

THE IMPLICITLY FUNCTIONING BODY

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INTRODUCTION

In recent scientific papers some crucial variables are said to occur “implicitly” or “pre-implicitly.” It is a new development to refer to something implicit. Previously what functions implicitly could not be referred to in science. Many dimensions of organisms and of human experience have long been excluded. Now they are being studied.

The development is happening in a movement in neurology and other sciences called “Enactivism” (Varela, Thompson, & Rosh, 1991; see current summary by Torrance, 2006, and a new discourse by Gallagher, 2006). Rather than being viewed as a passive object, the organism is said to contribute actively to its living. Perception is understood as linked to motion and to intentions. There is now wide agreement that the living body is not reducible to what physiology and neurology present. We can have the immense gifts of explanation and cure which physiology and neurology can provide, while knowing that they present only a partial picture of living bodies. This is a new development in our culture.

Now we need to say more precisely how something functions when we say it “functions implicitly” (as I will do in the next Section). But this can seem impossible. To call something “implicit” seems to mean that we cannot say precisely how it functions. Can we conceptualize what does not consist of space-time units? Other kinds of concepts such as holism and contextualism are known, but do not provide precision. To be “precise” has long meant laying something out in space-time units. To be precise about implicit functioning requires a new kind of concept.

A new ***kind of concept*** is needed because most current scientific concepts assume space-time units. The “given” was supposed to consist of already-separate objects and parts of objects to which our knowledge “corresponds.” The basic model into which everything has had to fit was the model of separable objects and units. ***But precise concepts that don't assume the unit model are quite possible.***

For some decades we have been establishing a philosophy of the implicit which shifts the ground of assertions, no longer a correspondence of explicit units, rather an implicit-explicit model of “explication.” (See my *Experiencing and the Creation of Meaning*, 1962, new Preface to paperback 1997, five articles and a new work: *A Process Model*, 1997, all available at www.focusing.org). This paper presents some points from that work. They are fully worked out there.

In “higher” organisms ***the body generates explicit perceptions and thoughts***. These seem like separate events but they occur in and with an implicit process, never only separately. And, once they have occurred, they continue to be implicit in the body-process from then on.

The implicit never becomes explicit; it is always much wider and different than anything we can say, but we can say quite a lot about ***the relation between explicit and implicit***. What we observe is always already both, not the implicit alone, but we can observe many such relations and their different explicit results. I will cite many examples. ***That which always continues to function implicitly is the body.***

The implicit is always in interaction with the environment, always implying further events. It leads to a different conceptual model.

We ***do not lose*** what we know in space time units but we no longer assume that they copy (represent) the given, as if units existed without a process that generates them. The implicit body

process is more primitive. Perceptions and thoughts develop later in the “higher” organisms. We know that they exist not only as separately defined ***but also as emergent from an implying***. This leads to new distinctions.

For example, in this article I will distinguish between several kinds of “perception.” The kind that consists of a picture or datum is a later derivative from a prior kind of perceiving. The prior kind develops as part of the process of behavior-formation.

Consciousness includes not only attention but always also a very much wider implicit consciousness that is always with us. Some puzzles can be resolved with these distinctions.

I will first state nine “characteristics of implicit functioning,” then offer a model for how the body functions implicitly to generate its next bodily occurring. This is a model for all living bodies including plants, before behavior and the five senses have developed. The new model presented in Section II will help us in Section III to conceptualize how behavior, perception, and their objects are generated. Section IV takes up the bodily nature of cognition and further developments. First let us consider implicit functioning.

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I. CHARACTERISTICS OF IMPLICIT FUNCTIONING¹

Gallagher (2006) explains his term “prenoetic” as follows:

When in the context of a game I jump to catch a ball, that action cannot be fully explained by the physiological activity of my body. The pragmatic concern of playing the game . . . even the rules of the game . . . may define how I jump . . . (142-143)

The prenoetic function of the body schema . . . [is] **ordered according to** the intention of the actor rather than in terms of muscles or neuronal signals. . . (38) (my emphasis)

In this regard, prenoetic operations of the body schema are not reducible to physiological function . . . (142) . . . the schematic adjustments . . . do **not appear as explicit parts** of the perceptual meaning, although implicitly they help to structure such meaning. (141) (my emphasis)

. . . proprioceptive awareness is not itself a perception of . . . an object; for if it were, it would require . . . a spatial frame of reference . . . 137

[It is a] non-perspectival awareness (137-8)

The “prenoetic” (I call it the “implicit”) always remains implicit but we can understand and say a lot about how it **relates to** events and statements that happen explicitly. I call this implicit-explicit relation “explication.” In that relation a lot can be said with more and more precision. We can see that

¹ *The implicit has been discussed before, especially by Polanyi and Bohm, but not its characteristic way of functioning. Bohm thought of the implicit as hidden but otherwise functioning like the explicit. He likened it to a bit of ink in a white fluid. A machine then turns the fluid so that the ink dot becomes a stripe and then invisible, but reversing the machine's turn would restore the ink dot. In his view the implicit did not have a characteristic way of functioning.*

On Polanyi see Cannon ().

here. By setting up just one term that refers to the “prenoetic function,” Gallagher can draw a major new understanding from a perfectly familiar experience (that the body assumes a complex posture in accord with the rules of a game). The term “prenoetic function” lets us think how the complex posture arises in the familiar experience, how the body organizes itself in that intricate way to fit the conceptual rules.

I begin by stating nine characteristics of how the implicit functions. I derive them in my philosophical works (*A Process Model*, I-IV). Once they are stated, then many ordinary experiences become “examples” (really their sources). I will offer many examples in which these characteristics enable us to think how the implicit functions.

First I list them. Then I will spell them out.

- 1) What functions implicitly consists of many factors functioning together to imply one next occurring.
- 2) The many do not exist separately.
- 3) Each functions “not as itself” (not self-identical); “it” has less, also more and different effects than it would as separate.
- 4) Each functions as already affected by the others as already affected by it. Their “inter-affecting” does not take time.
- 5) The implying is always in now-occurring environmental interaction.
- 6) Implying is a “crossing,” an “unseparated multiplicity,” not merger but a more precise kind of order.
- 7) The more factors participate, the more novelty may result.
- 8) Implicit functioning is original, prior to separates.
- 9) Anything which has occurred as separate units continues to function implicitly in further bodily implying. As a separate occurrence it brought new implications and these continue implicitly. But implicitly it also crosses with everything else and so it has still greater effects than it had as separate.

In detail:

- 1) The implicitly many imply one next occurring. Implying is not just an “is.” Rather, it is always the implying of a next.
- 2) Implicitly functioning “factors” are not separately existing entities, not discrete repeatable events. We may define some of “them” separately but the implicit has no units.
- 3) The effect of “each” is different (and can be much larger or smaller) than the effect which it would have as separately defined. It functions “not just as itself,” not what I call “self-identical.” (An object that stays “the same” across a process, as I will explain later.) The implicit many do not have each its own identity conditions.²

² Metzinger, T. *Being No One*. 2003, MIT Press. *He exemplifies the assumption that what counts as real or existing must have identity conditions, i.e. it must be like the defined units in a cognitive system.*

I deny this assumption. We can form cognitive units about an existing implicit process without rendering it as if it had cognition-like units.

*See my “Reply to Williams” in *Language Beyond Postmodernism*, Northwestern U. Press,*

4) The determining effect of each is partly determined by the others. Each functions **as already affected (changed) by the others, but by the others as already affected by it.** It acts as already changed by how it has changed them. Their effects are not separated in time.

In statistics it is well known that the effect of two variables in interaction may differ greatly from what can be inferred from them separately, but this is not understood as we understand it here.

Not just their effects are in interaction. “They” do not occur as themselves, rather only as already changed by each other. (See *A Process Model*, Section IVA)

Note the seemingly retroactive time. Their **interaffecting takes no time** since implicit factors do not first occur and only then interact.

Note this time pattern: “already affected by what it affects.” Implying is not an occurring that will happen. It is not an occurring-not-yet. It does not occupy a different time-position than the occurring. Rather, one implying encompasses all three linear time positions, and does not occupy an additional linear time position of its own. (See *A Process Model*, IVB.)

This is a more intricate model of time. It includes a kind of “future” and a kind of “past” that are not linear positions. This time model can be reduced back to the linear model by considering just occurring-occurring-occurring as if it were cut off from implying. (See *A Process Model*, IVB.)

5) The implying forms in the present environment, and implies one **next interaction with the new present environment.** In the next section I discuss this further,

6) Implying is **an unseparated multiplicity**, a special kind of “many.” “They” are neither merged, nor do they work like discrete things. We find it finely ordered. We can call it “organic order,” more orderly and intricate than one occurring can be.

