

*The Need to Preserve  
Our Digital Art Heritage:  
Reading between the lines-  
Indexing and Abstracting  
Networked and Variable Media Art*

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**Abstract:**

The use of controlled vocabularies and processes to generate new vocabularies manually, often with the assistance of archivists, curators, and artists themselves are a best practice for the hard to describe non-textual art works that may be successfully formatted on the Web. In some cases, the discovery of new works, as in the field recordings of the Lomaxes, may add to the base of terminology at the service of the database patron. The purpose of a thesaurus, in particular the Arts and Architecture Thesaurus (AAT) has been examined at length by Soergel. "A good thesaurus provides, through its hierarchy augmented by associative relationships between concepts, a semantic road map for searchers and indexers and anybody else interested in an orderly grasp of a subject field." (Soergel, 1995). It is the pattern-based study of language and its application to information retrieval that is useful in considering this topic.

*"Words are leaves, branches are sentences, mother tongues are limbs, language families are trunks, and the roots are in "heaven"...or the DNA." (Bey, 1991)*

## **“One Picture is Worth Ten Thousand Words.”\***

Is that ancient wisdom? The quotation is used by several recent computer science studies offering analysis of the cognitive and algorithmic aspects of text-information organization. The human eye has a marvelous connection to consciousness and control and will be explored in this paper about indexing online digital art work. The original source of the quotation is mentioned in the appendix. It was characterized by its original writer as a Chinese proverb and was written to be ad copy for a cake campaign in 1921. The picture it referred to, was the look of delight and another tag, “Make a cake for Bobby.” (Bernard, 1927)

What is the importance of the human eye in bringing order and accessibility to online searching and more importantly, can cognitive properties of the perception of non-textual data be measured and applied to human information-seeking behavior?

Human cognition, as a measurable property, remains widely variable, it may be both a function of nature or nurture (Chomsky, 1968) and tells us “how fortunate we are to be able to understand the importance of diversity” in providing access to archives. Living in a world of clones would be dull indeed.

Walter Benjamin, recognizing the historical importance of photography to the mass appreciation of the visual arts among other things, writing about Germany, Spain, Italy, and Japan, just before WWII, said, “They brush aside a number of outmoded concepts, such as creativity and genius, eternal value and mystery--concepts whose uncontrolled (and at present almost uncontrollable) application would lead to a processing of data in the Fascist sense... Mechanical reproduction of art changes the reaction of the masses toward art. The reactionary attitude toward a Picasso painting changes into the progressive reaction toward a Chaplin movie. The progressive reaction is characterized by the direct, intimate fusion of visual and emotional enjoyment with the orientation of the expert. Such fusion is of great social significance.” (Benjamin, 1936)

Controlled vocabulary tools are available to archivists. They may want to describe a collection within as many aspects or facets of the subject as are warranted financially. The importance of this curatorial effort using both controlled subject headings, and post-organized community tagging reminds us of the significance and utility of human mediated indexing in virtual representations of non-text collections. This is especially true for organizing collections of images and sounds as well as crossword puzzles and other distinctly human research and entertainment that call upon our knowledge of art history, popular culture, philosophy, and politics. Machines and automatic full-text indexing schemes can not parse this well. Preservation requires both collection and curatorial attention. Many properties of objects need to be inferred, they are not quantifiable. Representing the work accurately, as well as digitally archiving art works, is also necessary to preserve ephemeral art work for posterity. We must ask of our catalogers and indexers whether or not archivists and librarians wish to develop collections as mere press agents and consumers of well-funded presentation publicity,

repeating the accepted “Canon” of museum establishments, or should they seek out the diverse range of works which might satisfy the most diverse and sophisticated connoisseurs of this heritage today and in the future? They must also address the issue of access to recorded dance works by post-modern choreographers like Bill T. Jones and Mark Morris. Other folk arts, considered outside of the “mainstream” will be considered archival in this sense.

In the work of Alan, John, and Ruby Lomax, they discovered and recorded the actual sounds of blues singers and descendants of slaves. The scope of the issues faced by catalogers, collectors, scholars, and conservators today concerns the representation of a largely “un-transcribable medium”. Cinema, performance, and digital/networked art, must cast a world-wide net across all cultures to seek out work as well as organize the relatively well-funded canon of major collections. In the early 18<sup>th</sup> and 19<sup>th</sup> century, before the advent of photography, image representations had to be painted, hand-copied, or took the form of etchings in woodcuts, engravings, and lithographs. Now, through the Internet, access to images, sounds, and writing about the art works from all over the world makes the mass appreciation of the artist’s work possible. It needs to be guided by bibliographic controls, but more importantly, it needs to be digitized for the internet, recorded, scanned, etc. The investigation into what the medium was needs to be sought out aggressively in many geographic locations. Archivists don’t just organize recorded data, they discover it.

