Pat Molholt*, Toni Petersen
*Columbia Univ. Health Sciences, New York, NY

# The Role of the 'Art and Architecture Thesaurus' in Communicating about Visual Art

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The paper addresses the ways in which computerization and a thesaurus like the Art and Architecture Thesaurus (AAT) influence the organization, description, and understanding of the visual arts. It discusses these issues from the point of view of the AAT and considers how its structure and content serve as a bridging mechanism between the many different manifestations of the visual arts and the different types of organizations serving the viewers of art, whether as students, scholars, collections managers, or the enjoying public. This paper shows how a knowledge base like the AAT helps this variety of users develop approaches to the visual arts and suggests that the special nature of dealing with image rather than text influences how the thesaurus is structured and applied.          (Authors)

## 1. Communicating about Visual Art

When one speaks of the visual arts one is addressing those "communicative artifacts created according to aesthethic, conceptual or symbolic principles" (1, p.25). They are produced with the purpose of transmitting symbolic or aesthetic ideas, concepts, and experience through a wide range of visual media. The challenge is that these works communicate visually rather than through textual language. There is, thereby, a special difficulty in providing an intellectual path between the visual arts and the study of them. Unlike text, and similar to the performing arts, images and other manifestations of the visual arts do not provide verbal clues. They communicate through what is depicted, how it is depicted, and through attributes of their physical form. The process of organizing, describing, and understanding the visual arts all depend in good part on successfully capturing these aspects in words.

Traditionally the visual arts encompass a number of fields including painting, sculpture, drawings, prints, photographs, and even works of architecture. In the latter part of the 20th century the distinctions between these media have blurred as some artists produce works of performance, create video arts, communicate through alterations to the natural langscape, and others combine several elements or media in their art. Not only do these permutations and new means of expression challenge the viewer, they challenge the intellectual and mechanized/computerized systems we normally bring to bear in dealing with the visual arts.

The study of works of art has traditionally included reproductions, copies, views, and details of the works as well as text about them. Always, though, the focus is on the work itself, regardless of whether the work or its surrogate is the basis of discussion. Surrogates may include incomplete details, portions of the original, views, segments, enlargements, etc. and may take many physical forms, such as photographs, prints, slides, or digitized images. Stressing the primacy of the art apart from its surrogate form does not diminish the importance of accuracy in describing the surrogate itself.

The field of the visual arts contains a wide variety and large number of emerging databases of information about collections of works of art or their surrogates. This information occurs along a continuum of descriptive levels, each requiring special kinds of analysis and description. For example:

- a slide with its physical characteristics of dimension and film type;
- the slide as a depiction of a painting, with its own set of physical characteristics, such as the materials or technique employed and the style of execution;
- the painting as a still life picture of a candle, a skull, butterflies, pomegranates and flowers, a mirror, a lute, some money and jewelry, and a book;
- the bringing together of these objects symbolizing a certain theme or concept, a way in which a culture symbolizes or represents death and the vanities of the world;
- the naming of this painting type as a 'vanitas'.

On the other hand, the viewers of visual art can have many roles that focus on different purposes:

- a curator needs to catalog the work to make it more accessible;
- a registrar needs to record the vital data about the work for collections management reasons;
- a scholar wants to study the work directly or use it in teaching;
- a researcher wants to write a critical essay on it;
- a librarian needs to catalog a book about it;
- a slide curator needs to catalog a slide of it;
- a viewer seeks to interpret it for his/her own enjoyment.

The understanding and enjoyment of art is a fundamental human activity that is closely tied to communication. The viewer needs to build a pathway between him/herself and the art in order to facilitate communication and understanding. Both of these acts find expression in language. The use of language allows the viewer to communica-

te what he/she sees and feels about an image. Without verbal/textual interpretation, the content of the image is locked within itself - inaccessible to others and individualized by each viewer.

Communication about the visual arts occurs in many ways and often has many components. It may consist of building a database, preparing a lecture, planning an exhibition, writing a book, thinking to oneself about the art. Each of these requires the construction of paths of description, analysis, and understanding between the visual arts, the viewer/ scholar/ researcher/ cataloger and their publics. Although visual representations bear a primary role in any attempt to communicate about art, the human ability to transcribe concepts and ideas into language is also a critical aspect of communication. the pathways that viewers build as part of their roles or for their own understanding makes communication possible. A pathway between the art and our understanding of it has direction and coherence largely due to our choice of language in constructing the path.

