

THE HOLOGRAPHIC ANALYSIS OF NEAR-DEATH EXPERIENCES: THE PERPETUATION OF SOME DEEP MISTAKES

Stephen E. Braude
University of Maryland, Baltimore County
Catonsville, Maryland

Abstract

Kenneth Ring's recently-heralded analysis of near-death experiences, modeled after Pribram's holographic analysis of cognitive phenomena, suffers from two main sorts of defects. First, there are those inherent in any attempt to reduce reality to the properties of a frequency domain; and second, there are those peculiar to Ring's own theory. I examine these defects, and argue that the holographic analysis of near-death experiences is fundamentally incoherent and confused.

For the past few years the scientific world has been buzzing excitedly over an analysis of human cognitive phenomena (e.g., perception and memory), and in fact, all of reality, due principally to the efforts of Karl Pribram (Pribram, 1971, 1977; Pribram, Nuwer, & Baron, 1974). The novelty of Pribram's approach is that he compares the structure of nature to interference patterns on a hologram, and regards the brain as the instrument by which holographic reality is analyzed and our ordinary 3-dimensional perceptual reality is constructed. Pribram's view has also inspired various cosmic extensions, one of which is Kenneth Ring's recent holographic analysis of near-death experiences (hereafter, NDEs) (Ring, 1980).

Ring's book has been receiving a good deal of favorable critical attention. Like Pribram, he is applauded for his pioneering application of what is being dubbed a *holonomic* or *holographic* paradigm (borrowing Thomas Kuhn's overworked term) or model of reality. I find, however, that I cannot share in the general enthusiasm for this approach. In my view it is totally confused. I have elsewhere sketched what I take to be some mistakes inherent in Pribram's work (Braude, 1979). Ring and other partisans of the holographic interpretation of NDEs (e.g., Brent, 1979) seem to make these same mistakes and more.

I shall accordingly focus on two sorts of errors. First, there are those inherent in any attempt to reduce reality to nothing more than a frequency domain. And second, there are those specific to particular applications of the holographic paradigm. Although Ring's theorizing contains some very interesting suggestions that do not depend on the holographic interpretation of NDEs, it abounds in, and is largely vitiated by, errors of both sorts.

Address reprint requests to: Stephen E. Braude, Ph.D., Department of Philosophy, University of Maryland, Baltimore County, Catonsville, Maryland, 21228.

General Mistakes

Pribram (and Ring) take as a starting point the venerable distinction between appearance and reality. In their version, evidently, the world of appearances is the world not only of familiar material objects, but also of events, including inner episodes or subjective experiences (like thoughts and memories). Moreover, the world of appearances is not merely a world of objects and events. It is also a world of facts about and relations among these things—for example, relations of similarity between different subjective states, or between a subjective state and an object or state of affairs in the material world (as in the case of remembering via images). Now, according to Pribram and his followers, behind this world of appearances is a 'primary reality' composed only of interference patterns of frequencies. One crucial function of the brain, they contend, is to analyze these frequency patterns into components, and then 'construct' our familiar perceptual and phenomenological world out of these component frequencies by a process analogous to the laser illumination of an interference pattern.

Material objects, events, subjective states, and relations among and facts about them, are therefore constructs out of the frequency domain. What makes this possible, apparently, is that the structure of interference patterns corresponds (or is isomorphic) to the structure of the objects, events, or states of affairs constituting the world of appearances. The brain, then, is a kind of machine, programmed¹ to break down portions of the frequency domain into elements (i.e., determine its structure), and then 'translate' these structures of the frequency domain into the analogous structures that make up our familiar world of experience.