The African Americans whom the Lomaxes auditioned and then recorded on their "portable" tape recorder--on the 1933 trip the machine weighed 350 pounds--were the children and grandchildren of slaves. Unlike earlier collectors, whose transcriptions of performances depended on the transcriber's skill and judgement, the Lomaxes relied on technology to secure what they believed was the unmediated original. After one field trip, John Lomax described the 150 tunes with which he had returned as "sound photographs of Negro songs, rendered in their own element, unrestrained, uninfluenced and undirected by anyone who has had his own notions of how the songs should be rendered." (**White, White, 2001**)

The process of indexing is the cognitive ordering of subjects expressed as phrase structures. This makes complex works navigable by readers, whether they are in the back of a book, or part of the keyword and controlled vocabularies used to “discover” records in a particular database. Aspects of theoretical linguistics, in particular the structure of grammar, brings our attention not just to the naming of the terms used in an index, but the process of abstraction or surrogation of the main ideas in an intellectual work. This process looks for patterns and key ideas that best represent the works themselves and their inter-relationships, both in the local environment and across other online collections.

By defining the terms used to describe the artworks and identifying the community actively engaged in the surrogation of this content, we will understand the theoretical goals and problems to both presenters of context and conservators of digital artworks. In this paper, best practices will be noted and particular emphasis will be placed on the practical, experimental, and theoretical aspects of generating vocabularies.

Panofsky (see additional readings at end of this paper) and the creators of the ICONCLASS (<http://icontest.iconclass.nl/libertas/ic?style=index.xsl>) system, the AAT (Getty Art and Architecture Thesaurus, [http://www.getty.edu/research/conducting\\_research/vocabularies/](http://www.getty.edu/research/conducting_research/vocabularies/)) and especially S.R. Ranganathan wanted to be able to describe the "essence" of texts or subjects, making them more widely accessible. Ranganathan's Colon classification system faceted information by personality, matter, energy, space, and time. (Ranganathan, 1965). Applying Ranganathan's essence concepts to non-hierarchical organization of databases is a good place for researchers to begin. It is fortunate that cataloging efforts have already begun by several organizations mentioned below, because the digital decay that happens as new developments in information technology make relatively recent storage formats and devices obsolete.

Accessing archives of contemporary art, especially works which were created with reproducible but always obsolescing media, must be mainly concerned with images, the concepts they represent, and their translation to online format. [Dead Media is described in science-fiction author's Bruce Sterling's "Dead Media Project" (Sterling, Kadrey, 2006); see also [http://www.obsolete.com/120\\_years/](http://www.obsolete.com/120_years/) for a nominative and chronological list of instruments and inventors, "Electronic Musical Instruments 1870-1990". The author of this paper infers no paradigm shift in defining internet art in the making of art works directly with electronics as opposed to recording works made in other mediums. Radio and the internet are similar as a means of transmission. A definition of the class of art work generated electronically will follow on the next page. ]

Problems for conservators in translating these works to new technological platforms must also address translation across the numerous human languages in which the works were conceived and written about. The necessity of name authorities to resolve issues of the English misspelling of international names is clear. Do we use "Madjik" or "Madzik" to find the works by a Slavic artist? Rendering non-Latin characters, parsing 350 languages and trying to get machine-systems to recognize linguistic diversity is both possible and welcome. If English today is what Latin was for scientific language in the 18<sup>th</sup> century and earlier, indexing systems need to borrow from translation research so that English will not dominate our humanities. The domain of the humanities can only be made richer and more accurate by accepting such diversity. Translation, or transliteration must also consider the problem of representing the transcription of "sound-words", like "boom, clip-clop, shoosh, and others" across multiple languages, especially in an internet environment. Luigi Russolo's "Art of Noises" considers "all the noises that can be made by the mouth of man without resorting to speaking or singing." (Russolo, 1913). Research into the cognitive aspects of using language to describe images or sounds helps develop ways to represent many kinds of non-textual media in online forms.