## 2. Role of the Thesaurus

Language is the bridge that allows us to make intellectual connections about art. Language is also needed to retrieve effectively both electronically and physically stored images and information about them. Technology allows us to store massive numbers of images and related information independent or apart from the usual assistance provided by curators and librarians. The language that is used to communicate information about the images can also be the language used to retrieve and manipulate them. It is critical, however, that we have a common base of language without which communication, for whatever purpose, will be hampered.

The International Standardization Organization describes a thesaurus in two ways.

In terms of function, a thesaurus is a terminological control device used in translating from the natural language of documents, indexers, or users into a more constrained "system language" (documentation language, information language). In terms of structure, a thesasurus is a controlled and dynamic vocabulary of semantically and generically related terms which covers a specific domain of knowledge (2, p.1).

In addition, a thesaurus is

"the controlled vocabulary arranged in a known order and structured so that equivalence, homographic, hierarchical, and associative relationships among terms are displayed clearly and identified by standardized relationbship indicators that are employed reciprocally" (3, p.1).

The AAT, founded in 1980 and supported by the Getty Art History Information Program since 1983, has as its goal to function as that subset of language relevant to art, specially structured at the atomic level, that is, at the level of single concepts, providing a language system that allows the viewer to verbalize and thereby communicate what the work is, or is about.

## 3. Structure and Scope of the AAT

A tool like the AAT provides the building blocks viewers need to construct the pathways for communication and to better assure that what they are communicating is consistent with what other people understand. Proper use of a thesaurus helps to prevent communication failure and facilitates variation in communication through features like lead-in terms and synonyms, related terms, and homograph disambiguation. With the current emphasis on international communication and sharing information in art databases, there is a further need to build multilingual term equivalents within a resource like the AAT. It is by this means that we can begin to transcend language barriers and bring the richness of multiple language description to an image.

The thesaurus functions as a knowledge base. It is a representation of a segment of the universe that was constructed by assembling a selected set of component parts and by organizing those elements/concepts/words in a particular way. In that light a thesaurus has a special role in the environment of building pathways to organize, describe, and understand the visual arts. The AAT is a communication tool with a particular view of the universe expressed through its facets and the organization of those facets (see Table 1 below).

Associated Concepts
Physical Attributes
Styles and Periods
Agents
Activities
Materials
Objects

Table 1: *The Seven Facets of the Art and Architecture Thesaurus*

The scope of the AAT covers terminology for art and archcitecture from antiquity to the present. Fields within art and architecture are defined as follows:

- Built Environment: built works and the human elaboration of the natural environment;
- Furnishings and Equipment: artifacts with a primarily utilitarian purpose, often embellished;
- Visual and Verbal Communication: communicative artifacts created according to aesthetic, conceptual, or symbolic principles.

In the case of a tool like the AAT, the organization (i.e., that it is not just an alphabetic list of terms) provides pathways. It represents a view of the world, an aggregate view of experts, but a view nonetheless. Through all the stages of its construction, the AAT assembled international panels of scholars and experts to review each section of terminology. These panels were given the latitude to structure the set of terminology with which they were dealing and to comment on how the resulting hierarchies should be organized within their facets. While a particular viewer may not be entirely comfortable with the resultant view, in practice we have seen that user satisfaction with the structure of the AAT has been high, an acknowledge-

ment of the attention to detail which the scholarly review panels brought to their work and to the flexibility and expandability allowed by the AAT structure.

Although influenced by Ranganathan's work on the classification of knowledge, the AAT's facets were identified and organized especially to reflect how a work of art is described (4). Information on visual works requires the complex joining of many elements concerning their creation such as what they are made of, the period or style they were made in, their process of fabrication, the role of creators, and various elements of design, as well as the content of what they depict. These elements are sometimes difficult to pin down, and different elements come to the fore depending on the work itself and the purpose for which it is being discussed or viewed.

The facets in the AAT are organized to proceed from the most abstract concepts through the style or period of the work, the role of creators, the processes and techniques used to fabricate works, the materials with which they are made, to the names of objects themselves — the most concrete elements of description. Each facet contains one or more hierarchies which are arrangements of terms in broader and narrower relationships.

