2009

Indexing Trace

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INDEXING TRACE

A Thesis Presented

by

Zachary Eric Smith

Submitted to the Department of Art, Architecture and Art History of the University of Massachusetts in partial fulfillment of the requirements for the degree of

MASTER OF ARCHITECTURE

May 2009

Architecture + Design Program
Department of Art, Architecture and Art History
INDEXING TRACE

A Thesis Presented

by

Zachary Eric Smith

Approved as to style and content by:

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Ray K. Mann, Member

William Oedel, Department Head
Department of Art, Architecture and Art History
DEDICATION:

My thesis is dedicated to all those people who have stood next to me through this whole process. Especially members of my thesis board Skender Luarasi and Thom Long who helped me through the fog.

To my parents whose guidance and tutelage have kept me on the path of education and hard work.

And finally to the person who got me through some of the hardest times in my life with her unrelenting care and strength at the times when I just thought I could not do this anymore.

THANK YOU!
This thesis aims to critically examine the relationship of digital technology and the modern art gallery in order to find the possible role of art galleries in the future. The integration of technology and the modern art gallery can change the way people experience art in built space.

In order to examine this, certain questions needed to be asked. The most important of these questions is authenticity and originality in a digital art gallery. What if, in order for the notion of originality to exist, it needs the notion of the copy; a kind of parasite. What if we don’t consider them as opposites, but rather as variables of a knot. What if there was never an original voice, but only writing. The process of writing itself undermines any notion of a primary original. It creates a space of difference, a gap. The space from one letter to the next, from one word to the next, from the graphite to the paper, and to continue to the digital, the space from 1 to 0.

The difference described by Derrida in *Of Gramatology* is the idea of difference through “trace.” Derrida says “The trace is in fact the absolute origin of sense in general. Which amounts to saying once again that there is no absolute origin of sense in general. The trace is the difference which opens appearance and signification.”

Through a process of language study a series of spatial conditions were derived from a structured
process of analyzing trace.

This series of spatial conditions were then used to design the interior and exterior spaces along with arranging the buildings program and circulation through the new University Gallery. These spatial conditions allowed for a devolvement of space that looked beyond simple geometric forms to form genuine experiences derived from a process.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>PROJECT INTENT</td>
<td>1</td>
</tr>
<tr>
<td>II</td>
<td>NATURE, PAINTING, PICTURE, INTERNET: DEVELOPMENT OF ART GALLERIES IN THE DIGITAL AGE</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Museum and display</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Emerging technologies</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Authenticity in the digital world</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Conclusion</td>
<td>22</td>
</tr>
<tr>
<td>III</td>
<td>INDEXING TRACE</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Trace</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Materiality of trace</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Spatial conditions</td>
<td>31</td>
</tr>
<tr>
<td>IV</td>
<td>NEW UNIVERSITY GALLERY</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Project Site</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Physical</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Architectural</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Building Program</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Design of the new University Gallery</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Site plan</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Floor plans</td>
<td>40</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>Gallery of American ethnology at Chicago Field Museum</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>A period room in the Metropolitan Museum of Art</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>A diagram showing mail system (top) versus email (bottom)</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>MICRO GALLERY interface (left) MoMA interface (right)</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>Trace diagram of Derrida’s Process</td>
<td>24</td>
</tr>
<tr>
<td>6</td>
<td>Diagram of computer framework (left) and art framework (right)</td>
<td>25</td>
</tr>
<tr>
<td>7</td>
<td>Selected images from the word editing process</td>
<td>26</td>
</tr>
<tr>
<td>8</td>
<td>Spreadsheet of the new words and their parts</td>
<td>27</td>
</tr>
<tr>
<td>9</td>
<td>The noise of trace</td>
<td>28</td>
</tr>
<tr>
<td>10</td>
<td>Some of the results of the materializations of trace</td>
<td>30</td>
</tr>
<tr>
<td>11</td>
<td>Spatial conditions</td>
<td>31</td>
</tr>
<tr>
<td>12</td>
<td>Arial image showing site location on campus</td>
<td>33</td>
</tr>
<tr>
<td>13</td>
<td>Fine Art Center</td>
<td>33</td>
</tr>
<tr>
<td>14</td>
<td>SOM building</td>
<td>33</td>
</tr>
<tr>
<td>15</td>
<td>North Pleasant Street</td>
<td>33</td>
</tr>
<tr>
<td>16</td>
<td>Studio Arts Building</td>
<td>33</td>
</tr>
<tr>
<td>17</td>
<td>Rough gallery diagram</td>
<td>35</td>
</tr>
<tr>
<td>18</td>
<td>Digital site sketching</td>
<td>36</td>
</tr>
<tr>
<td>19</td>
<td>Final site plan</td>
<td>39</td>
</tr>
<tr>
<td>20</td>
<td>First floor plan</td>
<td>40</td>
</tr>
<tr>
<td>21</td>
<td>Second floor plan</td>
<td>41</td>
</tr>
<tr>
<td>22</td>
<td>Building axonometric</td>
<td>43</td>
</tr>
</tbody>
</table>
CHAPTER I

PROJECT INTENT:

This project’s intent is to examine the relationship between the built environment and digital technology. Today’s modern galleries look at digital technology as more of an appendage rather than a fully integrated part of a design. The full integration of digital technology into the building system will yield new possibilities for how visitors will experience space. The design for the new University Gallery looks to these possibilities to rethink how people view and experience art by asking questions like, “What if a painting was projected onto the floor and you walk on it?” These questions should not be asked just about traditional mediums but also the possibilities an integrated gallery can hold for the digital artists.

The design process also brings into question traditional design techniques and looks to newer research based design processes. Through this process of designing with the tools the computer offers us as designers we can create spaces that truly embody concepts that previous design processes could not handle.

