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Elements of Reality: A Dialogue

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When we start with a scientific view of the world, we are at a loss when we try to deal with notions such as value, beauty, or meaning — or more down to earth: anger, fear, joy, color, smell, and other 'secondary' qualities whose putative reduction seems today as difficult as ever.

Do these qualities then have to be put in by hand, so to speak? Or could it mean that the scientific view itself fails to capture aspects of reality at least as fundamental as basic physical notions such as space, time, energy?

These were some of the questions that came up in conversations between an astrophysicist (Piet) and a philosopher (Bas) that began two years ago, as they met, often by accident, usually in a cafe for breakfast. What happens if a philosopher and a scientist discuss such questions? Well, this was an experiment, and here is the outcome. We still think of it as an experiment, an exploration, without any definite conclusion.

It would be unsufferably frustrating to read an actual record, so we've written up the result as if we were developing a coherent flow of thought, though in practice we found ourselves backtracking repeatedly. This in itself had an interesting result: we could write it up in this form only by each playing the other's role from time to time, so that the labels indicating who says what are at this point an unknown permutation of the real story. We are now, as we try to recapture the past, two actors playing fictional characters into which we have turned ourselves by rewriting. That is only right, that a real experiment should have a fiction as outcome — at least from one point of view, as you'll see.

In a nutshell, we take a look at the possibility that current scientific modes of description are limited in their scope. In response, we explore some consequences of admitting three equally basic elements or aspects: space, time, and meaning. We connect this approach to some other notions such as emergent properties, hardware/software distinctions, mind/brain correlations, as well as the central role of experience.

1. Elements

Piet: Science provides us with a modern mythology that tells us what is real. By and large, we trust modern medicine, based on modern science, to help us when we fall seriously ill. We look for science and technology to help us cope with environmental problems. When we look at trees and rock, we 'see' delicate arrangements of matter, rather than spirits or the hand of God, as was the case ten thousand and one thousand years ago, respectively.

Bas: You are right; we can't help it, I think. Even those of us who are religious do not spontaneously see things in the same way as the people among whom their religion originated. I don't think of science and religion as incompatible, and I don't think of this change as destroying religion — but we have to begin by admitting this historical change in our culture.

Piet: Actually, I think we can help it, but not by going back to a previous set of beliefs. But I think that a serious attempt to regain a more complete perspective on our role in the Universe will have to start with a personal form of inquiry. In times of relatively slow cultural change, it would be possible to start with received belief systems, and then slowly transform them into a more personal attire, so to speak. However, just like in the early Renaissance, for example, we now find ourselves in a time of rapid change, of culture clashes, with an overload of conflicting beliefs to choose from. So, not having the luxury to try on and try out some received belief systems, we are almost forced to start from scratch.

Bas: We should probably be happy about this. In the past, if someone became dissatisfied with received beliefs, and constructed his or her own personal view of reality, there was a good chance of being judged saint or heretic. But times have changed. It seems more and more difficult to take up the illusion of sticking to the mainstream, believing in received truths. Perhaps the upshot of the present uncertainties is simply this: we are all invited, willy-nilly, to find our own radical and perhaps heretic path, if we want to find anything at all that can be of living interest for us.

Piet: Many cultures view the various material objects surrounding us in terms of a small basic set of elements: earth, water, fire, and air for example. This gives a sense of coherence and familiarity to the world in which we live, and we ourselves too can be seen to be made up out of these elements, in such a view.

Just imagine that we could unlearn the modern view and bring ourselves to believe in those four elements as making up the real substratum of the Universe. Going for a stroll along a river, we could watch the water, thereby witnessing the primordial play of forms, the dance of liquidity, and we could feel the resonance in our own bodies, with all its liquids. We could bathe in the water, feeling refreshed and restored not only by the pleasant physical contact, but also by a much deeper restoration of contact with the Universe around us and within us — with polarities such as inner and outer dissolving themselves in the process.

And similarly, watching the Sun, or a candle, or a combustion engine, we could feel deeply touched by the fire element. Rather than contemplating the rapid motion of ionized atoms, we would feel the living presence of a friendly force. With Saint Francis, we could talk to brother fire, sister water, and the other elements, not metaphorically, but really felt, as real as when we deal with people and with physical objects.

Alas, in contrast, our present view lacks such coherence. The scientific view often seems pointless, cold-hearted, empty, hollow. Even when we appreciate the intrinsic beauty of science, or when we value what applied science can do for our life, it is not clear how this knowledge and power can be integrated into the overall picture.

Bas: It is very interesting for me to hear a scientist say this. Much of current philosophy takes it as given that science provides the framework in which everything else has to be placed for us, if it is to make sense to us at all. The idea of science as not defining our framework, but itself something that asks to be integrated, and that we have difficulty assigning a place in our life, may even be seen as 'unenlightened'. But I see now that scientists can be more detached about their science.

