



1978

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#### Recommended Citation

Machotka, P., & Spiegel, J. P. (1979). Construction of Pictorial Meaning. *5* (2), 115-131. Retrieved from <https://repository.upenn.edu/svc/vol5/iss2/4>

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## Construction of Pictorial Meaning

## CONSTRUCTION OF PICTORIAL MEANING

PAVEL MACHOTKA  
JOHN P. SPIEGEL<sup>1</sup>

Whether perception is treated as a process in time or as a near-instantaneous achievement depends on the problem of study. For many purposes the assumption of instantaneity is convenient—as when one is interested in the relation that finished percepts bear to simple stimulus arrays. The perception of inequality in the Muller-Lyer arrows, the sense of solidity of a convex edge, and the identification of triangularity or squareness are all examples of achieved percepts whose quality is of more interest than the process by which they may have been produced.

As stimulus arrays become complex, it becomes impossible to ignore the process by which they are recognized, interpreted, and integrated into one's structure of cognitions and needs. While the nature of the process has not been specified, it is clear from certain lines of evidence that a fairly lengthy series of events does take place. Thus from the work of Yarus on eye movements (1967) it is evident that the eye can wander over the surface of even a simple picture in an uninterrupted fashion for several minutes. Because the eye moves differently in response to different "questions" asked of the picture, it is clear that the eye is instituting a search; what is not known is the sense that the perceptual and cognitive apparatus makes of the data received in this linear fashion. From quite different evidence—interviews with subjects who are asked to say what they "see" in a painting—it has been found (Spiegel and Machotka 1974) that hypotheses are formed, confirmed, discarded, or reshaped; that attention turns from one part of the picture to another; that an integration of several impressions may be attempted; that the picture is at times viewed as a picture and at other times as the objects which it represents; and that the process can be drawn out at quite some length. An attempt will be made here to construct a framework for understanding that process.

Our task is made easier by the recognition (Flavell and Draguns 1957; Smith 1957) that even the perception of simple arrays may require a process in time, albeit a brief one. Whether the construction of meaning from a complex representation is function-

ally similar to the "microgenesis" of a percept is not clear, but some parallels may be suggested. The evidence gathered and interpreted by Neisser (1967) will serve as our best point of comparison; his views, consisting of both observations and parsimonious extrapolations from them, may for our purposes be grouped under three tenets:

1. The observation of conditions under which visual input is retained shows that perception is not a matter of passive recording. In the first place, memory traces (or, as they are called by Neisser, icons) of a visual input are highly evanescent, lasting at most about one second; if they have not been grasped by that time in *another* part of the perceptual apparatus, they vanish altogether. If on the other hand they are to be grasped, they must be coded by a different process into one or another category. These categories can be linguistic, as with words by which the icon can be labeled, or they can be nonlinguistic, as in the case of frameworks of meanings, memories, fantasies, and other schemata. In the second place, the percept as it is subjectively experienced and the memory of the event as it is later recalled are outcomes of the coding process.

2. The coding process can be multiple or sequential. Multiple coding is more complex, and at the same time less well organized; because several coding processes can coexist without apparent interconnection, the whole may resemble what Freud called the primary process. Sequential coding works one step at a time, in such a manner that each step is dependent on the preceding steps; it is logical in the usual sense of the term, and its primary, but by no means only, instance is linguistic coding and reasoning.

3. Because these two types of coding, although logically distinct, can operate at the same time, and because a coding process once completed can in turn influence what further visual input will be attended to—the whole resulting in an unending cycle of purposive or purposeless mental activities—perception even of simple arrays is best viewed as a process of construction.

### A MODEL FOR THE CONSTRUCTION OF MEANING

Our model of the construction of meaning from pictorial representation was worked out independently of Neisser's and on the basis of entirely different observations, but the similarities it bears to his encourage us to believe that we are on the right track. To account for the verbal descriptions that subjects had made to us of pictures they were attending to, we needed to take note of the coding categories they employed and of the vicissitudes they underwent as the process unfolded. Unlike the experimental evidence gathered by Neisser, our verbal descriptions are vaguer in delineating the attributes of the visual

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array to which the subject is attending, but richer in revealing the hypotheses that are formed and tested and the fantasies that are adduced or integrated with the visible evidence. But very much like the percepts as Neisser understands them, our constructions result in and are then again governed by one or more schemata. The term "schema" seems particularly appropriate because it denotes organization and at the same time suggests flexibility or even tentativeness; it was defined by Bartlett (1932) as "an active organization of past experiences, which must always be supposed to be operating in any well-adapted organized response," and his definition, while perhaps overstressing the necessity of adaptation, serves us well.

In this paper we attempt, then, to account for the processes of construction of pictorial meaning as they are revealed in verbal descriptions. It should be noted that reliance on verbal descriptions has both drawbacks and advantages. In 1934 Claparède (cited by Miller et al. 1960) pointed out that verbal descriptions may make the process sound more coherent than it really is, that talking may inhibit thought processes or slow them down, and that subjects may fall silent just when their processes might be of the greatest interest. To these disadvantages we would add that of hiding from the investigator the very rapid initial visual searching and coding of the picture that takes place before anything has been said. But, quite apart from our having no visible alternative to this procedure, its advantages are just as real. Principal among them is that the procedure reveals the thought processes that become intertwined with the visual scanning and identification: the hypotheses that the subject entertains, the evidence that he searches for, the changes in interpretation when the evidence fails to fit, the degree of coherence of the overall percept, and the fantasies that the subject spins out from his private world. The procedure also tells us whether the subject is attending to the picture as an object in its own right or if he is seeing it as a representation of another object or even as the representative of the picture's author. It tells us whether the viewer is attentive to the picture at all or if his fantasies overwhelm the visual scanning. And it tells us something about the visual scanning itself, as when it reveals surprise at a hitherto unnoticed feature.

Our model<sup>2</sup> for the activity that picture interpretation represents requires us to note three processes simultaneously, of which the first two are quite readily inferable, while the third (no less important) involves an extrapolation of larger governing cognitive units. The first process is what we may call the *underlying perceptual strategy* toward the visual display, while the second refers to the search for *sources of evidence for meaning*. The third—better clarified at this stage of our model by actual examples than by rigorous definition—connotes the formation of a *schema*, which is initially a product of a partial percept and then an organization governing further perception, fantasy, and reasoning. A schema may

eventually be weakened, firmed up, or simply set aside while another schema comes into play.

## PERCEPTUAL STRATEGIES

The underlying *perceptual strategies* are cognitive operations of a high enough order so that they cannot be evidenced from indices such as eye movements but remain clear to the person experiencing them and, when adequately verbalized, to the investigator as well. They represent choices as to the method of seeing the picture, choices which, it appears to us, the viewer cannot avoid making. They occur on three dimensions, and insofar as they occur at all, occur simultaneously, which is to say that for the most prevalent kind of picture—one that intends to represent and whose subject matter is human—a choice of mode of perceiving has to be made on three dimensions at the same time.