“Unseparated multiplicity” is a more intricate concept of a new kind. It is not reducible to the usual space-time units and parts, nor does it take their place or provide their results. We need both these two very different kinds of precision.

My statements here are cognitions and as such not themselves prior to implicit functioning, but (as we see here) we can form cognitive patterns that are not divisible into the usual space-time units.

7) The more factors participate, the more novelty there is. Each additional factor also enables the others to have new effects. In contrast, the model of given units says that the more factors participate the less novelty results. In that old model the factors function only as themselves, so of course they limit the result since it must remain consistent with each of them.

8) Implicit functioning is an **original crossing** prior to the usual “many.” We can define some of them as separate self-identical units, but that is a later development. The unseparated multiplicity exists prior to units. “They” don't exist separately and then cross. They have never existed separately. So it is not just their crossing.” Instead, this is the bodily process which generates all the separated things.

9) When some factors have existed separately as themselves, they also function implicitly from then on, but in a different way. A self-identical event brings its implications and its contexts which it did not have when “it” was never as yet itself. Now it brings all this into implicit functioning, always a

new process in which it crosses with everything else and becomes still more. Explicit and implicit expand each other. The self-identical entities have greater effects when they function implicitly. Their logical implications are not merged or effaced. They generate more interaffecting and a new result.

I will refer to this as “iy9” and the other characteristics as “iy1”– “iy8.”

Now I will discuss a few implications of all this.

Novelty:

In the old model novelty was inexplicable. The very idea of “explaining” meant deducing it from units that existed before. The units were considered only as self-identical, but self-identical units cannot cross. Their logical implications limit what can follow. But in continuing to function implicitly their logical implications are further expanded by the crossing; they do not constrain the result.

Although a discrete occurring ***might look just*** like an earlier occurring to an observer, it may be implicitly different. Everything that occurred since then may function implicitly in this occurring.

How the past affects the present, and is affected by it:

With our concept “iy9” we can say that a living thing's past functions in its present. The past plays a role here now, not only at a different position on a time line. The past is here now ***insofar as*** the present would not form in this way if its past had been different. Not everything past ***can*** participate to shape this present formation. It depends on the present forming just what from the past now makes a difference, i.e., is now participating in the now-forming present.

The past that functions now does not consist of memories, images, or discrete past events. It functions implicitly. It is not a replay of the past events. Of course we humans can also have memories as separate entities, but the implicit past does not consist of those.

How occurring now carries implying forward can change the past—not what the past was but how it functions now. ***The past which affects the present is itself affected by the present in which it functions. Every new event becomes part of the past that will function implicitly from then on.***

We make things but we need not get stuck in the already-made:

When implicit functioning is missed, the already existing units seem to organize and determine everything. We can see how this error comes about. We make things by combining extant separable parts. We are “homo faber.” Units enable technology. Making something involves combining stable, repeatable parts. When we have combined units to make things, then we know how they are made. Even the things we didn't make can be divided into units and we can re-construct (something like) the original out of them. So it can seem that everything must be explained in separable units.

EXAMPLE: KASPAROV

The following example illustrates iy9, how separate events have greater effects as they function in further implying. Each brings its context and implications into the fresh crossing of further implying.

Dreyfus³ makes two points on which I want to build:

3 What Computers Cannot Do, 19__, Mind Over Machine, 1986.

1) Language includes metaphorical ways of speaking which cannot be produced or recognized by a computer. We can now explain this: Metaphorical uses of words are not combinations of already-existent units. Computers work only with existing units and therefore cannot handle metaphors.

2) The body can perform the higher functions, as when we drive the car “automatically” while thinking about something else. Similarly, he reports an experiment in which a chess master occupied his mind by adding numbers and still won the game with another master, showing that his moves are formed “without deliberation,” i.e., by the body. Chess masters generally make moves without deliberating. Furthermore, a move may be new. The chess champion Kasparov can come up with a move that is not among the 4000 possible moves that the computer (Deep Blue) runs through.

Dreyfus thinks of this as “knowing how” to do something, rather than “knowing what.” I will argue that we can make a better distinction.

From the characteristics of implicit functioning we understand that the known chess moves function in the formation of the next move, but not as separate units. The new formation takes account of the known moves, but this “taking account” happens as the further implying, not as separate units.

The computer contains each known chess move separately. It runs through the effect that each would have just now and selects the best move. Kasparov can usually make the same move, but without running through each move separately. And he may devise a move that is not among those moves, but implicitly takes account of them. Later analysis will not usually find that one of those moves would have been better.

Kasparov can never be sure that his implicit knowing has taken account of every move he ever knew about, whereas we can be sure that the computer did. On the other hand, in Kasparov the implicit functioning can produce quite new moves and strategies which the computer cannot do. In the computer there is no implicit functioning. The moves cannot cross. The computer has to “select” one from among the extant moves.

Since Kasparov did not consider each move separately, it would be wrong to say that he “selected” the new one from among them. Even if his move appears identical with one of the known ones, and even if the situation on the board is the same, still it is not selected from among them. It comes from and in the fresh implying.

Of course chess is not like the natural environment. Chess is a finite set of rules. The chess “environment” is whatever can be consistent with these rules. For many years Kasparov could defeat the computer. But now it has defeated him at least once. At this writing it is not clear whether chess possibilities are an exhaustible set, or not. Rules do not necessarily constitute a finite set of possibilities.

Kasparov's process illustrates iy9, how what has occurred continues implicitly. The known moves function implicitly along with their implications and context, the further moves each move made possible and what it protected or left vulnerable on the board. All this is implicit and gains new import by functioning in Kasparov's body process now in relation to the board now. The old moves don't determine the next move; but they participate-in the new implying with its new possibilities.

Current need for the concept of “implying”:

There is a current need for the concept of iy9, past events continuing to function implicitly in a fresh crossing. Enactivists reject the old assumption that action depends on internal representations or copies. The old mistake was to use images as the basic model of perception, as if we act in images, not

directly in the present environment. Enactivists want to view action as depending only on the present environment directly, not on representational copies.

For example, Rowlands⁴ denies this old representational knowledge. He wants to include only learned “skills,” only “knowing how” as Dreyfus and the Oxford Analysts called it. Rowlands wants to re-use the term “representation” but in a new way, ***as direct interaction with the present environment***, not as images.

Of course no one denies that we can have images, memories, and separate cognitions. But when images from the past are in front of us we cannot attend to the present. The present process forms directly with the present environment. But I argue that past perceptions and cognitions guide us implicitly without images or separate presentations.

In an example from baseball, Rowlands explains the swing of the batter at the plate entirely in terms of “skills,” no “knowing that.” This turns out to be possible, but I think it is a tour de force which Rowlands needs only because there has not been a concept of implicit functioning. I think the batter uses a lot of knowing that -- about the game, the team, and this particular pitcher's tricks. That all functions implicitly in concentrating on the ball coming on.

People always knew about what I call “implicit functioning,” but since there was no concept or name for it, they referred always to some example. Usually the example was knowing how to ride a bicycle. It seemed that the reason no inner pictures are involved is because it is a knowing how to do something. But learning a skill may involve a lot of “knowing that” as well, for instance that the fourth speed doesn't work on this bike, that it's Joe's bike so don't handle it roughly, that rocks are hard, that bumping into people can knock them over, etc. etc. Even though we can say some of this, it all functions implicitly just like how to keep your balance functions. There are no separate data because the knowledge functions implicitly, not because it is a knowing how. A vast amount of past knowledge functions implicitly in generating and understanding anything we say or think.

The bodily implying is ***always again prior***, after anything we say or think. In becoming implicit, all previous perceptions and cognitions function in so far as they can participate in the present formation. People say that the past becomes important wherever it is “relevant,” but I argue that relevance is created in the present process. In the bodily implying all perceptions and cognitions may function implicitly. (The bodily implicit functioning explains how Focusing is possible.) Countless items of “knowledge” from the past ***function implicitly all day***.

The implicit consciousness:

We could not act or speak as we do all day without the implicit function of the past, from all our previous behavior and cognition. The body can drive home without our attention, but much more is involved also when we pay full attention, not just the few details to which we are attending. We can attend only to very little at any one time. Vastly more functions implicitly. That includes where we're going, why we're going there, when we need to get there, that we will need to get gas, that that rattle noise is just the stuff in the back seat, that all those cars coming at us are really in the other lane, that a piece of rusty metal in the road might blow out the tires, etc., etc. Countless items function, usually quite appropriately. We don't explicitly attend to most of this. We could do nothing if action were guided only by attention.

Furthermore, it isn't enough for these strands to be known individually. In being implicit they cross, which they must do if we are to drive properly. It wouldn't be enough to know that sharp metal

4 Rowlands, M., 2007, “Understanding the ‘Active’ in Enactive.” Phenom Cogn Science 6:427-443.

can blow out tires, and separately the height of the car above the road. They have to be crossing to know whether it's safer to straddle the piece of metal between the wheels or to go onto the shoulder at this speed.

