Meaning and the Structure of Consciousness:
An Essay in Psycho-Aesthetics

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for Stephen Palmer
who has raised at least one corpse from the dead

Note: Except in two respects, the following is the first chapter of my 1991 dissertation *Meaning and the Structure of Consciousness: An Essay in Psycho-Aesthetics*. I have slightly copyedited the chapter and replaced the term 'Meaningfulness' with 'rightness.' All my subsequent work uses rightness, not Meaningfulness, to refer to this component of fringe experience.

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CHAPTER 1

AESTHETICS AND COGNITION

1.1 The Aesthetic Paradox

To illustrate the nature of good style, E. B. White once put Thomas Paine's most famous line through a few variations:

> Times like these try men's souls.
> How trying it is to live in these times!
> These are trying times for men's souls.
> Soulwise, these are trying times.

Now consider the original:

> These are the times that try men's souls.

The difference between Paine's original and its mutations is palpable, obvious, instantly evident. Paine's phrase has a different *feel*. It is vivid and arresting while the others are pallid or in one case silly—but all specimens have the same meaning, are cast in understandable prose, and use nearly identical words.

How do we characterize this difference? We might say that Paine's original has "aesthetic excellence." And what is that? The classical tradition would speak of

"unity." Someone with an interest in *Gestalt* psychology might invoke *Pragnanz*. In the absence of a definite theoretical conviction, people will speak of a work of art as being especially "significant" or "successful" or "meaningful." People close to the arts often say that something "works" or is "just right." We use dozens of expressions in a similar way.

We are confronted by something that is instantly evident—evident prior to the conscious application of any criterion, immediate as any perception, and designated by a host of terms and phrases. When looked at closely, these terms are notoriously vague and seem to indicate little more than strong approval.

A phenomenological vagueness parallels this terminological vagueness. Look again at Paine's famous line and compare it with the other versions. Try introspectively to specify its different quality. Paine's sentence clearly has something the others do not. But what is that something? Like Augustine's perplexity with time, it seems clear until we try to make it clear.

No one is more puzzled by this mystery than a practicing artist or writer. "Art! Who comprehends her?" Beethoven once wrote to Bettina von Arnim. "With whom can one consult concerning this great goddess?" And though he raised the question, White can only throw up his hands. "Who can confidently say," he asks, "what ignites certain words, causing them to explode in the mind? Who knows why certain notes in music are capable of stirring the listener deeply, while the same notes, slightly rearranged, are impotent? These are high mysteries" (White, p. 53).

1.1.1 Ineffability and metaphysics

Remarks about a mysterious something inhabiting works of art have been commonplace for literally thousands of years. In philosophies of art and beauty, aesthetic ineffability is often placed at the heart of what we now call aesthetic experience and given a spiritual or metaphysical interpretation. This has been true

since the foundation of classical aesthetics by Plato; from the Enlightenment to the early 20th century, attempts to explain aesthetic ineffability were, if anything, even more central, and in general they continued to be tied to metaphysical ideas of one sort or another.

This history is now largely forgotten, but even in our own secular age, aesthetic ineffability is still often cast in a quasi-spiritual light` and taken to be a central feature of aesthetic experience—though this is now much more often true of writers and artists than of practicing academics. The noted Argentine writer Jorge Louis Borges, for example, is not alone in maintaining that a feeling of wordless revelation is the defining characteristic of the aesthetic: "Music, states of happiness, mythology, faces belabored by time, certain twilights and certain places try to tell us something, or have said something we should not have missed, or are about to say something; this imminence of a revelation which does not occur is, perhaps, the aesthetic phenomena" (Borges, p. 188). Something at the root of things, some primal fact, seems about to declare itself. But the revelation stays forever in transit, inchoate. It will not be specified.

Of course, aesthetic ineffability is not always linked to a sense of profound disclosure. Few would claim Paine's line holds a deep spiritual feeling, though its excellence is clear. But exalted or mundane, when we feel strongly that something is an aesthetic success, we cannot grasp just what it is that constitutes our impression of success.

1.1.2   Oddities of aesthetic evaluation

Of all human artifacts, aesthetic objects are among the most constantly evaluated. And yet there is a peculiar indefiniteness at the heart of aesthetic judgments. From some angles, they look like conceptual evaluations, but from other angles, they do not.

Aesthetic evaluations are often expressed in language which makes them seem to rest on the operation of definite conceptual criteria. An aesthetic success is often said to be "just right" or to "work." No less a student of usage than Wittgenstein notes that evaluative terms of this sort—and not terms like "beauty"—dominate common usage.

> It is remarkable that in real life, when aesthetic judgments are made, aesthetic adjectives such as 'beautiful,' 'fine,' etc., play hardly any role at all.… The words you use are more akin to 'right' and 'correct' (as these words are used in ordinary speech) than to 'beautiful' and 'lovely.' (Wittgenstein, *Lectures and Conversations,* p. 3)

When people say that something works or is right or is meaningful, we often presume that they can produce clear-cut, conceptual criteria that mediate the judgment: Specific concepts seem to be the cognitive instruments we use to reach judgments or evaluations and to justify them to others. In some cases, we seem able to specify in advance the conceptual criteria that an evaluation must satisfy: We know in advance that a theorem will be "right" if its proof conforms to the rules of logic and mathematics, or that a bridge will "work" if it can carry a given load, be wide enough for traffic, and so on. Many people share a commonsense presumption that evaluation is based on the manipulation of specific concepts in consciousness. There are many reasons (some of them to be developed in this study) that this view of evaluation is at best incomplete—but as a point of relative contrast it is useful.

For evaluations of aesthetic excellence don't seem to work like "normal" conceptual judgments. One of the very few points of substantial agreement in aesthetics is that a judgement of excellence is immediate, direct, and compelling, something quite different from a conclusion drawn from the conscious manipulation of concepts. We know instantly if something is good or bad, if it works or if it doesn't work. When conceptual manipulations do seem to be used to mediate an 'aesthetic' evaluation (e.g., all novels which depict the class struggle are good; this novel depicts the class struggle, therefore this novel is good) most

aestheticians would deny that the judgement is aesthetic. Furthermore, no amount of rule-following and criteria-satisfying will guarantee the creation of a successful work of art; at best following a set of aesthetic "rules" can create something that might be classified as a certain type of art, but nothing more. We can, perhaps, specify how to write a recognizable sonnet. But we cannot specify how to write an excellent sonnet.