The first thing to notice, then, about the holographic model, is that it is both *reductionistic* and *atomistic*. Nature reduces to, or is composed essentially of, frequencies forming various interference patterns (the 'primary' level of reality). These frequencies, moreover, are atomic or basic in the sense that they are the building blocks for our familiar perceptual and experiential reality. They are not mere abstractions from reality-as-experienced. They are literally the elements from which ordinary reality (the world of mere appearances) is constructed, and are *logically prior* to, or *presupposed by*, that reality. Hence, it appears that the holographic model is committed to the view that nature has a structure, or fundamental ordering into elements and relations from which *the* structure of our ordinary world of appearances results by means of a holographic transformation. More specifically, the holographic model is committed to the following two principles: (a) that there is a preferred parsing of nature into atoms or elements (the frequency domain), items in principle identifiable independently of any description of the ordinary reality which the elements compose; and (b) that the objects, events, and states of affairs of our familiar reality are simply ordered arrangements or structures,

¹ Who (or what) supplies the *appropriate* program (since there isn't just one) is apparently an issue that partisans of this approach don't see clearly. They apparently don't realize that a homunculus—not a machine—is required to determine appropriateness and relevance, and accordingly fail to grasp the fundamentally *non-mechanistic* character of thought and perception.

mathematical transforms of 'primary' structures composed of these basic particulars. But these two principles cannot possibly be true. Let me briefly explain why.

To see what is wrong with the idea that nature has preferred parsing, ask yourself the question: How many things are in this room? The important fact to observe here is that this question has no single correct answer. Before we can answer it, we need some idea of what is to count as a *thing*. And it is crucial to realize that different sorts of objects or entities may legitimately count as things in different contexts. Independently of some context in which certain descriptions of the room but not others count as appropriate, the question simply has no answer. If we are atomic physicists, we might consider atoms or subatomic particles to be things. And in that case the room will contain an enormous number of things. But if we are household movers or insurance agents, there may be far fewer things in the room. Moreover, it is clear that similar considerations apply to any given object—say, a table or a hand. Of any object *X*, we may ask, 'What are the elements of *X*?', and different sorts of things will count as elements in different contexts. Thus, an artist, physician, chemist, and physicist might give different inventories of the things composing a human hand. Therefore, even when we agree that the hand is composed of things, there is no *preferred list* of things—i.e., no set of hand-components that is absolutely more fundamental than any other set. Which things make up a hand can only be settled within a context of inquiry in which it is appropriate to regard certain items rather than others as things or elements. No object, in other words, has a context-independent preferred parsing or analysis into elements. But then, of course, it has no preferred or fundamental *structure*.

The same points apply to *events* or *states of affairs*. Bits of history may be parsed—legitimately—in an endless number of ways. And it does not matter whether we are concerned with so-called *objective* events or states of affairs, or a person's subjective states or inner episodes. For example, we might ask, 'How many events composed the 1980 World Series (or Jones' memory of his 40th birthday party)?'. Obviously, there is no single correct answer to such a question. Either event, the 1980 World Series or Jones' memory, may be subjected to numerous different sorts of fine-grained or coarse-grained parsings.

What these considerations suggest is that the elements of an object, event, or state of affairs cannot be specified independently of some *criteria of relevance*. But since these criteria are obviously context-relative features of nature, objects, events, etc., are not constructs out of logically more basic elements. Rather, the *elements are abstractions rendered appropriate within a context*.

Now we can see why the holographic model cannot even be applied in those cases where it allegedly has the most plausibility—i.e., memory and perception, much less in the case of NDEs. Thoughts or mental states cannot be mere constructs out of more fundamental elements. The elements of a mental state exist only relative to some context in which a certain parsing or parsings (but not others) will count as appropriate. They are thus conventional—not inherent—features of nature, and cannot even be specified except within some actual situation and relative to a point of view in which slices of life are regarded as meaningful or significant in certain ways (but not others). Therefore determining the meaning and the structure of an event (or slice or history, internal or external) are not activities logically independent of one another. Rather, they are parts of

the same package. What counts as an element of, or the structure of, a person's inner episode depends on what we take the inner episode to be. The holographic model, on the other hand, requires that what the episode is be a function of antecedently isolable elements and their antecedently isolable arrangement.