On the first dimension the viewer decides whether to view the picture as an object in its own right and with its own intrinsic properties, or to see it only for the content that it represents, or to see it as a product (of a historical period, a stage in the artist's life, a specific artistic intention, and so on). Thus the picture might be viewed as having a certain visual balance

TABLE 1  
THE PROCESS OF INTERPRETING PICTURES:  
CATEGORIES OF ANALYSIS

<i>Underlying Perceptual Strategies</i>	
Picture as picture vs. picture as content vs. picture as product	
Observer viewpoint vs. participant viewpoint	
Part of picture vs. whole	
<i>Source of Evidence for Meaning</i>	
From antecedents	
search for title	
identification of author	
identification of period or style	
attribution of intention to artist	
attribution of ritual meaning to ambiguous gestures	
assumption of overall message	
search for supplementary information	
deductive reasoning from external cues	
From picture itself	
search to identify objects, scene, or setting	
identification of roles and role activities	
attention to body position or movement	
construction of scenario	
deductive reasoning from internal cues	
search for corroborating evidence	
attention to formal properties	
attention to compositional needs	
From observer's needs	
undifferentiated affective burst	
empathy or identification with a figure	
attribution of feeling to a figure	
attribution of feeling to picture (or self)	
attribution of character to a figure	
projection of fantasy	
projection of needs, conflicts, or coping mechanisms	
avoidance of picture	

("picture as picture"), as showing a female figure tendering an apple to a male figure ("picture as content"), or as a 16th-century Venetian painting such as one by Tintoretto ("picture as product"). The viewpoint may change with time, slowly or rapidly, but quite likely only a single viewpoint may be maintained at any one time.

On the second dimension the viewer decides whether to understand the depiction of human activity from his point of view as an observer or from the point of view of one of the other depicting participants. In our work on nonverbal communication (1974) we noted that observers may feel rebuffed by barriers erected against approach to an attractive figure—as by the covering arms of Botticelli's *Venus* (see Figure 1)—and inferred that the observer engages in some sort of fantasied relation to the figure. Such a fantasied relation, whether conscious or unconscious, with a single figure or more than one constitutes the observer viewpoint. But the viewer may also adopt the point of view of one of the figures and understand the other figures' actions and feelings from it; thus he may himself "feel" the comfort that a baby sitting on its mother's lap is experiencing: this we call the participant viewpoint.

The third dimension of perceptual strategy is the decision to attend to a part of the visual display or to the whole. It is likely that attending to a part of something as complex as a painting is easier than attending to the whole; studies of eye movements can, in fact, show only successive attention to parts and may make us question whether attention to the whole is possible. Yet our own experience indicates that one can perceive the whole at one time, although perhaps only under special conditions. For an untrained observer, turning a picture upside down may suffice to obliterate subject matter and make formal interrelations clear; as he becomes less busy with identifying detail he can see a broad surface. Trained observers can accomplish this simply by shifting the pattern of their attention; and untrained observers may also succeed in doing so without rotating the picture, after becoming satiated with attention to detail.

## SOURCES OF MEANING

Intersecting these strategies is the complex visual and cognitive search for meaning. We distinguish three sources of meaning<sup>3</sup> and subdivide each into a fairly large number of categories; we are not suggesting that the categories are exhaustive, but they do account for most of the data we have attempted to analyze. We shall here list the categories we believe are needed, illustrate their use by applying them to instances of pictorial interpretation, and then suggest how they might be used in future research.

The first source of meaning includes material which is extraneous to the picture, either by virtue of pre-

ceding it in time or by being in some manner connected with it subsequently. Thus, faced with a painting in a museum or a reproduction in his hand, an observer may be seen to search for a title or attempt to identify the artist or the period to which the painting belongs, even when the picture is visually unambiguous. As a way of reducing ambiguity, subjects have attributed various intentions to the artist ("I am speaking of the prudishness of the painter, not of the persons within the frame") or assumed ritual meaning in ambiguous gestures ("... the second person from the right appears to be making some sort of formal sign, as for instance in an oriental dance"). We have also noted that subjects may assume that the picture as a whole has a message to convey ("Both of these pictures could simply be departure scenes"), by which message they may integrate a number of disparate, often puzzling elements. Finally, perhaps to justify or clarify a vague impression, subjects may search their memories for supplementary information ("She reminds me of Anna Russell") or engage in deductive reasoning from cues external to the painting (as in the following response to a suggestion by the interviewer: "Funny, that did not occur to me. In which case it would be perfectly natural for a lady of the higher class to be here"). These interpretive sources are characteristically applied to painting and drawing and generally ignored in a more documentary medium such as photography, but there appears to be no intrinsic reason why, at least in part, sensitive observers should not find them applicable to photographs as well.

Meaning can be sought from the picture itself. By this we are not saying that nothing is brought to the perceptual process from the outside (such as previous experience in general) but that attention is focused on the picture *per se*, or on what it represents. In describing the various internal sources of meaning we are dealing with the sources that subjects most frequently use when responding to an interviewer's request for the description of a picture; the sources reflect the subject's task orientation. Thus, particularly at the beginning of a description, we find a fairly rapid attempt to identify objects and the scene or setting which contains them ("This part of the picture seems to take place in some sort of castle") and perhaps an equally rapid identification of people in roles and role activities ("Woman, standing on a shell on the sea, with . . . can't figure it out, I guess it's a horn"). Some subjects are sensitive to body positions and the meaning they convey ("I think he is turning either like this away from her or like this around towards her"). Some subjects attempt an integration of these various sources and construct a scenario, which can be construed as a schema for making coherent that which appears disparate ("Maybe she's about to leave the circus or something, I don't know. I think probably that she is drawing apart from her family and that her husband, who might be the Harlequin, is keeping them all there"). Whether a scenario has

been constructed or not, consistency and clarity (through an implied schema) may be tried for by deduction from clues internal to the painting ("... she seems fairly happy, the kid looks okay, so maybe it's a mother"). Somewhat akin to deductive reasoning, but with the logical flow reversed, is the search for corroborative evidence ("She might seem to represent vice, or something, ... because she seems like a filled-out sack"). Less frequent, especially in a group not selected for its esthetic competence, is attention to formal properties ("It's done in pastels"), which may or may not be explicitly tied to meaning ("The brown and yellow give a sort of depraved effect"). Rarer still is the attempt to account for ambiguity by attending to compositional needs ("I think it's just for the effect of the balance in terms of color").

Finally, subjects make it obvious that their own needs, wishes, and emotional reactions can be a source of the picture's meaning as well. Pictures are not merely visually registered and cognitively processed; they are also admired, ridiculed, embraced, rejected, loved, hated, and treated with ambivalence. In some individuals such reactions are barely perceptible, while in others they may overwhelm the cognitive processing; in a few, there exists a salutary balance. Particularly at the beginning of a description, one may meet with an undifferentiated affective burst ("Oh, my!"), which may reflect a quickly established identification with a figure (as when a subject imitates the figure's pose or expends inordinate emotional energy on it). A subject may attribute feeling to the figure he is looking at ("... or he might be in agony at the sentence which has just been passed upon him by a judge") or to the picture as a whole ("The most important thing ... is the feeling of mother-child tranquillity and proudness"), or he might attribute character to figures ("For some reasons I make this into a good woman and this into a bad one"). There may be an overt projection of fantasy ("... he seems that sort of adolescent or small-town hood that's got to prove himself, and everything becomes part of the proving") or a clear projection of one's own needs, conflicts, or healthy coping mechanisms ("... this seems to have ... a sense of complexity comparable to my own"). Finally, emotional involvement may be so strong as to make one inattentive either to the picture or to the interviewer; inattention can be judged from the subject's direction of gaze or from the prevalence of fantasy over perception throughout the interview.

