

Intellectual Access to Digital Art-Objects: Image Attributes and Art Historical Knowledge Representation

Abstract

Erwin Panofsky, arguably one of the most influential thinkers of the modern era, is most commonly associated with his "Studies in Iconology," a series of lectures published in English in 1955. In these lectures, he describes a theoretical system that allows for interpretations of Renaissance paintings in light of philosophy, classical mythology, and general humanistic knowledge. What was particularly distinctive about this methodology was his claim that it held the key to the history of artistic styles as an expression or manifestation of changing worldviews, or *Weltanschauung*. This approach, which had a basis in the philosophical system of Georg Fredrich Hegel, essentially says that the course of human history "resembles a clockwork of wheels within wheels activated by the unfolding spirit of mankind, a spirit that animates art, no less than science, law, or religion, in a precise and determined way" (Gombrich, 1996). Because of this intermingling of fields within the scope of human endeavor, a successful art historian would have to be familiar with most of the other historical disciplines to produce the parallels from philosophy, poetry, and all the other aspects of the past. This interpretative method guaranteed art historians a place in the nexus of the humanities, and allowed Panofsky to find ingenious parallels between art and contemporary (meaning contemporary to the painting) culture.

Not only did this interpretative scheme have a revolutionary impact on the field of art history, it has had a formative influence on the supporting profession of image indexing and cataloging. Three major image indexing philosophies use Iconology as a basis for their schemes, focusing, in different ways, on Panofsky's first two levels: the pre-iconographic and iconographic interpretation. However, while this interpretative method provides a valid and robust basis for describing artworks within the narrative or academic tradition, it is not so practical for images or artifacts that are either non-narrative or non-representational, or for images that are not primarily artistic in nature. Recent user studies have noted the

problematic relationship between images and their textual access points, and it seems apparent that a re-examination of the art historical and philosophical foundations of image access and cataloging is in order. This paper will provide a brief review of current approaches to image cataloging and their art historical antecedents, and will propose a “new attitude” or methodological stance towards image cataloging.

Art Historical Antecedents

Erwin Panofsky

In Panofsky's hierarchy, There are three levels to the interpretation of a painting: pre-iconographic, iconographic, and iconological. The pre-iconographic description is related to the “factual,” elementary, and easily understandable aspects of a work. In the pre-iconographic interpretation of a work of art, for example, the scholar would identify the pure forms, lines, colors, and volumes represented in the painting. He or she would do a straight formalistic analysis of that work of art, and through that analysis relate the basic emotional states inherent in the work. Panofsky argues that even at this level, there are difficulties involved in objective description. For example, it's difficult for people to describe, in words, the volume, line, and forms in an image – we tend to identify objects – “that's a horse,” “that's a man,” etc. – we also tend to make assumptions, correct or not, about those objects, given our knowledge about the work. Panofsky considers it essentially impossible to objectively think about the figures and emotional qualities even at this basic level. The scholar understands and interprets at this level by the context of the thing at which s/he looks, and grasps any differences in a fraction of a second – subjecting his or her visual experience to a corrective principle, the “history of style.”

The second, iconographical, level of interpretation is the level at which the scholar tries to connect artistic motifs or groups of motifs (identified generically in the pre-iconographic analysis), with traditional themes or concepts. The Greek root for this word, *graphein*, means “to write,” and implies a purely descriptive, even statistical method or procedure. Iconography, for Panofsky, is invaluable for the establishment of dates and provenance, and occasionally authenticity. It also furnishes the basis for further interpretation. At this level, the scholar is collecting and classifying evidence, and must make qualitative distinctions between important and unimportant elements in a work of art, which comes from deep familiarity with specific themes and concepts transmitted through literary sources, “either through

purposeful reading, or oral tradition.” Panofsky also views the objective completion of this interpretative level as impossible without some supplemental corrective, in this case not a corrective related to style, but to types, and the only way to make assertions regarding the roles of the figures in any image is through a thorough knowledge of the stories, the characteristics of the actors in the stories, and the importance of types in depiction of those stories.