Hierarchies are subcategories of facets in that they include classes of terms that are mutually exclusive. For example, in the Activities Facet there are four hierarchies: Disciplines, Functions, Activities, and Processes and Techniques. All of these contain action terms but each describes a different form of activity. Over the course of the decade since the faceted structure of the AAT was set, it has been interesting to note that although new hierarchies were fashioned as areas were added or subdivided, no new facets were identified and the original structure has held up well (see Table 2). This may suggest that there is a commonly agreed-upon way, for purposes of description, to talk/think about visual art, a pathway if you will.

The AAT vocabulary is organized into seven facets and 33 hierarchies, or subdivisions of the facets. They are listed below. Those preceded by an asterisk were published in the 1990 edition; the complete set is scheduled for publication in January 1994.

ASSOCIATED CONCEPTS FACET
    *Associated Concepts
PHYSICAL ATTRIBUTES FACET
    *Attributes and Properties
    Conditions and Effects
    *Design Elements
    *Color
STYLES AND PERIODS FACET
    *Styles and Periods
AGENTS FACET
    *People
    *Organizations
ACTIVITIES FACET
    *Disciplines
    *Functions
    *Events
    Activities
    *Processes and Techniques

MATERIALS FACET
    *Materials
OBJECTS FACET
    *Object Genres
    Built Environment
        *Settlements, Systems and Landscapes
        *Built Complexes and Districts
        *Single Built Works and Open Spaces
        *Building Divisions and Site Elements
        *Built Works Components
    Furnishings and Equipment
        *Tools and Equipment
        Measuring Devices
        *Hardware and Joints
        Containers
        Furnishings
        Costume
        Weapons and Ammunition
        Sound Devices
        Recreational Artifacts
        Transportation Artifacts
    Visual and Verbal Communication
        Visual Works
        Exchange Media
        *Information Forms

Table 2: *Facet and Hierachy List in the AAT*

Facets are one of the elements in a thesaurus that aid the viewer. Terms within the AAT are single concepts representing the atomization of large and more complex concepts needed to construct the verbal elements that provide information about a visual work. Single terms are not tied to any particular conjoined set of concepts or terms. The viewer is free to choose those terms from whatever hierarchies and facets are needed in a specific case. He/she is aided in this task by other features of the thesaurus such as hierarchical relationships, synonyms and other variant spellings, the disambiguation of homographs, and the marking of related terms which can symbolize alternate hierarchical term placement or signal a relationship among terms that appears in different hierarchies.

Using the AAT's faceted structure, the viewer can select those terms from different hierarchies needed to build a pathway to the concepts, the aesthetics, and the content of a particular work of art. As we stated above, understanding or describing a work is a complex process requiring the selection of terms across many different categories of information and varies with each work. The facets accommodate the necessary fluidity of the viewer's needs, allowing him/her to navigate among them and to pick and choose the various elements required in any particular situation. These elements may then be arranged in a text, an online version, or recorded in whatever way is relevant to a particular situation or system architecture. In some cases, as in a museum's object record, the elements of description about a specific object will be held separately in different fields. In a text or a book cataloging record, they may be combined into a single, complex descriptive phrase or heading.

## 4. Computers, Communication, and Visual Art

The proliferation of computerization in the visual arts in the last decade has brought much attention to how computers are used in this field. On a basic level they are a pad and paper to capture and store the pathway - the critical essay, the cataloging record, the lecture. On a higher level computers can be used to related multiple pathways between a viewer and an image simultaneously. Computers can hold in one tool what previously had been held in a number of separate resources — card catalog, dictionary, thesaurus, reference book — and can, thereby, make them easily available for use. In addition to storing or holding the resources needed in the path-building activity, computers can relate or integrate these resources in the service of the viewer, making the tools work together so that the viewer is assisted in path building. They can give clues or suggestions for navigating through a database and can provide a framework for desciptions or paths.

For the computer to be effective as an information tool that can assist the viewer in accomplishing in one place and at one time, what would have taken multiple operations and separate tools and resources, the computer itself needs a pathway - first to link the resources, or parts of resources, and second as the mechanism by which the viewer can navigate those resources. Programming computers to relate the language of the viewer to the language of the art through pathways is a critical component of their effective use.

Computers have a number of characteristics that facilitate this task and thus are of interest to those managing visual arts resources:
- interactivity between traditionally separate
    resources,
- ability to build links between files and between files
    and resources,
- ability to perform several tasks simultaneously,
- convenience with which one can perform tasks,
- ability to link by telecommunications routes
    with other resources;
- multiple ways to interact with resources
    (user interfaces).

