

## Introduction: Cognitivism and Film Theory

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This supplement is designed as an introduction to a movement which I believe is not yet well-known to scholars in either theatre or film. I myself first heard the term "cognitivism" less than three years ago. For me it is still in the process of definition. Each time I set about researching and writing something on cognitivism, I find that I learn a great deal more about the subject and, as a result, wind up refashioning my previous definitions. I do not expect that this process will greatly diminish; in fact, I expect it will greatly increase. Extant publications--books and articles--which fall under the aegis of "cognitive science" constitute a bibliography which is already vast and (perhaps monthly) grows vaster. Much of it deals with matters that have commanded my academic curiosity and concern for many years: issues of mentation and perception coupled with such philosophic mainstays as epistemological and ontological questions. Thus I have the feeling that cognitivism will continue to influence my scholarship and my teaching, at least throughout this current capstone decade.

This is not to say that I presently call myself a "cognitivist." As a film theorist, I have spent the past several years studying Derrida's deconstruction and, when asked about disciplinary specializations, tend to characterize myself as a film/video semiotician (devoted to the continental school of Ferdinand de Saussure). Yet the following papers will show that the flourish and fashion enjoyed by, first, semiotics and structuralism, and later by postmodern analytic strategies are often implicitly countered by cognitive science. Still, such countering seems somehow refreshing. Cognitivism carries a remarkable sense of promise (and promises a remarkable sense of controversy) that should energize film theory and film theorists in the years ahead. Today we already witness a new, worldwide interest in how-the-human-mind-works which provides a wonderful pooling of resources. Today a common interest in how

we see and think connects perceptual and cognitive psychologies, neurophysiology, linguistics, artificial intelligence, cultural anthropology, and other previously diverse disciplines. Cognitivists come from many disciplines and their concerns seem intrinsically interdisciplinary. Further, the discipline of classic film theory often prefigured cognitive concerns.

As early as 1916, the pioneer film theorist Hugo Munsterberg stated the thesis of his "little book" as:

first, an insight into the means by which the moving pictures impress us and appeal to us. Not the physical means and technical devices are in question, but the mental means. What psychological factors are involved when we watch the happenings on the screen?<sup>1</sup>

Later, Arnheim's 1933 *Film als Kunst* reflected the gestalt theory of his "teachers Max Wertheimer and Wolfgang Kohler."<sup>2</sup> Such theories are greatly removed from Freudian fashion. Instead, they are pointed toward more pragmatic empirical foundations--transcultural psychologies which inform cognitivism's current resources and which could reciprocally explain both the human sensorium *cum* mind as well as film and video's powerful yet still mysterious functions.

While overlaps exist, film theory is not the same as film criticism. Film criticism's main concerns are the explication and evaluation of specific works. In contrast, film theory employs a diverse host of works to identify and elaborate general principles, "to formulate," in Dudley Andrew's words, "a schematic notion of the capacity of film."<sup>3</sup> Often such formulations are inextricably interwoven with matters of human mentation. Consider Eisenstein's concerns with mental imagery, Bazin's employ of film to readdress classic philosophic concerns with ontology, or Kracauer's remarkably behaviorist epistemological premises. Then compare this tradition of film theory with Byrne and Keane's "Introduction to Cognitive Science."

Cognitive science is the name of a relatively new approach to understanding an old problem: the nature of the mind and mental activities. For some time, researchers in many disciplines--cognitive psychology, artificial intelligence, philosophy, linguistics, and neurosciences--have attempted to understand aspects of human cognition. Under the banner of cognitive science, they are exploring the possibility that several heads may indeed be better than one for solving difficult problems.

Cognitive scientists study many different aspects of the mind, for example, they study how we perceive the world and acquire knowledge. They examine how such knowledge is structured and

represented in memory, and how we reconstruct and retrieve information about our past experiences. They study how we use this knowledge in our thinking, reasoning and problem-solving. Their research is also directed towards our unique human abilities (e.g., language comprehension and production) and towards the limits of our abilities (e.g., our restricted working memories). Finally, in marked contrast to the earlier behaviorist program, they have directed increasing attention towards our conscious awareness of the world and our own thoughts.<sup>4</sup>

Cognitive science makes this an exciting time in the historical development of film theory. After Kracauer, the theoretical study of how a film communicates and how it comes to mean experienced major changes. It went from a linguistic model to a political model built upon a linguistic model, to cognitivism's promise of a model based upon perception and cognition. But the historical development of cognitive science was quite independent of film theory.