Aesthetic excellence is peculiarly ad hoc and context dependent. It is even difficult to isolate a given feature in a work as the source of its excellence. For example, in trying to explain the power of Paine's line, White says, "We could, of course, talk of 'rhythm' and 'cadence,' but the talk would be vague and unconvincing" (White, p. 53). Why unconvincing? Something about the line's aesthetic excellence does seem closely related to its rhythm. But the problem is to explain why the rhythm "works" so well *in this instance*. Elsewhere, the same rhythm might seem pompous or affected and spoil the aesthetic effect.[1]

The odd nature of aesthetic evaluation becomes especially evident when we can see the same evaluative term used together in both its aesthetic and non-aesthetic sense. When Georgia O'Keefe turned ninety, I recall a television interview in which she spoke about her life as a painter. In reference to getting the colors 'right' in

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[1] The power of the rhythm is as much a consequence of its relation to the line as the power of the line is a consequence of its relation to the rhythm. But if the power of an individual feature of an aesthetic entity is dependent on its relation to other features, it is misleading to specify a definite locus of excellence, even though, paradoxically, excellence may seem to coalesce at a certain locus. Anyone who writes poetry knows that improving a 'bad' line can leech the power from the 'good' line next to it. Picking out an excellent feature does not explain the mystery of aesthetic excellence. We may say that a work by Brahms is especially great because of its characteristic transitions and syncopations. But we could find another composer in the same idiom who handles transitions and syncopations the same way but whose music seems disjointed or abrupt. This is not to deny that statistically some aesthetic devices are more effective than others. One of the intriguing features of connectionist networks (see below and Chapters 8 and 9) is that they respond in a similar holistic way, and that their 'goodness of fit' can be specified quantitatively. The goodness of a network is not a property of any one of its elements, but of the total configuration. In a highly integrated network, an arbitrary change in one of its parts will generally reduce the goodness of the network as a whole.

reproductions of her paintings, she remarked: "It doesn't matter if the colors are absolutely right [i.e., match the original] just so they seem right when you're finished." This is the kind of statement that can make an analytic philosopher pull out his hair. First, O'Keefe recognizes a clear-cut, antecedently specifiable criterion for 'right'—getting an exact match between colors in the original and its copy. But then she immediately goes on to use 'right' in a very different way. The colors in the copy can in fact be wrong and yet aesthetically *right*.

This phenomenon has an obverse. We cannot prove that a work of art is successful in the same way we can demonstrate, say, that the family checking account balances or that Lucky Lady won the third race at Belmont. No appeal to evaluative criteria will convince people of aesthetic excellence if something else, something more primary, subjective and difficult to specify, is absent. "I don't know, I just know what I like." Again, a work of art can break any specific rule and still succeed or satisfy any aesthetic canon and still fail. The satisfaction of aesthetic criteria can never determine one's aesthetic judgment beforehand. It would seem the only criterion a successful work *must* satisfy is that it appear, directly, to be a success.

The critic Clement Greenberg (1961), best known for his defense of Abstract Expressionism, was sensitive to these kinds of aesthetic problems as a professional necessity. In a discussion of T. S. Eliot, Greenberg sets out this fundamental idea which is one of the few significant points of general agreement in modern aesthetics:

> Art… happens to be a matter of self-evidence and feeling, and of the inferences of feeling, rather than of intellection or information, and the reality of art is disclosed only in experience, not in reflection upon experience. In music, no less than in literature, form makes itself real through the attention-holding and emotion-involving coherence with which infinitely divisible moments precede and succeed one another. This coherence… cannot be argued into existence; it is either there or not there in the experiencing of a work of musical or literary art. Nor can any of the devices of form create coherence automatically; coherence is either there or not there in the substance of feeling, or inspiration—or whatever one

> chooses to call it—from which the work takes its departure in the first place; devices of form and structure are only aspects or instruments of this substance.
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> The question of form in literature boils down to that of a right succession of parts. (p. 243)

So, we are told that the success of a work of art rests on something in direct experience. And again, what is that something? All Greenberg seems to give us are more general, vaguely cognitive terms, "coherence," "self-evident," "right succession of parts." He also uses "unity of form" and "it works" in the same way. He treats these terms as rough equivalents, which refer to something in immediate experience but are otherwise unspecified.

This lack of specification is a direct consequence of Greenberg's point: if "the reality of art is disclosed only in experience, and not in reflection on experience," then specific concepts and explanations come only after something "explodes in the mind," as White would say. This is the fundamental aesthetic datum. Yet whatever this mental explosion is, it is non-conceptual; it does not rest on what Greenberg calls intellectual "reflection" or "inferences of . . . intellection."

Again, we seem to encounter an odd rift: if the aesthetic is so immediate and non-inferential, why is it described in such quintessential cognitive or mental terms? "Self-evident," "right succession," and the rest typically refer to the use of rules and concepts, to the operation of reasoning and reflection, and to the application of criteria in consciousness. Understanding why we find this difference will take us, I believe, to the heart of the cognitive process underlying aesthetic experience.

1.2   A Model of Consciousness

1.2.1   Rightness as a cognitive feeling

What is the most fundamental aspect of thinking? What is the bedrock that makes something, in consciousness, cognitive? One answer can be found in many forms

and places from the time of Heraclitus to contemporary work in cognitive psychology. Thinking, says R. G. Collingwood (1938), rests on a fundamental bipolarity: "The distinction between right and wrong, good and bad, true and false, are special cases of this bipolarity; it is plain that none of them could arise except in the experience of a thinking being" (p. 157).

Collingwood goes on to add a sentence that reflects a common confusion, a confusion which I think obscures the absolute importance of the bipolar, yes/no, right/wrong aspect of cognitive activity in consciousness. "There is nothing in the case of feelings to correspond with what, in the case of thinking, may be called mis-thinking or thinking wrong." The idea here is that while I may be mistaken to feel that a stranger is a long-lost friend, I presumably cannot be mistaken to say that I had the feeling, however wrong it may turn out to be.