All of these attributes are diminshed in their service to the viewer if inadequate attention is paid to the role of language and its basic role in communication, between humans, between humans and computers, and between computer files and systems.

The purpose of this paper has been to explicate how the use of computers and the AAT influence the organization, description, and understanding of the visual arts.

Overarching these individual concerns are the basic tenets at the juncture of these two tools: the standardization of language accomplished by controlling the use of language to a set of standardized terms; the accuracy in communication and retrieval that is achieved by computer support that is based on the same standardized language.

Classification, that is, the organizing of the works themselves and information about them, has traditionally been the domain of subject experts and scholars who provide the world view for the documentation experts — the catalogers, collections managers, indexers who record the description of works of art in their purview. Such organization results in a variety of tools:
- computerized visitor interactive systems giving information about a museum's collection to the visiting public;
- working catalogs of various kinds of collections - archives, libraries, museums, books, visual resources.

Description takes place in the special environment of assembling the multitude of elements that make up the total comprehension of a work. The elements are chosen from a controlled vocabulary like the AAT and in automated systems are input and displayed according to embedded rules that guide the input process. In the case of description, as well as organization, the variation among systems can be immense and can result in frustration for viewers who need to move among them. The viewer's needs are best served when, at a minimum, the various tools (databases, slide systems, reference books, catalogs) use the same subset of the language.

Understanding takes place when the communication provided by the retrieval of information from a database is validated by the comprehension of a work in a viewer's mind. The AAT is there to facilitate that comprehension by helping to prevent communication failure. The partnership of the computer and the AAT allows multiple points of view to filter through the undergirding knowledge base of the thesaurus, interrelating those views with a richness possible through the navigation which the structure of the AAT permits. Communication is thus opened rather than restricted.

A work of art may be approached with the language of the historian, the artist or craftsperson, the administrator, or the dealer. The AAT contains the language both unique and common to all of these, and others. It truly opens up and facilitates communication and understanding. This is especially true with the AAT because of its richnees both in its incorporation of multiple points of view, and its size. The first edition of the AAT contained 17,600 primary and 31,000 lead-in terms. Those numbers will rise to an estimated 25,300 and 46,000 in the edition scheduled for publication in 1994.

## 5. Conclusion

The act of communication is fundamental to organization, description, and understanding visual art. It involves fitting language to a purpose. There are special challenges in communicating about visual art because the understanding is locked within the form, content, method and style of the work. The viewer, who may play multiple roles of scholar, cataloger, etc., must build pathways between him/herself and the art using language. The three elements of organization, description, and understanding are distinct in their importance and in their methods or

mechanics but they all involve communication in a critical way. On that basis they all benefit from the strength of a tool like the AAT which overlays an element of standardization and communication enhancement on the verbal description of the visual arts.

The AAT is a communication tool. It represents a view of the art and architecture universe that is structured and stable although it is constantly added to and expanded to accommodate more aspects of that world and more ways of viewing that world. One purpose of the AAT is to ameliorate the long-standing frustration on the part of viewers trying to make their way among systems and finding the same object, image. etc., described by different terms and set within different organizational schemes. Unless there is a mechanism or bridge that can link such variations, the viewer is hampered in understanding the image and gaining access to information about the image.

The AAT provides a carefully selected set of building blocks the organization of which into hierarchies and facets aids the viewer in building pathways. The AAT's organization is hospitable to the addition of new hierarchies while the broadest term levels in the existing hierarchies provide the hooks for the placement of single new terms or for incorporating groups of terms in a particular area.

There are many different kinds of organizations in the world of visual arts (museums, libraries, auction houses, artists, etc.). One rationale for the use of the AAT is to facilitate communication among these organizations or individuals in them. The task looming on the horizon for the AAT is to explicate the work of indexing analysis for the many AAT users by providing training in the application of the vocabulary across the broad range of indexing and cataloging organizations that need such a controlled vocabulary. Adoption of a tool like the AAT requires that it be understood and that rules for its application be provided. This will occur in the next phase of the AAT's development, following on the publication of the complete edition in January 1994.

The goal of this project at its inception over a decade ago was to create a tool to facilitate communication among the many viewers of visual and other art and architecture. What we now realize is that communication was the penultimate goal; facilitating understanding was the ultimate goal.

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James M.Bower, Getty Art History Information Program, 401 Wilshire Blvd., Suite 400. Santa Monica, CA 90402, USA