Howard Gardner's *The Mind's New Science: A History of the Cognitive Revolution* sees major roots of cognitivism in Norbert Wiener's cybernetics and Claude Shannon's information theory.<sup>5</sup> Indeed, Gardner's "consensual birthdate" for cognitivism is September 11, 1956--the day Noam Chomsky presented a paper, "Three Models of Language," at a Symposium on Information Theory held at MIT.<sup>6</sup> "In short order the journal *Cognitive Science* was founded--its first issue appearing in January 1977; and soon thereafter, in 1979, a society of the same name was founded."<sup>7</sup>

Gardner's own definition of cognitivism helps differentiate it not only from post-modern film theory but from theories of communication in more familiar academic disciplines. "I define cognitive science as a contemporary, empirically based effort to answer long-standing epistemological questions--particularly those concerned with the nature of knowledge, its components, its sources, its development, and its deployment."<sup>8</sup> To the extent that film theory would employ cognitivism, then, it would have to prioritize an empirical epistemology and make that epistemological enterprise the ultimate goal of its research. Again, this is not really new to film theory's history. To paraphrase Christian Metz, whereas the film/video critic wants to understand a given work, the theoretician wants to understand that understanding. While, for critics, a given methodology is a means to an hermeneutic and/or evaluative end, a cognitivist film theory rather employs a given work as the means to answer larger (and really quite ancient) problems of human mentation and perception. And, always, the endeavor must remain open to scientific corroboration or rejection.

Gardner also cites interdisciplinarity as a key characteristic of contemporary cognitivism. This, however, is not an open set of disciplines; nor, for Gardner, is such a manifold clearly intrinsic.

[C]ognitive scientists harbor the faith that much is to be gained from interdisciplinary studies. At present most cognitive scientists are drawn from the ranks of specific disciplines--in particular, philosophy, psychology, artificial intelligence, linguistics, anthropology, and neuroscience (I shall refer to these disciplines severally as the 'cognitive sciences'). The hope is that some day the boundaries between these disciplines may become attenuated or perhaps disappear altogether, yielding a single, unified cognitive science.<sup>9</sup>

Film theory's use of cognitivism, then, seems to be more likely derivative than contributory. However, I personally believe and bet that film/video research has a great deal to offer its cognitive host. For example, cognitivism does not seem to seek or need distinction between actual objects and photographic (*cum* cinematographic/videographic) surrogates of those objects. Film theory is wealthy in its examination and elaboration of those distinctions, and I think the cognitivist pantheon could profit from such contribution.

Gardner also presents the computer as an especially precious part of the cognitive enterprise. Indeed, the development of the computer has been remarkably concomitant to the development of cognitivism. Steven Pinker draws upon Gardner in his address of this point:

Over the past 25 years, the field called 'Cognitive Science' has revolutionized our understanding of mental processes. At the heart of this discipline is a central dogma, which plays a role analogous to the doctrine of atomism in physics, the germ theory of disease in medicine, or plate tectonics in geology. This central dogma is the 'Computational Theory of Mind': that mental processes are formal manipulations of symbols, or programs, consisting of sequences of elementary processes made available by the information-processing capabilities of neural tissue. The computational theory of mind has led to rapid progress because it has given a precise mechanistic sense to formally vague terms such as 'memory', 'meaning', 'goal', 'perception', and the like, which are indispensable to explaining intelligence.<sup>10</sup>

To be sure, the psychological model-of-the-mind addressed by Gardner and other cognitivists is indeed far, far more consonant with the working

model provided by computers than any *ex cathedra* trichotomy of Id, Ego and Super Ego, what Gardner calls "the unbridled conjecturing of the Freudians. . . ."11 In fact, from a postmodern position, cognitive science is likely to be regarded as a consummate foil to Freudianism. Dudley Andrew's *iris* editorial, "Cognitivism: Quests and Questionings," touches this same regard: ". . . we are now witnessing American film theory audaciously tendering a psychological model, often set explicitly against psychoanalysis, labeled cognitive science."<sup>12</sup>

For me, cognitivism also provides a way that a film theorist can explain an interest beyond Hollywood's entertainment or Cannes' aesthetics. My interest in cognitivism helps warrant my fascination with many types of images beyond the mechanical-chemical constructs which run through projectors at 24 frames-per-second. This includes the major similarities and subtle differences between film and video. It includes artificial intelligence's seeming inability to identify film/video "cuts" (i.e., the articulation of editing). It could also include a comparison and contrast between cinematographic constructs and such diverse forms as x-rays, xerox copies, images derived from radio telescropy, tomography, cartography, Mandelbrot sets in computer graphics, and "Virtual Reality"--that contemporary interrelationship of computers, human vision and tactility, and interactive video games. This is not to say that I know these modes have been studied by cognitivists (artificial intelligence is clearly the exception, praised by Gardner as a "quintessentially cognitive discipline"<sup>13</sup>); it is just that cognitive science's broad scope encompasses the range of my curiosity for para-cinematographic surrogates of reality, surrogates which have been wont to remain outside the realm of classic and contemporary film theory. David Bordwell's *iris* essay, "A Case for Cognitivism," explains ". . . that in many, perhaps most, respects, film studies is a hermeneutic discipline. By and large it is in the business of interpreting texts (mainly, films)."

