

Geek Graffiti

A study in computation, gesture, and graffiti analysis

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TO ANONYMOUSLY REPORT
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PARA REPORTAR
CONDICIONES PELIGROSAS
EN UN SITIO DE TRABAJO

DOYLE
Gangly

Evan Roth

Geek Graffiti

A study in computation, gesture, and graffiti analysis



「へ」の極端に短かい横画は意表
をうけて変化の美を出している

「悲」の長い横画は流動
感に変化を与えている

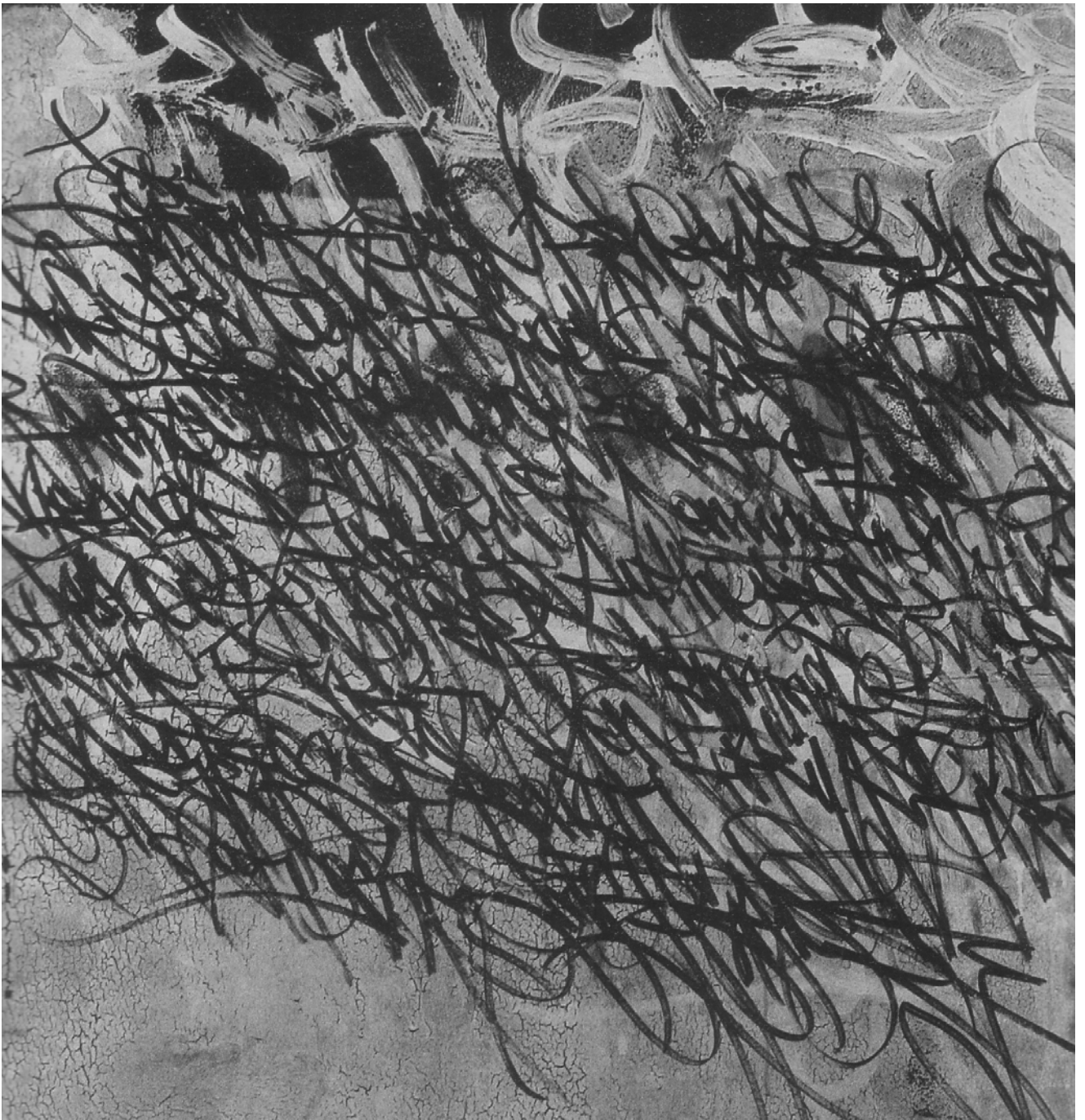


Fig. 01, Ease, 2002, as published in *Urban Calligraphy*, p.033

But when a Phoenician had taught men how to paint the spoken word and capture the fugitive voice with a few strokes, a vague uneasiness began to be felt by those who were getting tired of working for others; and at the same time there developed a monarchic dedication among those who insisted at all costs that others work for them. The first written words were liberty, law, right, justice, reason; and from then on, it became increasingly evident that this ingenious art would continue to chip away at privileges and emolument. From that time may be dated the anxieties of men in high places, the courtiers.

Paul-Louis Courier, Letter dated March 10, 1820, as published in *The Written Word*, 1961

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Abstract:

Graffiti Analysis makes visible the unseen movements of graffiti writers in the creation of a tag. Motion tracking, computer vision technology and a custom C++ application, record and analyzes a graffiti writer's pen movement over time. These gestures are processed and used to produce algorithmically generated digital projections which appear at night in motion on the surfaces of buildings in New York City. Relationships are created between analogue and digital graffiti styles, forming a link between traditional graffiti, experimental street art and new media. Graffiti is represented in the language of information analysis, offering a system for greater understanding of a highly coded form of creative expression.

Introduction

If everyone in the world knew what real writers know about what you can get away with, the world would be a different place.