Many researchers cite the works of Noam Chomsky and studies have been done which indicate the limits of attempting to map Artificial Intelligence strategies onto language interpretation. Chomsky and others acknowledge the innate role human

biology plays and aside from the valid arguments on both sides of this issue, an online OPAC (Online Public Access Catalog) for the arts must recognize aspects of humanity and cognition that exist across cultures, especially for the Internet medium. “Formal language theory, learning theory, and evolution...need to be combined: ideas of language should be discussed in the context of acquisition, and ideas of acquisition in the context of evolution.” (Nowak, 2002) The limitations of human cognition are both good and bad, originality is possible, we are all different, and informed people appreciate each other’s differences.

The importance of the overall structure of language that enables meaning, is even more important than our catalogs of controlled descriptors, although they are part of the solution. That requires paying attention to the signifiers and grammars of our culture in building user-interfaces out of software and hardware, such as game-like controllers in information environments. Using controlled vocabularies and features which are similar to adaptive technology like thesauri, and are holistic, and multi-sensory, will allow us to ask the question of an OPAC, “I am looking for a picture of a boat, if I draw a drawing of a boat in this interface, will I will be able to find boats?”. This approach may soon be possible.

To discuss at some depth of understanding this topic, it is best to define the class of art works the databases contain. The subject’s inherent language and cognition difficulties includes a need to do further research on information visualization as well as indexing issues in archives management and visual object surrogation. *New media* refers to any kind of communications medium that is interactive, such as the Internet. See Also: rich media, multimedia. *Interactive art*, refers to works made by individuals or collectives whose primary display consists of a CRT or Flat screen to display moving images and information. It may exist in a networked environment (the internet) or be displayed sculpturally, in the form of an installation or used in a live performance, as “multimedia”. *Multimedia* refers mainly to a computer-based method of presenting combinations of text, images, graphics, animation, streaming audio or video, and so on, but can also include performance and live action. "Modern multimedia" features an emphasis on interactivity. An historical definition of electronic music and instruments gives us the insight that the works that the community of museums and online databases discussed here are dealing with works that are authored and made within the medium originally, that is, they are not concerned with reproducing other mediums. Benjamin Miessner says, “We must however narrow our definition to exclude them, [radio, vinyl records, etc.] for we are here concerned only with music made by and with instruments for making music directly, rather than those for reproducing or transmitting music already made by conventional instruments.” (Miessner, 1936)

Work has already been started, by several organizations, museums, and individuals concerned with preserving a digital heritage and making art works based in digital media, presentable to posterity. These include the Video History Project of the Experimental Television Center, Conceptual and Intermedia Arts Online (CIAO), Rhizome.org, The Berkeley Art Museum and Pacific Film Archive (BAM/PFA), The Solomon R. Guggenheim Museum, and The Franklin Furnace Archive.

Richard Rinehart summarizes the identification and organization of the artworks around the complex term, “variable media art”. These works are key to understanding contemporary art practice and scholarship, but because of their ephemeral, technical, multimedia, or otherwise variable natures, they also present significant obstacles to accurate documentation, access, and preservation. (Rinehart, 2002).

The goals of indexing digital art are intertwined with those of its preservation. Problems of “slippage”, where works are produced on obsolescent formats involve the transliteration of the medium itself. Extinct display devices, playback equipment, file storage mediums, and authoring software indicate that the artworks’ preservation ultimately depends on accurate surrogation. Problems of indexing effectiveness must deal with establishing robust descriptive elements in the archival records. The Variable Media Initiative will begin to incorporate primary sources of language for this effort in making contact with living artists, those artists who have had their work exhibited or collected and are still living. Concentrating description on those behaviors, attributes, and perceptual qualities that are not completely dependent on the existing technology for their description, Jon Ippolito, the Guggenheim’s New Media curator is at the forefront of this initiative. “. . .the variable media paradigm asks artists themselves, rather than just technicians and conservators, to imagine ways to outwit the obsolescence that often besets technological and other ephemeral art forms. This approach proposes that the best way to preserve artworks in ephemeral formats, from stick spirals to video installations to Web sites, is to encourage artists to describe them in a medium-independent way, so as to help translate them into new mediums once their current medium becomes obsolete. (Ippolito, 2000)

Rinehart notes the importance of standardized vocabulary to this effort. [The Variable Media Initiative will] “establish a set of descriptive elements which include a core description (catalog record, wall label) that can be used to manage variable media works of art. This set of descriptive elements will be mapped to existing standards for documentation of art, such as the Getty Research Institute's Categories for Description of Works of Art, to enable cross-compatible records which can reside in computer systems which document entire collections, such as museum collection management systems or online public access projects. It is understood that this element set may extend traditional museum cataloging standards by necessarily emphasizing the behavior of works instead of focusing on aspects of their physicality. (Rinehart, 2002)

Generating useful vocabularies is both a collaborative and ongoing effort and also draws upon research in cognitive studies involving the information retrieval of images. Griesdorf and O’Connor reported the results of controlled studies that were done in regards to the successful retrieval of images from a database when subjective themes and content were examined. The problem of having only the artist’s description or title for the end-user is noted.