The following case may help clarify this rather abstract issue. Person *A* says to *B*, 'I forgot to bring the wine. I left the bottle on the kitchen table'. Suppose *B* then has a mental image of a bottle of wine on a table. Now it is plausible in this case to say that the elements of this image are a bottle and a table, linked by the relation, '___ is on ___'. But notice, these count as elements of the image only relative to the context in question. Had *A* remarked instead, 'The bottom of the wine bottle is stuck to the top of the table' the elements of *B*'s image would have been different—in this case, the bottom of the bottle, the top of the table, and the relation '___ is stuck on ___'. And of course, radically different parsings of *B*'s image would be appropriate if *B* has the image in response to *A*'s remark, 'My kitchen needs painting', or 'My wine glass is missing', or 'Life is meaningless without Sarah'.

This example also illustrates the critical point that what *B* is thinking cannot be explained simply in terms of the structure of what is happening within him (say, the structure of his mental image²). His thought can only be characterized *positionally*, with respect to the placement of certain events within a sequence of events (Braude, 1979). As we just saw, the *same mental image* in different contexts will function and be parsed differently, and thus count as components of different thoughts. So what the image represents, and what its elements are, will depend on how the image functions in a context. It will not be determined entirely by features intrinsic to the image. In fact, as we've seen, the image has no features intrinsically. Yet this latter view, that function is determined by intrinsic structure, is what the holographic model seems to require.

Regrettably, Ring speaks very loosely of *thought-structures* (p.247), and interacting thought structures forming interference patterns. He never explains, however, what such structures are, or even what they *could* be. Perhaps this is not surprising, since in view of the foregoing considerations, it appears that such talk is completely obscure. Content (say, what a mental image or brain state is about, or represents) is not reducible to structure, (whether of neural events in the brain, biochemical reactions, or interference patterns). Structure, first of all, cannot be assigned until content is determined. But even more important, no structure of any kind determines its own function. No structure is such that it can function in one and only one way. But what a thing means or represents depends on how it functions in a situation, not on how it is put together.

Partisans of the holographic paradigm seem unaware that the construction of an image by means of laser illumination of interference patterns is quite different from construction of a *meaningful* image (an image of something), much less a fact or event (whether external or internal—i.e., a thought). Very roughly, the difference is that between an image *i* and what *i* is an image of, what *i* represents, or how *i* functions. Although *i* might be constructed from or analyzed in terms of an interference pattern (or

²The same arguments will apply, *mutatis mutandis*, to the structure of anything happening within the brain.

more generally, some purely topological features of the world), the *characterization* or *function* of *i* cannot. It is perhaps easiest to see this if we consider an ordinary photograph, rather than a hologram. The photo may be described or analyzed in topological terms only. We first decide what the relevant level of description is (notice, though, that the appropriate level is never forced on us by the photo itself)—say, in terms of shapes, or microscopic or subatomic properties of the paper or emulsion—and then characterize the photo as an arrangement of elements of the kind identified at this level of description. But no matter how we characterize the photo topologically, this characterization is compatible with an endless variety of functions, or representational properties of the photo. A photo of me, for example, might represent any number of different things. Imagine it appearing in a book under different headings—say, 'Stephen Braude', 'Philosopher', 'Caucasian', 'Humanoid', 'Man With Receding Hairline', 'Public Enemy No. 1', 'Correct Posture', 'Sheepish Grin', and so on, to mention but a few possibilities. And what is true of the photo is true of *anything* at all that represents something. The nature of representation is such that some stage setting (of a global as well as local sort) is required before an object can acquire representational properties. And even then it is misleading to say that the *object* (itself) has those properties. Strictly speaking, the object represents something only in a *situation*; and the situation is every bit as intrinsically ambiguous, and variously describable or analyzable into elements, as the representing object. It, too, lacks an intrinsic characterization, forced on us by the thing itself. So, like the photo of me, a 3-dimensional image of an object produced holographically is devoid of any intrinsic characterization, or representational or positional properties. These are always *conferred* on the object in some situation, and then never simply in the algorithmic way appropriate to mathematical transformation. So first of all, even if our perceptual images result from something like a holographic process, appeals to this process completely fail to explain the cognitive or positional (e.g., representational) aspects of perception.