Using these research based design techniques this project was able to explore varied concepts of difference using language as a model. By using the computer as a tool to study difference the process was able to yield spatial conditions that could then be used to design space.
CHAPTER II

NATURE, PAINTING, PICTURE, INTERNET: DEVELOPMENT OF ART GALLERIES IN THE DIGITAL AGE

Introduction

Modern art galleries and museums are a maze of glass cases, period rooms and white walled caverns, much as they were one hundred years ago when places like the Metropolitan first opened in 1869. This modern labyrinth’s goal was to fit as many pieces of priceless art as possible within a set amount of square footage. For many architects and designers this is the set protocol; as Mitchell puts it a “task of relating wall or cabinet display space, with appropriate natural lighting, to a circulation system that efficiently conducts visitors through the collection.”\(^2\) The only major change is what design philosophy to follow: are you going to design the next Guggenheim in Bilbao like Frank Gehry, or are you going to stick to the more clean modern approach of architects like Louis Kahn at Yale? These overarching design theories have created an exterior based architecture which has driven architects and designers away from the true goal, which is to make a museum that properly displays art.

A design for an art gallery/museum should work with the artist in order to create a space that is conducive to display that piece of art. The physical strategies of display are still important, but in this new digital age it is becoming apparent that these new technologies can offer something more than physical space ever could. The digital technology emerging in today’s society allows designers to create space that is no longer confined by traditional walls. The exploration of this fourth dimension of space and how it relates to art galleries will also enhance the new field of digital art by giving it a place
in galleries that has never before existed. While tackling these issues, the issue of authenticity will undoubtedly need to be answered. This is an issue that could make or break a museum that works in the digital realm.

The word authenticity has several meanings today, the most important of which is what it means for a piece of art being displayed via technological means over the internet, or like digital technologies, to be authentic. The fact that the artifact is not actually present, but is manifested by some kind of pictorial means that is not actually physical, raises many questions. Is the authenticity of the object lowered when it is reproduced digitally? Will people still care about the actual piece of art if they can view it remotely via the Internet? How can a digital representation compare to the actual experience of seeing the actual artifact in its actual physical form? An art gallery or museum that wants to meld these two worlds of the physical and digital must be able to answer these questions with a strategy that takes a stand on authenticity of digital depiction versus a physical object.

The question of authenticity is actually not a new one for museums, especially museums and galleries dedicated to art. Ever since the first painter tried to capture a scene with oil and canvas, the question of whether that scene was authentic or not came into question. With time, perception shifted and that painting was no longer seen as a scene from nature but a physical interpretation of such scene. With the invention of photography, a similar process occurred. Photography became a means of art in itself, in no way inferior to the subject it portrayed but different. This paper contends that a similar process will likewise occur within the digital realm. A digital image will always be viewed as a representation, ultimately never questioning the authenticity of the object it
depicts. The same way nature stayed authentic as it was painted or photographed by artists before so will the objects reproduced from galleries and museums online.

To completely examine this topic, the history of the development of modern art galleries and museums needs to be examined. In order to evaluate the possible roles the digital world can play in the physical infrastructure of this building typology the means of display will be evaluated. This understanding will build the framework of the role of authenticity in regards to digital representations of artifacts on the web. Along the same lines, the role of emerging technologies themselves, especially networks like the Internet, needs to be explored. The further understanding of these networks and the physical history of museums and galleries will provide the basis to discuss digital authenticity.
Museums and display

All museums today are centered around a philosophy on how they will display artifacts within their walls. These theories vary some from place to place, but they are all based around a central idea, which is how to best display an object for an audience so that the piece will retain its authenticity. This idea is unwavering no matter what the museum typology is or time period it was built in; that artifact needs to retain a certain amount of authenticity. Whether the image is authentic or not is important because as Steven Conn says the importance of visual communication in a museum is similar to the importance of written communication in a book. If the piece were to lack a certain authenticity it would not be considered relevant and would not convey the ideas it attempted to when put into the collection. For the value of a piece comes from its authenticity, a piece that does not display its authentic nature is no more valuable than a copy made at Kinko’s.

The popular theories past and present were meant to enliven the artifact’s authenticity by controlling the object’s surroundings. Most early museums went with an approach much like an archive. They would place the desired objects into glass cases then order them on the basis of a typical cataloging system to create a visual narrative. Steven Conn writes, “Museum curators spent considerable time fretting about their cases and considerable resources trying to perfect them. They would worry about proper size, about glare, and most of all how to design cases that kept dust off their objects.” These cases were the centerpieces of this early period of museum display, the world of museums and their design revolved around them. Even the exterior of the museum was affected. It was believed that these artifacts within the cases should be lit mostly by natural light since that was the light they were originally viewed in. The design of the
fenestration of the exterior of the museum was designed in order to get the most natural light to the cases.⁵

The rows upon rows of cases were extremely dull to most people; case after case of artifacts developed a mind numbing feeling as you viewed the galleries. (fig. 1) The eventual downturn of these theories in older museums was caused by this feeling and the general development of a lack of interest resulting in long lasting effects. Conn writes that “the glass cases played a functional role in the object-based epistemology … through the ways in which they organized and shaped museum spaces, [they] encouraged visitors to observe these objects free from too much distracting text and context.”⁶ These cases made the visitors look at these pieces with reference to the objects in the neighboring cases. By being placed next to each other, they created a narrative that led the audience through the exhibit without an overwhelming amount of text. The cases kept this visual sequence in order and became a metaphorical window into that world of the object.⁷

For image refer to:
Museums and Intellectual Life: 1876-1926 by Steven Conn, pg. 7

Fig. 1: Galley of American ethnology at Chicago field museum⁸
Criticizing those museum displays with glass cases packed with objects on top of objects, historian Malcolm Baker says:

Most museums are now more or less large receptacles in which pictures and sculptures are like herrings one above the other. Instead of displays in which the visitor's attention is distracted by works standing too near together and by the general ill-effect of overcrowded rooms, the chief aim should be the greatest possible isolation of each work and its exhibition in a room which, in all material aspects, such as lighting and architecture, should resemble, as near as may be, the apartment for which it was originally intended.9