### SCHEMA FORMATION

The third process that occurs, simultaneously with the other two, is the formation of a schema. A schema may be quite definitive, allowing the subject to feel satisfied with his perception or interpretation, or it may be tentative, eliciting further search for evidence or leading the subject to form further schemata.

How do we know what schemata a subject has

formed and where they begin and end? It must be admitted that identifying schemata requires a process of judgment which is somewhat ill-defined; it is a judgment that can be reached only after examining a portion of a transcript, and it is therefore a construction after the fact. It is quite possible that different judges might "see" different schemata at work; our research has not focused on interjudge reliability and a decision on the obviousness of schemata must be examined in a future study. But there is no question about the need for the concept; the two processes we have identified so far are too discrete and too molecular to account for the larger organization that is, in the very least, subjectively felt to be present. Our procedure for deciding what schemata were in use was to identify the *smallest* number of ideas, percepts, or fantasies that would subsume the contents of the verbal transcript.

### THE QUESTION OF FORMAL THEORY

Admittedly, the three processes we have just described may be viewed as categories of analysis, not as a theory of how they are integrated, and the description may be disappointing in that it is not presented as a series of propositions ordered linearly or hierarchically. There are, however, excellent theoretical reasons why an overall theory of meaning construction cannot be formulated, just as an overall theory of another cognitive function, such as memory (Jenkins 1974), remains unattainable. Principal among them is that meaning construction, like imagination or reasoning, is a function, not a mechanism; it is an abstraction made by us from the actions of subjects who are acting in an artificial context, and the abstraction, while valid enough for this particular context, must not be confused with a mechanism whose hierarchical ordering, or progression in time, is fixed. As a function, meaning construction performs a service for the organism, but the organism, so to speak, has to request the service; because the services requested may differ, the function will vary.

But to say that a formal theory is an impossibility is not to imply that we can have no general understanding of the processes used. At this point we are prepared to suggest at least that what various individuals' interpretations of pictures have in common is (1) coherence, that is, organization around a small number of schemata; and (2) order, that is, progression from information to hypothesis (or schema) to evidence, and then around again as often as necessary, in a manner which in science would be called hypothetico-deductive. The interpretations differ in the source of the hypotheses (the picture itself, its antecedents, or the viewer's needs), in the ability to note formal structure, and in a host of other important ways, but they are all essentially processes of construction.

## INTERVIEWS

Both the general processes and the diverse details can be illustrated. During the course of our research on the meaning of body movements we collected a number of reproductions of paintings which depicted a range of physical arrangements of bodies. To gather information on how these arrangements were perceived we asked subjects to comment on "what they saw"; we were generally (but not often enough) careful to avoid disclosing what we were interested in, so as not to magnify the perceptual importance of body movements. At times we presented the reproduction with significant portions masked; this procedure permitted us to see how the unmasked portions—such as a few figures, or even body parts—were interpreted in isolation from their context. The interviews were tape-recorded and a large number of them were also transcribed; the excerpts that follow were chosen from the transcripts. It will be clear that the questions the interviewer chooses to ask, the points he wishes to have clarified, and perhaps his own perception of the pictures may influence what the subject will report he is seeing; and that the subject may feel called upon to demonstrate competence, sensitivity, and other qualities. Nevertheless, given the diversity of interpretations of the same picture, we may be sure that the subject has contributed significantly.

The interview excerpts are followed by two columns, one of which analyzes the sources of evidence from which meaning is drawn and the other indicating the perceptual strategies that the transcript suggests (the schemata are discussed separately). Because the interviews are quite long, only passages long enough to illustrate specific points are excerpted. The first column is self-explanatory in that it makes note of each new source of evidence; in the second column, however, it is presumed that each strategy persists until it is replaced by another strategy (as "picture as content" may be replaced by "picture as picture"). Because attention to parts is so much more frequent than attention to the whole, this strategy will be specifically noted only when it signals the end of whole-perception; at all other times it will be assumed.

In Excerpt 1, a female subject recognizes the painter and gives a fairly rapid and concentrated report on the essence of the scene she is looking at (the reproduction of Mary Cassatt's *Mother and Child* was not available). She alternates quite flexibly in her perceptual strategies; in her search for evidence, she chooses to identify the painter and her school and, keeping that identification in mind, characterizes the two figures by their roles and adds a plausible fantasy; she then returns to a few problems raised by her early identification of the school, then again returns to the figures and the feeling they evoke. Her perception, as concentrated as it seems, may be said to

be organized around two schemata: the impressionist style and the peacefulness of the mother-child relation.

Excerpt 2 describes the initial reaction of a male subject to the same painting. The subject seems unaware of the picture as a picture; he attempts to dispose of the interviewer's question with a brief, definitive answer, and after detouring suspiciously about the purpose of the interview, identifies the principals in the standard manner, ventures a hesitant statement of feeling, and then fastens upon a relatively rare interpretation: the apparent awkwardness of the child's position on the mother's lap. Because the subject gives evidence of frugality with his feelings and hesitancy in committing himself to any interpretation beyond irrefutable facts, it may be said that his perception is organized around two schemata, that of woman with child and that of emotional discomfort and withholding (both felt within the interview situation and projected into the painting). Since there is less of a good fit between his emotional expressiveness and that of the painting, the contribution of his personal needs to the interpretation is more prominent.

Excerpt 3 differs from the first two in several respects. As the analysis of perceptual strategies shows, there is little variation in the manner of approaching the painting, Botticelli's *The Birth of Venus* (Figure 1), but there is a relentless production of thoughts and hypotheses (the entire transcript spans ten single-spaced pages). This combination may be one index of obsessive thinking, that is, thinking that is voluminous in total production and meticulous in its attention to detail, but in the long run repetitive. The subject, a male, first identifies the *dramatis personae*, and when the somewhat impatient interviewer interrupts to request an interpretation of the figures on the left, the subject reduces his uncertainty by the assumption of mythical meaning; once this assumption has been made, the rest becomes a matter of filling in details and finding corroborating evidence. He is quick to spot a dramatic conflict (as between the various figures, between clothing and nudity, and eventually between nature and civilization and other abstractions), but, as a reading of the remainder of the transcript shows, the single-minded determination to uncover conflicts looks very much like the projection, under multiple disguises, of a single conflict of his own. Thus there seems to be operating essentially one perceptual-cognitive schema: that of a conflict between shameful nudity and the higher purposes of civilization. It is a tribute to his hypothetico-deductive skill that, in the absence of a title or of a precise determination of the myth which is the subject of the painting, he makes the corroborating evidence fit as well as he does.