A computer program would say something like “up to such and such a size straddle the piece of metal; over that number go to the right shoulder.” But this kind of “program” is implicit between all the myriad strands and in all kinds of respects and numbers. “Crossing” is somewhat like simultaneous “programs” in all directions and is also an entirely new process with an entirely new result.

Obviously we are not *un*conscious of all this. We could not drive if we were. The implicit is an *implicit consciousness*. Its vast content functions implicitly.

It would be wrong to say that we are implicitly conscious of “all” past events, perceptions, and cognitions that could be relevant. We miss a lot, as we often realize later.

There are not two consciousnesses, the implicit one and attention. Rather, attention is the one occurring which results from the crossed multiplicity of implying (see iy1). Any single thing of which we are explicitly aware is an occurring produced by an implicitly functioning process.⁵

The implicit cannot be called “pre-reflective” or “pre-verbal” since it includes what previously came with attention, perception, cognition, and words. Implicit functioning is not pre-reflective or pre-verbal. It is pre-verbal only in regard to *the next* set of words, and pre-reflective only in regard to *the next* act of reflection.

The implicit consciousness can sometimes generate a directly felt datum, one sense of “all that.” Such a “felt sense” (as in Focusing) is not the implicit functioning but rather a new kind of occurring which can form from the implicit consciousness. From such a “direct referent” new thoughts and sentences can arise. But usually they arise directly from implicit functioning without a felt sense.

We cannot call the implicit consciousness or the felt sense “kinaesthetic” or “proprioceptive.” Those terms name the fact that we can sense when we move, and that we can feel our muscles. (The syllable “kinae” means motion and “cept” means muscles.) Of course we can sense whether we're moving or not, and we can feel the muscles in our arms and legs. But these terms have been misused for a much wider meaning. Roughly they have been used to name the implicit consciousness.

The fact that the vast scope of implicit consciousness had to be called motion or muscles brings home how odd it is that we have had no proper term for it.

5 *The implicit and focal are one consciousness as we can observe when we consider many common observations, for example:*

As you drive with attention you would “notice” something dangerous happening on the road in front of you. Without already paying attention you might or might not notice. But such an event would probably draw your attention. All this shows that the implicit and the focal are one consciousness, of course.

You can observe the one consciousness for example, when you notice the sign that announces where you plan to turn. You will probably notice the sign when it comes even if you aren't on the lookout for it. But again, this is only probable. If missing the sign would be very bad, you “keep your mind” on it.

Another example: In recent months you may have been on the lookout for a certain model car. You would probably “notice” one if it came by even though you hadn't thought of it that day. Our focal attention is brought to “notice” many things that are implicit until they come by. Focal and implicit are one consciousness. You can observe various relations between them all day.

Recognizing how the implicit consciousness functions changes the meaning the “the body.” It functions implicitly with all the results of the higher functions. Our concept needs to be of a body that can do that. We need to let the word “body” change so that it includes the implicitly functioning body.

Currently it still clashes with our habits of language to say “we think with the body.” Focusing is becoming well known but its theoretical account via the body still disturbs many philosophers.

We are accustomed to say that we think with the brain. The brain is supposed to work with recorded entities, like a computer works. It is true that our thinking cannot happen *without* a brain, but it happens by a process that computers can *not* do, because it involves more than combinations or selections of extant units. The brain does not function only like a computer but also implicitly -- like the whole body functions.

The brain is part of the larger bodily system. Actually it is two brains with most of their connections not direct but through the body. And we have many findings of brains doing things that the usual model cannot explain. For example, some functions can be transferred from a damaged to an undamaged part. Brain activity is part of the body's implicitly functioning, not just cognitive and perceptual recordings.

Implicit functioning can be precisely understood with the implicit-explicit kind of concepts I am offering, either mine or better ones of this kind. To view the body only as the cognitively analyzed object in space and time renders it dumb.⁶ That is what makes it seem wrong to say that we think with the body.

Currently the reduction of the body to physiology is rejected, but “the body” is still thought of as that which used to be reduced to physiology. This is because no alternative model has been established. But the word can no longer mean a “body” without its living. The “body” is not what we leave here when we die. It includes that, of course, but by “body” we mean the living functioning body. What we leave here does not now exist in the form in which we will leave it here. There is not another body, a dead body, inside the living one.

Our excellent organic chemistry does not alone account for the active body that drives the car and jumps to the rules of the game (iy9). Many people think that we must lose our science if we also consider implicit functioning. Not at all! We couldn't get on without what chemistry, neurology and medicine give us. We keep each of these conceptual systems separate because otherwise their precision would be lost. So we can also keep one more conceptual system separate, one in which we consider how the body is not just an object. even though we keep our invaluable systems which render it only an object.

The implicitly functioning body has to be conceptualized as happening before the development of cognition and perception. **We cannot begin with the brain and perception.** Plants are living bodies without a brain and the five senses. There has not been a model for the “plant body,” the active body before perception, before it has separate “distal” objects.⁷

7 Wittgenstein rejected this view when he wrote “The body is not a dumb block [of wood].” (Philosophical Investigations. See also my article on Wittgenstein available at www.focusing.org.)

7 Evan Thompson (2005) says that the living body is “organized as a self-producing and self-maintaining network,” and he calls this the “core form of biological autonomy.” But then he jumps directly to saying that “this core form is recapitulated in a more complex form in metazoan organisms with a nervous system.” Thereafter the whole discussion assumes perception. (Sensorimotor subjectivity and the Enactive approach to experience. *Phen and Cog Science* (2005) 4: 407-427)

Enactivists assert that the organism contributes actively to its living. It is not merely an object. But what is its active contribution? The answer I will propose is that **the contribution is the implying**. I will argue that it is a very large contribution, but to conceptualize it we need to think of the body as functioning implicitly, not in space-time units (although we also keep what we know in terms of those). **Space-time units are inherently mere objects**, defined by observers. If we do not have to render body and environment as space-time units, we can say that the environment isn't just around the body; the body is environmental stuff and environmental events. And, it implies its next events. The environment happening into the implying is immediately the occurring. Let me present some of this model.

II. THE LITTLE MODEL

I will discuss the following:

- 1) The living body is environmental interaction. The body consists of environmental stuff. And conversely: The environment is always already the interaction with the body (or with some instrument we make). The one result of implying is the environmental occurring.
Occurring **occurs into** implying.
- 2) The many implicit factors have one occurring as their **immediate** result, which changes the implying into the next implying.
- 3) The implying is “carried forward” when it no longer implies as it did because what it implied has occurred. The occurring turns the implying into a further implying of a further occurring that will again do so. We call that a **“sequence.”** A **“process”** can consist of many sequences.
- 4) The occurring is always a surprise to the implying whose one result it is, because its result is always freshly generated in a present environment. Although surprising, **carrying forward is always the body's own**.
- 5) When an implied process cannot occur with the present environment, the organism may die. If it did not die, something new has occurred. That might be all new, or a newly differentiated strand of the implied process. In the latter case what was not carried forward **continues to be implied**.

Jordan and Ghin develop a concept of “self-sustaining” as distinct from merely “self-regulating,” but they too skip from this directly to organisms with a “distal” reach (to external food, etc.), a “macro-level” organization within which the “micro-level organization” is “nested.” Something like the perceptual model is still assumed throughout (The Role of Control in a Science of Consciousness, Journal of Consciousness Studies, 14(1/2), 2007, p. 188).

There has not been an alternative conceptual model to conceptualize the implicitly functioning body as it is before perception develops as well as with perception.

We have to accept these rather odd terms because the usual terms all render everything as mere objects. These new patterns are quite precise. What is odd is only that what they assert does not consist of space-time-located objects.

In detail:

1) What we start with matters a great deal. If we begin with body and environment as two space-time units, we lose certain crucial aspects which we need to conceptualize. Instead, we begin with them together, body-environment.

A living body is always **already** an environmental interaction. **It is not a separate structure in space and time before it interacts** with the environment. The “inter” in the word “interaction” seems to assume that there are first two units which may or may not interact, but do so.

Currently most of our words assume units. To cope with this we need new phrases. “The body IS environment, -- concretely. The body is environmental stuff right into the cells. The environment is not merely *around* the body, as the word “environ” suggests. The body is the environment of the cells. Every cell is environmental interaction.” (See *A Process Model I*, en#2.)

Conversely, the environment is also already interaction with the body. (I distinguish four uses of the word “environment.” See *A Process Model*.)

The environment is surely more than what interacts with us, but apart from us and our measurements we can only infer it indirectly. The error of the old epistemology was to reverse this, as if we existed in the environment only indirectly through representations, as if we could never reach the real environment, as if we were not already a part of it. The real environment was assumed to be as it would be if we did not exist in it.