Piet: Certainly! What is more, our attempts to arrive at a satisfactory world view seem threatened by the great advances made by science — for if the scientific description of our world is assumed to be complete in principle, should all the unintegrated aspects of our experience not be downgraded to just so many forms of illusion?

Bas: In asking the question that way, I guess you acknowledge that there may be a good reason for that philosophical fiction (of us having science as our overall framework, for everything else to fit into). Science presents itself as at least in principle equipped to play that role, to take over so to speak, and to make that fiction a reality. How do you resist that, do you have reasons to think that this may not be all there is to it?

Piet: From the point of view of present-day science, and from the point of view of many a scientist, I'm afraid, this role may indeed appear almost irresistible. But from a human point of view, just watching what science seems to throw out at the very start, it is immediately clear that science hasn't even begun to come to grips with many of the absolutely fundamental aspects of our life, our existence, and our place in the world with and for each other. Whether science will eventually be able to accommodate what seems to have been thrown out from the start, is an open question.

Just imagine living for one minute in a world without beauty, value, or consciousness for that matter. Yes, conscious experience correlates with brain activity, but by measuring and mapping those correlations, have we come any closer to an understanding of what many scientists would like us to believe, that somehow consciousness emerges out of (oozes out of?) nerve cells? If I've ever seen an incompatible pair of concepts, it's a configuration of molecules and a conscious experience!

2. Dimensions

Piet: In science, the most basic aspects of reality are provided by physics. Depending on the level of analysis, we can talk about atoms, subatomic particles, wave functions, vacuum fluctuations, or (as yet unknown) physical effects on the Planck scale, perhaps even fluctuations in the number of dimensions and the topological structure of spacetime.

In this picture, such notions as earth, water, air, or fire become derivative. The first three are reduced to particular forms of matter, and the latter is reduced to a type of energetic reaction between forms of matter. And since energy and matter are equivalent, all of this boils down to forms of matter-energy. In fact, it may well turn out that matter-energy of any type can be viewed as kinds of excited states of space and time. Rather than introducing any foreign bodies into a spacetime continuum, perhaps spacetime itself can conjure up all the forms it displays.

Bas: I guess we don't know yet whether that is the right form of unification to look for in fundamental physics, though it may be. But good — for simplicity, let's suppose it is. So now our question is, even if future physics would be able to find a final unification in which somehow all forms of matter are reduced to excitations of spacetime, say, then what? Can we then bootstrap our way up from those most fundamental descriptions, all the way up to every-day physics, to chemistry, biology, even to human life and consciousness?

Let us not worry about which type of calculations and explanations we can be practically expected to be able to carry through. Rather, let us ask the question in principle: what can we learn about a higher-level description, starting from a lower-level description?

Piet: In my opinion the answer is: nothing, really. Hardware allows software, is necessary for it to function, but does not restrain it (a universal Turing machine can run on any personal computer).

What, really, is the difference between a computer, off-the-shelf, without any software loaded yet, and an up-and-running computer that is engaged in a particular task, such as word processing? In both cases, the material components are exactly the same. No difference in substance. The only difference is in the meaningful arrangement of (ultimately) ones and zeros in the case of a working computer, in contrast to the blank state of a not-yet-loaded computer [1].

Bas: Well, should we be a little cautious about this? At times when a computer is running different programs, its physical states are different, even if its components are still the same.

Piet: That is true; the information, present in the software, can be localized as a pattern in space and time; but it is less bolted-down than a piece of material substance is. Software can be copied without damaging or diminishing in any way the original, whereas borrowing a piece of hardware does not leave anything behind in the old spot. In other words, matter and energy are conserved, can be shuffled around in space and time, but cannot be duplicated freely, the way information can. This suggests that information is a more fundamental ingredient of reality than matter and energy. As I suggested above, we may one day be able to view all manifestations of matter-energy as just so many intricate forms of spacetime excitations. If so, then what is it that 'makes up' matter-energy? Space and time and information.

Bas: So could it be that all those aspects of reality that have been left out, so far, in a scientific world view — value, beauty, anger, fear, joy, color, smell — have this in common with software that they represent a form of meaning that may need a physical substratum, a form of 'carrier', while not being reducible to or fully determined by that substratum?

You know, as a philosopher I've had to take a long detour here. In our century we've witnessed quite a long, sustained attempt at a 'consistency proof' for materialism, even if in progressively less pristine forms. There was first of all the straightforward idea of reduction, that equated everything involving meaning (or to which the idea of meaning seemed applicable) with types of psychological states, and then added that every type of psychological state can be equated with a type of physical state of the body (especially the central nervous system of course). There are still philosophers who defend this, and there may be a general impression that this was at worst a good scientific hypothesis. But most philosophers found they had to retreat from that position, because there were too many difficulties in principle for such a reduction.