Nevertheless, there is a feeling which often marks 'wrong' thinking and a feeling which often marks 'right' thinking and related cognitive activity. This brings us to a fundamental contention of this study: *Thoughts and feelings do not occupy opposing categories.* Cognitive feelings are one species of feeling, one subset of all possible impressions human beings can experience; cognitive feelings are just as immediate as are emotional feelings or somatic feelings.

Two feelings form the cognitive bipolarity in consciousness. Unfortunately, finding adequate names for them is difficult, though many evaluative terms imply these primary cognitive feelings in one way or another: yes and no, good and bad, right and wrong, meaningful and meaningless, fitting and disjoint, success and failure, coherent and incoherent, among others.

Terms of this sort rarely refer to their own feeling-content. They are used to communicate evaluations about *something else*. People say "yes" and "no" and not "yesness" and "noness." However, for the positive half of the cognitive bipolarity,

there are terms such as 'rightness' and 'fittingness' which to a degree are self-referential and suggest an immediate feeling-content of affirmation or correctness.

I will define 'rightness' to be the positive half of the cognitive bipolarity.[2] If rightness exists—that is, if there is a direct feeling of positive evaluation in consciousness—then, given what we saw above, rightness and aesthetic experience are closely related. The aesthetic 'datum' is just this kind of evaluative experience. And if this is so, we can explain why the aesthetic is at once so immediate—something "in the substance of feeling"—and yet why people describe this feeling in terms otherwise applied to conceptual evaluations.

1.2.2   Focus and fringe: the two-part structure of consciousness

But to understand the peculiarities of the aesthetic, it is not enough to point out that consciousness contains an evaluative feeling of affirmation. On the surface this does not tell us why aesthetic experience is oddly vague, or why it is so context dependent, or why it is so often given a metaphysical or religious interpretation, or why the same evaluative feeling can indicate meaning in both aesthetic and non-aesthetic domains. Simply recognizing that consciousness contains an evaluative feeling of affirmation will not suffice.

To answer these questions, it is necessary to locate rightness in consciousness. This brings us to a further basic contention of this study: *Consciousness has a two-part structure. One part consists of distinct contents, the other of vague and*

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[2] [This footnote is no longer relevant because *rightness* has replaced *Meaningfulness* in this copy of Chapter 1.] This roughly follows standard usage, but I can think of no adequate term for the negative half of this bipolar continuum. Meaninglessness would suggest the absence of meaning rather than the existence of an equal and opposite experience. 'Wrongness' is better, but a Meaningfulness/Wrongness bipolarity would create a terminological asymmetry of its own. Rightness/Wrongness is balanced, but giving up Meaningfulness is a mistake, since I believe that overall Meaningfulness most adequately captures the connotations of global significance and coherence which I am exploring. I will not specify a single term for the negative side of this cognitive polarity, though in practice I will often refer to it as wrongness.

peripheral experiences or feelings. Rightness occupies the second, vague aspect of consciousness.

The two-part structure of consciousness is not a new discovery. As an explicit psychological observation, it goes back at least to Duns Scotus in the thirteenth century (Brett, p. 295). In tacit forms it appears much earlier. Plotinus, for example, gives the two aspects of consciousness a mystical interpretation, and Plato entertains a less extensive version of the same idea, and it is prominent in the aesthetic theory of both men. Arguably, the earliest recorded allusion to the two-part structure of consciousness (projected as a cosmology) occurs in Anaximander, the first Greek philosopher but for Thales. Leibniz and Kant recognize the two-part structure of consciousness, and the point is also central to their respective aesthetic theories. The very term *aesthetics,* coined by Baumgarten, reflects this distinction. In our own century, versions of the distinction still echo in Husserl, Heidegger, and Wittgenstein.

However, for purposes of scientific analysis, I believe the single most straightforward, extended, and useful account of the two-part structure of consciousness is found in William James. In James' terminology, consciousness has a "nucleus," that is, a specific content, surrounded by a "fringe" of vague experiences. The 'nucleus' in James is synonymous with the focus of attention.

The fringe consists of very real but indistinct feelings of many kinds. We may say *the fringe represents, in consciousness, the* **nonconscious context** *of its nucleus*. The fringe contains evaluative information and feelings of relation among other experiences.

Now one of these feelings of relation James calls "dynamic meaning "or the feeling of "rational sequence." This is the feeling which signals how well a given nucleus in consciousness fits with, or is compatible with, its relevant contextual information, and this information is, for the most part, outside consciousness altogether. James did not consider the relation of the fringe to what we would now call nonconscious processing, and his notion of dynamic meaning is not developed,

to say the least. But James did consider the notion, and so in effect both identified rightness and located it in the fringe.

Many of James' ideas were still-born. The rise of behaviorism exiled the study of consciousness and with it James and his tradition.[3] Even Wittgenstein was one of the few major thinkers influential in the English-speaking world who continued to examine and, on occasion, extend James' view of consciousness.

As behaviorism waned, evidence for the two-part structure of consciousness emerged once again, this time cast in a new, experimental form. In retrospect, the cognitive revolution virtually began with the experimental study of consciousness. One of the first comprehensive works in the new field, Neisser's classic *Cognitive Psychology* (1967), is based on a distinction between "pre-attentive process" and "focal attention"—yet another version of the two-part structure of consciousness. Neisser assembles much experimental evidence that before something becomes a clear entity in attention, it first occurs at a preliminary, pre-attentive stage of processing, which has both conscious and nonconscious aspects. For Neisser, thoughts as well as the experience of objects begin life in consciousness as "vague and fleeting" experience. Here the 'same' entity in consciousness may be said to have two forms: It is represented first as a brief, global, and vague experience and then as a relatively long lasting, condensed, and clear experience.

However, there is also a set of vague, peripheral feelings which simply do not have a secondary or focal stage. *Some experiences are inherently vague, that is, they have no corresponding form in the focus of attention.* James sees this clearly. Neisser's own experimental evidence and theoretical analysis support this idea, as do many other lines of contemporary research. But they have not drawn this

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[3] In Europe, James' reputation remained higher. Husserl, for example, read James carefully and, for example, equated James' fringe with his own influential notion of the "horizon" (Wilshire, p. 120).

conclusion. Neither Neisser nor, so far as I can tell, other cognitive scientists recognize inherently vague experiences, let alone consider the cognitive role they play.