Panofsky’s third level, the iconological interpretation, is the level at which the scholar is interested in “ascertaining those underlying principles which reveal the basic attitude of a nation, a period, a class, a religious or philosophical association...qualified by one personality and condensed into one work.” It is dependent on, and therefore clarifies, the compositional and iconographical elements identified in the pre-iconographic and iconographic interpretations. The Greek root for iconology, *logos*, means “thought” or “reason,” and implies something interpretative rather than analytical. “In thus conceiving of pure forms, motifs, images, stories and allegories as manifestations of underlying principles, [iconologists] interpret all these elements as what Ernst Cassirer has called ‘symbolical values.’” In this view, the scholar considers the work of art as a symptom of “something else,” and interprets the formal and iconographical characteristics simply as more particularized evidence of this “something else.” (Summers, 1989) The intellectual job then, for art historians, is discovery and interpretation of these “symbolical” values, which may be unknown to the artist, or might even be emphatically different from the image’s intended purpose or artistic expression. This job requires more than simple familiarity with specific themes or concepts, but something Panofsky terms “synthetic intuition,” which classifies the manner in which “general and essential tendencies of the human mind were expressed by specific themes and concepts.” Thus, iconology is something akin to the history of cultural symptoms or symbols, and to be successful, the historian will have to check his or her suppositions against as many other documents of the civilization, historically related to that work or group of works as s/he can master. Further, any subsequent identifications and interpretations will depend on the historian’s subjective, intuitive equipment, or the degree to which the scholar is familiar with the “essential tendencies of the human mind, conditioned by personal psychology and *Weltanschauung*.”

Information and Library Science

Text-Based or Manual Approaches

Scholarly interpretation and classification of an image is, at a very deep and basic level, an intricate and complicated undertaking. Notwithstanding this complexity, art historians adopted Panofsky's methodology as the primary means of interpretation for the next thirty or so years. It was also fundamentally important for image catalogers' conception of image meaning and classification. Markey (1983) posited that *primary* and *secondary* subject matter were the means by which image catalogers could represent an image within a system: Primary subject matter is normally an objective description an image. Indexing and retrieval by primary subject matter involves identification of the form, color, and pattern of visual images as a representation of the real world. Secondary subject matter focuses on identifying cultural symbols and is based on the prior identification of primary subject matter. Indexing and retrieval by secondary subject matter involves the identification of themes or concepts manifested in images, stories, and allegories. These two levels of subject matter map pretty closely to Panofsky's first two iconological levels. Krause (1988) has a similar framework, defining "hard" and "soft" indexing: hard indexing being the relatively objective description of objects and actions within an image, and soft indexing relating to the more subjective, responsive qualities in an image. Shatford (1986) also uses Panofsky's as a model, but whereas Krause and Markey seem to be willing to believe that it is possible to consistently catalog at the iconographical level, Shatford suggests that even at this somewhat basic secondary level, unless an image cataloger has a deep and abiding knowledge of the images s/he catalogs, iconographical descriptions is an impractical goal for most systems or institutions. Her initial foray into the image cataloging problem is to subdivide what the picture generically and specifically represents – its "*of-ness*," and what it is about – its "*about-ness*." At the pre-iconographic level, the painting's generic "*of-ness*" refers to the factual delineation of objects and entities within an image, whereas "*about-ness*" refers to the expressional qualities of an image.



Figure 1. Raphael. *Madonna of the Meadow*. 1505 or 1506. Oil on panel. Kunsthistorisches Museum, Vienna, Austria.

For example, the *Generic Of* for Raphael's *Madonna of the Meadow* (figure 1) would be: a woman and two children. The *Specific Of* would be: the Madonna and Child with Saint John, and is generically *About*: a Christian parable (?). All three theorists reject the third level of interpretation (iconology) as too complex and subjective to be feasible from a cataloging point of view.

Even though these theorists reject the most subjective and problematic level of interpretation as impractical, they do continue to focus on providing access to the subject matter of an image. By choosing to concentrate on the subject of an image, visual resources catalogers are necessarily ignoring or under cataloging artifacts that do not fit into the academic tradition of narrative, representational imagery. Furthermore, providing subject access tends to be too complex from an inter-cataloger consistency standpoint (Markey, 1984), but concurrently over-simplifies the image's subject. For example, Shatford uses the example of Joshua Reynolds' *Mrs. Siddons as the Tragic Muse* (figure 2), serves as a useful



Figure 2. Sir Joshua Reynolds. *Mrs. Siddons as the Tragic Muse*. Oil on canvas.

illustration of this over-simplification. In Shatford's schema, this painting's *Generic-Of* attribute would be: A woman. The *Specific Of* attribute would be: Mrs. Siddons, and the *About* attribute would be: the tragic muse. This reading, which really acts as a simple interpretation, hides much of this image's "meaning" from the information seeker. Furthermore, the "meaning" of a more iconographically complex image, like Raphael's *Madonna of the Meadow* (figure 1), is virtually impossible to "understand" using controlled vocabularies or concepts like *Generic About-ness*. Devotional images, to take just one type of artistic image, have profoundly personal meanings and are meant to engender specifically individual emotional responses in every viewer.