How the environment registers on our sense organs may differ from how it registers on our instruments. We must not assume that our instruments render “the” real environment, when perceptions differ from that. On a film the environment interacts with the film, and then the film is still also perceived by US. Both are interactions; neither is a mere in-take. There are no mere intakes. Interaction is with the environment; therefore it is “veridical.”⁸

With this model we don't end up with fewer distinctions. (Body and environment can be distinguished, but we do that later. Instead of beginning with that distinction we make a new distinction between implying and occurring. The **environment event occurs into** the crossed unseparated multiplicity of the interaffecting factors of implying. **This more intricate concept of occurring is what the word “interaction” now means .**

2) In the now occurring there is an implying of the next occurring. What occurs is definite, formed just so. An implying is always much more than an occurring can be. Therefore the implying of the next is always incomplete until the environment happens into it.

The implying does not occupy a linear time point of its own. It is not like another occurring between occurrences. Implying is **immediately** the next occurring.

1&2) **No event just “is.” Occurring is also a further implying.** But we must not construe the implying as if a fully formed event were first implied and only then occurs. What functions implicitly forms an event only as the environment occurs into the implying.

Therefore the above assertions 1) and 2) are interlocked, implicit in each other. (See *A Process Model*, IVB, page 62.)

3) Carrying forward: The occurring changes the implying into a further implying. Therefore we can say that implying always implies its own change, since it implies an occurring that **changes** the implying into a further implying.

But the word “change” does not work well here, because it can mean change into something different, whereas **this “change”** from implying to further implying is **a very special kind of** relation. We give it the name **“carrying forward.”** (See my article “Crossing and Dipping.”)

The occurring which “was implied” changes the implying still further into a further next occurring which “was implied.” We call that kind of continuation a **“sequence.”** A “sequence” has this kind of internal continuity. A **“process”** can be many sequences.

Whole long **sequences** are always implied, each bit a fresh formation. A process is **an implied sequence** of many steps of occurring which changes the implying so that it implies a next occurring which will again change the implying into an implying of further implying.

4) Only the occurring fixates **what** the implying “is” or “was.” An implying is vastly more organized and finely featured than could form as one occurring, and so it is open for the interaction which is the occurring. **In linear time what carries forward seems retroactive.** Only from the occurring can we say “this was implied.” So we say that implying does not imply an already formed move. **Implying implies whatever will carry it forward.** Only as occurring is it one specific move. Something very new may occur and **be** what “was implied.”

Occurring is always new to the implying, a freshly-formed interaction in this present environment. It **may** be new to the observer but it rarely is, since all the past functions in its formation. Vast seemingly repetitious systems can be discovered and predicted, yet they are each time a fresh interactional joining of body and environment, implying and occurring.

5) For living to continue, the environment need only be such that what occurs can form as a “was implied.” Of course the environment may also impinge on the body in irrelevant or harmful ways. The environment may kill it. Even with a small change the environment may offer no way to generate a “was implied” in it, no way of carrying forward. In that case the body dies. It continues to live if the environment is such that the implying can carry forward **in some way** into a further implying,

The organism may live on in a partial, newly differentiated way. Some of its body process may occur while some of it is stopped. This makes a new distinction: The part that continues has never been without the other part before. The part that is stopped continues to be implied.

I will refer to these five points as “1m1” - “1m5.”

SURPRISE AND REPETITION

In this model we can understand both how nature produces the same creatures and processes for billions of years, and yet it is always a fresh formation. The present environment is always an actual fresh happening, a surprise. The creature may die or regenerate itself as a new process. But all of the past functions now as it can, so the old surprise will happen again as usual, if it can.

We have well-tested knowledge of repetitious body processes in every species. Life process can seem to be a highly dependable repertory of repetitious occurrences. We could not live without this regularity of implying and occurring in our bodies and those around us. But life process does not consist of repertory units. There are no such repeatable parts, as is evident from how the scientific concepts change over the years. What seemed to be the same event found by the same procedure under the same environmental conditions, is later discovered to require differentiations and totally new concepts. New findings are not just new details that fit under old categories. They often alter the main terms. The items in our knowledge are never exhaustive. (See Fodor, 19__.)

But this doesn't mean our previous concepts and entities were wrong. We no longer use the old terms and no longer make the equipment that measured them, but if we operated the old equipment it would still verify the old predictions.

Crease (see his *Book on Nature* and his article in the TAE *Folio*⁹) argues that a discrete scientific object ("it") is arrived at by trial and error. Scientists spend much more time "playing in the laboratory" than they spend testing already defined hypotheses. New equipment invites play in many unforeseen directions. We make new moves that don't follow just from the terms. Eventually some action (x) brings something interesting (y) and does so again when we repeat x. Then we have a new scientific object, a new "it" to which further effects can then be attributed. The "regularity of nature" is not a set of given objects. It is the regularity of "If we do x we get y."

Each set of new terms lets us do more and sometimes get more. Doing and getting are not just concepts; we do more and get more in the actual environment. Those bring further new data which requires still newer terms. The more terms we separately articulate, the more interaffecting we also generate. Novelty builds from both doing and interaffecting. Then still newer terms can be formed.

Experimental science is itself a freshly forming environmental interaction process.

EVOLUTION

The theory of **EVOLUTION** receives here a new formulation. If next formations do not consist only of pre-existing units, then new forms require no special dispensation. We don't need a random creation of billions of new forms so that one can be selected!

Selection does happen. For example one kind of bird has a huge feather which it spreads out to elicit mating behavior. This is the result of those with larger feathers having been selected. But new forms do not have to come from an unknown source called "randomness." Randomness is an ancient Greek theory. It did not arise with Darwin.¹⁰

The old epistemology needed a separate source, -- **randomness** -- and billions of random variants to account for even one small new form, because it was assumed that only formed entities exist and these can only be divided and recombined. (See *A Process Model*, page 78.) Of course, if the body consisted only of formed pieces, then it could not create new forms. But when we consider implicit functioning, we see not only that it can form something new but that **repetition is really repetitious new forming.**

The present forms are interactions, the body in the present environment. If either of them changes, the organism will either die or continue in some **immediately organized** way.

9 The Folio, Vol. 19 No. 1, *Thinking at the Edge*; New York: The Focusing Institute; 2004.

10 *De Anima III-6, Aristotle on Empedocles' theory that heads happened by chance and were later combined with necks.*

For example, Merleau-Ponty mentions a bug whose legs were partly cut off. Now it walks in a complex new way which was never part of its repertory. I emphasize that the old walk-
implying *immediately* produces an organized new environmental interaction.

As a crude example, say your keyboard has moved slightly to the right. Now you type “the” but it comes out “rgw.” This is not randomly produced, and doesn’t have to be selected from billions of random syllables. It is the changed keyboard occurring into your implying. In this example you can differentiate your implied “the” from the surprising environmental result. You can form a separate memory of it, but the intention while typing was not a separate event in a separate time. It occurred in the interaction of fingers and keyboard. To have it as a separate thought would stop your typing. On the long distance telephone we cannot go on speaking if we hear our voice with delayed feedback as a separate event. In the formation of behavior the environment occurs immediately into the implying.

This model can more effectively explain evolution as well as other anomalies, especially in embryology.¹¹

The living body freshly implies-and-enacts its next interactive event in one immediate coming. That is true of “plant bodies,” organisms that have not developed perception and cognition, as well as of organisms that have.

We have shifted the ground from which we begin:

We begin with both implicit and explicit, no longer only the explicit. We begin with original crossing (iy8) as well as objects, no longer just with objects. We begin with process and contents, not just contents.

If one assumes that reality consists of separated units, then implying looks merely negative, not capable of being laid out in separable parts. But if we don’t assume that, then we can have conceptual patterns like “original crossing” and “carrying forward.” These are a kind of pattern that does not come apart into separable units but provides a new and wider conceptual system within which to view our discrete concepts and entities.

III. THE DOUBLED MODEL

Now we want to understand how the implicitly functioning “plant body” develops further so as to have perception and cognition. I call the development a “doubling.” This is worked out in detail in *A Process Model* but I hope to offer a brief account here.

Perception is inherently dual: The organism is already a living process; now it also generates the process of having an object, an “over there.”

Later on, in human cognition, we cut the percepts loose from the having and consider them as if they existed alone. We will consider cognition below. Here let us ask: What is the having of objects? And, what are “objects?” We are making a big change in philosophy by considering bodily having and

11 See Patee, cited in *A Process Model*. See also my criticism of Black’s view of metaphor (in my _____.)

objects together. We reject the old epistemology of correspondence between supposedly given and supposedly represented objects. Instead we develop an epistemology of explication.