It is, of course, easy to overlook vague experiences when they are taken to be nothing but fleeting and preliminary versions of something more distinct. This seems to be the natural assumption, and Neisser is hardly alone in making it. For example, a prominent connectionist/PDP account of consciousness (Rumelhart, Smolensky, et al., 1986) notes the existence of "fuzzy" experiences but goes on to explain them as the result of a preliminary stage of network relaxation: As relaxation progresses, fuzzy experiences become progressively distinct until they settle into a completely distinct content. Baars (1989) considers vague experiences in more detail, but he also emphasizes their preliminary and fleeting nature. Baars suggests that, in general, vague experiences occur when a content comes and goes so rapidly in consciousness that there is no time for it to leave a clear impression. He also proposes that in certain cases vague experience results when a normally unconscious and specific "goal context" intrudes briefly into experience; the goal context does not itself become a stable content but tries to recruit a stable content in consciousness. Here at least we can recognize the vaguely felt goal context and the subsequent clear content to be separate cognitive entities and not just two versions of the same thing.

I will argue that some vague experiences are not preliminary versions of what will soon to manifest in the focus of attention, nor are all vague experiences necessarily short lived. Fleeting experiences may be vague, but not all vague experiences are fleeting. We shall see that rightness, for instance, occupies huge stretches of experience. The two-part structure of consciousness derives from something more basic than a difference in the duration of its contents. The reasons for consciousness' vague/clear structure lie elsewhere.

1.2.3   The limits of consciousness

Perhaps the most basic fact verified by the cognitive revolution is that, at any given moment, consciousness is extremely limited or "narrow." Standard examples include our inability to attend to more than one source of relatively novel input at time (e.g., a conversation) and our inability to apprehend more than a few simple perceptual objects simultaneously. *The structure of consciousness is above all a consequence of consciousness' limited ability to articulate experience.* The limit on consciousness is often expressed in terms of a limited capacity to process information. Information can exist in many forms: In a computer, it resides in differences of electrical potential; in a book, it resides in black marks on a white page; in consciousness, it resides in experience. *Experience is the form information takes in consciousness.*

The fringe radically condenses contextual information and thereby works to finesse consciousness' limited capacity. By representing information in consciousness *indistinctly,* more of consciousness' resources are freed to articulate the contents in the focus of attention. There is no reason to burden consciousness with detailed information when simply informing it of a summary conclusion will do.

Because the resources of consciousness are limited, there is an unavoidable trade-off between its need to articulate information in detail, and the need to represent the larger context in which it is imbedded. The current equilibrium between these two demands is presumably the result of a very long cognitive-biological evolution. To maximize the efficiency of conscious cognition, a fringe experience must be strong enough to deliver its message but not so strong that it will unnecessarily diminish consciousness' power to produce clear articulations. Nevertheless, fringe experiences can vary in intensity and on occasion can reach extreme intensities. The intensity level of a fringe experience is part of its information content.

Beyond passively summarizing information in consciousness, the fringe is part of the active cognitive mechanism that 'calls' new information into consciousness.

The attempt to attend to vague experience in the fringe is the command that calls information implied by the fringe into the focus of attention for detailed articulation.

The call function contributes to the impression that the fringe is "nothing but" a preliminary form of clear experience. The aim of focusing on a vague experience is not to inspect it but to produce an articulated experience in the focus of attention. Attempts to inspect the fringe introspectively are thus thwarted by the structure of the fringe itself. From this perspective it is not surprising that the fringe's call and context summary functions are generally overlooked. But then cognitive processes are not designed to be evident, but to be useful. Given the limited capacity of consciousness to articulate experience, there is a premium on keeping the wheels and cranks of consciousness as unobtrusive as possible. Vague experience per se does not enter the focus of attention.

1.2.4   Rightness as part of the cognitive control system

At least for purposes of analysis, we can treat the fringe as a mix of various components which interpenetrate and merge with one another at any given moment. While most of these components change rapidly as consciousness flows on, *a few components of fringe experience can extend through many, otherwise very different, fringes.* These experiences constitute an essential but unobtrusive control system in consciousness, monitoring and evaluating the flow of information. They are in this sense situation independent and constitute a *cognitive control system* in consciousness.

Rightness is among the most fundamental of these control experiences.[4] In a sense rightness has many functions: It can monitor, summarize, and direct the flow of information (i.e., experience) in consciousness. Rightness is the signal of positive

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[4] Besides rightness, I would speculate, other control experiences are feelings of familiarity, of causation, and of self among others; except for familiarity, other control experiences will not be examined in this study for reasons of space.

evaluation in consciousness. Rightness comprises much of the cognitive glue that unifies one experience with the next, and rightness is probably necessary for the formation of any complex, unified whole in consciousness.

But in a deeper sense, *all of rightness's functions are applications of a single function: to signal context-fit.* At base, rightness signals nothing except the degree of coherence or compatibility between a given content in consciousness and its appropriate nonconscious context. (Determining the appropriate nonconscious context is a separate issue.) Given the severely limited ability of consciousness to articulate experience, a context-fit signal is an absolute necessity; virtually no complex cognitive act in consciousness would be possible without it.

Variations in the intensity of rightness signal degrees of importance or salience. Habituation aside (this is a significant qualification), the tighter the fit between conscious and nonconscious information, the more intense the feeling of rightness: The greater the feeling of rightness in the fringe, the more salience or importance the content in question will seem to have.

Over time, then, to maximize rightness in consciousness is to increase the integration of conscious and nonconscious information. To some degree, problem solving is the process of establishing a context to later recognize a solution when it occurs, and perhaps the very process of creating such a problem-solving context itself moves us toward a solution. Given the existence of a solution context, solution recognition is a special case of context-fit. Furthermore, during the search process, articulating contents that maximize rightness should progressively aim consciousness in the direction of a solution. Not only is this key to understanding problem solving in its narrower sense, but to understanding problem solving in its most general sense: the evaluation of novel information, which appears to be consciousness' central biological function. Maximizing rightness is a way of 'tuning' conscious and nonconscious information to increase their integration.