User Studies

Various user studies have also recognized the difficulties involved in visual information retrieval. P.G.B. Enser and C.G. McGregor (1993) analyzed the written image requests submitted to a large European depository, and found that instead of looking for subjective access points, users tended to want uniquely named objects, entities or activities represented in the images, along with chronological, date-based attributes. Keister (1994) examined the characteristics of user queries in the National Library of

Medicine's Prints and Photographs Collection, and found that users frequently wanted to see specific objects within the images. Collins (1998) studied of user queries at two archival photograph collections and Chen (2001) looked at college level art history students; both studies found that users used detailed queries to ask for attributes related to dates, locations, actions, objects, or formats. Finally, the Choi & Rasmussen study (2003) looked at how historians use the library of congress American Memory Project to find images. They too found that users were specifically interested in finding people and things, employing geographical and chronological terms as qualifiers. They state,

“A majority of the users wished that more informative data such as citation status and structural and contextual information related to an image had been found on the textual descriptions...This study also found that subject descriptors that represent about-ness of the image content were a key element for users' judgment. It seems that topical terms provide a useful approach to describe image documents...Beyond the bibliographic description (i.e., name, title, date) textualizing what is essentially pictorial plays a major role in providing better indexing service in an image retrieval environment” (Choi & Rasmussen, 2003).

This all seems pretty straightforward. Image retrieval would be improved by providing “topical” terms: citation status, structural and contextual information, and “textualizing what is essentially pictorial.” Few of those listed concepts are related to the “meaning” of an image, and do not necessarily correspond to the “about-ness” of an image as defined by Shatford. My conclusion: image catalogers should stop beating themselves up about “about-ness.” It's very difficult, if not impossible to do well, even at the simple pre- iconographic level of interpretation; it's based on rhetorical tropes and outmoded metaphysical philosophies (more on this later); it's often inappropriate and/or misleading, and last but definitely not least – users seem to be more interested in searching by specifically named objects and entities, actions within the image and contextual information regarding the provenance / use of the image in its first incarnation. This is not to say that all of the information being recorded by image catalogers is without use, or that the theoretical systems developed by scholars like Shatford are completely ineffective. They do provide a robust framework for thinking about the objects within an image. I would like to argue, however, that the focus and energy spent on subject access to the detriment of other, more easily cataloged, and I dare say, more valuable, attributes, is misplaced, and might even be counter-productive to providing robust and intellectually significant access to images.

Machine-based, or Automatic Approaches

A more recent development in the field of image retrieval has grown out of pattern recognition research and has its roots in fields like computer science, medical informatics and electrical engineering (Chen, 2001). The general term for this is "content-based" retrieval. The term "content-based" comes from the Electrical Engineering / Computer Science community and refers to the retrieval of that visual information depicted in the image - the "content" of the image. The major research in this field has centered on automated indexing of attributes at the pixel level (Chang, Smith, Beigi, & Benitez, 1997) (Rui, Huang, & Chang, 1999); focusing on indexing color (Swain & Ballard, 1991) (Smith & Chang, 1995), texture (Tamura, Mori, & Yamawaki, 1978) (Smith & Chang, 1994), and shapes (Li & Ma, 1994); and the introduction of new search functions (Faloutsos et al., 1994) (Gupta, Santini, & Jain, 1997) (Ma & Manjanath, 1998). Using these systems, users can completely forego the use of text and, in effect, find a relevant proto-image and tell the system to "find more like this." Some of the most influential content-based retrieval systems are the IBM Query by Image Content (QBIC) project (Flickner et al., 1995) and VisualSEEk (Smith & Chang, 1996).

The chief question for content-based retrieval systems is not whether they are too deterministic and expensive like the traditional text-based retrieval systems - computers are doing the cataloging and retrieval, so human-based knowledge and expenses do not play a part, outside of development, but whether these types of systems are retrieving information that any users find valuable. Chen (2001) says "it is not clear how the retrieval functionality of these systems correlates with image information needs of real users" and Jörgensen, Jaimes, Benitez, & Chang (2001) say that these systems "currently address only a small portion of the complete range of image attributes of potential interest to users of digital image collections."