When looked at from the point of view of perceptual strategies, Excerpt 4 is quite similar to Excerpt 3: the assumptions do not vary much, while the search for evidence is complex. But we are not dealing with

### Excerpt 1

	Evidence for meaning	Perceptual strategies
S: You want me to tell you what I see? Well, I see an impressionistic work of Mary Cassatt's, a mother holding a child . . . both seem directed towards something . . . as perhaps the father or maybe a loving grandmother, and the mother looks as though she might be showing the baby to somebody quite close to her and it looks as though there is quite a bit of color in this, it's also done in pastels and maybe some charcoal in it and then . . . with the . . . as it is impressionist . . . done in a quite impressionistic style, it would be helpful to see the color, and it's got a very Renoir-like texture in the skin except for the hair is quite linear of the baby's and the hands are very crudely molded, and the hands of the baby are, too. The most important thing of this is the feeling of mother-child tranquillity and proudness, and peace and fulfillment that she has in showing off something which . . .	Identification of painter and period Role, role activity  Projection of fantasy  Attention to formal properties	Picture as product Picture as content Observer viewpoint  Picture as picture
I: What makes you say that she is peaceful and fulfilled?	Attribution of feeling to picture	Whole
S: Because she looks very peaceful and fulfilled in her eyes.	Attention to body position	

### Excerpt 2

I: This is our first picture and all we want you to do is just describe what you see.		
S: A woman holding a child up . . . The woman looks like she's showing the child something, perhaps raising her high enough so that the kid can see. That's the situation.	Role, role activity Projection of fantasy Assumption of overall message?	Picture as content Observer viewpoint
I: Well, you can just keep going as long as you can think of things to say.		
S: Well, is this like ink blot?		(Inquiry about perceptual set)
I: No, no. It's not a personality test at all, we're just curious as to, well, what you see in the picture.		
S: Simply a woman holding a child . . . can't tell whether it's hers or not . . . no indication . . . she seems fairly happy, the kid looks okay, so maybe it's a mother. Holding her kid rather awkwardly, it seems.	Role, role activity Attribution of feeling to figure Deductive reasoning from internal cues Attention to body position	
I: What . . . why do you say that it's awkward?		
S: The hand position of the child is . . . seems to be trying to shift the mother's hands to another spot, as if you'd picked [up] a cat incorrectly or any other animal.	Attention to body position	Participant viewpoint?
I: And you think that the mother and the child are both fairly content, except for the child's being slightly uncomfortable.		
S: Yeah, if it's a mother and a child situation.	Projection of conflict (refusal to commit self)	Observer viewpoint
I: I see. What do you think the mother might be exhibiting the child to?		
S: It could be a matter of just showing the child to some other people or showing the child something . . . it could work either way, I think.	Projection of fantasy (upon request)	

### Excerpt 3

I: This is a somewhat different type of picture.		
S: Woman . . . standing on a shell on the sea . . . with . . . can't figure it out, I guess it's a horn.	Role and role activity	Picture as content Observer viewpoint



I: Where?

S: Right here.

I: Oh, yeah, yeah, in that pink. . . .

S: Pink blanket or shawl or whatever you call it . . . and another woman is . . . oh, I see . . . well, the first thing I see is that this woman is giving the other woman a blanket to clothe herself with . . . oh, and I see, it's . . . that's a collar, I get that, see, and she puts it around here and she covers herself with. . . .

I: Yeah, so somebody seems sort of cold there and is about to be covered by the woman on the right. What do you make of the actions of the figures on the left?

S: Obviously they're mythological . . . seem to be mythological figures being what Aeolis, I think, he's the god of the winds, blowing the wind there . . . I suppose that's his wife there . . . well, she's (laughs) making sure that he doesn't get away from her (both laugh).

I: And she's making sure by—

S: She's clasped around him . . . although it would . . . now, here again, it would seem he has no intention at all of getting away from her or otherwise he's blowing so hard, you know, the idea, you know, the fable, the sun and the wind . . . if you want her to put on clothes, you make a cloak—cold, you know, but if you don't want to, you know, blow soft, balmy winds . . . and evidently he is . . . well, I don't know, maybe he is blowing a soft, balmy wind. I don't know . . . because she certainly doesn't seem too eager to—

I: Yeah, yeah, what do you make of her various gestures, her pose, you know, as a whole, the way her body stands or—

S: She is off balance . . . at least it would, it seems to me anyway you can look at it, she's off . . . she should . . . maybe her legs have dropped . . . or maybe the center of gravity shifts around. . . .

I: But she appears off balance in which direction, to the right or to the left?

S: To the right. Tending toward the clothes, I suppose . . . that's right, these people aren't . . . no . . . these people . . . this person's got some clothes on. Maybe that's the artist's propriety that he put some clothes around her, you know, that might be. But here again we have a contrast; unclothed versus clothed.

Identification of objects

Role activity

Assumption of ritual meaning

Corroborating evidence  
Role activity

Participant viewpoint

Corroborating evidence

Observer viewpoint

Assumption of overall messages

Projection of conflict (seesawing ambivalence)

Attention to body position  
Projection of conflict (ambivalence)

Attribution of intention to artist

Projection of conflict (transformed from its previous version)

obsessiveness; rather, we are dealing with a single-minded involvement produced by a strong emotional reaction to the figure of Venus—a reaction that suggests identification, but one based in part on finding in Venus qualities which are unacceptable to the subject. The subject is a woman; she begins with an undifferentiated affective reaction, which is elaborated upon the interviewer's request, only to be succeeded by another. A further question brings out a rather sharp but exact description of Venus, and a distinction between the subject's perception and the artist's presumed intention. The coldly-but-unsuccessfully-sexy-Venus schema then carries the subject through to the end of the excerpt, with appropriate corroborating evidence and projection of what one might suspect to be unacceptable characteristics of the self.

To emphasize that it is the subject's identification with Venus, rather than an enduring predisposition, that determines the singleness of purpose in the preceding excerpt, we present a brief portion of a later part of the interview, one in which the subject was discussing other figures. Here, in Excerpt 5, it will be apparent that she uses deductive reasoning flexibly and exactly and that she can test a hypothesis on her own empathetic response to the figure's movement.

Control of the interpretive process by schemata is nowhere better shown than in the sudden restructuring of perception that occurs when a new schema supplants an old one. Such a schema may be the invention of the observer, it may follow the discovery of a title, or it may result from accepting a suggestion from the interviewer. The subject in Excerpt 6 is a female who had adopted a rather moralistic stance