For us objects are products of process; they do not first exist without it. To have objects, an organism must form them. Perception is not just there; it is there only for organisms which can generate the process of having. I argue that perception is a “doubled” carrying forward. One process is directly the carrying forward of the percept; indirectly it is the carrying forward of the implicitly functioning body. Let me explain this double carrying forward.

Percepts are a kind of object. I ask: What are objects? And how are they enacted by the implicitly functioning body? At first there seems to be no link between the plant body and perceptual having. The plant seems to have no objects. It constitutes its body with light and water but it does not also have them presented in front of itself as objects. Yet the presence of light and water elicits very complex interactions. Much of the environment is constant, but light and water are sometimes missing. When they return the plant does its intricate processes with them. The complexity of what the plant does is obviously not due just to characteristics of light and water. Many things react to light without photosynthesis and soak up water without growing. These processes are implied by the plant when light and water are missing. So they happen when light and water return.

In Im5 we said that a stopped process can continue to be implied. So we can say that the plant implies light and water when they are absent. Therefore so much happens when they reappear. We can say (metaphorically) that the plant “recognizes” the light and water. However we state it, we see the bodily implying and carrying forward when they recur. They were intricately implied all along. So we explain the “eliciting.”

In this generic definition “objects” are what resume aspects of the body process which are stopped and have remained implied while the object is missing.

Now we have conceptualized a link between objects and the body process before perception has developed.

Now we can ask: What develops from these plant “objects,” so that they come to be perceived, “had,” i.e., presented before the animal?

The animal doesn't merely keep an implying until the objects recur; it goes searching for them. How the body generates a space of possibilities of behavior is the currently missing link in explaining perception (and then cognition) as whole-bodied process. Now we can derive cognition and perception from the bodily “objects” of plants.

In plants the implying of the missing environment is retained (Section II, 5) and merely reiterated. In animals the reiterating has become a process in its own right. Now the “reiterations” are changes, a behavior sequence. **The perceived object forms because something is “the same” across a sequence of behavioral changes. A perceived object is the result of a behavior sequence. The object “falls out” from the sequence,** somewhat like an object in a film falls out from the sequence of reiterated slides. There are no perceptions without behavior until a still later development.

Instead of beginning with perceptions and then adding a “coupling” to motion possibilities, we first derive the development of a behavior sequence. Then we see that perception “falls out” as part of a behavior sequence.

One could feature this as a new derivation of the philosophically vaunted “same” held to be basic since Plato. Or one could say modestly that “falling out” is a metaphor useful for thinking about how a steady object is a product of process. We see how a static “is” can be derived from process. Then we will also become able to derive the bodily development of cognitive objects with their self-identical “is.” Perception and cognition are part of a whole body process.

But perceiving food is obviously not a kind of feeding. In perception and cognition the whole body is not carried forward as it would be in the concrete environmental interaction which constitutes the body. That process is carried forward in a new way, -- indirectly.

The need for the missing food or water is not carried forward as such, and yet carried forward after all, but in a new way. We expand our little model to include what I call “doubling”: events which are both the body process and also events of a new kind.

Now we can derive what used to be thought of as a separate impetus called “motivation”:

Behavior develops as a special kind of body process. For example, an animal's search for food is not only behavior. Food search is part of the body's digestive process. We can conceptualize food search as a detour of the process of ingesting. During food search the concrete implying of feeding is reiterated as a behavior sequence. The food search is a string of reiterated implying (but not occurring) of feeding. The behavior sequence consists of bodily hunger, hunger, hunger, hunger. The behavior is hunger, the reiterated implying of feeding. Each bit of food search is also still hunger.

Behavior is the body taking itself on a detour: The metaphor of a “detour” conveys one doubled trip in one sense not continuing on the closed road, of course, but the detour will return to the main road, so one is continuing the main road in this way. Now we have derived what used to be called “motivation.”

Now we need to examine this development more precisely. To do so I will argue first that the “space” in which behavior occurs is not the abstract space of mere motion. **It is a “space” of behavior possibilities.** We have to say what “space” means. Space comes with bodily-implied behavior possibilities. Zoe¹² () has recognized this “coupling” of perception and possibilities but I argue that they are not motion but behavior possibilities. Motion comes much later. With motion we would begin too late, already abstracted and cut away from the whole body process.

Behavior is not motion

“Motion” is an abstraction created only by cognition. What the abstraction separates is certainly real, but it cannot be coupled directly to perception (as in “sensory-motor coupling”). **Behavior develops prior to motion, and remains always again prior, even after humans separate motion.** The “coupling” will not be clearly understood until behavior, not motion, is considered. I will show the difference. How the body-process generates behavior can be precisely defined.

We need a new distinction between two kinds of perception. A kind of perception occurs in the very forming of a behavior. This is not how perception has been understood, not a self-identical datum, and not in just one of the five senses. There is a prior kind of perception which happens “in-behavior,” a kind of perception that is not a separate event of reception. Some current puzzles can be resolved

when we no longer begin with the later developments. We cannot use the later product to understand the formation of behavior and perception.

What is called “proprioception” or “kinaesthesia” has been understood as the body's perception of its own motion. I have already argued that it is not an additional perception-*of*, not as if the motion were a kind of object. The body senses its activity, but not as still another object. Rather, kinaesthesia is implicit consciousness, an essential part of how behavior forms, not a separate perception *of* behavior after it happens.

Behavior sequences compared to motion paths:

Motion is only a change in location. Location is defined by points that an observer connects. The space-time frame is an empty space, a mere point-system (Newton's “absolute” space). Empty space – the space of motion -- is a sophisticated abstract strictly human concept. Once we have this abstraction, behavior can be mapped onto a system of points, and can be very fruitfully understood as motion. But the space of behavior possibilities is prior to the empty space of location points onto which we can map it.

All possible behavior paths seem already to exist, since the empty space contains an infinite number of points, lines, and planes. But this is an illusion. Every possible behavior can be mapped onto the points, lines and planes, but the intricate path does not exist until the behavior forms and can then be mapped. Behavior cannot be generated in empty space. A behavior cannot be found and “selected” from “all possible motion paths.”

The space of behavior possibilities:

Long before there is empty space the body generates “space” of a different sort. Behavior generates a “behavior-space” consisting of all the behaviors the body has ever enacted. A present behavior goes on *in* a space of implied behavior possibilities (“affordances,” Gibson). ***The properties of behavior space differ markedly from those of empty space.***

In behavior space the possibilities are implicitly crossed in one implying. Any one behavior changes how any of the others could be carried out. Each is a change in each of the others. The implied behavior space is a crossing of possibilities.

In contrast, in the abstract point-system a motion does not change the others. It changes only the position from which they would start but leaves them unchanged, since they are only paths in empty space.

Behavior space is constantly implied:

The animal organism constantly implies its behavior-space. In our model this is because the implicitly functioning body implies the behaviors as crossed possibilities. Any one behavior is the body process implying one version of the crossed behavior space.

The present environment constantly occurs freshly and keeps the implied behavior context up to date. We could never receive the whole behavior context freshly every moment. To grasp this fact, consider that we always sense the space behind us without needing to turn for a fresh reception. Our behavior possibilities always include turning, backing up, reaching behind us. That is always part of the body's behavior space without present input. We would be very disturbed if the sense of the space

behind us suddenly disappeared, and became an abyss of nonexistence, as if we needed a new intake just to insure that we could go there.

But the space behind us is not just for motion. We sense it as the rest of the room in which we are sitting, or as the wall between our apartment and the neighbors. It is a wall on which we could pound but will not do so without a reason. The seemingly empty space of just motion is an abstraction from the filled space of the behaviors we could enact. Behavior space is a network of implicitly crossed behavior possibilities.

The behavior context is always with us and always freshly modified by the present environment. Say I am a guest in your living room. Suppose when I first came I sat down without looking at the rest of the room, now behind me. I need not have perceived it to sense it behind me. I know I could get up and go there to look around, but I won't do that without first explaining my curiosity about your furnishings. The behavior context is a space of behaviors, not just motions.

If I hear someone entering behind us I assume from seeing you at ease that it is someone you know. I prepare to stand up, politely. Anything I freshly perceive occurs-into my constantly implied behavior context.

As the behavior context is corrected, the behavior possibilities change and new ones appear. With new behavior possibilities I also see new objects. Someone forgot to turn off the flame under this pot, so I won't grab it with my bare hands.

The behavior space is implied even when we are not getting ready to do anything. What happens around me occurs into it, and changes the possibilities. Just as any one actual behavior changes the behavior possibilities, so does what happens around me even when I am just resting.