It would be beneficial if there were a way to use the significant amount of text-based, manually produced, as well as the more abstract machine-readable data in a way that is of value to users. While the text-based approaches provide, at the very least, reliable titles, dates, and artist names, and some degree of subjective and stylistic content; content-based retrieval could, at a very basic level, be considered a simple and objective formalistic analysis of an image – that ideal pre-iconographic

interpretation wherein the scholar would identify the pure forms, lines, colors, and volumes represented in the painting – the ideal which Panofsky thought impossible for humans to communicate without a corrective “principle of style.”

“*The New Art Historians*”

Svetlana Alpers

Panofskian iconology was, and arguably still is, the prevailing interpretative methodology for art historians. However, in the last twenty years (in the glacier-like world of art history, this is recent history), a number of prominent art historians have questioned the underlying premises and assumptions included in this interpretative stance. In 1983, Svetlana Alpers published *The Art of Describing: Dutch Art in the Seventeenth Century*. In it, her main thesis was that Dutch genre painting of the period, in its preoccupation with the description of interiors and domestic scenes, was fundamentally different in character from contemporary Italian painting, with its narrative portrayals of events, typically from classical mythology or the Bible. Alpers argued that highly descriptive Dutch painting should not be subjected to analytic and critical methods like Panofskian iconology, because those methods had been developed specifically for interpretation of the narrative imagery of Italian painting. To her, subjecting the immediacy and simplicity of Dutch painting to minute, iconographical analysis was an aberration, and introduced an unconscious bias in favor of Italian art. She argued that the methods and attributes appropriate for the critical evaluation of works in the narrative tradition were inadequate to explain other types of art; leading to either their neglect or misinterpretation (Alpers, 1983).

Another of Alpers' significant contributions to the field of art history was an essay published nearly two decades earlier, “*Ekphrasis and Aesthetic Attitudes in Vasari's Lives*.” In this essay, she argued that art historians misread, and therefore undervalued Vasari's *Lives*, because they failed to distinguish between Vasari's view of *methods* of art and its *purpose* (Alpers, 1960). Because art historians, characterized at that point by Panofskian iconology, had fallen prey to Vasari's significant rhetorical skills, they had unwittingly accepted his opinion of art's perfection. Any art that did not fall into this tradition was deemed either insignificant or merely “vulgar.” Not only did this marginalize major genres like Dutch still life painting (her primary concern), but it also had the effect of negating as “primitive,” whole non-Western

traditions like Aztec, Mesopotamian, Indian, and other World cultures' art, not to mention contemporary or abstract art, or photography.

David Summers (I)

These are the shortcomings of the current representation systems that concern and have concerned David Summers, for most of his career. His primary thesis is that because we need to describe images, "to transform works of art into words," art historians had to develop a meta-language that would act as a bridge between "what we see and what we say" (Summers, 1989). Formalism is the basis for that meta-language, and is problematic, because it is at this level that art historians talk about an image's expression as well as its style. Formalism is the basis for all subsequent interpretive discussion, including any and all discourses on iconography, allegory and "truth." A formalistic approach to the arts emphasizes the primacy of the compositional qualities in a work of art, typically understood in painting to be elements like line, value, color, and texture. Focusing on the painting's basic elements theoretically allows the viewer to objectively define formal elements in terms of technique on the one hand, and content on the other.

Formalism

Formalism is deeply rooted in ancient thought, specifically Aristotelian metaphysics: the belief that form signifies the intelligible quality of things, and that there is an "essence" that unifies both the structure and the unfolding of the structure of natural things. By extension, a work of art has, or should have, an essence underlying and unifying its parts. Modern formalism evolved during the late 19th and early 20th Centuries primarily through the work of Alois Riegl and Heinrich Wölfflin. Riegl was particularly interested in developing the idea of "artistic will," to establish the distinctive formal features of works of art as the products of something other than technique (Williams, 2003).

Unfortunately, the ideas inherent in formalism are intimately related to kinds of historical inference and generalizations that "run the gamut between quaint and dangerous" (Summers, 1989). Basically put, form is regarded as a non-mimetic quality that is the "essential expression of spirit." By the analyzing form in art, it is possible to "investigate the structures of the human spirit itself." There are obvious problems

with this outlook. Not only does formalism ignore some very basic features of art objects in its quest to define a “spirit of the age,” it negates those features as ancillary to the “true” “meaning” of the image. For example, a formal analysis Raphael’s *Madonna of the Meadow* [Figure 1, above) ignores many features and qualities possessed by the painting and shared with other works of art; specifically, it ignores: the faintly smiling woman sitting on the ground with two children, the clear and calming representation of space, the peaceful light, the artist’s choice of using earth and primary colors; and it ignores canvas, pigments, preparation, facture and finish. These are all things that viewers see, even if they’re not “visual” in a “formal” way (Summers, 1989).