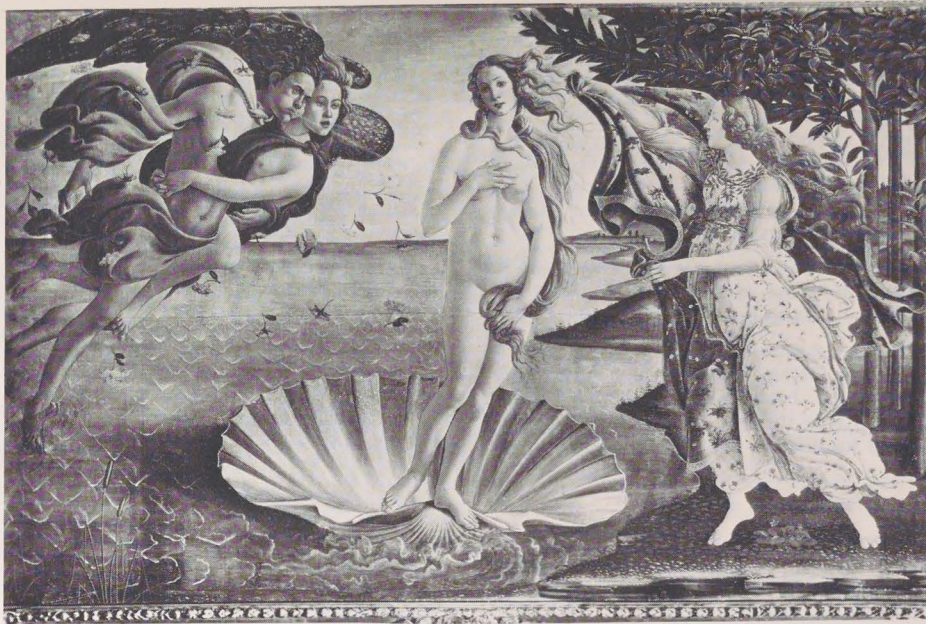


Figure 1 —The Birth of Venus by Botticelli.

Excerpt 4

	<u>Evidence for meaning</u>	<u>Perceptual strategies</u>
I: Just one more.		
S: I don't like it.	Undifferentiated affect	Picture as content Whole Observer viewpoint
I: You do or you do not?		
S: No, I don't.		
I: Tell me why.		
S: It's too ornate and artificial and un-lifelike.	Corroborating evidence	
I: What are they doing?		
S: What kind of a picture is this? It looks almost like a photograph, of various and sundry statues. What are they doing? This picture just leaves me cold. I mean, I have . . . I don't even care to . . . particularly to give an interpretation.	Undifferentiated affect	Picture as picture
I: You mean, you don't even care about what's going on?		
S: It doesn't interest me.	Avoidance of picture	
I: Now, I respect that, but . . . can you tell me—		
S: (Laughs) I imagine the woman in the middle is supposed to personify the ideal, feminine, beautiful, sort of coldly sexy type woman.	Attribution of intention to artist and character to figure	Part
I: What makes her coldly sexy?		
S: Well, she's the color . . . she hasn't any warmth . . . she hasn't got any . . . her skin doesn't have any blood under it particularly. It is a little too rigid, you don't see any . . . I mean, if you looked at someone's body I don't think it would appear so distinctly marked. And I suppose that he's . . . the artist has managed to give the impression of a circle by various curves . . . curved lines around her stomach which would probably indicate the ability to have children, say. Seems a little along that line, which doesn't impress me.	Corroborating evidence  Attribution of intention to artist	Picture as content
I: Does that mean . . . let me make sure that I understand what does impress you. The fact that he's trying despite the white coldness of her skin to make her lifelike, you know, to give her the possibility of bearing life or—		

S: It doesn't look like she's human enough to give birth to any other human. It looks like she's maybe something very nice to look at as a statue that someone has carved; as a woman she doesn't seem to have very much. And also the fact that her face looks sort of blah, her eyes are half-shut and she doesn't . . . she has the same . . . she has a hand placed approximately the same way as the woman in the other picture did.

Attribution of character to figure

(Probably partial projection of unacceptable characteristics as corroborating evidence)

I: What do you think it means?

S: But the woman in the other picture . . . the woman in the other picture at least seemed to be expressing some kind of emotion and this woman here just looks melodramatic . . . here. But her face doesn't go with it.

Attribution of character to figure

I: So you think that the gesture and the face aren't—

S: It could be modesty.

Alternate attribution of feeling

I: Yes. Why do you say it could be melodramatic too?

Corroborating evidence

S: Oh, because I've seen . . . I think I've seen very very poor movies or television shows or something where someone has attempted to carry out this gesture effectively and they had about the same expression on their face and they didn't . . . because she doesn't seem to be feeling anything . . . to look on her face . . . but this sort of . . . doesn't gibe. And the fact that she's holding her hair down over whatever part of her . . . genitals seems . . . I guess, with the hand, the way they're balancing it would appear she's holding it there for modesty's sake, sort of demonstrate an inborn humility, say. The woman over here on the right with the garment . . . I don't know whether she's just putting it over her or just taking it off.

Attention to body position

Deductive reasoning from internal cues

(body position → intention)

Role activity

#### Excerpt 5

I: But if I'm understanding correctly, you would have said that she's putting the cloak on even if you hadn't seen . . .

Corroborating evidence

Picture as content  
Part  
Observer viewpoint

S: Because her hair is blowing . . .

I: I see, right. But not because of anything in the position of the woman on the right?

Deductive reasoning from internal cues

S: Well, I thought about that but I . . . the fact that she's standing up on her toes . . . and she could be either reaching for or just coming back from. Wait a minute . . . or could she . . . no, actually, I think you'd have to interpret this gesture as just putting on, because if she were just coming back from having it taken off her left foot would be down farther. As it is, she is propelling herself up with it. No, the more I look at it, the more I'm sure she's putting it on. And apparently the woman who is holding the cloak is in a position of some sort of—well, she is subservient to this other woman.

Empathy with movement?

Role activity  
Role

I: Why do you say that?

S: Her face is less pronounced, her hair is less long and flowing, seems a little more trained, a little less what I would imagine they considered beautiful. And she's dressed in something that has a lot of material to it that isn't just a flowing robe.

Corroborating evidence

toward the dancer in Toulouse-Lautrec's portrait *Marcelle Lender* (Figure 2). She had described the dancer as grotesque, awkward, and exhibitionistic, and was shocked that a woman of her age and corpulence should be dressed in this manner and be at-

tempting a ballet step. Midway through the interview the following interchange took place:

It is possible that a single affective schema is most likely to arise in cases where a strong identification with a single figure takes place. Group scenes in which



Figure 2 —Marcelle Lender by Toulouse-Lautrec.

no figure predominates may require a diffusion of attention which, while not discouraging affective involvement, attenuates it sufficiently to prevent the domination of the interpretive process by a single

schema. But that is not to say that group scenes make it difficult to entertain prominent fantasies; the fantasies may be just as potent but their consequences for perception somewhat different. In Excerpt 7, a sexual interpretation of Manet's *Le déjeuner sur l'herbe* (Figure 3) seems to have been made very shortly upon seeing the picture, but in this excerpt it is only hinted at (and is revealed as the organizing schema only subsequently). Its consequence, surprisingly enough, is inattention to the picture and to the interviewer; the interviewer's questions can serve to focus the subject's attention, but, as further portions of this transcript show, they do so only momentarily. The subject is a woman, somewhat older than the college population. It should be noted that the subject at one point appears to adopt the participant viewpoint: she seems to identify with the woman/victim and perceives the painting from her point of view, that is, as depicting the actions of aggressor/males.

