.

78 Ibid., 3.

79 Ibid., 8.

80 Ibid., 4.

81 Ibid., 16.
82 Ibid., 15.
83 Heidegger, Being and Time, 177.
84 Dreyfus, Being-in-the-World, 228.
85 Ibid., 228.
86 Ibid., 227.
87 Ibid., 236.
88 Varela, Thompson and Rosch, The Embodied Mind, 133.
89 Ibid.
90 Ibid., 135.
91 Ibid., 137.
93 Varela, Thompson and Rosch, The Embodied Mind, 138.
94 Bernstein, Beyond Objectivism and Relativism, 19.
95 Varela, Thompson and Rosch, The Embodied Mind, xx.
96 Ibid., xv.
97 Ibid., xviii.
98 Ibid., 8.
100 Varela, Thompson and Rosch, The Embodied Mind, 14.
101 Ibid., 9.
102 Ibid., 140.
103 Ibid., 148.
104 Ibid., 149.
105 Ibid., 27.
106 Ibid., 144.
107 Ibid., 150.
108 Ibid., 160.
109 Ibid.
110 Ibid.

111 Ibid.

112 Ibid.

113 Ibid., 167.

114 Ibid., 162.

115 Ibid., 163.


117 Varela, Thompson and Rosch, *The Embodied Mind*, 181.

118 Ibid., 183.

119 Varela, Thompson and Rosch, *The Embodied Mind*, 168.

120 Ibid., 171.

121 Thompson, *Color Vision*, 218.

122 Ibid., 240.

123 Ibid., 222.


125 Thompson, *Color Vision*, 223.
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