A fall back position used the idea of 'supervenience' rather than reduction. One way to put that is as follows. Begin with the admission that it is in principle impossible to translate single sentences, or even whole paragraphs, or any finite text in the language of persons, thought, and emotions (let alone meaning and reference) into finitely long (or even recursively definable) sets of sentences in the language of physics. But then add: the translation is in principle possible for infinitely long descriptions. This would still entail something like: the psychological 'supervenes' on the physical, in the sense that there is no psychological difference without an underlying physical difference.

I think perhaps we can endorse some such possibility, as long as we emphasize that this dependence 'at the far side of infinity' neither effects a genuine reduction nor gives us any insight into consciousness and meaning based on its relations to physical conditions. That configurations of matter and energy are a necessarily required substratum does not entail the adequacy of any actual 'materialist' reconstruction of the world of persons, thought, emotion, and meaning.

Piet: I would put it this way: when we take space and time as forming the underlying net that holds up reality, we may hope that matter and energy will soon be seen to be explainable as particular forms of space and time, perhaps some form of excitations of the vacuum, or whatever a unified theory of the fundamental interactions will come up with. However, meaning seems to slip through the mazes of the net. The question then arises: how to catch meaning?

Often, in a period of crisis, the solution was found by turning the tables. Rather than starting with one set of assumptions, and desperately trying to reduce other phenomena to something derivable from the starting set, a radical move can be called for — a move in which a seemingly derived phenomenon was taken to be a fundamental assumption in stead. This happened in quantum mechanics, and at many other stages of physics.

In our case, when meaning seems to slip through our scientific fingers, why not try the same trick? Let us take 'meaning' as fundamental too, equally fundamental as space and time. In other words, let us consider meaning as a third type of dimension. Space, time, meaning, then, may form a more promising triad from which to weave a picture of reality. [2]

Bas: A very audacious move, Piet! That sounds like exactly the sort of radical departure that I'd enjoy exploring with you. But let me begin by spelling out what I think of as the standard default option today: a naturalistic approach to meaning. That approach pretty well preempts any such radical departure. For it assumes that all meaning resides, fundamentally, in individual psychological states. These psychological states are functional states of organisms. Roughly speaking, the world and the things in it are meaningful, or have meaning, only in that they are represented and interpreted in or through such psychological states. On this view, the very word "meaning" attaches in the 1st instance only to the items used for representation, such as words, sentences, and pictures. It seems to me that you want to turn this view upside-down in some way, or perhaps you want to downgrade it from a philosophical starting point to just one description among others.

Piet Yes, we must reject that sort of naturalism or materialism, if we want to get anywhere. Meaning, consciousness, and experience cannot have a fundamental role in our worldview if they are just aspects of functional states of some parts of the material world. The description of the world in the natural sciences may be accepted as correct within the limited scope it sets for itself. But we must allow from the very beginning that it does not also play the role of dictating or confining our philosophy.

Bas We are taking on a real challenge, Piet. We'll be responsible for producing a new view of how meaning, consciousness, and experience are related to each other. Anyway, this appeals to me very much. As soon as we introduce meaning on an equal footing with space and time, we can explore metaphors of extension and separation, such as the notion of a 'meaning shift' (paradigm shift). We can talk about the 'depth' of insight, or the 'depths' and the 'heights' of experience; we can talk about a gulf or abyss separating two different views or ways of understanding which pertain to the very same situation in space and time.

Isn't it interesting, how we can be tricked by our conventional expressions. When I said "the very same situation in space and time', I meant "the very same configuration of physical objects." But of course, when we include a meaning dimension in our discussion, the situation no longer stays the 'very same'. Instead, the same configuration can give rise to a wild variety of different meaningful situations.

Piet: Such situations are then seen to be the 'same' only after projecting out the meaning dimension, reducing the dimensionality from three to two.

Bas: So we will stress that anything at all is *in* space, is *in* time, and always *has* some form of meaning.

Piet: Yes, anything whatsoever partakes *in* meaning, not only through its own specific meaning, but also by being embedded in a meaningful context ......

Bas: ......just like any event, with a specific location in space and time, is embedded in space and embedded in time. The fact that we consider meaning as thus being on a similar footing with space and time contrasts starkly with the view that meaning is something that has to be somehow *added* in the end, plunked into the arena of space and time from we don't know where (or when).