Moreover, facts and events (including thoughts)—some of the other things allegedly reducible to or constructible out of interference patterns in the primary holographic reality—likewise exist only relative to some such set of local and global contextual conditions. They *presuppose* a point of view from which a certain parsing of history into component events and relations among the events is appropriate, and from which others are not. Which events and arrangements of or relations among events (i.e., facts) comprise a bit of history is not a matter built-in to nature. Nature has no built-in division or structure independently of a point of view from which certain parsings and orderings (but not others) are appropriate. Events (including mental events) and facts, then, are not (as Pribram and Ring would apparently have it) mere structural or topological features of the universe (either before or after holographic transformation by the brain. But then there is no justification whatever for claiming that such things are ordered arrangements of elements, whose structures are distributed uniformly throughout the universe.

On^{cc} we take seriously the context-dependence of both structural and functional descriptions of nature, we can see why it is misleading for Pribram and Ring to insist on the similarities between the holographic picture of reality and the world view of the

Eastern mystic. This alleged similarity is supposed to be one of the holographic paradigm's strong points, since it is supposed to help reconcile the scientific and mystical pictures of reality. But many, and perhaps most, mystics would deny that *any* level or description of reality is fundamental, much less a realm of frequencies and descriptions of interference patterns. These mystics have usually maintained that reality has *no* intrinsic structure or preferred description (as I have been arguing all along). In fact, they typically assert that reality is ineffable, that any description of reality involves a certain amount of misdescription. To describe reality is simply a way of applying a certain conceptual grid to a basically undifferentiated flow of happenings. But any such grid precludes the simultaneous use of certain other grids, appropriate in different circumstances, that parse reality into different components and relations. This is a far cry from Pribram's view as I understand it. Pribram's 'primary reality' is, for the mainstream mystic, just one of many ways of analyzing or describing the flow of events, no one of which is intrinsically preferable to any other. It is no more primary, then, than any other description. In fact, since specifications of interference patterns are merely statements of topology, and since they are compatible with an endless array of possible representational functions, the holographic grid apparently omits everything in nature than can only be specified loosely and positionally. And in the realm of organic experiences and behaviour, that is just about everything.

Specific Mistakes

So much for the general criticisms of the holographic model of reality. Let me now turn to some errors and confusions for which Ring alone must assume responsibility.

One of the most peculiar features of Ring's theoretical excursions is that the holographic paradigm seems completely irrelevant to his central points. Ring's main contention seems to be that there is another realm of reality or experience, which out-of-body experiences and NDEs make accessible. But Ring never explains satisfactorily why it matters that this realm be holographic, or even why it should be vibratory. (In fact, for the reasons advanced in the previous section, it is not clear how it *could* only be vibratory.) One of Pribram's reasons for adopting the holographic analysis of memory (due, apparently, to a misinterpretation of some experiments conducted by Lashley), was to explain how memories might be located in the brain but not be in any specific place.³ On his view, memories are distributed throughout the brain, as information in

³Lashley found that rats trained to run a maze could still do so even after most of their brain (including those portions where the memories of how to run the maze were thought most likely to have been stored) had been removed. Pribram concludes from this that memories are therefore not localized in specific places; rather, they are distributed throughout the brain. But Pribram, and memory trace theorists generally, don't realize that first they must explain why memories must be in the brain at all, or why they are the sort of things that should be thought to have a location of *any* sort. It is only to a