As the pure use of glass display cases started to wane, museums started to see developments of new theories on how objects should be displayed to help ensure that the authenticity of that object and the space it was displayed in were true. The idea that the space that surrounds an object needs to be as authentic as the actual object helped usher in the new age of period rooms. (Fig. 2) Conn says that period room’s purpose is to create “a new context for museum objects by attempting to recreate the objects ‘original’ context.”10 This is similar to when natural history museums started to create dioramas to recreate scenes to scale that bring people back in time to experience something that may no longer exist. In his book, architectural historian Max Page writes about the importance of dioramas to New York City’s history, he writes “while many of the models seem rigid or fake to today’s sensibilities, early visitors were impressed by their ‘authenticity’ and their ability to conjure up the past events and places.”11 The authenticity that Page talks about being felt by earlier visitors to this museum is very similar to the effect the period rooms were meant to produce.
The use of period rooms became especially important to museums whose contents contained something of historic relevance. For these curators and designers to remove an object like a painting or a piece of sculpture from its original installed location was akin to taking part of a lock out of its mechanism. Without the rest of the lock that piece is useless to anyone beyond a pure esthetic value. Applying these ideas it is possible to see where they are coming from. To them these pieces are useless to the viewer if they cannot view the picture as a whole, a whole scene complete with the appropriate lighting, architecture, and decoration.12

The followers of this new theory felt that the display cases of before had not been properly displaying the artifacts of the museum’s collection. These objects on display had no context beyond themselves, which according to them tells only part of a much larger story they could tell with the context of an appropriate setting. Arthur Edwin Bye describes this eloquently when he says, “the museum is like the stage or screen, for here old memories are made real, and dreams are visualized.”13 While period rooms were being created all over the United States it still was not without a good amount of criticism.
from other museum authorities. A Princeton art scholar by the name of Frank Mather
went as far to say that a museum curator “constructs an artificial chapel to display an
altarpiece, why stop there why not introduce a priest, waxen or in the flesh?” Mather
saw that the artifacts had already lost their original context, so why pretend otherwise?
He believed that all objects needed were proper lighting and a neutral background for
museum visitors to get the proper amount of enjoyment out of the pieces being displayed.
In his mind, the goal of a museum was to display an object for viewers to evaluate the
object as an object without a museum applying a context to it.

The objects which fill art museums are, for the most part, intended as objects of
worship, contemplation, or some combination thereof. Though they have been
removed from their original contexts – be it a cathedral or country house – the art
museum provides a way for those objects to function in largely the same way.

Art museums and galleries are a special case of their own. While they do share
some similar issues with other museums they create some unique situations. Art, whether
it is a sculpture or a painting, tends to tell its own story, one that does not require
narration as an object in a science museum may. This creates a unique freedom in art
museums. An art museum or gallery has much more freedom to display its works. A
series of paintings may be displayed in a long hallway like Boston’s MFA period
hallways. Those same paintings could also be spread throughout several rooms. While
this is so, with art people must keep in mind that from art comes art history; every piece
of art contains a story. When put together that story changes and when a piece is added
the story evolves.
With this freedom comes a lot of responsibility for the curators, architects and designers that take on these challenges. Edmund Barry writes “the artifact holders, or ‘keepers of tradition,’ are central: they provide not only objects but also the initial interpretation of these objects.”17 So while art museums do have more choices than other museums, they also hold onto more responsibilities because how they display the works does affect the audience’s first interpretations of an object. This question becomes very important when the question of authenticity comes into play. “The art museum provides the context for the object inside to retain their authority, where authenticity could be adjusted, and where the historical testimony of the objects could be heard.”18 This is where the question of display becomes tricky. With so many options and opinions on how to display art physically, designing becomes challenging. A piece of work placed in the wrong context or hung under the wrong light can affect the objects authenticity, because it is not what the artist pictured when designing it. Today there may be new answers to these questions about the best course in displaying art. These new opportunities lie in the emerging digital networks and interfaces of the 21st century.
Emerging technologies

“Italian museums are very particular and unique, I believe, to the world: they conserve the history and the testimonies not only of our people, but of the origins of our civilization. They are therefore treated with respect, of course with the real architectural structures, but also, and not superficially, with the 'virtual' management of the project's estate.”

Piero T. de Bernadinis, a prominent consultant to museum curators serves on many European Union boards for digital authenticity, states the relationship between the physical and virtual well. To him these two worlds, the virtual and physical, co-exist, they work to aid each other in order to properly display the object. This is important because museums need to embrace the digital age and not be afraid of the new world offered beyond the physical. This new world, via vast networks such as the Internet, can offer a new audience to see the works collected within a museum or gallery, thus creating a digital archive that will help answer many of the questions museums are faced with in the physical world.

To talk about this relationship between these two worlds, one must first understand these new technologies on a more general level. The Internet as William Mitchell puts it “is ambient – nowhere in particular but everywhere at once.” It is an indefinable space built by a series of zeros and ones that describe packets of data that form destinations. The path from an interface like a computer to a data set like a website is controlled through a process of protocols based on things like network congestion and physical distance. One minute a way to a destination is one path but seconds, even milliseconds later, that path could be completely different. The Internet is redundant and there is no set path; there exist millions of ways to access the same data from the same...
interface. Since there is no set path Mitchell says, “there is no such thing as a better address, and you cannot attempt to define yourself by being seen in the right company.” This world of multiple paths, entrances and destinations contains many aspects unto itself that may be useful to an art museum or gallery. A good example of this can be applied to today’s mail system versus email. When you mail a letter you must address an envelope, and then walk it out to the mailbox and wait for the postman to pick it up. Once it is picked up that letter then travels a set path to its destination, a start and end condition. Today through the power of the Internet your email travels on an ever-changing path, to one or multiple designations. The internet has no set start, end, or path; opening it up to a vast network of opportunities beyond which the physical world can offer. (Fig. 3)

Fig. 3: A diagram showing the mail system (top) versus email (bottom)

The Internet is a vast system of connections; one source leads to another source multiplying the information received from the destination. Marcos Novak writes:
Just as hypertext allows any word in a normal text to explode into volumes of other words, so a hypergraph allows any point in a graph to expand to include other graphs, nested and linked to any required depth. We may, of course, extend this idea to other media to arrive upon hypermedium. We can now make some further distinctions: static and dynamic, passive and active, pure and hybrid. A static hypermedium is one where the links are fixed and can only be changed manually; a dynamic one is one where the links are in some way variable.  