Piet: I hope we can use the phrase 'meaning dimension' without confusion. When we talk here about space as a dimension, we implicitly address the full three-dimensionality of space. It would be awkward to talk about the time dimension and the space dimensions. Besides, who knows how many dimensions we could or should assign to meaning – most likely such a literal conception would miss the mark anyway. So let us use the word dimension here, even though a purist might have preferred to use the word 'meta-dimension' to indicate type of dimension rather than an exact count of mutually orthogonal axes that can model a system.

It is important, I think, to keep space and time as two separate dimensions, even though physics has integrated space and time in a single spacetime continuum (with $3 + 1 = 4$ geometric dimensions). I have the sense that our scientific concepts of spacetime at present are too much slanted to a geometric model. Our experience of time is that of a moving present, one that is very different from a tick mark somewhere halfway a time axis in a frozen four-dimensional spacetime. While physics obviously has captured significant insights into the workings of time and the partial symmetries that exist between space and time, I really think that all this shows only half of the story.

While the distinction is relatively slight in theoretical physics these days, space and time both being aspects of a spacetime continuum, it is possible that this treatment leaves out some essential difference between the two. In fact, that difference may well be at the heart of our difficulty of finding a satisfactory interpretation of quantum mechanics.

Bas: Well, in another context I might take you up on that remark — interpretation of quantum mechanics was a hot topic at the conference I attended in Minneapolis last week. But I'm anxious to press on to a focus on the third 'dimension': meaning. Before we can do that, though, I want to raise a huge worry.

Piet: Philosophers must be professional laggards! When *we* want to press on, we press on — but OK, what is your worry?

Bas: Well, if we ever relate our conversations to other people — well, what would you think if two guys told you they have a view about reality and it has three elements?

Piet: Oh, I see what you mean. I'd joke about how Thales had only one, water, and Democritus had two, atoms and the void, so obviously they have made a lot of progress! Certainly I'd begin by assuming that they meant that everything is reducible to those three elements, and I would think their view would be as unlikely as any other form of reductionism. That's your worry?

Bas: Yes, exactly. No matter how clearly we say that we are not in the reduction business, our choice of traditional terms may leave the impression that we are. I take it that our three elements are basic only in that we are choosing them, provisionally, to play a basic role in our exploration of experience, science, values, life and everything else there is — not that we are, metaphysician-like, cataloguing the 'furniture of the Universe'.

Piet: Well, the language we are born with, culturally speaking, is old and sick; but it is reborn and takes on new life whenever it is put to a new task, remade and remaking itself in any creative use — that is what we'll tell them.

Bas: Astrophysicists must be professional poetasters! But I like this mixed metaphor, and agree: that is what we'll tell them.

Piet: So we have reached a conclusion of sorts: something is missing, when we try to describe reality only in terms of space and time. And what is missing is not just something vague, something like a good feeling in the belly or hard-to-describe moods of sorts. Rather, we are on the trail of something qualitative and perhaps even semi-quantitative, something that is not vague at all. Hence, the metaphor of a dimension.

Bas: I see the point of the metaphor, and maybe it will guide us if we try to explain this further to ourselves. If I understand you correctly, you think of physics as abstracting from what there is, describing only some aspects and leaving others aside. You say that even if physics arrives at a Theory of Everything, it still leaves something out of account —

meaning.

But I suppose we better not press the metaphor too far. We don't mean to imply that meaning can be measured quantitatively, like length or duration. Nor are we at a point where we can answer 'how many' questions (like: three geometrical dimensions for space, one for time, and ... one, legion, aleph-zero, or an inaccessible cardinal for meaning?)

Piet: Don't joke — we better make that clearer than a philosopher's 'clarity'! If anything, meaning might be considered the richest of all three dimensions, and any attempt to make it fit into a finite number of quantitative dimensions is probably too reductionistic. Still, we see a connection, even though it won't be easy to convey our view of meaning as a dimension to someone who is accustomed to thinking of everything as in principle reducible to physical categories.

Bas: Do you think it might help to suggest another word, besides *meaning*, just to make it clear that we are trying to point to a deep aspect of reality without being wedded to a particular expression ......

Piet: ...... or particular form of theory at this point. We are really in a pre-theoretical stage in our current musings, trying to go back to square zero, to see what might have been left out right from the start, in our commonly shared world view. Okay, let's look for a different key word. If you don't think it will confuse us, let us use the word *sense* as an alternative to meaning, in order to get the notion of meaning more under the skin, so to speak. 'Meaning' may sound too dry and analytic, whereas sense can be used in a much more intuitive way. [3]

So what can we say about sense? If we lacked any understanding of the world around us, in other words if nothing made sense, we would not have any understanding of either space or time. But since the world does make sense to us, we can explore what it means, this notion of sense.