interference patterns is distributed throughout the pattern—i.e., in any part of the overall pattern.⁴ Now Ring is presumably concerned with the means by which consciousness gains access to the other realm of experiences. But since in his view consciousness is apparently non-physical (and autonomous), it presumably has no location. But then it is no longer necessary to insist that this other realm be holographic. The uniform distribution of information in the other realm matters only when we want to explain how the information is accessible to receptors located at different *places*. But non-physical consciousness is not at any place (although it may presumably have awarenesses of different places). Under the circumstances, one might have expected Ring to insist that the other realm is *telepathic* rather than holographic. And he might then have explained telepathic communication or transfer of information in one of the usual ways, in terms of non-discreteness, or partial non-discreteness, of selves on the astral level. In fact, the appropriateness of emphasizing a telepathic reality is reinforced by Ring's genuinely interesting suggestion (p.240) that the 'presence' or 'voice' associated with the light seen in NDEs is actually a function, not of God, but of one's *total* or *higher* self. Appeals here to holographic reality or a frequency domain are completely gratuitous. In fact, I suspect that most or all of Ring's substantive points may be stated in terms of a telepathic reality. The features of the holographic theory seem merely to be excess baggage designed to make his position appear scientific (in a very conventional sense of 'scientific').

Moreover, once the need for uniformly distributing information over space is undercut (due to the non-spatial character of consciousness), there is no justification left for supposing that other aspects of the astral realm are holographic—in particular, its temporal features. Ring thinks that the holographic model promises to clarify the apparent precognitive aspects of some NDEs, since he thinks it supports the claim that in the other realm, information may be spread uniformly over both space *and* time. Thus Ring claims that in this realm 'time and space lose their conventional meaning' (p.237).

Now first of all, even if Ring was entitled to claim that information on the astral level was uniformly distributed over space, this would not justify the claim that the concept of space had been altered. If that were so, it would be equally true that *ordinary* holograms force a change in a concept of space. But this is plainly false. It is precisely by means of

mechanist that Lashley's results support the conclusion that memories are distributed throughout the brain. To a non-mechanist the results would strongly support the view that memories are *nowhere* in the brain. Pribram and other trace theorists fail to see that their construal of Lashley's results shows them to be caught in the grip of an old (and false) philosophical picture of what mental states are. I have argued, in Braude (1979), that to suppose memories (or thoughts generally) are in the brain turns on unjustified assumptions about cognitive phenomena, and even more deeply, on a seriously mistaken view about the nature of thinking.

4. This view, in addition to the other errors I have mentioned, also confuses the formal and quantitative notion of information appropriate to information theory with the informal and qualitative notion of information appropriate to the discussion of the content of thoughts and memories. For a good discussion of this error, see Bursen (1978).

the ordinary concept of space that we explain and describe the hologram's property of uniformly distributing information over space.

Like many others attempting to theorize about paranormal phenomena, Ring jumps on the Jungian bandwagon and maintains that in the case of paranormal phenomena, 'time and space are collapsed and...causality can have no meaning' (p.237). But this sort of loose talk merely demonstrates an unfamiliarity with the literature and issues concerning the nature of causality. Ring's (and Jung's) hasty abandonment of causal connections turns on an antiquated and wholly inadequate concept of causality whose death-knell was sounded in the 18th century by David Hume. Roughly speaking, this concept treats the causal relation as a kind of actual connection—a sort of glue—between cause and effect. Jung, in fact, regarded the causal relation as analogous to the propagation of a wave in space and time. But relatively few instances of causal connections can be understood on this model of causality. As a matter of fact, it is not even sufficient to explain cases of human volition.

But even apart from this, holography theory offers no support whatever for Ring's suggestion that on the astral level information is distributed over time as well as space. Holograms don't store information from the future, or even from the present. The only connection between the holographic distribution of information and Ring's suggestion about the distribution of information over time is the notion of uniform distribution of information. And even this connection is superficial at best, since the term 'information' has different uses in the two cases. But even if we forget about the unjustifiable leap from a quantitative to a qualitative sense of 'information', nothing in holography theory suggests how information may be spread over time. In fact, it is of no use to suggest that information may be spread over time before first tackling an imposing array of well-known and extremely difficult philosophical issues. Ring must first explain how future states may in *any* substantive sense exist or be represented at earlier times, whether or not they are uniformly distributed temporally. This means he must address head-on the topic of fatalism, among other things. Unfortunately, Ring seems unaware that he is treading on this particular theoretical terrain.