Novak talks about this concept of hypermedium and its nature of connections from itself to other related resources. This idea is important when considering artifacts like art in the digital realm. Art is the perfect example of an object that could fully embrace this concept. Imagine going to a virtual museum and finding a piece of art, then assessing its value through this process. The possibilities are endless; an image could be referenced with a series of reviews, artist’s commentary or similar pieces. These concepts are not new. This is clear when thinking about the early museum theories involving the use of glass display cases, for instance. One of the reasons for their use was that the viewer could compare that piece of art to a similar one to evaluate similarities or differences in order to form conclusions on the piece. This process applied to the Internet allows for the same thing with one difference. The difference being that if the person does not want to compare two pieces of art they could go down a different path, for example they could read a blurb on the artist’s intent then form a conclusion on the piece. This process is appealing because it would remove some of the interpretation put on the pieces of work by the designers and curators of museums and galleries allowing for a freer existence not possible through physical means.
Networks like the Internet also yield other benefits that are not possible by adding a wall, window or door. The Internet has a unique ability through its interfaces to search attributes. Novak writes “attribute-objects can be gathered and sorted by attribute of combination of attributes, and these sorted collections can then be mapped onto coordinate axis.”23 This process when used to find a group or series of objects creates a virtual space where only objects with those attributes reside. This virtual space can be used to apply motion to virtual space. It allows the visitors to browse the objects in any manner they want at any place at anytime; thus allowing the virtual space to have a similar presence to a physical condition found in an existing museum.24

The Internet allows us, as Mitchell says, to “conceive and explore alternative futures. We can find opportunities to intervene, sometimes resist, to organize, to legislate, to plan, and to design.”25 The ability for a user to create spaces within a museum or gallery holds interesting opportunities for a gallery that is totally independent from the traditional worries of the effect of choices made by museum organizers to affect the person’s perception. By allowing a user at the click of a mouse to search a collection by attributes then view them, it is allowing the viewer to choose how they think a museum should be organized to best fit their needs and opinions.

Most museums today only mount about 10%-25% of their collection. Due to restraints put on them by the physical infrastructure the rest of their pieces are put into some warehouse storage unit most likely offsite. These stored pieces may only make it into the museum every 20 years as part of a rotation or special exhibit. The digital world with its limitless amount of space would allow these pieces to be viewed through virtual representation. While these pieces will not be able to be seen as they really are this is
still an opportunity for exposure beyond what they would get if they still had to wait for their turn to be displayed.

Karp speaks of something very similar in his book when he says: “Many art museums depend for their existence of old works by artists of the past. When they do collect or display new works, American museums are likely to receive them as gifts, or purchase them from dealers, or other intermediaries rather than from artists directly.” While he is not talking about existing art in a collection that cannot be displayed he does site another related opportunity. Karp talks about how museums pride themselves on their collections of historic artwork which he sees as keeping museums from bringing in new fresh art from the surrounding communities. With digital integration this is no longer an issue. It becomes a non-issue because this new art does not have to compete anymore with works of the past masters. It now has a place of its own where the physical limitation of wall space is not an issue. This could result in something like the Met now having a place for local New York City artists, which could be a great opportunity for both the museum and the local artists.

The goal for many museums for a long time has been this idea of universal appeal in order to gain the most visitors. Of course this makes sense; the greater the public that is interested in the works being displayed, the more visitors the museum will get. One museum in particular, London’s National Gallery Sainsbury wing, has made an attempt to achieve this. The micro gallery used this technology on a local level. A visitor enters the room and takes a seat at an empty station. The computer at the station allowed you to view all the pieces of the gallery from the comfort of a chair. Then after you were done you could either leave or get a custom guided tour of the pieces of art you determined
you wanted to see. This software allowed the museum goers the ability to create their own unique experience of the gallery by selecting and viewing objects using an attribute based search. This software package and concept by designers at COGAPP has received international praise and now exists in new forms and adaptations in places like the National Gallery in Washington, DC and in its newest and most advanced form at the MoMA in NYC.27 (Fig. 4)

Fig. 4: MICRO GALLERY interface (left) MoMA interface (right)

For image refer to:
MoMA image: http://www.cogapp.com/home/92997576.html
MICRO GALLERY image:
http://www.cogapp.com/home/theResultsmicro-gallery.html

These advances are great on this local scale but this movement has yet to move to the larger scale of the Internet. Imagine if you could visit the MoMA from the comfort of your own couch, looking at Starry, Starry, Night by Vincent Van Gogh. It would be an amazing experience but museums have not reached this point yet, mostly due to apprehension. A popular belief is that by putting galleries and museums online the
gallery will become non-existent, a relic of the past. Curators and museum boards have this vision of the actual works of art losing their authenticity rendering them useless to the public. This will not be the case though as Mitchell writes “the role of museums will shift; they will increasingly be seen as places for going back to the originals.” This process of going back to the originals that Mitchell sees, as the role of the new art museums and galleries is very appropriate. Maybe the role of museums will shift but the fact that you cannot replace the authenticity of an actual piece of art with a photograph online will allow museums to continue to prosper and even in some cases grow in numbers of annual visitors.
Authenticity in the digital world

This is not a question without precedent. Every time new medium for reproduction is discovered this question arises: How does this reproduction affect the authenticity of the object? There was once a time before VHS format tapes or DVDs where movies were only shown in theaters. When tapes started being created in the late 60’s early 70’s the movie industry was unsure of the effect they were going to have on the movie theater industry. They pictured a world much like the one art galleries and museums picture today; a world where a person would no longer go to view a movie in a theater. They thought that no one would go to see a movie when you could watch one in the comfort of their living room. As everyone knows today this is not the case; even in an age with Blueray and high quality equipment that could rival, if not outdo a theater, people still pack the movies on Friday nights and weekends. If anything the devolvement of VHS and higher quality playback formats have made the movie industry more money than it ever could have made without them.