Rightness is not always inconspicuous. When we approach a solution, and especially when we reach it, rightness can emerge briefly in its own right. Then it is the "AHA!" feeling that signals insight. At high intensities, it can become the dominant feature of consciousness. But whatever its intensity, rightness always retains its diffuse, field-like character, and eludes focal analysis.

Rightness serves as a communication interface, mediating the constant and extremely complex interactions of conscious and nonconscious information. Or, to use other metaphors, rightness is the workhorse of cognition—the hidden guide of consciousness.

But when rightness marks the new or unexpected integration of conscious and nonconscious information, it can lose its unobtrusive character and blossom into a peculiar gratification (before habituation sets in). It would seem that this feeling is common to both solving a problem and appreciating art.[5] At the most extreme intensities, rightness would appear to be the mysterious presence that informs mystical experience. But if so, this exaltation, too, can be traced back to a humble, if necessary, cognitive function.

1.2.5   Connectionism and rightness

The above view of rightness implied that some sort of cognitive process must rapidly 'calculate' the degree of fit between the content in the focus of attention and its associated mass of nonconscious context information. Rightness is a measure of conscious/nonconscious integration. If rightness works as I have claimed, it must change quickly to reflect changes in the compatibility between the content of

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[5] On this view, *aesthetic experience is an artifact of the problem-solving function of consciousness*. From an evolutionary standpoint, our capacity for aesthetic exaltation appears to be the accidental outcome of a cognitive process developed for purely pragmatic, biological ends.

consciousness and its context. Given the extreme complexity of context information, is such a cognitive process plausible? Certainly, consciousness itself is too limited to accommodate such a process. What reason is there to believe that nonconscious processing could generate rightness?

Connectionism shows us that there is a plausible account for a global evaluative signal like rightness. Connectionist networks are often interpreted as mimicking the operation of many simultaneously interacting unconscious elements. The global behavior of networks is routinely summarized by a metric known as "goodness of fit," "energy," or "harmony." Goodness-of-fit has been interpreted as characterizing the degree to which the process of network integration resembles the behavior of a unified whole. The greater a network's goodness-of-fit measure, the greater the degree of its integration or wholeness. It seems possible, then, that goodness of fit has a biological analogue in rightness.

Connectionist networks turn out to mimic, very abstractly, the holistic characteristics found in works of art. Changes in one part of a network have effects that ramify throughout the entire network, and these usually change the level of network integration as reflected in its goodness-of-fit measure. Now for a highly integrated and complex network in its "relaxed" state of dynamic equilibrium, changes in the existing balance of forces will usually reduce integration and goodness-of-fit, just as small changes in a work of art normally reduce its global aesthetic impact.

If rightness exists, the consequences go well beyond aesthetics. First, if rightness is an analogue of goodness of fit, then it appears that consciousness receives a type of input that is a characteristic feature of connectionist networks, *and so we have evidence that nonconscious processing has a connectionist structure*. This gives us reason to doubt the so-called "rule-based" account of

nonconscious processing posited by some cognitive theories. In other words, the existence of rightness corroborates connectionism from a new direction.

Second, if rightness exists, *we have evidence that consciousness is functional,* and not epiphenomenal. Rightness looks like it is designed to allow consciousness to function within its very narrow processing limits; on the other hand, the presence of rightness in consciousness makes no sense if consciousness is epiphenomenal. It turns out that taking a functional account seriously all but *requires* that something like rightness be posited to explain how consciousness can consider information it cannot directly contain, and interact with nonconscious context information.

1.3　　Using Traditional Aesthetics to Investigate Consciousness

If rightness and the fringe are fundamental aspects of consciousness, then we should expect to find evidence of them in many places. Human beings are not strangers to consciousness. Consciousness is not like an electron or the dark side of the moon. It would be odd if the fundamental features of consciousness were not already embodied in various forms of cultural artifacts. This would be especially odd in aesthetics, where the role of direct experience is central.

No field of study is linked more directly to consciousness than aesthetics. Humans have been able to directly observe the impact of art and natural beauty on themselves since the earliest times, probably since the emergence of our species. No systematic field of study is older than aesthetics. The first recorded experiments to express their findings in mathematical terms were probably carried out by the Pythagoreans in the fifth century B.C.; within a century or so philosophers began to devise complex theories for aesthetic phenomena.

Many sciences have emerged from philosophy. And many observations and suggestive theoretical explanations first articulated in traditional philosophy are

now integrated into the sciences. By virtue of the cognitive revolution, aesthetics may follow the same course. Observations and explanations first developed in traditional aesthetics may become important sources of data and theory for the scientific study of cognition.

In this light, traditional aesthetics and the model of consciousness outlined above reinforce one another. Traditional aesthetic theories offer substantial collateral evidence of the model, and the model in turn brings out the cognitive elements that have informed traditional theories from their inception to the present.

1.3.1 The alpha cluster

So far we have looked at aesthetics largely through the eyes of twentieth century artists, writers, and critics. But there is nothing new in what they say. Their remarks are part of a recurrent pattern of evidence that reaches from ancient Greece to the early twentieth century. I will call this pattern the alpha cluster. The alpha cluster will (1) pick out common features in the aesthetic evidence and (2) tie this evidence to the cognitive model.

The alpha cluster has four components: ineffable, unistic, noetic, and transcendent. We have already touched on them in various ways. The first three components of the alpha cluster also characterize the operation of rightness and the fringe during normal cognition.

1.3.1.1 The ineffable

Ineffability, of course, refers to the peculiar feeling that something seems left out when we try to describe a powerful encounter with art or natural beauty. Something, but not everything, stays strangely indefinite. There is an unstable, tantalizing presence, an ungraspable something in experience. This aspect of the aesthetic already began to acquire a technical term in the seventeenth century, and by the

eighteenth was known in various European languages as the *je ne sais quoi* (Chapter 10). In our century Santayana would call it the "incommunicable and illusive excellence that haunts every beautiful thing" (p. 11).

It should be clear that this mysterious phantom has the earmarks of the vague portion of consciousness, unusually intensified. Normally inconspicuous experiences have become prominent—though they still retain their indefinite or vague character and cannot enter the focus of attention.