Allegory

There are also important connections between the foundations of formalism and the allegorical tradition. Finding the meaning of an image has been lodged in Western culture’s expectations and explanations of images for a long time. The idea of allegory is based on the opposition between lower appearance and higher meaning, be it between the various “forms” within a painting, and a “spirit of the age,” or actors within a painting and its “iconological” interpretation. Allegory was a very important piece of the Medieval and academic tradition. Once we move into the Modern era, however, artists often view allegory as outmoded or even laughable. The expectation lives on, though, and the idea of allegory is implicitly exploited by the establishment to mystify and therefore dignify a work, its artist, and by extension, the cognoscenti (Summers, 1989). There is an assumption by the uninitiated viewer that there is some deeper meaning that s/he is inadequate to judge. This assumption, that either form or content *must* be the essence of a work of art, leads to the idea that the meaning is either visual or conceptual. Those assumptions are impediments to many kinds of art historical understanding, and fundamentally misdirect some basic forms of art historical interpretation (Summers, 1991).

E.H. Gombrich

E.H. Gombrich, who was a contemporary of Panofsky, was critical of formal analysis and this quest for “essential meaning.” This formalistic line of thinking, for Gombrich, led to the notion of “physiognomic fallacy,” the idea that it is possible to infer some spiritual reality from the forms of the works

themselves. Gombrich argued that the meanings we see in a work of art are not historical, they're interpretative, and therefore not explanatory, and if art historians want to gain a historical understanding of a period, they actually have to *do history*. For Gombrich, there were even more sinister implications for the physiognomic fallacy. In formal analysis, the forms not only take on the expression of the individual artist, but they are also imagined to express the spirits of whole nations, races, and epochs. If classical sculpture not only denotes the "noble simplicity and quiet grandeur" of the sculpture itself, but the "noble simplicity and quiet grandeur of the Greek soul," imagine the formalist based art historical interpretations of African Art, or prehistoric rock paintings with such a basis. The implications of Gombrich's arguments are that, "in order to avoid unproductive critical circularity and essentialism on the one hand, and to avoid being party to the fabrication of some of the most murderous myths of modern times on the other, we must avoid such historical inferences altogether" (quoted in Summers, 1991). If Gombrich is right, and it is impossible and/or inappropriate to see through form to infer some kind of meaning, then art historians – and by extension image indexing theorists must develop new ways of thinking and talking about works of art.

David Summers: Real Spaces

For the last two decades David Summers has been devising a new type of art historical language, which came to fruition in May 2003 in a book entitled *Real Spaces: World Art History and the Rise of Western Modernism*. In this book, he argues (among other things) that successful representation fundamentally implies a social construct. For example, an object can not possess meaning unless other viewers accept the denotative qualities of that given image or object. It's gibberish. To continue with the linguistic analogy: elements of a representation stand to what they represent as do words in a description. However, the difference between images and texts are that images are "dense." Every mark is dependent on relationships to other marks for meaning. The whole worked surface of an art object is continuously and interdependently significant (Summers, 1991). Within the context of this discussion, formalism becomes obsolete. It is difficult to get from form to any content at all, because for Professor Summers, not all art communicates in a visual manner, although it may be visible, and the questions that formal analysis answers are no longer adequate or even appropriate to the discussion.

Summers' essential idea is that art "expresses" nothing. There is no "content" of which art is merely the form. "Art is rather the always concrete and historical product of the construction of social meaning, which is consistent and continuous with other modalities of meaning but not reducible to them." Art is "schematically isomorphic" with language, meaning they share some qualities and characteristics but belong in entirely different spaces and have entirely different motivations. Even though Western images are relatively text-like, the pervasive and deep comparison of art and text "conceals much of the art of the world from our adequate understanding, and also conceals from us much of the cultural significance of our own art" (Summers, 1991). For Summers, the important aspects of art are its physical *manageability*: whether it's upright, facing, of a certain size, or handed; and the knowledge that we are not just looking into a world *incidentally* shaped by some other meaning. Rather, we are "looking into a world of significantly transformed reality, fundamentally different from our own." The exceptional thing about art is that we can confront, in our own space, in meaningful relations to ourselves (this relates to the object's manageability), the once integral inhabitants of other spaces. Our interpretative task, argues Summers, is to re-imagine the significance of that integration.