In principle a work of art has been reproducible. Man-made artifacts could always be imitated by man. Replicas were made by pupils in practice of their craft, by masters for diffusing their work and finally by third parties in the pursuit.28

Walter Benjamin writes this in his essay titled The work of art in the age of mechanical reproduction in 1935, far before the days of digital reproduction. What he does talk about and what is important here is the process of reproduction and an object’s ability to be reproduced by others. People tend to be very accepting of copies, Lowenthal writes “much as most of us know the Iliad and Bible only through translation, so our awareness of the tangible past is based mainly of copies, reflections, and subsequent impressions;
most people not only can tell originals from the replicas, they are pleased with the latter. The copy reflects the past no less than the original.” People know that the bible is not the original and that is fine; they are not in search of the original, what they are in search of is what it represents. The scripture within it is what is important, not the object. If an original bible still existed somewhere, people would still view the copies in the same way, for the bible is the bible even with millions and millions of copies around the world. If the original bible still existed, it would still be viewed as the original with all of its original authenticity intact. People are aware of the nature of copies. When they look at that copy of the bible they know it is not the original and with that knowledge the authenticity of the bible is preserved.

In art this question is very complicated because much of the value in a piece of art is linked to it being authentic. The scenic painters with their oils and canvas were some of the first to face this question. There existed an early goal with these painters to replicate nature just as it was seen in actuality. Rich nobility would hire painters to go across their lands in order to have them capture images from all across their property. They would then hang these paintings across their courts so they can look upon the farthest corners of their lands. In this arose the question, is this painting authentic and it was actually an issue for a short while. But as Orvell writes “cultivated minds do not require to believe they are being deceived, and they look at actual nature, when they behold a picture representation of it.” This is important because it illustrated a switch in thought about painting and representation. As painters started to see that the public would not view their pictures as authentic nature, the freedom of interpretation broadened. Today if a person went to the MoMA in NYC they would not look upon
Monet’s Lilies as an actual pond with water lilies; they see it as Monet’s representation of what he saw in that scene he was painting.

While the process through scenic painting may seem simple and logical, the evolution of photography is more confusing and more applicable due to its nature of reproduction. The nature of a photograph is to capture an already existing scene or object and reproduce it in a 2D format. When photography came onto the scene it became a target due to its reproductive nature. Photographers and advertisers peddled the message of being able to see the West in their living rooms or see the thrills of Africa without even leaving your couch. The pitch these photographers used to sell their images set them up for the question of authenticity.

What could not be owned outright, given limitations of space, time and money, could be encompassed by a surrogate ownership in which photographic images brought a vast cyclopedia of world culture and symbols into the eye of the parlor, making the American a connoisseur of replica experience.\(^3\)

The experience that Orvell writes about becomes the reality of a photograph for many people. This replacement of authentic real objects with pictures was troubling to most. The fact is that the image’s goal was not to recreate what was there. Walter Benjamin writes:

The whole sphere of authenticity is outside technical – and, of course, not only technical – reproducibility. Confronted with its manual reproduction, which was usually branded as a forgery, the original preserved all of its authority; not so vis a vis technical reproduction. The reason is twofold. First, process reproduction is far more independent of the original than manual reproduction … Secondly, technical reproduction can put the copy of the original into situations which would be out of reach for the original itself. Above all, it enables the original to meet the beholder halfway, be it in the form of a photograph.\(^3\)
The photographers goal was to place the image in a world that was somewhere in between the world of reality and art. The place in this in-between shifts but what is important is that the picture is still a representation; it is not or never will be nature. People slowly started accepting these images as a representation and realized that a picture does not replace the actual experience of the scene or object. This shows that the value of the subject is still relevant.\textsuperscript{34}

Digital images being displayed over a network is still a relatively new concept since the technology is still developing to a point where it is possible. Authenticity comes into question here beyond the act of reproducing the artifact. The fact that the image is obtainable from anywhere at any time raises new issues. If a gallery were to put its whole collection online to be viewed in 2D or 3D, the reaction has been then why would visitors come to see this piece in real life? The truth is that the image does not affect the object, in an analogous manner as has been seen with painting and photographs. The fact is that, as shown, when something new emerges, the question of authenticity comes up. In the end the image cannot change the feelings felt when you are in the actual object’s presence. Just like the movie theaters felt when the VHS came out, the gallery feels threatened about its images going online. This is a process; a necessary one to make the leap and for others to follow. It will then become apparent that the question of authenticity and digital reproduction is a nonissue.
Conclusion

Authenticity and the questions surrounding it have had a long history. As author Dider Maleuvre writes the “Modern consciousness, it seems, begins to worry about authenticity only when the social economic, and political upheavals of revolution, war, and, later, industrialization started liquidating the genuine and perennial.”35 Along with these changes the question of authenticity is brought up when authenticity itself is questioned. Like the painters and photographers before challenged nature’s or other physical object’s genuineness, so does digital representation over the Internet.

People are hesitant to change, especially when it comes to changing a whole belief that has been laid out for years. Curators and designers should not view the digital environment as a challenge to their sacred artifacts but an opportunity to help showcase them. This topic has much precedent that confirms these conclusions, from the process of evolution of the scenic arts to the movie theaters. It becomes evident that new methods of representation do not challenge authenticity, but are new tools for the world to use to actually increase the authenticity of their treasured artifacts.