But the most powerful cause of aesthetic ineffability probably derives from the fringe's capacity to imply information for potential retrieval. Something seems available to consciousness, but when we try to 'grasp' it, it will not manifest. Put more precisely, aesthetic experience involves a disparity between the implicit messages delivered by the fringe, and the explicit message called into the focus of attention. In other words, the fringe implies more than it can deliver.

Aesthetic experience is in one sense almost infinitely varied. It can manifest an extraordinarily large number of different feelings. So, for example, Wittgenstein located expressive feelings in the fringe and took them to be especially salient in aesthetic circumstances. Thus, rightness (a feeling Wittgenstein did not link to the fringe) is only one experience among many.

Rightness is central to aesthetic experience because it constitutes the abiding sense of coherence or significance which tells us that the vast number of other (nonconsciously coded) aesthetic components involved in a work of art fit especially well with one another. Someone trying to get at the introspective heart of the aesthetic will naturally try to grasp at rightness, because it is both its most salient and abiding feature. But because rightness cannot be called into focal attention, the attempt to grasp it must always fail, and we are left with the sense of an ineffable and mysterious presence.

1.3.1.2 The Unistic

An aesthetic object is often said to form a well-integrated whole, its parts unified and interconnected in an especially deft, tight way. This *unistic* aspect of the aesthetic is probably the single most common explanation for aesthetic excellence. Theorists since the time of Plato have noted that even small changes in a work of art can destroy its aesthetic effect. Its status as a coherent entity or object could, however, remain unchanged. Among other reasons, this has led aestheticians to, in effect, treat aesthetic objects as somehow having more wholeness or unity than ordinary objects.

But are there really degrees of unity? Does the same process which normally ties individual parts into a single object also operate, more intensely, in aesthetic objects?

The unistic aspect of the aesthetic is often expressed in terms of the part/whole distinction. We saw Greenberg, for example, emphasize unity and coherence, and then declare that at least for temporal arts, excellence "boils down to a right succession of parts."[6] This turns out to be a slight but significant extension of the part/whole problem, and helps clarify how feelings of unity may derive from rightness.

Because of the limits on consciousness, we cannot simultaneously experience *in detail* all the parts of a work of art, let alone how well they fit together. In consciousness, if these complex relations are to be experienced at all, they must be implied by fringe feelings which represent context. Detailed inspection of a work must take place sequentially, over time, forming a set of experiences which at least roughly corresponds to the parts of the work in question. If rightness in general signals degree of fit between the contents in the focus of attention and its context, then it would signal here the degree of fit between a part in consciousness and other

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[6] In atemporal arts like sculpture and painting, we might initially refer to a right relation of parts. However, any prolonged encounter with an object is a series of experiences.

parts not explicitly in consciousness, but held nonconsciously as memories, expectations, and so on.

If the parts of such a series constitute a successful work of art—that is, if they are found to be highly integrated and to fit especially well with one another—then the fringe signals this fact as a strong feeling of rightness. So here, rightness signals the degree of unity between parts, most of which are not explicitly in consciousness. In this sense aesthetic objects do manifest varying degrees of unity. The more intense the feeling of rightness, the more apparent the integration of the parts, and the greater the apparent unity.

We can now explain why rightness, though only one fringe experience, is the paramount aesthetic datum. Consider, for example, the status of expressive feelings in works of art. The difference between aesthetic success or failure is not the difference between the presence or absence of this or that expressive feeling. Something is an aesthetic success if its components—focal contents *and* various expressive feelings in the fringe—'work' together and are 'right' or 'fit' in their particular place and in the work as a whole. And on our account, it is rightness which signals this relational information in consciousness.

1.3.1.3 The Noetic

Aesthetic experience is often taken to be a form of knowledge and understanding. We saw this noetic aspect surface in the contemporary use of such terms as 'right,' 'correct,' 'it works,' 'self-evident,' and so on. But we also saw that assertions about aesthetic knowledge do not lend themselves to the application of explicit evaluative criteria. Aesthetic knowledge is imprisoned by its specific formulation. It is a knowledge which cannot be reformulated and expressed in other terms. As the poet Alan Tate notes:

> It seems to me that my verse or anybody else's is merely a way of knowing
> something: if the poem is a real creation… it is not knowledge 'about'
> something else: the poem is the fullness of that knowledge. We know a

> particular poem, not what it says that we can restate. In a manner of speaking, the poem is its own knower, neither poet nor reader knowing anything that the poem says apart from the words of the poem. (p. 136)

Tate expresses well the "self-evident" character of the aesthetic.[7] This illustrates how closely the ineffable and noetic aspects intertwine. Aesthetic knowledge is not, strictly speaking, unstable, but, unlike other forms of knowledge, it will not suffer reformulation or rearrangement. It can only be grasped in precisely the form in which it occurs. We return to a characteristic feature of aesthetic unity: that even the smallest changes can destroy the savor of a work, though the propositional content remains the same.

When we are concerned with the process of acquiring and evaluating knowledge, we naturally treat the experience of rightness—the degree of fit or coherence between the focus of attention and its nonconscious context—in noetic terms. Rightness mediates problem solving, the quintessential noetic activity. It directs consciousness towards probable solutions and indicates solutions when found. In its monitoring capacity—problem solving at its lowest level—rightness affirms that what is in consciousness is compatible with its nonconscious information, i.e., that it is known.

1.3.1.4 The Transcendent

I will use 'transcendent' to refer loosely to mystical, religious, or metaphysical interpretations of reality, a reality often said to be disclosed by the aesthetic. Unfortunately, taking up this question will make many readers uneasy. The

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[7] The recognition of aesthetic excellence is quite like the intellectual feeling of self-evidence, for example, the feeling that envelopes an axiom in mathematics; one may speculate that they both rest on the same experience of 'rightness' in consciousness. However, the utility of an axiom's self-evidence is not in its contemplation, but in its application. In the context of this discussion, there is no close analogue to the sequential process of rule governed evaluation in aesthetic experience.

transcendent is out of style in the academic world. Even considering it will seem unscientific to many. But we must not forget that for most human cultures, including our own, this interest is still central. Even among Western *intelligentsia* it remained dominant until the great shift in intellectual values after the First World War; nor could Marxist dictatorships eradicate it from their subject populations. Clearly, there is an aspect of the human psyche that motivates the perennial claim that something profound and fundamental is hidden at the center of existence. And this transcendent reality is often said to be disclosed by beauty and art.