First of all, in our exploration of sense, there is no way to walk out of sense, as little as we can walk out of space or out of time. Still, we have to learn to see this, to see what such a statement may mean, experientially. We could say that sense is 'everywhere', just as space and time are.

Just like space is 'everywhere', time is 'everywhen', and sense is 'in every which sense'. Space is there, even when there are no objects present. Time is also there, even where there are no specific events to be located. Even Leibniz, who definitely rejected the reality of Absolute Space and Time, would agree to this. [4] And sense could be taken to exist, even there where and when no specific information would be at hand.

3. Experience

Bas: If we are going to give meaning equal pride of place with the categories from physics, how are we going to think of our enterprise? It may look pretty topsy-turvy to a lot of people.

Piet: What we advocate here is an empirical approach, in the most literal sense: starting with what is given, namely experience. And right at the start we have to be careful about what it is that is given. We habitually talk about 'my' experience, taking for granted the (seemingly independent) existence of a subject or ego or self that somehow 'has' experience. But if we look carefully into the evidence for such a self, we find that the self itself is given as part of experience.

So it really is more accurate to say that experience has a self, rather than that a self has experience, as the Japanese philosopher Nishida has stressed early in this century – at least as long as we start from a purely empirical approach. Nishida wrote [5]:

> Over time I came to realize that it is not that experience exists because there is an individual, but that an individual exists because there is experience.

Bas: That is radical — yet very much in keeping with how modern philosophy developed in the West as well. Descartes started with an unquestioned assumption that if the word 'I' is used then it must refer to a substance which is doing that using and referring. The way we talk already assumes it: if there is a using there must be something used and someone using, using is always using-of and using-by. But that substance — that self — always kept disappearing and having to be postulated back in, and then once more dissolving into mist, in subsequent philosophy. Maybe we better make sure that we don't get our starting point confused with any one of those philosophies that were tried out and found wanting in the meanwhile.

Piet: Of course it is radical. But if we've ever been in need of a radical turn, it is now. On the one hand, looking at modern art or at postmodern forms of analysis, one may get the impression that it is hardly possible any more to really be radical. But the radicality of a Descartes, and also of a Berkeley, and a Husserl — these are far more radical and far-reaching than what we currently are witnessing in either philosophy or art.

Well, let's begin with by contrasting this starting point with the two traditional views of (naive) idealism and (naive) realism. Our empirical starting point is quite different from either of those two. Much as they seem to be diametrically opposed, they actually have in common an unquestioned belief in a self or subject as somehow being centrally important. In the idealist case, this self is the central starting point to which all experience is referred: experience is something this person has, and is to be described in terms of attributes of this person. In the materialist case, one starts with matter, persons are identified with certain well- organized bits of matter, and experience is described as consisting of processes to which this matter is subject.

Our approach is reminiscent of the early phenomenologist's battle cry of 'back to the things themselves', or for that matter, to James' injunction [6]:

> To be radical, an empiricism must neither admit into its constructions any element that is not directly experienced, nor exclude from them any element that is directly experienced.

Bas: I like the company, and I even like the rhetoric: those are philosophers I admire. I would be a lot less sympathetic though if I saw this methodological departure taking us into something like Whitehead's metaphysics, beautiful though it may be! But I'm beginning to worry about one major problem. Perhaps it is a problem that confronts each radical opening: how to talk about new structures while using the old language. How do we shake off space-time-matter-energy reductionism while still using the language of our time that is so much wedded to such forms of reductionism?

Piet: It is here that I think our notion of meaning as a dimension will turn out to be extraordinary useful.

For example, rather than asking how a brain can produce experience, we can start from the experience side, and simply note the correlations between brain and mind, rather than trying to have the matter produce the mind. Both brain and mind are given in experience, and a priori neither has a privileged status.

Bas: All right, then, we shall start from experience, and we'll take for granted that experience is meaningful from the beginning. Our experience — even in the simple sense of whatever happens to us, that we are aware of — is not something that we have to impose meanings on, or that we have to clothe in meaning before it is meaningful to us.

But just to make sure that we aren't judged guilty by association, we better stress here how this way of thinking can avoid the traps of solipsism and of materialist reductionism. We do not need to be bound to either sort of assumption.

Piet: The starting point is that every analysis of experience still takes place in experience. This may seem like a tautology, which indeed it is, but it is something that we tend to forget. Even in the simplest actions of everyday life, we consider ourselves to be squarely within an objective physical world in which our experience is only some minor part, something ethereal that somehow is a product of our brain. And viewing our world that way, we forget that in fact this whole world, in so far as we experience it, is part of our experience.

As a concrete example, let us take this table here. If you ask someone about their experience of the table, they will point to the table as a physical object, and then go on to describe their experience as something separate, something somehow layered 'on top' of the table. And when asked to give a location of the experience of the table, many people will even point to their head, rather than to the (experienced!) table.