When we think of museums we should not just picture the mazes of glass cases, period rooms and white walled caverns as it was one hundred and fifty years ago when places like the Metropolitan first opened. It is time for museums to take their displays online so the little boy or girl researching a piece of art in some far off country has the opportunity to see it. The digital networks that are growing at a steady rate around the globe should not be seen as a replacement for the galleries but an extension of their reach and abilities to touch an audience never before considered. This expanding audience can only help a gallery because there is no way to reproduce the physical experience. The
Internet is an opportunity to show a piece of a gallery, an introduction of sorts, but it will never be a replacement. The process like its predecessors has now extended the progression from nature, to painting, to photography and now to the Internet.
CHAPTER III
INDEXING TRACE

Trace

What if, in order for the notion of originality to exist, it needs the notion of the copy; a kind of parasite? What if we don’t consider them as opposites, but rather as variables of a knot? What if there was never an original voice, but only writing? The process of writing itself undermines any notion of a primary original. It creates a space of difference, a gap. The spaces from one letter to the next, from one word to the next, from the graphite to the paper, and to continue to the digital, the space from 1 to 0.

The difference described by Derrida in *Of Grammatology* describes the idea of difference through “trace.” Derrida says “The trace is in fact the absolute origin of sense in general. Which amounts to saying once again that there is no absolute origin of sense in general. The trace is the difference which opens appearance and signification.”[^36] Derrida is saying, in essence, the concept or the idea in his case being communicated is always the same no matter if it is written or being spoken. In his mind there is no first or second question. What makes the difference is this idea of trace. Trace is the action that creates difference; trace is the action that makes writing different then speaking. (fig. 5)

[^36]: Derrida, Of Grammatology
This idea can then be applied other things too. For example if you think about digital technology its essence is its code. All this code is a series of 0’s and 1’s and, no matter what the digital technology is from a computer operating system to the program this thesis is being typed in, it is all made up of zero’s and one’s. So, using the framework set forth by Derrida, you can look at digital technology as all the same. (Fig. 6) To take this a step further you can also see this in art. All art is based on an idea; this is evident because a sculpture, painter, and dancer can all talk about love in the same way but each one of those pieces is going to be different. It is this trace or action used by each artist that makes their pieces different. (Fig. 6)

A theoretical framework can only take you so far in design of a building. In order to move this theory forward it was necessary to study material in order to see how the trace or difference would materialize. To do this a simple word organizing program was used called Wordle.\textsuperscript{42} By inserting my original research document into the program, it
gave me a result making the most repeated words bigger and the words that appear less smaller. With this result I could then take the most used words and replace them with definitions of those words and then re-run the process over. This process can be repeated over and over altering the result and in turn altering the original document but not changing its essence. (Fig.7)

As this process continued Microsoft Word’s find and replace command started to create new words by merging words, deleting spaces, and inserting words into others. These words that Microsoft Word started to create was the essence of the document because it was an act of combining like parts to create new words. With these new words the next logical step is to look at these common parts in some sort of indexing structure. The first way that these words were looked at was simply by just seeing what words made up each of these new words in the form of a spreadsheet. (fig. 8)
This word indexing grid allows us to see what is happening within the word but does not illustrate the connections well. The connection between the words is what is important because trace is found in the act of combining these words. Since trace is a verb it is something that cannot be seen so we must look to find what is leftover. These leftovers can be thought of as the noise of trace. This noise is much like the ripples on a pond when the wind blows because you cannot see the wind but you can see its affect on the water through the ripples it creates when it blows. In order to find this noise these new words need to be indexed graphically. To arrange these words the new words they were put back into Wordle, which arranged and ranked the words based on how many

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Fig. 8: Spreadsheet of the new words and their parts.
times they were used, like it did earlier in the process. Then by connecting the common parts of the words you can start to see visually how the words are connected. To add more depth and complexity to the study of the noise of the trace line weights were added. The more connections the thicker the line connecting them is. (Fig. 9) Then by removing the words you are just left with the resulting noise of trace.

![Fig. 9: The noise of trace.](image)

28
Materiality of trace

While the process is yielding visual results; the process still has yet to yield results that one could design with. In order to get a result that one could design with the process needs to yield an image with an architectural materiality. The next step in the process is then to find the materiality of trace.

One could see the noise of trace shown in figure 9 to be an alphabet. Within this image each line can be considered a letter and when certain lines or letters are chosen it creates words. So, in taking this idea, it can be applied to certain types of building materials—in the case of this thesis fiberglass, plastic, wood, and carbon fiber. By using images of these materials you can select the lines that resemble that image. (Fig. 10)
In many ways these can be thought of as written stories being told about these materials. With these written stories you can create a surface that can be looked at spatially. All the lines in the written stories can be seen in a three-dimensional field, the thicker the lines, the closer they are in that field. Using the lofting function you can then create a singular surface. From that surface, sections can be taken to describe the spaces created by the materialization of that piece of trace. (Fig. 10)
Spatial conditions

By referring again to figure 10 you can see how these sections can take on certain spatial qualities. These spatial qualities could create an interesting departure point in the initial process to carry onto the design of a building. Seeing its promise as a departure point, it became time to look at the program and spaces that need to happen in the building. By looking at these, it is possible to describe spatial experiences that then can be found in the architectonic language in figure 10. The spatial conditions chosen for this program were liquid, friction, crisscrossing, stacking, and capturing. These can translate into programs in many ways, for example, a capturing condition can be thought of as an entrance. Once spatial experiences were chosen you can then go back to the architectonic language and group those sections into and then loft\textsuperscript{43} them to create a single surface that contains characteristics of those sections. (Fig. 11) These new spatial conditions can be used to design the spaces of the building much like designers and architects of previous generations used traditional geometric shapes.

Fig. 11: Spatial conditions
CHAPTER IV
NEW UNIVERSITY GALLERY

Project Site

Physical

The site selected for this project is located along North Pleasant St. in Amherst, MA. (Fig. 12) This piece of land is currently the location of two University of Massachusetts fraternities and has been targeted by the University for acquisition since it is not currently owned. While the site is not owned it is already serviced by the university physical plant and the site uses campus steam for heating. The fact that the site is already on campus utilities makes it attractive because the site would not have to be connected to the campus system.