During most of this century the scientific study of consciousness was avoided in part because of its association with transcendent questions. Perhaps as a defense against obfuscation, scientists and philosophers simply ignored the topic of consciousness, and more recently slanted their analysis to avoid any possibility of 'mystical' contamination.[8] But even on the assumption that mysticism, religion, and metaphysics are nothing but a source of error, it is still necessary to understand why this error occurs on such a wide scale. It is folly to turn away from a potential problem. The scientific response should be to study it as closely as possible. We will see that for purposes of scientific research, it is possible to take a completely agnostic stance, one which neither adopts *nor* rejects transcendent beliefs in the process of their investigation. The study of consciousness will be hobbled until it deals with the 'mystical' aspect of consciousness openly.

This is doubly true for the study of aesthetics, at least from its psychological perspective. Research must face the fact that "the great philosophies of art have interpreted beauty and art in metaphysical terms" (Hofstadter and Kuhns, p. xiv). Again, this does not mean that we must in any way *adopt* metaphysics, religion, or mysticism to explore the basis of their close relation to aesthetics. The art historian E. H. Gombrich (1969), who rejects a mystical interpretation of art himself,

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[8] I am thinking particularly of the Churchland's approach to consciousness.

nevertheless insists that we must try to explain why the aesthetic is connected so often with "the transcendent realm of religious traditions" and "ineffable content" (p. 169):

> I do not think that any psychological study of art can be worth its salt that cannot somehow account for [the] experience of revelation through profundity… we must remember that art, as we know it, did not begin its career as self-expression, but… [begins] among those who wanted the symbols of their faith to make visible the invisible, who looked for the message of the mystery. (ibid)

The key to the mystery is to recognize first that rightness exists, and then to ask a simple question: *How would a very intense experience of rightness feel?* Given the theory of normal cognition to be developed in this study, the answer is straightforward and natural: An intense experience of rightness would flood consciousness with a feeling of great unification and knowledge, but an unspecified unification and an unstable knowledge. A vast penumbra of inarticulate significance would surround the focus of attention. Descriptions of this feeling could easily look like empty enthusing: "an experience of profoundly true and unified knowledge surpassing all definite content" or "an absolutely certain feeling of indescribable enveloping order."

At extreme intensities, rightness would shade into full blown mystical experience: A meaning of absolute importance would seem accessible to consciousness, on the very verge of manifesting itself. But no adequate content would in fact be retrieved. For it is rightness, and not a specific meaning, which is the "message of the mystery."

At the most extreme intensities of rightness, consciousness would presumably have no further resources left to articulate anything in the focus of attention. Everything would be fringe; the power of consciousness to manifest articulated experience would cease altogether. Consciousness would then be a pure field-state appropriate to an absolutely verified and perfectly integrated knowledge having no discursive or sensory content.

On this account, aesthetic and mystical experience are isomorphic and have no clear-cut boundary. We should expect the two categories to be subject to wide interpretative overlap and to interpenetrate one another in various ways. And, of course, this is what happens.[9] The standard philosophical attribution of a deep spiritual significance to the aesthetic is only one manifestation of this tendency.

1.3.2 Rightness as captured by the alpha cluster

Rightness, then, is at once a state of knowledge (noetic aspect) evoked by a highly integrated set of parts (unistic aspect), which eludes precise description (ineffable aspect) but nevertheless implies something profound about existence (transcendent aspect).

The aesthetic is a kind of natural experiment; it intensifies rightness and, in one sense, disengages it from its ordinary cognitive role. But again, to understand rightness, whatever its intensity, we must see how rightness functions in normal cognition.

The alpha cluster is an analytic device. It picks out four very natural ways of describing an intense experience of rightness;[10] the first three aspects also characterize the operation of rightness' during normal operation. To see that the elements of the alpha cluster all describe a single experience, keep in mind that *rightness does nothing more than signal the degree of fit between the content of*

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[9] Many of the most prized aesthetic objects in this secular age were used by their makers for religious purposes. Aesthetic experience is often the trigger for mystical experience (A.M. Greeley, 1974).

[10] These features are found in one another's company so often that the ensemble itself has become a cliché. When the so-called Harmonic Convergence occurred in August of 1987, Doonesbury's Gary Trudeau knew just how to lampoon the expected New Age rhetoric: "In the cusp of the converging ages, one blinding holy moment of transcendence shall transform the *Zeitgeist* with perfect synchronicity, into the pure, ineffable expression of indivisible oneness." In a single sentence, Trudeau conjoins three aspects of the alpha cluster—ineffability, transcendence, and unity—and, implicitly, the noetic aspect, because this is taken to be a state of profound cosmic knowledge.

consciousness and its nonconscious context. Because of the severe limit on the ability of consciousness to articulate experience, summary information about context-fit is fundamental to any extensive unification in consciousness and to any complex act of understanding. This limit also mandates the vague phenomenology of the fringe that, coupled with the fringe's function to signal implicit information and to help call new information into consciousness, gives the fringe its elusive character. For most experiences, importance or salience is indicated by intensity, and rightness is no exception. The more intense the feeling of rightness, the more significant and certain the fit between conscious content and implicit context will seem. An unusually intense experience of rightness would seem to signal an unusually important disclosure of the most fundamental sort.

1.4 Layout of this study

Aesthetic experience is the consequence of a basic cognitive mechanism, an intense feeling of rightness in the fringe. Because of its cognitive structure and function, rightness is naturally described in terms of alpha cluster features, and that is why the alpha cluster is prominent in traditional aesthetic theories.

This thesis also lets us move simultaneously, as it were, in the opposite direction: It opens a neglected source of evidence and preliminary theory for cognitive science and the study of consciousness. By looking carefully at aesthetic phenomena as recorded in traditional philosophy, we can explore cognitive mechanisms in a new way: Philosophy itself becomes a source of data—a kind of protocol—that cognitive science can analyze for its own ends. For example, the alpha cluster has been reported for thousands of years, and is a remarkably stable and recurring observation. Note that this aspect of the aesthetic database is drawn from an 'ecological' domain, and is in no sense a laboratory 'artifact,' yet it does

let us apply many laboratory findings to real-world phenomena of longstanding human significance.