While the preceding excerpt strongly suggested an interplay between the observer and participant viewpoints, Excerpt 8 makes it explicit. The subject is describing Tintoretto's *Adam and Eve* (Figure 4), and has clearly corroborated his perception of the man (whom he has not definitely identified as Adam) as rejecting the woman's advancing body and proffered apple. The interviewer asks for further evidence from the man's body orientation and obtains an unexpected answer. In effect, the subject performs a rather unusual feat:

#### Excerpt 6

##### Evidence for meaning

##### Perceptual strategies

I: Suppose I tell you that this is a representation of a . . . you know, this is on a scene, on a theatrical scene.

S: That this is a what?

I: This is on a stage.

S: Oh.

I: What difference does that make?

S: In everything you mean?

I: Well, all right, in anything.

S: Well, she could obviously be playing a part then. And then it would be natural.

I: The blue one?

S: The blue one, well, all of them could be playing parts. Funny, that did not occur to me. In which case it would be perfectly natural for a lady of higher class to be here, for a woman to be dressed in slacks, as a footman perhaps or as a disguise. . . . That could be a very studied look on her face, a very . . . (I: the blue one) a very cultivated, yes, the one in blue. Very cultivated. She reminds me of . . . (the one in pink now) of Anna Russell and of . . . oh, what's the one who played in Auntie Mame?

I: I don't remember.

S: No . . . Rosalind (I: Russell) Rosalind Russell. That's what I meant, not Anna Russell. You know when you think about it on the stage this is funny. There is almost a delicacy in her face. Even though it's grotesque for the action she is doing.

Role activity

Picture as content  
Observer viewpoint

Scenario (followed by affective relief)  
Deduction from external cues

Whole  
Part

Search for supplementary information

Deduction from external cues



Figure 3 —Le déjeuner sur l'herbe by Manet.

Excerpt 7

	<u>Evidence for meaning</u>	<u>Perceptual strategies</u>
I: One more pair.		
S: I've seen this recently.		
I: You've probably seen this a number of times.		
S: Huh?		
I: You've probably seen this a number of times.		
S: It's English.		
I: Anyway, what are the figures—	(Mis)identification of period	Picture as picture Whole Observer viewpoint
S: It's the . . . I know, it's in that . . . Barbizon collection . . . I believe it's part of the Barbizon collection.	Continued misidentification Inattention to interviewer and picture Probable avoidance of picture (and of interviewer) while preoccupied with own fantasies	
I: I didn't see the Barbizon collection.		
S: There's one . . . there's one—if it isn't the same one—that's almost similar. The Barbizon collection . . . no . . .		
I: What do you make of the people in the picture?		
S: What?		
I: What do you make of the people in the picture?		
S: I think it's a couple of school-boys out on a lark . . . whether they're school-boys or whether they're older men . . . I'm just . . . a lark. They being fully clothed and the woman with her raiment on the ground and the other one obviously cleaning up. Just strikes you as being a little bit . . . well, the . . . woodland idyll, or something of that nature.	Role, role activity; projection of fantasy	Participant viewpoint Part
I: Well, why would they be clothed and she unclothed?		
S: . . . Object of pleasure—make her wander around naked and maybe pick up a case of poison ivy . . . and their own Victorian prudishness . . . allows them to look but not to touch . . . and not participate (I: right.) I'm speaking of the Victorian prudishness . . . of the painter not the persons within the frame. . . .	Projection of conflict (denial of previous fantasy) Attribution of intention to artist	

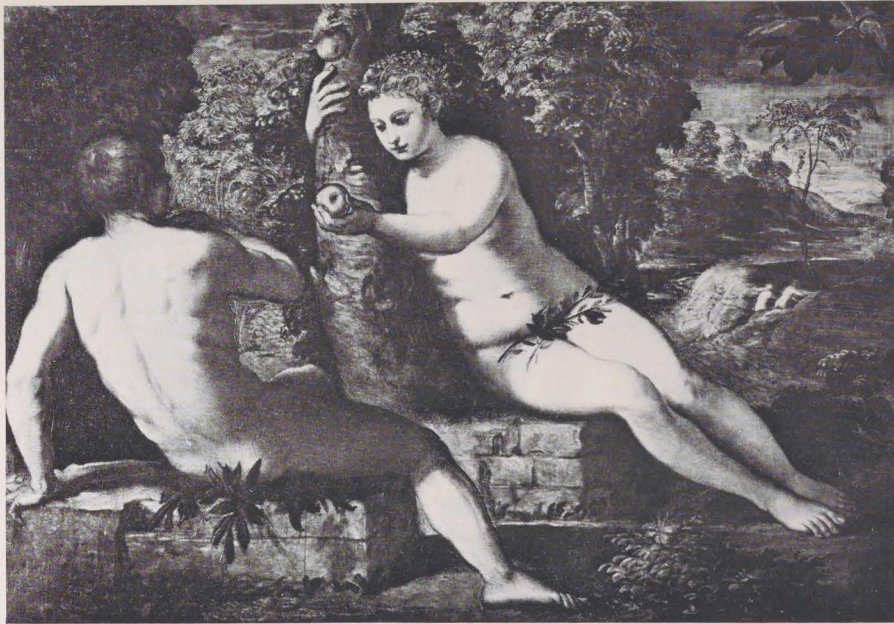


Figure 4 —Adam and Eve by Tintoretto.

while the common viewpoint adopted here is the participant viewpoint—one in which Adam's gesture is understood in relation to Eve's and which the subject had also adopted up to this point—in response to the interviewer's question the subject places Adam directly into relation with himself.

The next two excerpts present as unusual subject, this time a male. He is important because of the richness of his perception (both the vividness of his impressions when presented with a reduced image and

the sheer number of his observations), because of the wealth of his fantasy material (his ability to spin out scenario and character in appropriate relation to the image), and because of the flexibility of his perceptual assumptions (his shifting back and forth on all three of the perceptual dimensions). He shows that it is possible to have a lively fantasy life and affective involvement and yet at the same time maintain perceptual sharpness and richness. However, as a reading of his transcript indicates, one schema or-

#### Excerpt 8

S: Right. And her eyes and everything, her whole face looks quite relaxed.

I: But nevertheless you perceive her intention very clearly: it is to lean toward him and give him the apple.

S: Right, to give him . . . and his is to reject it.

I: I was wondering how else the body or parts of the body helped you to arrive at this interpretation—of the relaxed versus tense, giving-refusing, pulling away. For example, the orientation of the body: is there anything about that?

S: You mean aside from the hand gestures and the . . . (I: the hand gestures) . . . angle; yeah, well now, certainly the most obvious thing is that you see her in a frontal view and you see her whole front body, and you see his back; you know, you think of the back of somebody as rejecting; when somebody turns his back at you, it's a rejecting thing rather than. . . .

I: That's interesting: even though his back isn't turned toward her . . .

S: . . . it's turned towards the observer, yeah, right.

I: It's communicated to the observer, that he is rejecting.

Evidence for meaning  
Attention to body position,  
attribution of feeling

Perceptual strategies  
Picture as content  
Observer viewpoint

Attention to body position

Attention to body position

Observer viewpoint  
replacing the more  
normal participant  
viewpoint

ganizes the perceptions and feelings in this excerpt: that of the clarity, straightforwardness, and airiness of the *Venus and Adonis* by Rubens (Figure 5; it is referred to by the letter *R*) in contrast to the stuffy, enclosed, morally unclear atmosphere informing the same theme as treated by Titian (Figure 6; referred to as *T*). These two pictures are at first presented with the upper half masked.