In his new book, Summers replaces the notion of the "visual arts" with that of the "spatial arts" (Summers, 2003). The spatial arts consist of two basic categories: "real space" and "virtual space." Real space is that space we share with other people and things. Sculpture, architecture, and design typify this category. Virtual space seeks to represent real space in two dimensions and is exemplified by paintings, drawings, and prints. Virtual space always entails a format in real space. Ultimately, he insists that art can never be separated from the primary spatial conditions of its uses. By using these distinctions and defining art as **anything that is made**, he offers a new conceptual framework that allows us to treat all traditions on an equal footing and to describe images that do not fall within a traditionally conceived "artistic" framework. If art is "anything that is made," that means that archival photograph collections, medical imaging, and architectural drawings can be described adequately within this framework, along with the fine art photography, Italian Renaissance history paintings, and contemporary new media arts. Summers doesn't so much reject formalism and other Western approaches to the history of art, but recognizes that they are not universally valid, as had been supposed before.

Bringing it all Together – An Amended Theoretical Approach:

The New Manual, Text-Based Approach: Metadata

The most straightforward way to fully explain Summers' new conceptual framework is to draw distinctions between it and Shatford Layne's amended 1994 framework (Shatford Layne, 1994).

Shatford Layne begins by calling for cataloging those attributes that record the "birth" and "travels" of an object, the "biographical attributes." These attributes are easily mapped to the general, external notion of provenance, that of recognizing the purpose for which an object was created (its functional provenance), and recording the object's successive transfers of ownership throughout its life. In addition to indexing information related to the progenitor or creator, Layne suggests recording the creator's role, the time and place of creation, and the name of the object as given by the creators. In the "travels of object" category, she is interested in recording where the object is now, where it has been, who owned it; the past, present and future cost of the object; and any alterations that might have been made. These points map satisfactorily to what Summers delineates as important attributes of an image, although within this "biographical" category Summers' framework would also include a discussion of the object's "spaces of use." A work is always part of a space, it is defined and defines that space, and to fully understand the significance of a work, one must understand how and in what spaces it was used. There are four typical spaces of use, which can be multiple or individual: Personal, Social, Cultural, and Historical. For Summers, these biographical attributes are fundamentally important for understanding the significance of any object. By providing contextual information, this framework gives the scholar / user a deep and enduring construct within which to place the object both theoretically and practically.

Layne next lists the "subject attributes" group, arguably the most important attribute group for most image catalogers, as evidenced by the number of articles, studies, and user-satisfaction surveys devoted to this topic. Shatford Layne divides the cataloging of an image's subject into three sub-categories, *Of/About*: a painting might be *of* a lion, but *about* pride, or *of* a crying woman, but *about* sorrow (these are her examples). Then there are *Generic/Specific* meanings, a photograph is *generically* a bridge, but *specifically* the Brooklyn Bridge, and there are also Time, Space, Activities, Events, and Objects attributes to collect within the subject attribute grouping. For Summers, understanding an image

or object is more of a historical and contextual process than a subjective one, and he is interested primarily in thinking about the weight and significance of an object as opposed to its meaning. If the image is textual, i.e. Western, there *is* often a subject, but for Summers, the subject might be the least interesting thing about the artifact.

Next are the “exemplified attributes:” for Layne, these attributes barely register as worthy for discussion, and generate one short paragraph for description. For Summers, the exemplified attributes of a painting are extremely illuminating.. Shatford Layne describes the Exemplified Attributes as related to format. For example, a triptych (the format) *exemplifies* a type of devotional image, so “devotional image” would be the value for the exemplified attribute in Layne’s framework. While this statement is an interesting and valid within Summers’ framework as well, there are other, equally important “exemplified” statements or attributes related to format. First and foremost is the idea of “facture.” While very important within Summers’ framework, facture often goes unnoticed, and might be practically invisible to the viewer. Facture embodies the idea that the object itself carries some record of its having been made. It’s the overarching theoretical construct upon which all format-based attributes derive.

A sub-category of facture is, in fact, format, but goes deeper than recording whether the image was painted with oil on canvas, or fresco, or what is commonly understood as format today. Notably, formats have histories. Take canvas, for example. It has a history as a format, both practically – people weaved and stretched canvases for artists, and those people were artisans themselves; and theoretically, as the means by which paintings are delivered – Summers points out that throughout the artistic and stylistic upheavals that took place from the 16th through 20th Centuries, artists still used canvas as one of the primary formats, and anyone who chose to not use canvas was willfully doing something different. Format is an almost invisible characteristic of everything that is made, and rarely noted in much precise detail.