This site also has many advantages due to its relative location to other buildings. The layout of the campus is relatively broken up into academic areas. This section of the campus where the site is located is next to the two major art buildings on campus, the fine art center and the new studio arts building. (Fig. 12)
Fig. 12: Arial image showing site location on campus

Fig. 13: Fine art center

Fig. 14: SOM building

Fig. 15: North Pleasant Street

Fig. 16: Studio arts building
Architectural

Many people see the site as a pristine condition, but one should argue that a site is a place which has had forces both natural and unnatural acting upon it over thousands of years. That is why architecture is just a one moment in a long chain of creation, adaption, destruction, re-construction. Keeping this in mind this project looks to be that next step in the re-construction of the site.

In order to reconstruct the site the first step was to evaluate the site for potential programmatic conditions. These programmatic conditions can be things like where would an entrance condition naturally occur. Then by going back to the spatial conditions yielded from the study of trace the programmatic conditions can be replaced with spatial conditions. (Fig. 11)

This merger of spatial conditions will yield a rough diagram for the new art gallery. (Fig. 17) In order to examine this diagram it is possible to analysis it using traditional site analysis tools like contouring to see what this diagram is revealing in the site. These contours will show the programmatic complexities in the site and start to reveal things like densities and enclaves. (Fig. 18) The contours when overlaid form the basis of the design for of the new University Gallery.
Fig. 17: Rough gallery diagram.
Fig. 18: Digital site sketching
## Building Program

<table>
<thead>
<tr>
<th>Area</th>
<th>Square Footage (approx.)</th>
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<tr>
<td>Galleries for temporary exhibitions:</td>
<td>8000 sq. ft.</td>
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<td>Gallery Space for temporary exhibits being shown at the gallery.</td>
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<tr>
<td>Galleries for permanent collection:</td>
<td>4000 sq. ft.</td>
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<tr>
<td>Gallery Space for permanent exhibits being shown at the gallery.</td>
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<tr>
<td>Collection storage area:</td>
<td>4500 sq. ft.</td>
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<td>Storage space for parts of the collection that are not currently being shown. Also space to stage upcoming exhibits.</td>
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<tr>
<td>Collection Study:</td>
<td>500 sq. ft.</td>
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<td>A space for students and researchers can come to look/study a piece not on display.</td>
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<td>Collection Maintenance:</td>
<td>1000 sq. ft.</td>
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<td>An area to maintain the works in the collection also a work shop to build displays for gallery.</td>
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<td>Offices:</td>
<td>1500 sq. ft.</td>
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<td>General office space.</td>
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<td>Conference room:</td>
<td>300 sq. ft.</td>
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<td>Kitchen:</td>
<td>300 sq. ft.</td>
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<td>Standard kitchen space, also suitable for support of caterers.</td>
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<td>Restrooms:</td>
<td>500 sq. ft.</td>
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<td>Standard restrooms including staff restroom.</td>
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<td>Lecture hall:</td>
<td>1600 sq. ft.</td>
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<td>Space to give lectures also designed to support classes like art history classes that want to lecture on the collection.</td>
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<tr>
<td>TOTAL SPACE:</td>
<td>22,200 sq. ft.</td>
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Design of new University Galley

Site Plan

The building and its relationship to the site is inherent in the building’s design because the spatial diagramming (Fig. 17) and digital site sketching. (Fig. 18) The fact that the spatial conditions were laid out on the site to highlight the site’s potential makes the building design unique to that site, and makes the site essential to the experience of the building.

The building is aligned to capture people from the main pedestrian and vehicle axis through the center of campus. This alignment allows for the building to naturally pull people in off the street increasing the building visibility to the campus community and outside public. Friction spaces were put up against the road to create a buffer to ease the friction between the road and the galleries, while the liquid spaces that hold the main galleries were placed on the inner side of campus to allow use of the diverse lighting found on that site. Crisscrossing and stacking conditions were used in the middle to form the circulation and capturing conditions were used on the ends creating entrances off the road. (Fig. 19)
Fig. 19: Final site plan.
Floor plans

The buildings floor plans were roughly planned through the digital site sketching process (Fig. 18), which revealed areas where the program could fit, and the flows of the spaces that can work as circulation. Working with the digital tracing and the spatial conditions the floor plans were created. (Fig. 11)

Fig. 20: First floor plan

Floor Plan key:
1. Upper Gallery
2. Lower Gallery
3. Main Lobby
4. Lecture Hall
5. Kitchen
6. Restrooms
7. Office
8. Loading Dock
9. Work Shop/Storage
10. Storage
Fig. 21: Second floor plan

Floor Plan key:
1. Upper Gallery
2. Lower Gallery
3. Main Lobby
4. Lecture Hall
5. Kitchen
6. Restrooms
7. Office
8. Loading Dock
9. Work Shop/Storage
10. Storage
Axonometric

The new University Gallery is a complex system composed of two building skins creating the main galleries and concrete site walls that hold auxiliary programs emerging from the ground. The main gallery is composed of two skins; the exterior skin being a smart skin composed of modular panels. Each one of these panels hold a 5’ x 5’ piece of electrochromatic glass. This piece of glass can be either opaque or transparent depending upon whether or not the gallery needs more or less light. This control will give the gallery precise control of how much light is coming into the space. Holding up this skin is a series of smart ribs. These ribs are not only structure but they also hold all the electronics for the gallery and have tracks that support extra lights and the digital projectors required to achieve the interior experience desired. The inner most skin is a white canvas membrane. This membrane serves three functions, the first being it defuses the light coming in through the panels creating more of an ambient light. The second is it creates a softer more free-flowing space. The last and the most important is it creates a projection screen for the art being projected in the gallery. (Fig. 22)
Elevations

Fig. 23: North elevation

Fig. 24: East elevation

Fig. 25: South elevation

Fig. 26: West elevation
Sections

Fig. 27: Section A (Reference fig. 20 for section lines)