Motion paths omit what we do with the objects:

Motion ignores a lot about the objects. Considered just as a motion path, the batter's swing is only externally related to the path of the ball. The batter's behavior involves much more. It must not only meet the position of the ball; it must do something quite precise to the ball. The batter needs to estimate the spin on the ball crossed with knowing this pitcher's tricks, a knowledge that functions implicitly with all the other implicit sequences. And not-swinging is one of the possibilities.

In golf the aimed-at hole lies still, of course. The golfer aims at it with the feet, many little steps in place, until the aim and the whole body look and feel lined up for the swing. Past experiences and learnings function implicitly in the feet, the knees, and the arms.

So we see that the implicitly crossed behavior context is part of the now-ongoing body. The "body" no longer means only what we used to reduce to physiology. It implies much more than position and posture with muscles and circulation. We see how all behavior and its objects are implied by body process.

The role of the whole body in developing the higher skills:

When behavior is considered mere motion, and the body's role seems just muscles, then there is a puzzle how motion is in accord with the complex behavior the objects require, and another puzzle how the higher human "intentions" get into the muscles to inform them what body posture to prepare. How can behavioral complexity and human intentions be in muscles?

Successful moves in a human activity may require a lot of training and practice which involve whole-bodied change. For example, to land a plane properly the body's experience of time has to slow down and stretch out. In normal time the beginner knows the desired path, of course, but flies back up into the air or bumps horribly on the ground. There is no time point at which the wheel can be pulled

back neither too early so that one flies up again, nor too late so that one bumps. After much practice the body's time slows. Now there is a whole stretch of time along which pulling the wheel will neither fly up nor bump. Behaviors involve whole-body changes. It could not have developed as a separate process tacked onto unchanged body structure. The body further develops its structure as it develops behavior.¹³

“Built-in:”

That behavior involves the whole body has long been known in another field, and left unexplained there too. Ethologists have found in all species that certain behavior sequences are “built into” the body (as they call it). This could never be explained as long “the body” was thought of only as rendered in physiology. It becomes understandable when we see precisely how behavior develops as a special formation of body process.

The formation of behavior is a further formation of body structure. This explains the well known fact that the structure of a living body shows its typical behavior. Behavior formation regenerates the body structure. And since behavior develops in the environment, the body structure also tells us a lot about the environment in which it forms. It is not accidental that body structure is “adapted” to its behavior and its particular environment. This is because behavior is a bodily forming process.

¹³ *Held () showed that an infant's interaction with the mother is essential for bodily development. A lamb raised apart from its mother does not develop normal motor behavior and perception.*

*Jordan, J.S. and Ghin (2007) differentiate between “self-regulating” and “self-sustaining.” The thermostat is self-regulating, but its process does not generate and maintain its structure. Organismic process is self-sustaining. The process is always generating and re-generating the structure. They say: “Jordan and Ghin (2006) have recently described autocatalytic systems as self-sustaining micro-macro synergies in which the nested micro-level work produces and sustains the macro-level context in which the micro-level work can continue. . . . the micro-level transformations are necessarily ‘for’ the macro-level whole they sustain (Bickhard, 2001). As an example, the micro-level autocatalytic processes nested within a bacterium give rise to and sustain the bacterium as a macro-level whole, while the sustained macro-level whole (i.e., bacterium) constitutes the context in which the micro-level work can continue.” (J. Scott Jordan and Marcello Ghin: *The Role of Control in a Science of Consciousness*, Journal of Consciousness Studies, 14(1/2), 2007, p. 188)*

*Ellis, R. D. similarly holds that “Self-organization [achieves] certain outcomes {by} rearranging, replacing, or recombining the substratum elements.” (Ralph Ellis: *Consciousness, Self-organization, and the Process-substratum Relation*, Philosophical Psychology, 13(2))*

*“Since dynamical systems seek out, appropriate, and replace physical substrata needed to continue their structural pattern, the system is autonomous with respect to its components, yet the components constitute closed causal chains. . . . The dynamical system is structured with a tendency to change background conditions for causal relations anytime needed substrates for the pattern's maintenance are missing; . . . The system controls the background conditions under which one or another causal relation can subserve the system's overall pattern . . .” (Ralph Ellis: *Can Dynamical Systems Explain Mental Causation?*, The Journal of Mind and Behavior, 22(3))*

Ellis has studies of actual instances of replacement of destroyed components.

Ethologists find, for example, that when an egg rolls out of the nest, the mother duck rolls it back in. It's hard to do with her narrow bill, the egg wiggling in unpredictable ways across the rough ground. Her body implies the egg rolling in a way that is “open” to all the variations of the present environment. But ethologists have observed that when no egg has ever rolled out of her nest, her body nevertheless enacts the egg rolling. It has become a needed consummation (called FAP, fixed action pattern).

But without the wiggling of an actual egg she moves her bill pointing forward in a straight line.

The kind of perception that is part of behavior formation:

The duck example shows something further: With an actual egg on the ground, pushing in a straight line does not happen. She does not first push her bill in a straight line, and then in accord with how the egg wiggles on her bill. The straight line does not form at all. The present wiggles determine how she pushes. She has already sensed which way the egg is about to roll off and her pushing is countering this with her bill. Seeing and feeling the about to roll off is part of the behavior formation. The perceptions of the ground are not separate events of mere reception. Rather, these perceptions carry her body forward into the behavior sequence. She keeps the egg on her bill by maintaining the feel of countering the about to roll off.

A similar example: We might assume that the squirrel on a branch must first perceive in which direction it is about to fall off, before it can restore its balance by slightly moving its tail in the opposite direction, but actually this is “in-behavior perceiving.” It is part of the formation of the behavior.

Without concepts for more primitive processes we make a distinction in the wrong spot: We need to distinguish two kinds of perception in one of which the behaving is the perceiving (and feeling). In behavior formation there is no separate linear time point for just-perceiving. That kind of perceiving is a later development. Creatures that have already developed it still do also form the in-behavior kind of perceiving. During behavior one can just-perceive other things, but if the in-behavior perceiving becomes a just-perceiving, the behavior stops. You stop walking if you just-perceive the ground's pressure at a time of its own. I already mentioned how delayed feedback on the telephone stops our talking.

The duck could not keep the egg balanced if the egg's about-to-tilt were not itself the next bit of behavior. This kind of perception is part of the behavior sequence itself. In the section on implicit functioning (iy4) we said that implying does not occupy a separate spot in linear time, only the resulting occurring does.

To teach my friend how to plane a piece of wood, the experienced carpenter put his hand over my friend's hand to show him ***the feel one needs in order to do it well***. This was not a perception, not a separate perceiving which only then guided the behavior; rather it generated this behavior.

Similarly, there is feeling as part of behavior. This is “feeling-in-behavior,” not what we usually think of as “a” feeling, an event in its own right. Rather, it is a prior, more basic kind of “feeling” which is part of the behavior formation.

The in-behavior kind of perception and feeling always both happen. We feel the change made by the actual environment occurring into the body's implied behavior context. The feedback occurs into the implying which carries the sequence forward into further implying and occurring, as our little model says. Behavior forms only as perceptions and feelings of this kind.¹⁴

14 A reference is needed here to A Process Model, V. A repetitious “leafing” sector of the body develops, before behavior sequences form. The interplay between this sector and the whole body might explain why some plants and other organisms can move before behavior, perception, and brains have

Showing the intermodal connection:

Gallagher (2006) posits an **intermodal** linkage between the five senses. He cites findings which convincingly show that the five kinds of sensations join. Even a newborn recognizes by sight which rubber nipple it had in its mouth, although they are not connected by any known neurological link (160).¹⁵

If separate perceptual events are assumed, then there is a puzzle how and where they join and inform each other. But let us first consider the more primitive kind of perceiving that is not a separate receptive event but part of behavior. In that case any one sensation is a change in behavior formation. A second sensation then changes the behavior formation which was modified by the first sensation. So the senses join in modifying a behavior formation.¹⁶

This corroborates the intermodal functioning. We will discuss the separation of the senses in the next section.

The behavior context includes its objects:

Our concept of a “sequence” enables us to think of objects as perceived in and fallen out from behavior sequences, not cut-off as if objects were simply there alone in empty space, and copied as intakes.¹⁷

Since the body implies the sequence and is environmental interaction, of course the objects are part of the implied interactions. It was long assumed that an object stays the same while we perceive and behave with it. But an object is constituted by sequence; it is a kind of “the same” across the sequence (see *A Process Model*, VI). **So the behavior space consists of objects because it consists of behaviors which are interactions with the environment.**

Organisms that have developed behavior have consciousness:

The rabbit knows whether it is eating or mating.

Behavior is conscious because it is a doubled carrying forward. The body-process is carried forward as the having of the sequence of "in-behavior" feelings (and perceptions).

The implicit consciousness:

Earlier I have already discussed the vastly broader “implicit consciousness” which we can now more precisely define. It is an in-behavior kind of consciousness, vastly wider than what “consciousness” has usually meant, just what we have in our momentary attention. The wider implicit

developed.