Ring also maintains (p.247) that the mind operates holographically independently of the brain. He says this in order to avoid positing a non-physical brain operating on the astral level. But if the mind operates holographically, by analyzing frequencies (as the brain allegedly does), it would seem reasonable to say that the mind is *physical*. The frequency domain is physical; the brain, which allegedly parses and reconstructs objects out of this domain is physical. And so, one would think, would be any instrument which performs similar operations on the physical domain of frequencies.

But apart from this, what *is* the difference Ring sees between a non-physical brain and a holographically-operating independent non-physical mind? Since Ring never explains, and since the difference is hardly readily apparent, this supposed advantage of Ring's description of the mind appears to be without content. The brain is supposed to be holographically-operating device, and so is the mind (or consciousness) according to Ring. Moreover, Ring seems to accept Pribram's mechanistic/physicalistic view that the brain holographically produces or constructs not only our perceptual world, but our entire world of inner episodes. So the only difference I can see between the brain and mind, on Ring's view, is that the frequency domains they analyze are distinct. The mind works just

on those frequencies of the other realm. But then it seems as if the mind *is* merely a non-physical brain on Ring's view, despite his protestations to the contrary.

Also unsatisfactory is Ring's attempted defense of his application of the holographic paradigm. He writes,

...in evaluating this framework's utility, we must always bear in mind that since we are not functioning in a holographic reality right now, we cannot reasonably expect to be in a position to judge definitively the appropriateness of this framework. In this respect, those people who are *both* conversant with holographic theory and have had a near-death experience would seem to have the best qualifications for assessing the relevance of this kind of interpretation here. (p.244)

It is quite surprising, first of all, that Ring would claim we are not now functioning in a holographic reality. This would seem to be a repudiation of Pribram's analysis of ordinary reality, which Ring elsewhere endorses. With the exception of this passage, Ring seems to adopt Pribram's position that each of us is *all the time* operating in a holographic reality. Pribram, remember, uses holography theory to explain how ordinary reality, including the flow of memories and perceptions, is constructed. Perhaps the most charitable reading of Ring's remark, therefore, is that he is merely confusing (a) functioning in a holographic reality, with (b) having a near-death experience.

In any case, Ring apparently wants to claim that having a NDE puts one in a privileged position for judging the holographic interpretation of NDEs. But this is clearly false. The principle behind this bit of reasoning seems to be as follows: Having experience *E* puts one in a privileged position to judge theoretical explanations of *E*. But this principle fails for most (and I suspect, all) experiences. We all have sense perceptions; but that is little help in evaluating theories of perception. The same holds true for more exceptional experiences, like hallucinations or precognitive dreams. Psychics, for example, are often extremely theoretically naive, despite the fact that they are veterans of the paranormal. At best, familiarity with experience *E* allows one to offer detailed and sophisticated accounts of the *phenomenology* of *E*. It hardly qualifies one to be a theoretician.

Of course Ring then supplements the qualification of operating within holographic reality with a further qualification—namely, being conversant with holographic theory. But this is also of questionable utility. Like memory-trace theorists, those who promulgate holographic analyses of reality may be completely ignorant of the philosophical presuppositions of their theories. If so, and if those underpinnings are absurd or false, as they seem to be in cases,⁵ holography theorists may be poor judges, indeed, of their work. Ring apparently wants to argue from 'S is conversant with theory T' to 'S is especially well-qualified to judge the merits of T'. But this inference would sanction the intolerable conclusion that the partisans of Ptolemaic astronomy were especially well-qualified to judge their work. In fact, of course, those best able to assess Ptolemaic theory were those not blinded by the presuppositions on which the theory rested.