To this cognitivism offers a sharp challenge. One can argue that a powerful theory provides explanations rather than explications. The hermeneutic bent of film studies leads to the practice of describing texts in an informal metalanguage derived from a theoretical doctrine. But a description, even a moving or pyrotechnic one, is not an explanation. By contrast, the cognitive framework has a signal advantage. *It does not tell stories*. It is not a hermeneutic grid; it cannot be allegorized. Like all theorizing, it asks the Kantian question: Given certain properties of a phenomenon, what must be the conditions producing them? It then searches for causal, functional, or teleological explanations of those conditions.<sup>14</sup>

Further, I see three levels of engagement between film theory and cognitive science. First is the meta-theoretical level; that is, articles like Bordwell's "Case" which set out to situate cognitivism within, or in contrast to, other theoretical methodologies that have already gained acceptance in film studies. Second is the use of the vast research-and-publication, which already constitutes cognitivist bibliographies, for alternative evidence or support to explain enigmatic film phenomena. This seems especially likely for psychology where Freudian conjectures are readily replaced by contemporary empirical evidence. Third would be the actual discovery of new cognitive/film data by researchers schooled in science's empirical and experimental foundations. Of the three, the first seems the most common, at this writing, while the third begs for exercise and contribution. I think the following essays bear out the above generalization.

Joseph Anderson, however, because he has a background in both film and perceptual psychology is the exception to the rule. He is a veritable pioneer in amalgamating film studies with cognitive science. In the seventies he taught film theory at the University of Wisconsin under the course title "Psychophysics and Cinema" where his text was a sheaf of articles winnowed from journals of experimental psychology. In 1978, as associate editor of the *Journal of the University Film Association*, I secured an Anderson MS entitled "The Myth of Persistence of Vision," which still strikes me as a singular, stunning, watershed work.<sup>15</sup> Anderson's empirical research in binocular rivalry had made him suspicious of the concept "persistence of vision" which had become ubiquitous in the literature of film, and that article, written in collaboration with his wife Barbara, demonstrated that the concept "persistence of vision" is in fact scientifically indefensible and historically inaccurate. Anderson's present article, "Between Veridicality and Illusion," is presented as an overview of cognitive film theory. I should warn readers not to allow the easy access and innovative style, or the appeal of ordinary reason, to lull them into assuming that Anderson is saying something ordinary. To the contrary, he goes beyond Andre Bazin's ontological question (What is Cinema?) to the very heart of our discipline and asks, "What is the *power* of the motion picture; why do we care?" I found his proposals for answering this question exemplary in their sweep across the several disciplines of cognitive science.

David Bordwell is a world-class film scholar who has made major contributions to film history, theory and criticism. His books on the Danish film director Carl Dreyer, the Japanese master Yasujiro Ozu, and the Soviet filmmaker/theorist Sergei Eisenstein illustrate his grasp of international cinema. And his lectures and writings advocating a cognitivist perspective on film theory during a period of psychoanalytic/Marxist domination of the field of film scholarship demonstrate his courage. He is today clearly one of America's foremost film scholars. His present essay, "Cognition and

Comprehension: Viewing and Forgetting in *Mildred Pierce*," builds upon his recent theoretical books, *Narration in the Fiction Film* and *Making Meaning*.<sup>16</sup> It is an example of my second level of engagement between film theory and cognitive science. "Cognition and Comprehension" should prove particularly informative for the potential employment of cognitive science in theatre analysis because it provides a cognitivist answer to the classic *explication de texte*. But, as Bordwell's own "Case for Cognitivism" explained, the cognitive framework is not an hermeneutic grid. In "Cognition and Comprehension" Bordwell seeks "causal, functional, or teleological explanations" for issues of characterization and plotting in the classic film-noir melodrama, *Mildred Pierce*.