15 *I discussed this finding in Thinking Beyond Patterns: Body, Language and Situations, Part B, 1991.*

16 *Gibson was on the track of this distinction when he argued that the sensory input should not be equated with the “information” that an organism obtains from it.*

(The Senses Considered as Perceptual Systems, Houghton-Mifflin, Boston, 1966, p.49.)

17 *The gigantic amount that is carried forward in a behavior context might explain why something like 80% of the objects we see do not register on measures of a visual intake.*

See Mahoney, Michael J., Human Change Processes, Basic Books, 1991, p. 100 cf.)

consciousness consists of the body's implicit functioning. It encompasses all of iy1-8 as well as iy9, i.e., everything that participates in the ongoing formation.

For humans this consciousness includes objects of cognition, but as we will see in the next section, the behavior context is the missing link to account for how cognition is enacted by the body.

We can be focally aware only of very few things. If we had to depend just on those we could do and say almost nothing. ***The consciousness of the implicit behavior context orients us all day.*** It governs everything we say and do. It functions to enable us to grasp the meaning of each next thing that happens. “Sure,” we say, or “Oh, yes,” when we hear a statement or grasp a situation. We don’t have time to say any of what it means even if it were possible to say all that. What another person says modifies our understanding of the situation without need of telling ourselves about it in separate words or concepts. We are conscious in this implicit way all day. If the ever-present sense of the context were suddenly lost, we would not know what we're doing. We would be disoriented.

Of course we do also have what I have called “packages” such as thoughts, perceptions, images, memories, emotions, feelings, desires, and the like. These seem to be in a private space since others cannot examine them directly, but they are ways of living in our situations with other people past or present. We “have” the palpable feel of our own actions, and the sounds of our own speech acts. Anything we pick out can seem like a separate “object,” but take any of them and ask: “Why did this come just here (in this situation, with this person, in this sentence, or at this point in this argument)? There will almost always be immediate answers, and pursuing them will lead to more and more.

So we must distinguish between the wide implicit consciousness and the small part of it which is the focal consciousness. We can establish a concept for this utterly ubiquitous and amazingly neglected “***implicit consciousness.***”

Implicit but not unconscious:

Behavior formation often happens directly through the body without focal attention. We do a great deal without separate focal perceptions and feelings. When we drove home without attending to the road, we were not unconscious. Something threatening would have drawn our attention. Our knowledge of the road and what we were doing was implicitly functioning all the while. But even with keen attention what we say and do is shaped by the vast implicit consciousness.

I am driving on the expressway. My exit is coming up so I change to the right lane. A second or two later I hear myself thinking the words “This is where I get off.” Of course I knew what I was doing before the words came. I would have known what I was doing even if the words had been “I’m not late.” And I know I’m not late even without those words. No amount of words could possibly *ever* say all that of which I am implicitly conscious. I cannot pay focal attention to more than a few things. The turnoff has to have my focal attention. But if I were not conscious of the vast implicit context I would suddenly not know why I am on the road at all, or what it is to be on the road.

It is always possible to make some of it explicit. There is also a special kind of datum (a “felt sense”) that can form as a datum from the implicit consciousness. A felt sense is not usually there. It has to form freshly and come. Of course it is not the whole implicit consciousness – that always remains implicit.

IV. PATTERNS

Now we are ready to ask: How does the body produce speech and thought? What body process is cognition? What special kind of bodily and behavioral carrying forward is involved in those “self-identical entities” which I have been setting aside until now?

Cognition is supposedly just “internal.” Supposedly cognizing the “external” things does not change them. Cognizing is only about them. This “only about” assumes that our cognition does not change the behavior context, the situation including what our scientific work is about. But I will argue that it does change the behavior space, only not with the kind of change that action would.

It has not been clear how cognition is a bodily process. “Only about” has meant that cognition happens in representations, some kind of images, and only in the brain. But with our concepts we can now show that cognition is a kind of behavior and body process.

Thought and its objects are products of a special development, a new further kind of doubling that involves patterns and is almost exclusively human. To understand this new doubling, consider what is involved in looking at a picture:

A picture:

For example, we see a picture of a cat and its fluffy fur. We feel the context of behavior possibilities that let us grasp this as a cat, yet we have no urge to pet the cardboard picture. Seeing it as a cat does carry the behavior context forward, but not as behavior with a cat would.

Animals have no way to see pictures as pictures. The dog will either growl at the cat or push the piece of cardboard with its paw. Only humans have the doubled process, both a cardboard and a cat. Seeing a picture is a detour from behavior, a kind of behavior but on another road.

The body provides the “only about.” It lets us have the behavior context with its implied objects, but as a picture. What enables us to see pictures as pictures?

Patterns:

“Only-about” are based on responding to patterns as patterns. To see that pictures are patterns, consider: What makes it a picture of something? What makes the picture of a cat? It is the proportions. The picture can be smaller than a cat, or much larger. The picture is the proportions between the parts. What makes something a photo of your face? Of course, it is the proportions of your eyes, nose, and mouth and head, cheek, etc. Proportions are patterns. To see it as the picture of something we have to respond to the proportional pattern.

Patterns are products of a doubled process. Animal perception is “of” things. The animal responds to the cat-thing or the cardboard thing. Only humans respond to both at once, the pattern of the thing.

Deriving the origin of motion and empty space:

A pattern can be moved from one thing to another thing, to one which didn't have that pattern. We can move your proportions onto paper. We can put the design of a machine from paper onto steel. We make things by moving patterns. Technology is making. It happens by moving patterns.

Patterns can be moved from one thing to another regardless of the other traits of either thing. When patterns move they ignore everything else. This is what first creates the empty space in which we now assume we live, and in which objects seem to appear to humans.

The concept of mere “motion” arises from how patterns move, seemingly in empty space, a system of mere location points. Motion is from this spot to that spot, a change of mere position in empty space. Patterns, empty space and motion are one sophisticated human creation.

The human body has pattern responses “built in”:

Human newborns imitate the body-look of another human being. Body looks are patterns. (Infants of the highest primates do so too. There is no sharp line.) Newborns respond to facial patterns and imitate them. You stick your tongue out and they stick theirs out. Move your tongue to the left, so do they. You reach out to the infant and soon the infant reaches out for you (Meltzoff, Boukydis).

The newborns do not see themselves in a mirror, yet they can imitate facial pattern. When we imitate someone we do not need to see ourselves to know what we look like. We feel it in the body.

Smiling is a purely human response to patterns. Animals don't smile. Smiling at them elicits nothing and communicates nothing. But it is a powerful interpersonal life carrying forward move implied by the human body.

Spitz () discovered that infants don't develop if they are not smiled at, even when otherwise well treated. He found that children grow up normally when raised in jails under terrible conditions, whereas they didn't develop in orphanages even when well treated. Being picked up and smiled at was the difference. Since Spitz's discovery the infants in all maternity hospitals are regularly picked up and smiled at every few hours. Smiling is an essential implying and carrying forward in the development of the human body.

Gestures are inherited too. They are inter-personal interactions that the body implies directly.¹⁸

Speech is inherited. Infants babble till a language further shapes the inherited behavior.

Language is an inherited and learning-elaborated process of patterns.

These are all bodily responses to patterns.

Separate senses:

On glass panels high up we paint the pattern of a cat's head and ears so that the birds will fly away from it, and not smash into the glass. We know there is no cat up there, only the painted pattern. Humans see that the birds fly away from a visual pattern. But the birds fly away from a five-sense cat. Their bodies do not imply a pattern as a pattern.

The separation of the five senses happens only on the human level. It is the pattern that separates the five senses, because a pattern can be purely visual or purely auditory. An actual thing cannot be. Just-visual patterns don't exist; they have to be on a cat or cardboard or in paint on glass. We see a picture as both, but we behave only either with the cardboard or a cat. Behavior is with five-sense things.

The bird's body implies (and flies away from) a five-sense cat, not just a visual one. Most birds have never had the tactile sensation of a cat (fortunately for them), but the behavior object their bodies imply includes the tactile.

So we have to make a distinction between our analysis and the process of the bird's body. The bird has the kind of perception I have called “in-behavior perception.” But our analysis lets us know that the bird now has only a visual pattern. The bird cannot have a visual perception. In the bird's body perceptions are not perceived as perceptions but as modifying behavior formation (or modifying the possible behaviors in the ever-present behavior context).

¹⁸ See Gallagher 2006. Also Wittgenstein: “... one can imitate a man's face without seeing one's own in a mirror.” (PI, 285)

Of course we can also see a cat sitting over there. Then we see a five-sense cat, even if she is silent and we only see her. Although we have only the visual sensation, our body implies a five-sense cat, not a pattern. The difference is in a thousand ways obvious in the behavior context although at rare times we are fooled.