Fig. 28: Section B (Reference fig. 20 for section lines)

Fig. 29: Section C (Reference fig. 20 for section lines)
Interior Perspectives

The interior of the building is where many of the original shaping concepts come alive. The questions about how can a building shape how art is experienced and the opportunities offered by digital technology are asked. By using digital projectors projecting onto the interior canvas of the main gallery sections, traditional and more modern digital art is questioned by reshaping the experience of seeing art on different surfaces, angles, and orientations. The use of digital technologies will also open up the doors to bringing new collections like the MoMA’s or Met’s to Amherst in form of digital representations within the gallery. (Fig. 30 and 31)

Fig. 30: Interior perspective of lower gallery space.
Fig. 31: Interior perspective of upper gallery.
CHAPTER V

RESEARCH AND DOCUMENTATION

Precedent Studies

Guggenheim Museum, NYC: Frank Lloyd Wright

"Entering into the spirit of this interior, you will discover the best possible atmosphere in which to show fine paintings or listen to music. It is this atmosphere that seems to me most lacking in our art galleries, museums, music halls and theaters." Here architect Frank Lloyd Wright, the architect for the Guggenheim, talks about a switch in museum design from the tradition museums of the past. Wright talks about this idea of atmosphere and, with his design, asks the question of what is the appropriate atmosphere for a museum. The Guggenheim signaled a switch in museum design where designers and architects started to ask the question of what is the best space for art to be displayed. The new University Gallery at UMass Amherst looks at this same question but looks at it paired with not only how space can influence how art is experienced, but also how technology changes the experience.

Architect Frank Lloyd Wright designed the new Guggenheim gallery in 1956 with construction finishing in 1959. Wright’s museum changed the way people thought about museum by merging the gallery space with the buildings circulation space. This merger allowed for a free-flowing movement throughout the galleries niches where the art is displayed. (Fig. 32)
This merger and consideration of the process of patrons through the gallery worked as an example for how the liquid spaces in the new University Gallery could function by blending the circulation and the gallery space in order to create a liquid or flowing condition.

The form of the Guggenheim also worked to illustrate this movement to the outside facades. The ramping forms of the space create an exterior that moves just like the interior. This feature of the design also became important to integrate into this design. The importance of this lies in the fact that the exterior should move as the interior does creating a harmony appropriate in a design like this. (Fig. 33)
Fig. 33: Diagram showing relationship of circulation and gallery space to the inside and outside of the building over a building section.
Austrian pavilion at Expo 2010: Spanand Zeytinoglu

Spanand Zeytinoglu worked with the idea of “the embodiment of the sonic conditions within the space manifest the architecture of the pavilion.” 38 This project was very successful in creating a building that redefines how we experience mediums, in this case music. The pavilion served as a precedent for those reasons and helped to redefine the new University Galleries spatial experience.

The first time this building became a useful precedent was seeing how the designers took an abstract idea and turned it into a buildable and functional space. Working with this process they created a space that works from within the topological body, from the main space, the audience chamber, to the exterior. This process created pockets that include the rest of the program, such as a shop, restaurant, office, VIP area and so forth. Each of these programmatic areas includes qualities connoted with the quality of living within Austria.

For image refer to:

Fig. 34: Exterior model of the pavilion.39
The most important thing coming from this pavilion was the idea of people experiencing space and how space can affect people’s reactions to what is happening in the building. This idea became a catalyst for the project; creating questions about how space can change the way people see art. What if a painting is placed on the ceiling or floor? What if that same piece is stretched over a sharp corner? In the world of digital technology these questions can be asked using digital projection and the building’s interior and exterior surfaces. (Fig. 36)
Fig. 36: Interior rendering of pavilion. For image refer to: http://www.dezeen.com/2009/04/09/austrian-pavilion-at-expo-2010-by-span-and-zeytinoglu/
Bernard Cache's book, *Earth Moves*, conceptualizes a series of architectural images as vehicles for two important developments. First, he offers a new understanding of the architectural image itself. Following Gilles Deleuze, he develops an account of the image that is nonrepresentational which constitutes a primary image. Second, Cache redefines architecture beyond building proper to include cinematic, pictorial, and other framings. Complementary to this classification, Cache offers the Deleuzean architectural development of the "fold," a form and concept that has become important over the last few years. For Cache, what is significant about the fold is that it provides a way to rethink the relationship between interior and exterior, between past and present, and between architecture and the urban. This idea of the fold is best embodied in the idea of the mobius strip. The mobius strip is a single folded sheet that inverts itself create a condition where the inside is outside and vies-versa.42 (Fig. 37)
These ideas, especially the ideas about the fold, became very important in the development of my project. This idea of what is inside or what is outside became very important to the project in more ways then physical inside and out. You can use these ideas in thinking about art and authenticity and the relationship between a digital copy and an original piece of art. These ideas also lead to the exploration of difference through Derrida’s concept of trace, which, in the end, was the main catalyst for the design.
Final Boards

Fig. 38: Board 0, project description
Fig. 39: Board 1, process board
Fig. 40: Board 2, site plan board
Fig. 41: Board 3, floor plan board
Fig. 42: Board 4, elevation board
Fig. 43: Board 5, section board
Fig. 44: Board 6, technical board
Fig. 45: Board 7, render board
Notes and Citations:

4 Conn, 6.
5 Conn, 7.
6 Conn, 6.
7 Conn, 8.
8 Conn, 7.
10 Conn, 228.
13 Conn, 228.
14 Conn, 229.
15 Conn, 228.
16 Conn, 230.
18 Conn, 194.
23 Novak, 236.
24 Novak, 231.
26 Karp, 107.
31 Orvell, 82.
32 Orvell, 73.
34 Orvell, 85.
42 Wordle is an online word organizing program created by Jonathan Feinberg. The web address is http://www.wordle.net/
43 A 3D massing command that takes several lines in a three-dimensional field into a single surface. Image provided by Google Earth.
BIBLIOGRAPHY