Bas: There is a problem, though, with simply stating that 'all is experience'. Even with respect to my own experience of a moment ago, we distinguish between what actually happened to me, of which I was aware, and my spontaneous response, *i. e.* , my judgement of what it was (perhaps these are two different senses of 'experience').

For example, I say: 'what actually happened is that I tripped over a cat, but I took it to be a raccoon.' In more sophisticated examples, we notice that our immediate response was theory-laden, or theory-infected – I took something to be full of caloric fluid, or to be rapidly losing its phlogiston. Surely we are not saying that all experience is equally valid.

Piet: No, it is just like when you watch a movie, and realize that 'it is all just a play of light'. This does not imply that each play of light is just as interesting as every other one – the difference between excellent and mediocre movies remains. Stating that movies are a play of light, you have made an important analysis of the texture of the movie, but you have not said anything about the content. And indeed, after making this remark, you can still go on enjoying the movie. There is no need to stop watching the movie or to stop identifying with the story. In fact, realizing that a murder on the screen is not real will allow you to appreciate the story better than if you were mistakenly of the belief that someone really got stabbed right in front of your eyes.

Bas: Wait a minute, Piet. You are moving very fast here! Let me see if I understood you. You say that in our fledgling theory we should not be adding or subtracting anything to our normal, daily-life experience. We acknowledge the usual *interpretations* of experience as valid or non-valid experience. We just point out that interpretations themselves in turn are forms of experience. It is all experience. There is no framework within which experience is mounted, as pieces of glass; rather, different experiences join each other 'at the edges' [6].

Piet: Yes, and we are pointing out how our normal way of dealing with experience is fully transparent to the embeddedness of everything in experience. The 'natural attitude', to use Husserl's term, completely conflates physical objects with the experience of them. And he introduced a special term for the turn towards the experience dimension, where experience is experienced as experience. He called this the *epoche* (from the Greek for 'suspense of judgement'). He advocated a kind of experimentation in which we just pay attention to what appears, in and as its appearance, while dropping our unquestioned allegiance to the world view we grow up with.

Bas: We may have reached a point of deep disagreement between us — I am not sure yet. It is part of how we usually take our experience that it is experience of something, and that our spontaneous ways of taking things to be thus or so can be right or wrong. I'm not sure whether you are really doing justice to this or not. But I think we will need a whole series of future conversations to go into this.

Piet: Good! In our present experiment we have been willing to follow each other very far — on some future occasion we'll concentrate on uncovering differences.

4. Reality

Bas: Perhaps we should start looking for some concrete applications of our new notion of meaning as a dimension. Can we get some mileage out of this idea, that space, time, and meaning all can be seen as having a similarly primordial status?

Piet: In principle, if these three are really as fundamental as we think, we should be able to apply them to everything. Let us just pick three examples.

Bas: Okay. Let's take one example from the sciences, one from the humanities, and one outside academia, perhaps a more personal one.

Piet: Fine. In the sciences we can take the question of 'emergent' properties. How can it be that a complex system shows behavior that cannot be reduced to properties of its components? How can a physical brain produce something so unlike itself as mental consciousness? Not only is the whole here larger than the sum of its parts, it is in fact totally unlike its part in a most drastic way. You've started laughing — why?

Bas: Oh, I'm laughing because I like this example — I've seen so many philosophical discussions tie themselves into knots over this. Maybe we can blame the rhetoric, or the tacit choices made when labels are attached to such issues. It's one thing to say that the properties or state of the whole — say of a complex physical system — are not entirely determined by the properties or states of the parts (or even supervene on them — you remember our discussion of reduction and supervenience?). I will immediately accept the example of the quantum mechanical state of N-body system as a good example of this in physics, for example. But when the label 'emergent' is attached, then there is a suggestion that we already have some sort of answer to how this can be: the properties of the whole 'emerge' from those of the parts — as if we understand some sort of process of 'emergence', which sounds very physical and concrete, and that we can already apply this here in some way. But all the word really signifies is some half-baked analogy.

Piet: Yes, this muddle is a nice place to start. This immediately pulls the rug out from under this odd usage of words that has become so popular in science these days. Why should anything dissimilar 'emerge' from a given substratum, spontaneously generating their own complexity as mice were thought, not too long ago, to be generated spontaneously from an old shirt? I entirely agree with your disenchantment of this talk about emerging properties. Calling something an emergent property after witnessing higher structure formation coming out of a computer simulation with lower structure as the sole input, is that supposed to explain something? In my view, we are still totally lacking the most basic vocabulary and system of analysis for even beginning to understand this notion of emergence. Life 'emerging' out of lots of molecules; consciousness 'emerging' out of lots of nerve cells. Well, why not consider time as 'emerging' out of clocks? Without clocks no accurate time measurements. And a good clock provides excellent correlations with the flow of time. But time surely does not 'emerge' out of a clock.