The final excerpt, in which the subject can see both pictures in their entirety, shows two qualities of note. While the preceding segment indicated that considerable material can be incorporated under one organizing schema, the following one, Excerpt 10, reassures us that our subject's schemata are flexible. After elaborating on the original distinction between the "good" Rubens and the "bad" Titian, he brings himself up short, takes note of what he has been saying, and looks at the paintings afresh; his new perception makes him wonder whether the order and clarity of the Rubens are not excessively self-contained and whether what had initially appealed to him might not later bore him. Both sets of reactions seem consistent with his coping mechanism; we know him to be both a complex and a clear thinker, and it follows that an object which is appealing for its clarity may not also be appealing for its complexity. It seems proper to suggest that, after the change, his perception of these paintings is informed by one schema: the projection of a coping mechanism.

## CONCLUSIONS

We have attempted to analyze several examples of verbal response to paintings and thereby to describe

a type of perceptual process—a process which is complex enough to permit distinct perceptual strategies and to require varied sources of evidence. The examples make clear, we believe, that the process is constructive and inferential: it consists of the formation of schemata from partial evidence and of their confirmation from evidence subsequently gathered. Both the schemata and the evidence can have various sources (internal to the painting or the observer, or external to both). While the schemata appear to be formed from evidence encountered early in the searching process, they are not necessarily maintained by evidence alone; they can serve to direct a search for corroborative evidence only, or they can act as filters through which further evidence is interpreted.

It seems to us that the process we have tentatively analyzed leads to three areas where further elaboration is desirable. The first concerns the relation between schemata, perceptual strategies, and sources of evidence. Once adequate interjudge reliabilities have been established, a more formal attempt should be made to establish the end points of schemata in time so that they could be related to the more discrete processes occurring simultaneously. A beginning might be made by relating, through appropriate statistical procedures, changes in schemata to changes in sources of meaning and perceptual strategies. Such a procedure could result in an understanding of the relationships existing among our categories of verbal productions; but it would seem even more important to relate the verbal categories to nonverbal indices—for example, to study the points at which eye movement fixations coincide with changes in schemata (or perceptual strategies, or, more likely, sources of meaning). At what points, one would ask, does



Figure 5 —Venus and Adonis by Rubens.



Figure 6 —Venus and Adonis by Titian.

Excerpt 9

- I: This is going to be a comparison . . . two at once . . . I think it may be the easiest thing. Both will be partly masked and . . . (S: laughs) . . . and when you talk about them, why don't you refer to them as *T* and *R*.
- S: Okay. I keep thinking it's by the same person . . . I don't know at all, the . . . legs seem the same.
- I: The legs are not the same, you say?
- S: No, they do seem the same.
- I: Aha, I see.
- S: The men's legs do, although her legs seem . . . seem quite different from *her* legs.
- I: Yeah. What do you make of the leg positions? In other words, what is in each picture? How are the people related?
- S: Yeah. Well, it looks as if in *T* they were having some sort of sexual contact . . . I mean, contact which was primarily sexual, while here, they're having contact—in *R*—the man is getting ready to leave or something or has just come back . . . but, but, but it's . . . here it's a contact of a ritual leaving or departure in *R*, while in *T* it's much more . . . it seems much more concentratedly sexual without any other particular reason for being, which is then accentuated by the fact that you got a . . . well, I guess, it's Cupid, but it looks like a child here, while here you got a lecherous dog, panting in the corner . . .
- I: Yes. Do you think that dog panting in the corner helped form your interpretation of something overtly sexual going on in *T*?

Evidence for meaning

Perceptual strategies

Attention to body position  
Projection of fantasy  
Role activity

Picture as content  
Participant viewpoint

Attribution of ritual meaning

Whole

Search for corroborating evidence

Part  
Observer viewpoint



	<u>Evidence for meaning</u>	<u>Perceptual strategies</u>
S: No, I think in <i>T</i> I had the feeling first and then I used the dog to support it.		
I: In <i>T</i> what gave you that feeling?		
S: The fact that she's leaning over towards him and I think I've seen these both before, too, but I don't have a firm grasp of them anyway; but I mean, she seems—in <i>T</i> she seems sort of a hot, flagrant . . . I don't know.	Attention to body position	Part Participant viewpoint
I: Tell me why, this is interesting.		
S: Part of the reason is because her flesh is much less clearly defined. In other words, here, in <i>R</i> , where the folds and the sharp points of the woman . . . I'm more interested in her . . . as a person, while here (in <i>T</i> ) she is . . . she might seem to represent vice or something (laughs slightly). I just . . . because she seems like a soft filled-out sack, rather than a human being.	Feeling tied to corroborating evidence	
I: Where is the male figure standing in <i>T</i> , or whatever you say?	Feeling tied to corroborating evidence	Observer viewpoint
S: Well, you can't . . . you can't tell where exactly. I think he is turning either like this away from her or like this around towards her. I can't tell which. Both of these could be simply departure scenes like . . . here it seems like he's ready to go on a hunt—in <i>R</i> —and Cupid is holding him back, while in <i>T</i> it could be the same thing, but . . . for some reason I make this into a good woman and this into a bad one, I don't know why. I make <i>R</i> into the good woman and <i>T</i> into the bad woman, I don't know why.	Assumption of overall message Corroborating evidence	
I: That's interesting. Maybe you could speculate on why.	Attention to body position Role activity Assumption of overall message	Participant viewpoint
S: Well, I tried to tell you about the flesh and maybe her having a bare ass makes her more obscene or something. Although if it was a different ass, I don't think I would think it was obscene. And then the . . . Cupid's looking like a child and these being sort of noble dogs makes this into . . . I mean, these people in <i>R</i> are sort of in the world . . . they seem to have good reasons for what they're doing, while in <i>T</i> it sort of seems like a . . . brown and yellow . . . sort of twilight . . . de-raised effect.	Attribution of character	Observer viewpoint
I: Yeah. I see. So the colors are somewhat cooler and perhaps more varied in <i>R</i> , you're saying . . . somewhat seem anchored in the world of—you know—noon . . . the sort of thing that's real: day.	Corroborating evidence	
S: Not . . . well, more classical; <i>noon</i> , yeah. I mean it's more defined there, and in other words . . . in other words, for some reason. . . . Let's arbitrarily make both these women into temptresses who have no reason to stop men hunting or doing whatever they're going to do . . . no reason . . . and they're just doing it out of perversity or something. Out of . . . boredom. I feel they might as well get laid rather than have the guy go off and hunt. Here ( <i>R</i> ) if the guy stopped and made love to her . . . fine, while here ( <i>T</i> ) I'd feel that he might not get out of it again ever (laughs). He seems . . . like he has a sort of very small horizon . . . a sort of small-town kid who has ambitions to leave the small town, but stays back out of sort of childlike, dependent reasons . . . except this . . .	Corroborating evidence Corroborating evidence Projection of fantasy	Whole
	Attention to formal properties; attribution of feeling to picture	
	Corroborating evidence	Part
	Projection of fantasy	
	Fantasy related to formal properties	