To give a sense of the ebb and flow of cognitive and aesthetic questions to follow, let me set out a short synopsis of what is to come:

The second and following chapter of Part I will show, briefly, how the alpha cluster is embedded in classical European aesthetics; it will focus on Plato, Aristotle, Longinus, and Plotinus, but will also touch briefly on Leibniz and Kant (they will be discussed in detail in Part IV), and on a few later developments in Western aesthetics. In some ways the Greek tradition is easier to summarize at this preliminary stage of my argument, but enough of the modern work will be broached so that the reader can have a preliminary sense of the alpha cluster as it is treated over the wide historical range of philosophic aesthetics. Readers only interested in modern psychological evidence can skip this material, and go directly to Part II. But any student of connectionism who is interested in the problem understanding what characterizes a 'whole' would probably find Chapter 2, through section 2.2, of interest.

Part II sets out a descriptive analysis of rightness and the fringe in largely non-aesthetic circumstances. It is based, for the most part, on introspective appeals. It begins by trying to isolate the experience of rightness as much as possible and in the process shows that rightness probably manifests over a very wide range of intensities.

We will then consider James' treatment of the nucleus/fringe model of consciousness, both to understand some of rightness' phenomenological peculiarities as one feeling of relation, and to begin placing the operations of rightness in a larger cognitive context.

The use of introspection raises various methodological problems, and Part II will conclude with a chapter examining how I propose to support introspective claims with non-introspective evidence, using a method I call *convergent phenomenology*. In the process we will consider Wittgenstein's often

misunderstood treatment of introspection. Wittgenstein himself used introspective evidence for his own philosophic enterprise, and at one point went so far as to extend James' introspective treatment of fringe phenomena to aesthetics.

Part III then sets out a *functional* analysis of rightness and the fringe based on evidence and theory developed during the cognitive revolution. The lynch-pin concept is the limited capacity of consciousness to articulate experience. We will see how this way of formulating the limited processing capacity of consciousness lets us explain in straight-forward, functional, biological terms many fundamental features of consciousness, both learned and innate. But the main use of this perspective will be to explain why consciousness needs rightness and a fringe, and why they operate as they do.

Part III will first examine the experimental work on consciousness now explicitly incorporated into the cognitive revolution. This line of research began in the early 1950's, but was only linked directly to the study of consciousness in the mid 1970's, notably in the work of George Mandler (1975); recently Bernard Baars (1989) updated and elaborated a similar perspective. This line of thinking brings out clearly the fundamental contrast between the narrow and sequential nature of much conscious processing and the extremely complex and parallel nature of nonconscious processing. It also brings out, though somewhat less clearly, the overall function of consciousness—which is to evaluate novel information. And it considers, too, such phenomena as automatization/habituation, a process which works to remove old information from consciousness, just as consciousness is attracted to new information. Functionally speaking, the fringe and rightness fit this general theoretical perspective closely, even though they are currently ignored by it.

We then consider evidence of a more direct kind for the existence of rightness and the fringe. Most of it will also be experimentally based, though we will begin by considering the longstanding inability of standard, so-called artificial

intelligence (AI) to handle context information in a natural way. The experimental material will range from the early work of Ulric Neisser on preattentive processes and the vague feelings associated with them to the more recent investigations of Thomas Nelson and others on 'the feeling of knowing.'

Part III concludes with two chapters on connectionism, focusing on the ideas of Rumelhart, Norman, and Smolensky. Connectionist research has many implications for the model of consciousness developed in this study, even though connectionist thinking about consciousness is on the surface rather primitive. Even so, connectionists have proposed that the parallel process of network relaxation would be expected to pass through a "fuzzy" stage before reaching a single interpretation for the purposes of sequential manipulation in consciousness. And many connectionist networks exhibit a global property similar to rightness.

Linking our larger model of consciousness with connectionist thinking accomplishes three aims: it (1) gives us further reason to believe that rightness and the fringe exist and even suggests their possible evolutionary history, (2) considerably expands the connectionist account of consciousness, and (3) offers a new way to look at existing problems in connectionist research, e.g., making the 'teacher' paradigm more plausible, and framing a further argument against the rival account of rule-based nonconscious processing as propounded by traditional AI.

Part IV returns to philosophy. Armed with our account of consciousness, we return to the origin of modern aesthetics in Leibniz and Kant. This is not an arbitrary application. In formulating modern aesthetics, these men explicitly adopted many points now supported by the most recent cognitive research. Traditional aesthetics assumes the existence of cognitive mechanisms that are just now being re-discovered by cognitive science. We can understand aesthetics better once we recognize these cognitive mechanisms, just as we can understand these cognitive mechanisms better once we recognize their operation in an aesthetic context.

Leibniz introduced the "tip of the iceberg" notion of consciousness (but not the metaphor) into Western thought. In part to explain aesthetic ineffability (the *je ne sais quoi*) and the other aspects of the alpha cluster, Leibniz asserted that consciousness rested on extremely complex unconscious cognitive processes, only a small part of which were ever accessible to consciousness directly. In the case of aesthetic experience, access was even more restricted than for other sorts of intellectual activity, and consciousness received only a summary or vague evaluative conclusion. Leibniz also tied into this account of human cognition to the operation of novelty and habituation in consciousness but apparently did not recognize the underlying functional relation of these processes to the limitations of consciousness.

But Kant moved much closer to this recognition. In the introduction to the *Critique of Judgement,* Kant in effect showed how many of Leibniz's observations could be explained as consequences of our inherent cognitive limitations, though Kant did not recognize the degree to which these limitations probably derive from consciousness alone.

Kant called the aesthetic "cognition in general." In effect, Kant uses aesthetic phenomena as illustrative of cognitive mechanisms underlying normal cognitive activity, but which stand out during aesthetic experience, notably processes of object formation, the object/concept nexus, and the dynamic, cognitive basis of scientific discovery. The resulting account of the aesthetic is unique, both because of its immense influence, and because it rests on what is probably the first complex cognitive processing model in history.

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