Their research has organized visual inferences made by subjects during image analysis. What is needed for effective retrieval is more than keyword searching. Descriptive categories for vocabulary generation include the concepts of attribute hierarchies used for non-text retrieval. Aspects of these terms are characterized by these processes of language: Analogical; Color; Metaphoric; Metonymic; Shape; Synecdochic; and Textural. (Griesdorf, O'Connor, 2002). Generating vocabularies for the Variable Media Initiative requires the writing of thesauri as well as updating the existing tools, such as AAT and LCSH (Library of Congress Subject Headings).

The special characteristics of electronic art present challenges to conservators concerned with information longevity. According to Howard Besser, director of the Preservation Studies Program at NYU, electronic works lack fixity, web-based works are often dynamic and pose significant questions as to what is the boundary of a work, and the formal elements of the work (pacing, color, aspect ratio, format, etc.) and may not transliterate accurately. Electronic works also pose a serious challenge of guaranteeing authenticity over time. (Besser, 2000).

The malleability of a digital work means that someone could easily re-edit or eliminate material in a copy and pass this off as the original. The most important challenge facing those trying to preserve an electronic artwork is "What really is the work?" (Besser, op cit)

## **Conclusion**

One must consider the range of best practices that may be used in organizing the collections of recorded data about digital artworks, multimedia works, even "dead media" works, as well as the works themselves.

Chen and Rasmussen point out that particularly for image databases, natural language methods, together with controlled vocabularies, improve the effectiveness of information retrieval. (Chen, Rasmussen, 1999).

According to Amy Warner, "there are two basic places in information architecture where the form of labels and search terms can be controlled and then often organized in some way, usually hierarchically:

- In the navigation scheme, which should use unambiguous labels and where the primary organization is usually hierarchical.

- In the search system, where search terms are selected and organized for tagging content items and searching for them, now usually through a content management system and a search engine." (Warner, 2002)

One can use the controlled language and subject headings for both a navigation scheme and a search vocabulary, often in a reiterative process involving keyword searching.

"Granularity of Description" as it refers to indexes, is seen as a best practice, especially considering the primary goal of preservation. One can put collections up on

the Web as soon as possible and then refine the descriptions later, cataloging items that are similar and making the conceptual groupings large at first. Metadata for these archives may be refined on the fly while the collections are still live. (Besser, 2002)

Granularity of description is about expos[ing] metadata records at the smallest level of granularity appropriate for the resources being described. For many resources, this will be at the single-item level. Item-level description is most appropriate for resources whose individual characteristics are of primary importance to end-users, where the differences between a resource and other similar resources are significant. (NSDL.org - OAI, 2006)

Experimental methods for information science might also benefit by looking at research in the loss of language and the quantifying tests of intelligence used as agents to determine loss of language functionality such as the Boston Diagnostic Aphasia Examination used by Jeni Yamada in her case study of Laura. Also of interest is The Boston Naming Test (BNT), which helps determine the extent of an individual's visual confrontation naming abilities. Here, it is hypothesized that language may be a modular component of overall cognitive abilities. (Yamada, 1990).

The keywords Amazon.com associates with this work, Laura: A case for the modularity of language, which are indexed automatically from the language of the text, intrigue us and point the way to further research in language cognition and indexing effectiveness. Some of these terms might be useful additions to a controlled vocabulary in this case, and in general, in the case of all items that exist alongside their metadata equivalents and human descriptors.

Key Phrases - Statistically Improbable Phrases (SIPs): (learn more)  
sounds recognition test, nonlinguistic abilities, rule abduction,  
operational child, cognitive attainments, liquid quantity,  
imitation tasks, temporal adverbials, developmental psycholinguistics,  
span test, nonverbal stimuli, child language development, syntactic  
development, sequential memory

Key Phrases - Capitalized Phrases (CAPs): (learn more)  
Van Lancker, Cognitive Hypothesis, Auditory Closure, Production Laura, Simple  
Rule Acquisition, Token Test, Visual Retention Test, Correlational Hypothesis,  
Corsi Blocks, Knox Cubes, Visual Sequential Memory, Abilities Possibly  
Controlled, Comprehension Laura, Double Embedding, Magic Show, United  
States, Visual Closure  
([http://www.amazon.com/Laura-Modularity-Language-Biology-Cognition/dp/0262240300/sr=1-2/qid=1165940744/ref=sr\\_1\\_2/102-4378359-9860136?ie=UTF8&s=books](http://www.amazon.com/Laura-Modularity-Language-Biology-Cognition/dp/0262240300/sr=1-2/qid=1165940744/ref=sr_1_2/102-4378359-9860136?ie=UTF8&s=books))