#### Excerpt 10

S: His bearing too, it seems; (in <i>T</i> ) he's poised to flee while (in <i>R</i> ) he is securely where he is.	Attention to body position	Picture as content Observer viewpoint
I: In <i>R</i> , he is securely where he is.		
S: Yes, he's got a different sort . . . his ( <i>R</i> ) balance seems directed towards wanting to do one of the two things, while his ( <i>T</i> ) seems immobile and frozen, you see.	Attention to body position	

I: And what makes it frozen in the case of <i>T</i> ?		
S: He's moving away but he's . . . the shaft looks like it's stuck in the earth, and the dog is going to keep him there, yet his whole body is mainly away from the woman . . . and . . .	Corroborating evidence	Participant viewpoint
I: So, I see, there's a lot of things pulling him in either direction in the case of <i>T</i> , whereas in the case of <i>R</i> it's fairly . . . firmly rooted, and whatever indecision . . .		
S: No, no, no, no, no. I really don't think he is—in <i>T</i> —I don't think he is in contact with the outside world. In other words, he's going through all these . . . well, he seems, like I said, well, that sort of adolescent or small town hood that's got to prove himself and everything becomes part of the proving. And you know, nothing exists for itself. In other words, it's precisely Adonis' strength—in <i>R</i> —that he is able to be in contact with the outside world . . . and he'll be in contact with it, in a more clean, open way, it seems.	Projection of fantasy	
I: So Adonis is . . . he determines his own fate?		
S: In <i>R</i> . To the extent that a man is able to. I mean, I don't think he's flawless. But I think he'll do well, whatever . . . I mean I'll sympathize with whatever he does, while I won't with whatever he does, in <i>T</i> . It's funny too, the dogs are both looking back here, in <i>R</i> , but it seems sort of a friendly, noble interest. In other words, maybe the dogs want to go hunting and they don't realize that he's being held back but they don't feel resentment, while the only reason—in <i>T</i> —I have the feeling the dog doesn't care where he is as long as he's got something that he can root into with his snout . . . I never realized I had such simple ideas of good and evil, but this is certainly bringing them out.	Projection of fantasy  Corroborating evidence Projection of fantasy	
I: That's interesting. That happened to me, too, when contrasting these two paintings . . . a lot of ambivalence about both of them. Anything else you want to say about them?	Awareness of projection of conflict	
S: I was wondering if the one by Rubens would get boring after a while.	Awareness of projection of coping mechanism (justified ambivalence)	
I: What might get boring about it?		
S: There isn't anything outside it, like there is a rainbow here . . . I characterize this ( <i>R</i> ) as classical and it seems to have the defects of the classical that it's too self-contained . . . I'm just elaborating what I said before . . . it might be like watching a beautifully coordinated baseball player . . . I'd love to watch this guy hunt or the other guy hit, but all he'd be doing would be playing baseball or hunting . . . I'd like to see what would happen to Rubens' Adonis if he did run into a situation that Titian's Adonis is in, in other words, if he stepped out of his clean, classical role into a muddier one, that's where the . . . my real interest in his character would lie. Not necessarily in whether he was in a muddier situation but one that was less clearly defined to him also, one that called for a different sort of responses than he's probably used to making. You know, one that was enough to really draw him out either in the direction of muddiness from the direction of reaching for something like the rainbow.	Corroborating evidence Identification of 'period'  Projection of coping mechanisms  Projection of fantasy  Projection of coping mechanisms	Picture as picture Whole Observer viewpoint

the observer turn his attention away from the painting and then back again? How much information does he appear to take in visually before beginning a verbal commentary? At what point in the verbal commentary is he likely to break off for further visual input? From which parts of the picture does he seek visual input? To the best of our knowledge, no infor-

mation is available on the relation between verbal and nonverbal indices of what is attended to.

The second area in which elaboration is called for concerns individual differences. We have viewed each of our transcripts as typical of the subject's individual style and psychodynamics, and in a rough sense we were justified in doing so, but we would

wish to know more about the dimensions on which the perceptual-constructive process can vary. Theoretically, it could vary on any of our units of analysis, but in practice the variation might be more limited. Whatever the case, it would be important to have answers to questions such as these: Do some individuals use inductive reasoning more than deductive reasoning? Are some subjects more tentative and flexible in their hypotheses than others? Do all subjects rely to some extent on fantasy, as we have assumed, or are some quite devoid of it? How closely do different subjects reflect their ego defenses and coping mechanisms in their interpretive process? How self-conscious and critical are individuals of their interpretations, and to what extent does self-consciousness affect the process?

But one's focus need not remain on the uniqueness of each individual viewer; one could easily become lost in a near infinity of differences. One is under an obligation to attempt a more general statement of the process under study, and this constitutes the third area where elaboration is necessary. We have suggested earlier that a description that would be valid for all types of viewers would be too general to command interest as a formal theory, and we see nothing in the transcripts to alter that view. But it is possible to look for regularities at an intermediate level, that is, to attempt to isolate types. One might begin, for example, with cognitive styles defined by others and attempt to relate our perceptual variables to them; the theoretical work of Shapiro (1965) comes to mind (that is, his description of the obsessive, hysterical, impulsive, and paranoid styles), as does the more empirical work of Gardner et al. (1959). The task would then be to see whether the variables we have discussed here would be used differently by subjects with well-defined cognitive styles. Alternately, one might attempt a fresh classification of style: a procedure such as factor or cluster analysis would indicate which perceptual strategies and sources of evidence co-vary or cluster together. The advantage of attempting a fresh typology is that we might discover perceptual styles and that they might be at least partly distinct from styles of thinking and fantasizing. All these procedures imply, of course, a larger and more random sample as well as control of interrater reliability; the effort would presumably be repaid by a better description of the elusive flow that the construction of pictorial meaning represents.

## NOTES

<sup>1</sup> We wish to thank Dane Archer and Kristina Hooper for reading the manuscript critically and suggesting numerous improvements.

<sup>2</sup> This model refers to and is in part based on the model presented in our earlier work (1974). Two major differences are to be noted: the categories of analysis presented here refer specifically to the perception of pictures, thus necessitating the recognition of certain perceptual strategies that are unnecessary in the perception of real events, and the hierarchy of categories presented in the earlier version is here made quite fluid by our greater attention to the functional nature of perception.

<sup>3</sup> There is some similarity between what we call a "source of meaning" and what Neisser calls an "analyzer." An analyzer is a distinctive feature which serves to identify an object or at least to focus the search for identification more narrowly—as, presumably, the pointy nature and the crossbar of a capital A identify it as that letter. Our sources of meaning function in much the same way, and from the purely functional point of view it might seem appropriate to call them analyzers. However, they seem to involve more complex cognitive operations than is the case with distinctive features (that is, our sources of meaning may presuppose an earlier successful identification), and they rely more heavily on fantasy (that is, on previously organized and synthesized material). Whether these differences are significant or not may be left for future judgment; for the present we wish to point out the similarity of function once the source of meaning has been chosen by the subject as evidence for further constructions.

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