Bas: Both in popular science and in philosophy you see the authors vacillating on this question of emergence, moving back and forth on a continuum from the tenable to the audacious, as one of my teachers used to say ... Sometimes quasi-occult meanings are imposed to give some peculiar content to the notion of emergence, and sometimes all meaning is denied even to the idea that anything about the whole might not supervene on what the parts are like.

You can say more about the deplorable mystifications in popular science that must at this very moment be lying around on many coffee-tables. I'll point the finger in my own backyard, at philosophers who get themselves caught in their own double-binds with it. Here is an example from a philosopher, J.J.C. Smart, who begins his essay 'Materialism' with [7]:

> By 'materialism' I mean the theory that there is nothing in the world over and above those entities which are postulated by physics (or, of course, those entities which will be postulated by future and more adequate physical theories)

He quickly discusses some older and more recent postulations in actual physics, which make that 'theory' of his look substantive. But of course the parenthetical qualification makes that discussion completely irrelevant! For he lets the content of his 'theory' be determined entirely by the unknown future history of science.

The problem with such an attempt to tie a philosophical position to the mast of science is that it is caught on the horns of a destructive dilemma. On the one hand there is the Scylla of saying too much, so that it may become incompatible with science as science evolves and changes. On the other hand, there is the Charybdis of saying nothing informative at all — and if you try to be compatible with any future science, whatever it will be, you have to go for complete vacuity. Smart is obviously worried that he has just impaled himself on this second horn, for he quickly adds: [8]

> I wish to lay down that it is incompatible with materialism that there should be any irreducibly emergent laws or properties, say in biology or psychology ...... I also want to deny any theory of 'emergent properties' ......

This is obviously an amendment, trying to put some bite into this 'materialism'. But now just what is Smart doing? Is he perhaps telling us that either physics will forever eschew emergent properties, or else materialism is false? Since quantum physics provides, at this point, a clear example of holism, should we conclude that materialism has already come to an end?

My guess is that if Smart were convinced by this example, he would not actually admit that his materialism was refuted. I think he would not stick by his guns but shift ground — as materialists always have — and give up on that attempt to provide real content to the claim that all there is, is material. The audacious thesis retreats to irrefutable triviality ......

Piet: Rather than banging our heads against the wall, trying to figure out how oranges can grow on an apple tree, we must simply turn the tables. Instead of trying to derive, e.g., consciousness from the brain, we start with both consciousness (through the meaning or sense dimension) and matter (as a state in the space dimension) as given on a similar footing. If this has the ring of an approach akin to that of Spinoza, well, after all he was the most interesting philosopher that our country of birth has produced. I have not forgotten that we still have the problem of explaining to ourselves exactly how consciousness, experience, and meaning are related to each other. We may have to set ourselves that task in a whole new series of conversations. Anyway, let's turn to our second example, one within the humanities. Did you have any particular one in mind?

Bas: Let us look at the relation between philosophy and religion. I hope it's not too old hat. I just saw Tom Stoppard's *Arcadia* and when Valentine asks about this issue, Hannah says "No, no, been there, done that, boring!" But at least one character in the play took the issue seriously, anyway.

Piet: In most cultures, both activities will fall under the same heading, an urge to figure out what we can know about the character of reality. In our particular culture we have made an ever-growing split, starting a few hundred years ago for good reasons. However, these reasons may have lost some of their power, and we may well have overshot our original goal.

Bas: One way to look at our history is to say that as science gained way, religion gave way, and had to give way. If science is a sophisticated and efficient way to find out more about what the world is like, it will of course replace naive, dogmatic, and ill adapted older ways, at least among people of intellectual good will. But even though science has in our culture been strongly associated with secularism, I think this way of looking at it mistakenly assimilates religion to superstition. I won't deny that that the two often go hand in hand; but superstition goes hand in hand with science too! You only have to look at the National Enquirer to see that today most superstition comes in 'scientific' forms: extra-terrestrials, experiments on telekinesis and clairvoyance, new archaeological discoveries, explanations by means of cosmic forces and interstellar travel, and so forth. A lot of common lore about health, both physical and mental, I suspect of also just being superstition dressed in contemporary 'scientific' form — and supported by credulous attitudes to science.

So superstition is not a specifically religious thing, it's a disease that will fasten on any currently prevalent form of life. In every inquiry, in every aspect of life, the superstitious will distort things, by shifting attention from the significance to whatever happens to be the specific vehicle of significance — and then idolizing that.