⁵For a devastating critique of memory-trace theory, see Bursen (1978). See also Braude (1979).

Conclusion

Enough said, I think, about the flaws in Ring's analysis of NDEs. I feel it is appropriate now to offer some closing cynical remarks about the sad state of philosophy within the scientific community.

The distinction between speculative philosophy and theoretical science is far from clear. In fact, only in recent human history have the theoretical sciences detached themselves from what had been called *natural philosophy*. The various sciences, after all, are only branches of natural philosophy that have become sufficiently systematic to survive on their own. But in the process of securing apparent autonomy, it has been all too easy for the sciences to overlook the links with their more thoroughly speculative and abstract parent discipline. Nowadays, the philosophical underpinnings of empirical science are so infrequently acknowledged—much less challenged or examined—that many scientists cultivate the conceit that their enterprise is wholly empirical and immune from *a priori* objections. Few scientists bother to trace their theorizing back to the very deep assumptions on the basis of which their interpretations of data seem appropriate, and most know little or nothing at all about the very abstract issues these assumptions address. Nevertheless, scientists often do not shrink from the challenge of musing 'scientifically'—and in print—on the nature of reality simply because of these major lacunae in their philosophical education. This has led to curious results, indeed, and a great deal of bad science.

And the situation is rather peculiar anyway. Were I to publish my opinions on highly technical issues in (say) mathematical physics or neurosurgery without training in the field, physicists and neurosurgeons would quite rightly regard me as presumptuous, and perhaps contemptuous of their disciplines. Yet few scientists display the same humility or circumspection about tackling the deepest philosophical issues. Apparently oblivious to the fact that philosophical proficiency requires a mastery of complex issues and the tools of reasoning, they often dive readily into discussions about (say) the nature of reality or the relationship between the mental and the physical. Such hubris would be comical were it not for the fact that these scientists are sometimes regarded as pundits. The recent near-beatification of Karl Pribram, in recognition of his holographic analysis of the mental, seems to be a prime example. But as I have tried to show, the holographic theory of Pribram, as well as the theories it has spawned, are merely complicated versions of simple mistakes, mistakes which the complications only serve to conceal.

References

- Braude, S.E. *ESP and psychokinesis: A philosophical examination*. Philadelphia: Temple University Press, 1979.
- Brent, S.B. Deliberately induced, premortem out-of-body experiences: An experimental and theoretical approach. In R. Kastenbaum, (Ed.), *Between life and death*. New York: Springer, 1979, 89-123.
- Bursen, H.A. *Dismantling the memory machine*. Dordrecht, Boston, London: D. Reidel, 1978.

- Pribram, K.H. *Languages of the brain*. Englewood Cliffs, N.J.: Prentice Hall, 1971.
- Pribram, K.H. Holonomy and structure in the organization of perception. In U.M. Nicholas (Ed.), *Images, perception and knowledge*. Dordrecht: D. Reidel, 1977.
- Pribram, K.H., Nuwer, M., & Baron, R.U. The holographic hypothesis of memory structure in brain function and perception. In R.C. Atkinson, et al. (Eds.), *Contemporary development in mathematical psychology*. San Francisco: Freeman, 1974.
- Ring, K. *Life at death—A scientific investigation of the near-death experience*. New York: Coward, McCann & Geoghegan, 1980.

Résumé

L'analyse, récemment acclamée, des expériences du seuil de la mort, formulée par Kenneth Ring et modelée sur celle du modèle de la connaissance de Pribram, souffre principalement de deux sortes de défauts. Premièrement, il y a ceux inhérents à n'importe quelle tentative de réduire la réalité aux propriétés d'un domaine de fréquences; et deuxièmement, il y a ceux particuliers à théorie de Ring. J'examine ces défauts et soutiens que l'analyse olographique des expériences du seuil de la mort est fondamentalement incohérente et porte à confusion.