The second format or facture-related attribute is the idea of “the arbitrary.” Here this term does not mean “random or illogical,” but rather “an arbiter,” or judge. At some point, someone made a decision about the best way to produce this object. This decision making process, and the stylistic progress of one artifact to another, is at the root of “the arbitrary.” Closely related is the idea of “the notional,” whereby a decision to make something in a different and often more attractive way – to make the roundest pot

possible, for example, or the straightest, sharpest arrowhead. The notional is related to stylistic refinement – where the decision might not make the object more functional, but perhaps more beautiful. The idea of noting the object's "disposition of materials," or configuration is another attribute related to "the arbitrary." Objects can be functional, meaning they serve an actual function, like an ax, or they are "conventional," meaning the object ostensibly has a function, but because of the format or disposition of the materials, that function is subverted. A ceremonial ax, for example, rarely carries out the function of a typical ax.

Shatford Layne's final group of attributes is the "relational" group. For her, this is straightforward linking of a preliminary drawing to a finished artwork, for example, or the text for which an image is an illustration, critical reviews of an image, or some referral to the physical object the image documents. For Summers, finding the relationships *is* the interpretative and intellectually satisfying work that the scholar does. It's difficult to list the relational attributes of an artifact in Summers' model, because everything is inter-related. One artifact could be related to others in ways we can't currently "see," but if we build a robust-enough system, the relationships will become evident.

The New Automatic, Content-Based Approach

Finally, Summers refers to something he calls the object's manageability, or its "embodied existence," which refers to the physicality of the object, typically formal attributes. For example, whether an object is representational, whether it's upright, oriented left or right, symmetrical or asymmetrical, whether the figures in the object are in motion or stagnant, or whether the object itself is stable or not, etc. are meaningful attributes in this framework. These are all characteristics that content-based indexing can easily index and record. For example, a popular content-based retrieval system will return some very basic information on the primary shapes and relationships of those shapes within an image. This approach is very similar to traditional formalism, rejected by Summers. But the difference is that formal attributes aren't being used in these content-based systems to exemplify the "spirit of an age," but to both minutely record decisions made by artists throughout the ages, and to place the object, concretely, but not using words, into our space. Without some mention of an artifact's orientation, size, stability or represented volumes it's virtually impossible to understand, in any significant way, the integration of

humans into the space / use of a “difficult” artifact, like the Standing Stones of the Isle of Lewis (figure 3),
for example,

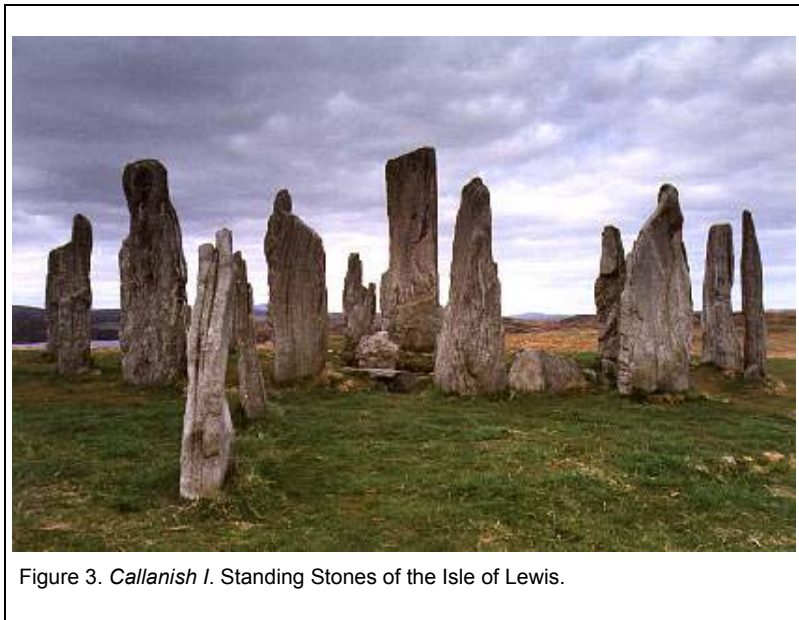


Figure 3. *Callanish I*. Standing Stones of the Isle of Lewis.

or even more “understandable” or “traditional” art objects like Monet’s *Water Lilies* (figures 4 and 5).