Noël Carroll used his set of philosophers' tools to fashion an explosive device in the form of a book entitled *Mystifying Movies*.<sup>17</sup> The shockwaves of its 1988 publication are still being felt. In *Mystifying Movies* Carroll questioned the methods and assumptions of the dominant paradigm in film study. When Warren Buckland wrote a reactionary review of the book which appeared in the film journal *Screen*, the journal refused to print Carroll's energetic rebuttal, "Cognitivism, Contemporary Film Theory and Method: A Response to Warren Buckland."<sup>18</sup> It is thus printed here, for the first time, where it addresses basic methodological issues and serves as an epistolary answer to the many questions and concerns which cognitivism seems to raise for its legion of scientifically phobic or naive critics.

Calvin Pryluck offered an insight in 1973 that seemed counterintuitive at the time, but now appears prescient. He simply stated that using language as a model for understanding film was not a productive pursuit. Almost no one heeded him, and the field of film study set out to re-develop a "grammar" of film. When that specific effort failed, other attributes of language were engaged as exemplars for film analysis. A less tangled path did not readily appear, and as Pryluck himself admits, "It took me several years to become absolutely convinced that language and film have nothing to do with each other as formal systems, except that they are both sign systems." In retrospect, this position can be regarded as a kind of nascent film cognitivism. His article "When is a Sign Not a Sign" updates his thinking on this issue and reasserts his fundamental contention that, "As logical systems language is deductive and film is inductive."

By and large, most of the readers of this supplement likely teach and study under the administration of a college of "arts and sciences." What I think I like most about cognitivism's "promise" for film theory is its potential power to re-bond these often disparate categories. Recall that the etymology of our term "esthetics" lies in the Greek words *aisthetikos* (i.e., "perceptive") and *aisthanesthai* (i.e., "to perceive," an investigation today left to perceptual psychology). This etymology is clearly retained in our term "anaesthetic." Cognitivism can reflect that etymology and provide an extremely heuristic

reunification of science and art which should help us awake from the anaesthetic sleep bequeathed by too many years of theories insulated from even a simple sense of production, and theories built upon political premises or obsolete maps of the human mind.

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## Notes

1. Hugo Munsterberg, *The Film: a Psychological Study* (New York: Dover Press, 1970) 17.
2. Rudolph Arnheim, *Film as Art* (Berkeley: U of California P, 1966) 3.
3. J. Dudley Andrew, *The Major Film Theories* (New York: Oxford UP, 1976) 3.
4. Ruth M.J. Byrne and Mark T. Kean, "An Introduction to Cognitive Science," *The Irish Journal of Psychology* 10 (1989):i.
5. Howard Gardner, *The Mind's New Science: A History of the Cognitive Revolution* (New York: Basic Books, 1987) 20-21.
6. Gardner 28.
7. Gardner 36.
8. Gardner 6.
9. Gardner 6-7.
10. Steven Pinker, "A Computational Theory of the Mental Imagery Medium," *Cognitive and Neuropsychological Approaches to Mental Imagery*, ed. M. Denis, J. Engelkamp and J.T.E. Richardson, NATO ASI Series, NO. 42 (Boston: Martinus Nijhoff, 1988) 17. I might add that Gardner himself ends his book on a more cautionary note regarding cognitivism's computational definition: "Earlier models of thought—the reflex arc, the hydraulic engine, the telephone switchboard—are now seen to be extremely limited. It is already clear that one kind of computer does not suffice to model all thought. We must face the alternative that humans may be an amalgam of several kinds of computers, or computer models, or may deviate from any kind of computer yet described. Computers will be pivotal in helping us determine how computerlike we are, but the ultimate verdict may be 'Not very much'." (387)
11. Gardner 15.
12. Dudley Andrew, "Cognitivism: Quests and Questions," *iris* 9 Spring (1989): 1. This issue is devoted to the topic "cinema and cognitive psychology."
13. Gardner 293.
14. David Bordwell, "A Case for Cognitivism," *iris* 9 Spring (1989): 17; Bordwell's emphases.
15. Joseph Anderson and Barbara Fisher, "The Myth of Persistence of Vision," *Journal of the University Film Association* xxx:4 Fall (1978): 3-8.
16. David Bordwell, *Narration and the Fiction Film* (Madison, Wisconsin: U of Wisconsin P, 1985) and *Making Meaning: Inference and Rhetoric in the Interpretation of Cinema* (Cambridge, Massachusetts: Harvard UP, 1989).
17. Noël Carroll, *Mystifying Movies: Fads and Fallacies in Film Theory* (New York: Columbia UP, 1988).
18. Warren Buckland, "Critique of Poor Reason," *Screen* 30:4 Autumn (1989): 80-103.