Although we can live in far away situations, we are still always implicitly conscious of being in the room here where we sit and hold the telephone -- always knowing what we're doing here and what we're doing in the distant situation, and what we're "only" thinking. But the bodily feedback from what we do in thought can be far greater than anything going on in the room.

How the patterns of things are objective:

The things come into human pattern-space, but there they have their own patterns. Therefore the patterns of things are not merely imagined or subjective. Each thing has its own look, touch, and sound (if any). Each also has its own profile on our measures, our "meters," thermometers, ammeters. and vastly sophisticated instruments. Those patterned results can be accurate and objective. Only we must not assume that the things come already patterned in our separated patterns.

Very long ago, when human pattern responses first developed and the things came into them, someone recognized a sharp pattern on a stone and used that stone to skin animals. Then it wasn't long before someone moved that pattern onto a stone that didn't already have it, making a stone axe. Moving the patterns is human making.

Sense data and representations:

Many philosophers assume that experience consists of five separate sensations, **although even the simplest situation cannot be understood as colors, sounds, and tactile sensations.** Situations (saying hello to someone, going home, finding the bathroom) cannot be put together out of colors, sounds, and smells. We and the animals live in situations, not in sense data. More recently philosophers have rejected the old assumption that experience begins as five kinds of sense data. This error comes from explaining everything in terms of the percepts presented before us. It brought a lot of progress. We keep the progress but we need not omit or falsify the processes that precede and produce percepts and cognition.

Similarly the empty geometric space: A sound, or seeing a color can only appear in pictured space. Husserl and more recently other philosophers have argued that sense data are purely theoretical. We see trees and hear motorcycles.

Our bodily implying of five-sense things is originally prior to separated sounds and colors, and after them it is always again prior. We reject the misuse of sense data to explain the prior organic process, but one cannot argue that we don't have sense data. Of course we can see colors just as colors and hear a sound as a sound. The mistake was to assume them as original intakes, as if reality were given in five separated sensations. They are not given so. A cognitive patterning process must first elevate perceptions to be separate self-identical space-time events. The processes are not made just out of distinct presentations before someone.

We can specify the range of errors that come from assuming that the otherwise legitimate cognitive analysis produces the original givens. Human and animal experience is not mediated by patterns and patterned products of cognition. Our bodies are always still the basic environmental interaction before perception, like plants. Then the environment is perceived "in-behavior" with its objects in unseparated five senses. Even with all our further development we still of course act in the world of five-sense objects. Our bodies imply them as part of implying behavior.

We also have the capacity to make and respond to representations, and diagrams, pictures as pictures, patterns as patterns, and thereby to colors as colors and sounds as sounds. Therefore we have speech and music and art, a very powerful but different kind of bodily carrying forward.

By deriving sense data within a wider conceptual system, we show that they cannot be assumed in advance. They cannot explain the processes which generate them, as if they first existed alone.

The cognized world:

The patterns are truly the patterns of the things. The imagined cat looks like the real one. Likenesses are patterns. Patterns are likenesses. But it is quite false to think of a pattern-likeness as a copy of the thing.

Any number of things can be made to have the same pattern, paper, stone, or canvas. Patterns can have copies. Patterns are what can have copies!! Patterns are “universals” because any number of “particulars” can have the same pattern. Mass produced, they are alike like pennies. I call them “penny particulars” but most things we work and think with are not penny particulars.

What we actually see are particular things, of course, but because patterns are universals, we always see things also as already a kind, a member of a class, already classified, already patterned. We see this rabbit, surely, but we see it also as “a” rabbit. Humans see patterned objects.

Aristotle cites a Greek philosopher who taught that we can never describe a thing. All we can say is how it is like something else. (Metaphys __,) This is where philosophy has been stuck for a long time. Whatever was said and whatever it was said about, it was considered nothing but again just a concept, a comparison, a likeness, a difference.

Language was considered discursive, consisting in its very essence of standard shared meanings. One could only say those, never speak directly from what we want to say. Words and phrases say their own thing, never ours. In trying to talk about this particular situation we are now living in, what we really carry forward is the words' own standard situation (examples offered in the dictionary). We have to hope that the effect is close enough to carry our own situation forward at least somewhat as we needed. When that seemed all language can do, symbolizing was viewed as inevitably a loss. Many philosophers held that one “falls” into language. The living act of “saying” must inevitably “fall into the said,” they lamented. I argue just the opposite: With Dreyfus I say that we can speak in a fresh way. Metaphors are an example. We can let new phrases come directly from the particular living in which we are now engaged. In that kind of speech the symbolizing carries forward and enriches the bodily implicit functioning (iy9) which will enable still further new symbolizing in turn. This is explication, not the attempt to represent experience in already existing unit meanings.

If that were all language can do, we could never say anything new. New meanings would be an impossible mystery.

To the contrary, Dreyfus stood against the entire field of Artificial Intelligence for thirty years, arguing that people use metaphors, that this is a vital part of human intelligence, and that computers cannot understand or create metaphors. We have now conceptualized the implicitly functioning body process which implies a next move that takes account of the already-extant moves but is not a composition or rearrangement of them.

Language is not limited to discursive meanings. We can speak directly from a situation and carry it forward by quite new phrases and new uses of words. (*A Process Model*, VIIB, is a careful treatment of it.)

Speaking directly from in midst of a situation is to speak from the implicit consciousness, directly from the body's implicit functioning. Everything we have learned functions implicitly in such speaking, producing new ideas and phrases than were contained in what it was.

Once we understand this direct use of words, we can see that Wittgenstein pointed to it over and over again. Sometimes he offered more than twenty new uses of a single word (for example “reading”). He argued that concepts and rules come from the uses; concepts and rules do not control the uses of words. But so completely did the old view of language dominate at the time, even Wittgenstein never said what I just said. He said he could “only show” it, as if he didn't use words to show it. He didn't ask how words can “show.” We have now explained how.

Thought formation is a kind of behavior formation:

Thinking and speaking carry the bodily-implied behavior context forward. Our behavior-context is cognitively patterned (*A Process Model*, VIIB). Thought forms in the same way as behavior does, only the environment is the doubled (“only about”) behavior context implied by the body

Thinking is a kind of sense-making, as behavior and living are. Thoughts come step by step, each making sense from the last. When that fails, the sequence stops. This is because the now implied is the next occurring. Thought- formation is like behavior formation. The feedback to the last thought is the next thought.

While we speak we feel what we are saying. When the words have not come, we feel what we need to say. That is how we know not to say the many words we could easily say.

Words go beyond their regular meaning. Regularly they appear to carry forward only their own standard discursive context. But they are and do more than that. They come as a body process in its detour as behavior context, now further detoured as “only about.” Because they come from all this, words can speak not only discursively (indirectly). New phrases can form directly from the situation (like metaphorical talk does). In still another mode one can speak from a felt sense, as in Focusing. (These are all derived in detail in *A Process Model*, VIIA and B.)

We can use all concepts in a “third-person” way, just explicitly and logically, precisely as defined. And we can also enter into what was implicit in our use of a concept, which always reveals more precise strands of how the concept actually worked in this instance. That can let us make more precise third-person definitions. After using those, we can explicate more precise strands that were implicit in those uses. Far from being in conflict, these two very different kinds of precision expand each other in turn.

The purpose of this article was to propose certain concepts. Elsewhere I have discussed the kind of thinking from which they derive, and how this kind of thinking can speak about itself.

SUMMARY: THE MAIN CONCEPTS I HAVE PROPOSED:

The body is an implicit functioning which produces all higher processes.

Nine Characteristics of implicit functioning.

After perceptions and cognitions occur, they continue to function implicitly in the body process. They function rather differently when they function implicitly.

How cognition and behavior are special kinds of body process.
With my concepts we can show this.

Sensing is coupled to behavior, not motion. It's not visio-motor, not sensory-motor. It's not motion but behavior-formation. Objects are implied in all five senses not yet separated.

The body implies “behavior-space,” a “space” of behavior possibilities (a more precise version of Gibson's objects as affordances).

There are two kinds of “perception”:

- (a) An “in-action” kind is evolutionarily earlier, and is part of behavior formation.
- (b) Perception that is perceived as perception is a later development.

In (a) each sense modifies the ongoing behavior formation.

If more than one sense modifies it, their effects join in the behavior formation.

This shows that perception is indeed intermodal.

Many organisms (e.g., plants) live without the five senses.

I suggest a conceptual model for a more primary kind of environmental interaction.

With this model we get out of the brain in a vat, and can conceptualize agency.

Motion (in the empty space of Newtonian points) is a late product of cognition.

Conceptual analysis is not wrong, but can go wrong by lacking concepts of earlier processes.

We keep our distinctions and add new distinctions.