Childhood development studies may also yield useful discoveries. Steven Pinker's research addresses itself to human language learning by developing precise, mechanistic models that are capable in principle of acquiring languages on the basis of exposure to

linguistic data. Such research includes theorems on language learnability from mathematical linguistics, computer models of language acquisition from cognitive simulation and artificial intelligence, and models of transformational grammar acquisition from theoretical linguistics. It is argued that such research bears strongly on major issues in developmental psycholinguistics, in particular, nativism and empiricism, the role of semantics and pragmatics in language learning, cognitive development, and the importance of the simplified speech addressed to children. (Pinker, 1979). It has been found that young children are sensitive to discourse novelty in their earliest productions of language. 24 month old children are also sensitive to discourse novelty in their comprehension and learning of language. These findings are related to the well-known phenomenon of “fast-mapping.” (Akhtar, Carpenter, Tomasello, 1996).

Effective language used in information retrieval may be examined within the context of phrase structure. Aphasic conditions and other developmental abnormalities may show, in their adaptive difficulties, areas for development in standard information-seeking OPAC's. The conception of mind that is separate or specialized but unified is interesting to observe and relevant for general information-seeking behaviors. Although savants have been recorded in many aspects of brain ability, such as in music, mathematics, art, among others, there have been none known or recorded for their special ability with language. Perhaps, future library avatars, of the kind one sees in <http://secondlife.com>, in the virtual 3D library buildings and OPAC's of tomorrow will learn how to answer our questions and help to satisfy our curiosity and retrieve the information we know about and help us discover what we didn't know before.

It is this pattern-based study of language and its application to successful information retrieval that may be useful in considering this topic.

## Appendix

- \* Un petit dessin vaut mieux qu'un long discours.
  - o Idiomatic translation: A picture is worth a thousand words.
  - o Literal meaning: A small drawing is worth more than a long speech.

Fred Barnard

[http://en.wikipedia.org/wiki/A\\_picture\\_is\\_worth\\_a\\_thousand\\_words](http://en.wikipedia.org/wiki/A_picture_is_worth_a_thousand_words)

A picture is worth a thousand words is a familiar proverb that refers to the idea that complex stories can be told with just a single still image, or that an image may be more influential than a substantial amount of text. It also aptly characterizes the goals of information visualization where large amounts of data must be absorbed quickly.

It is often referred to as a Chinese proverb, the phrase has been mentioned through history such as The Russian writer Ivan Turgenev wrote (in 'Fathers and Sons' in 1862): 'A picture shows me at a glance what it takes dozens of pages of a book to expound.'" From "The Dictionary of Cliches" by James Rogers (Ballantine Books, New York, 1985) and later coined by Fred R. Barnard in the advertising trade journal Printers' Ink, promoting the use of images in advertisements that appeared on the sides of

streetcars. The December 8, 1921 issue carries an ad entitled, "One Look is Worth A Thousand Words."

Another ad by Barnard appears in the March 10, 1927 issue with the phrase "One Picture is Worth Ten Thousand Words," where it is labelled a Chinese proverb. The Home Book of Proverbs, Maxims, and Familiar Phrases quotes Barnard as saying he called it "a Chinese proverb, so that people would take it seriously." Soon after, the proverb would become popularly attributed to Confucius

Hakim Bey--

Words are leaves, branches are sentences, mother tongues are limbs, language families are trunks, and the roots are in "heaven"...or the DNA. I call this "hermetalinguistics"--hermetic and metaphysical. Nihilism (or "HeavyMetalinguistics" in honor of Burroughs) seems to me to have brought language to a dead end and threatened to render it "impossible" (a great feat, but a depressing one)- -while Chomsky holds out the promise and hope of a last- minute revelation, which I find equally difficult to accept. I too would like to "save" language, but without recourse to any "Spooks," or supposed rules about God, dice, and the Universe. (Bey, 1991)

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bibliography/pathfinder: <http://www.free103point9.org/studycenter.php>  
free103point9 is a nonprofit arts organization focused on establishing and cultivating the genre Transmission Arts by promoting artists who explore ideas around transmission as a medium for creative expression.  
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