Piet: So you are suggesting that all those 'victories of science over religion' are really victories over superstition, and each is a wonderful step forward for religion as well?

Bas: Do I hear you being just the least little bit ironic here? In fact, yes, I'd be happy to put it that way. What I admire in science, in philosophy, and in what I think of as true religion as well is that it topples the idols of the tribe, as Francis Bacon said. That means of course: of our own tribe! In religion, as in philosophy, and also as I study science, the really valuable experiences do include coming to have a better understanding of our traditions and 'where we come from'. But the most valuable have been ones in which I felt that all support was momentarily swept away from under me, and I had to either climb higher or fall into total despair.

But look, what about our third suggestion: something more personal.

Piet: Well, perhaps that third example will now actually be an extension of our second one. What I have in mind is a personal world view, a gut feeling about reality. For the more intellectually minded among us, philosophy may provide such a view, but for nearly everyone the feeling of what ultimately is 'really real' goes well beyond intellectual speculation.

Bas: Alas, there seems to be little extra left in the form of a shared outlook at reality, besides the scientific and technological basis of our world view. Take the examples of individuals who suddenly take up membership in sects, whether born-again Christians or New Age cult groups or what have you. Such persons may very well have had a deep and authentic experience, perhaps a form of epiphany. The most natural reaction would be to want to talk about that with others. But in many cases they must have found that there was nowhere to go with such an experience, finding no resonance in the established structures of our society, not even in their church if they had one. And as a result they may have turned to the nearest sympathetic ear, jumped into the nearest ditch so to speak, and found themselves in a random fringe group. In such a group they may indeed find an element that is missing in more conventional circles: an acknowledgement of the strong experiential resonances that can come from a journey into the dimension of sense. But it seems usually to degenerate into superstition.

Piet: It would be wonderful if alternatives were available, in which a similar sense of meaning could be offered in more down-to-Earth settings. Individuals who were attracted by the particulars of specific sects could of course still turn to those sects. But the majority of seekers who are now turning to sects out of desperation would have an alternative. They could contact a form of sense in their life, not as something to be obtained, but rather as something to be recognized as being already there: one of the three fundamental aspects of reality.

Bas: Piet, once again we are in danger of capitulating to old terminology or even the old ideas themselves. I feel that you are absolutely right in your sentiments, but think of how they could be pigeonholed and misunderstood if they were assimilated to that vast 'inspirational science' literature on the coffee tables of the world. You know how they sound: in the Middle Ages (ancient Greece, the Enlightenment, or whatever the author touts as the Golden Age) we had a unified world view; we lost it and descended into chaos when science, religious wars, and economic upheavals destroyed that unity of tradition; but now science provides us with a new world view, equally coherent, all-encompassing, and secure — so let the Scientific Middle Ages begin!

Piet: And freedom end! That would just be replacing the tribe's old idols by new ones, because we relish the security of being 'in the grip of a world view' as they say. What we want is liberation-philosophy! The point about alternatives is that they present us with choices, and by that I do not mean the choice to be in a position where there aren't any choices anymore. But we can't run before learning to walk. We have to start somewhere.

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Notes

[1] Gian-Carlo Rota, a mathematician-philosopher at M.I.T., uses this and similar examples in *The End of Objectivity* (unpublished lecture notes) to point out how Husserl and Heidegger looked at the layering of descriptions of 'one and the same thing' (as reductionism would insist) simultaneously playing different roles in different co-existing contexts.

[2] For a fascinating attempt by a Tibetan to express such a vision in Western terms, *cf.* Tarthang Tulku, *Time, Space, and Knowledge (1977)* [Berkeley: Dharma Publ.].

[3] *cf.* P. Hut, 'Structuring Reality: The Role of Limits', in *Boundaries and Barriers*, eds. J. Casti and A. Karlqvist (1996) [Reading, MA: Addison-Wesley], pp. 148-187; P. Hut & R. Shepard, 'Turning 'The Hard Problem' Upside Down & Sideways', *Journal of Consciousness Studies*, **3** (4), pp. 313-29.

[4] G.W. Leibniz (1704), *New Essays on the Understanding*, Bk. II, Ch. IV, section 24: "The void which can be conceived in time, indicates, like that in space, that time and space apply as well to possible as to existing things."

[5] K. Nishida (1990), *An Inquiry into the Good*, [Yale Univ. Pr.], p. xxx (Rom. num. 30)

[6] W. James (1967), *Essays in Radical Empiricism & A Pluralistic Universe* [Peter Smith], p. 42

[7] J.J.C. Smart (1987), Ch. 16 of his *Essays Metaphysical and Moral* [Oxford: Blackwell]

[8] ibid. pp. 203-204.