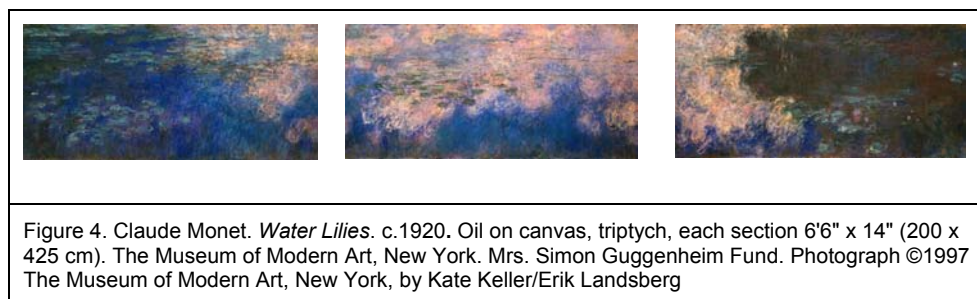


Figure 4. Claude Monet. *Water Lilies*. c.1920. Oil on canvas, triptych, each section 6'6" x 14" (200 x 425 cm). The Museum of Modern Art, New York. Mrs. Simon Guggenheim Fund. Photograph ©1997 The Museum of Modern Art, New York, by Kate Keller/Erik Landsberg

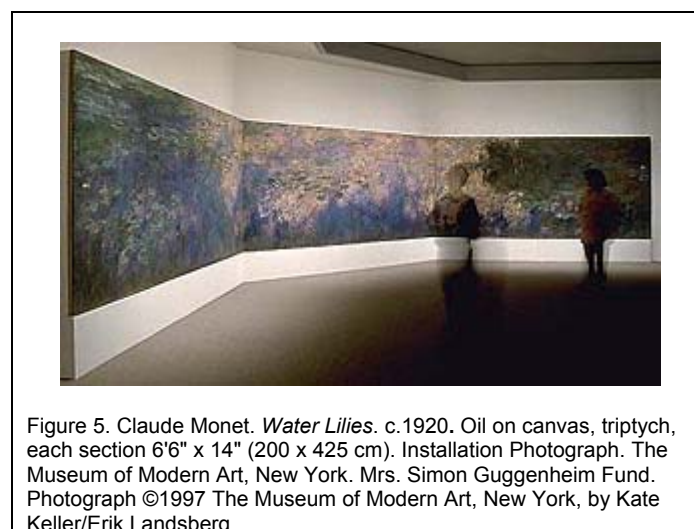


Figure 5. Claude Monet. *Water Lilies*. c.1920. Oil on canvas, triptych, each section 6'6" x 14" (200 x 425 cm). Installation Photograph. The Museum of Modern Art, New York. Mrs. Simon Guggenheim Fund. Photograph ©1997 The Museum of Modern Art, New York, by Kate Keller/Erik Landsberg

Essentially, it's impossible for the user who only has words provided by traditional subject access indexing to really know and understand the relationship between any given object and his/her real physical space. Formalism was looking at basic representational shapes as a window onto the soul. Summers is using these formalistic concepts as conceits with which to describe the physicality of an artifact. Content-based retrieval is currently facing some significant questions as to its effectiveness, and whether it has any relationship to user needs (discussed above, page 8). By linking into this framework, those reservations would be somewhat negated.

David Summers did not develop this new meta-language to help image catalogers. He was essentially striving to re-invigorate the field of art history, and to provide a stronger, more inclusive, less deterministic language with which to describe cultural artifacts. This more comprehensive language would allow Western scholars to understand more fully the art and artifacts of different cultures – hence leading to a greater understanding and appreciation of those cultures – and to more fully understand our own culture. Right now the discussion is stagnant, restricted, and self-referential. Summers wants to stimulate the dialog both within the field of art history, and in the broader community as well (world peace through artistic understanding might be his motto). Just about the furthest thing from his mind, I'd wager, is helping image catalogers represent images within databases for electronic retrieval. The way image indexers use this framework is consequently open. It should be noted, however, that this framework does three pretty powerful things: First, it provides an inclusive framework in which all images can be included, described and "understood," leaving behind the idea that we need different schemas for different communities. If we accept Summers' definition of art as "anything that is made," we can develop a robust framework that could describe nearly anything. Second, Summers' framework allows for more objective descriptions. Gone are the interpretative access points like "sorrow," or "pride," replaced with relatively objective attributes related to the provenance and context of the object. Finally, this framework provides a meaningful connection to automatic, content-based methodologies.

Future plans include the development of a Summers DTD and related system, which would use established controlled vocabularies, thereby showing specific deficiencies and pointing to where language augmentation needs to happen, and would provide the basis for different user studies, which would demonstrate whether or not user needs are supported through use of this new framework.

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