Amaze, in an interview published in *All City*, by Paul 107

Graffiti is an important part of urban human communication that is often marginalized. It is a raw form of self expression divorced from regulation, curation, and control, and is a phenomenon evident in varying cultures from cave paintings to Roman baths, to the F train. Despite most government's best efforts at elimination, graffiti is innately tied to the human condition and will continue to be prevalent in urban centers, constantly adapting to the realities of nature, economics, technology, and law enforcement. Imagine New York City without graffiti. What would it be like to walk through the Lower East Side without the dripping silver and black writings on red doors? Would it continue to be the 'Lower East Side'?



Fig. 02, Canal St. and Greene, NYC

Graffiti is an important, and in many cases healthy voice in urban environments. As advertisers continually struggle for more and more space the visual landscape of many cities is being drastically altered. In most cases it is not the local businesses but only the multi-national

corporations that can pay the high prices associated with large scale urban marketing campaigns. This is a potentially dangerous situation where local inhabitants have little control on the look and feel of their own streets. Graffiti artists often talk about their practice as a way of re-claiming public space. SWOON states that "...if this space is being sold to address the public then the space becomes public space." It is important for artists and residence to play an active role in creating their own environments.

Swoon, in an interview with
gammablablog

As hardware and software become cheaper and more approachable the possibilities for individuals to rival the quality of advertising agencies becomes a possibility. Individual street artists, such as Shepard Fairly with his OBEY campaign, have become equally if not more recognizable than many highly funded advertising campaigns. In a recent visit to Beijing I found an OBEY T-Shirt in a locally run clothing store, not all brands can claim such international recognition. This phenomenon has begun to happen on the internet as well where highly creative and talented people design and produce a website which attracts the attention of millions of people. Craigslist, Napster, and Wiki-pedia are just a few examples of individuals harnessing technology to the point of competing with powerful and wealthy organizations. As access to cheaper and more powerful computing systems continue to increase, the potential for the home computer as a tool for creating art in the public realm will be further explored. Creative people making things for free are beginning to compete with wealthy companies making things for profit.

Having a love for design, technology, free expression, and the urban environment I am in a unique position to combine the realms of computing and graffiti. Many people with design and programming skills are lured to the dark side by promises of salary and health insurance. I wish to fight on the side of good in this battle to take back our cities visual landscape. By melding the technical language of code with the visceral language of written graffiti, I aim to reach the attention of city dwellers that have become numb to the relevance and beauty of the writing on the walls. The transformation of written graffiti tags into a new and unexpected digitally augmented form may allow it to be looked upon with fresh eyes. Because graffiti is threatening to corporate and governmental control of space they have branded it as 'gang related,' 'vandalism,' a 'quality of life offense.'¹ By digitizing the written form and re-presenting it in an analytical, thoughtful, and expressive way these stigmas recede into the background creating an environment where the viewer is free to explore form and content un-tainted. In analyzing the shape and

¹ 'Quality of life offense' is a term used heavily by New York City republican Mayors in reference to Graffiti. Ed Koch championed the phrase during the 1980s and set a new precedent for highly funding anti-graffiti prosecution and removal.

motion of traditional written graffiti I am creating a new technology oriented style of urban street art.

Motivations

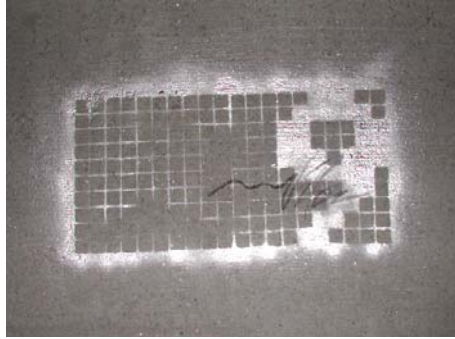
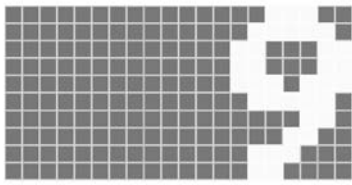
My first experience of graffiti was drawing on my parents' wall with a crayon, aged 8. I knew it was wrong but it seemed so much more exciting than the colouring books that I knew I could draw in.

D-Face, from his intro to *the Art of Rebellion*.

MY PATH TO GRAFFITI

I am in a rather unique position in coming to graffiti from the web. Many graffiti writers have gone on to become web designers, but I think very few (if any) web designers have become influential graffiti artists. Creating personal work for the web and graffiti within the city have much in common. In 2000, I took on the web identity ni9e (<http://ni9e.com>). This space on the web was for me to be able to create work that was free of anyone else's input, and was intended to simply share ideas with others. I started the site as a reaction to the creatively draining experience of working for the first time within an architectural studio. The new medium of Flash and interactivity brought a notion of freedom in design without the baggage of hundreds of years of standards and precedents found in architectural practice. Free of budgets, committees, and clients ni9e.com became the after hours focus of my creative work. My days were spent drafting in AUTO CADD, but my evenings and weekends were spent working on ni9e.com. The site was not intended to bring in freelance work, be an online portfolio, or attempt to sell anything; it was very simply a place to create work in a truly free environment.

It was not until I moved to New York City in 2004 and began viewing and creating graffiti that I felt this creative freedom in another arena. In studying under Scott Patterson in a graduate studio I was encouraged to create new media projects with the only constraint being that they show up in some form in the city. I began experimenting with mixing code with graffiti and have never had so much fun.



I experimented in creating pixel based spray paint tags designed in customized flash applications,

Fig. 03, Manhattan Bridge



Fig. 04, Hacked Flash Manual

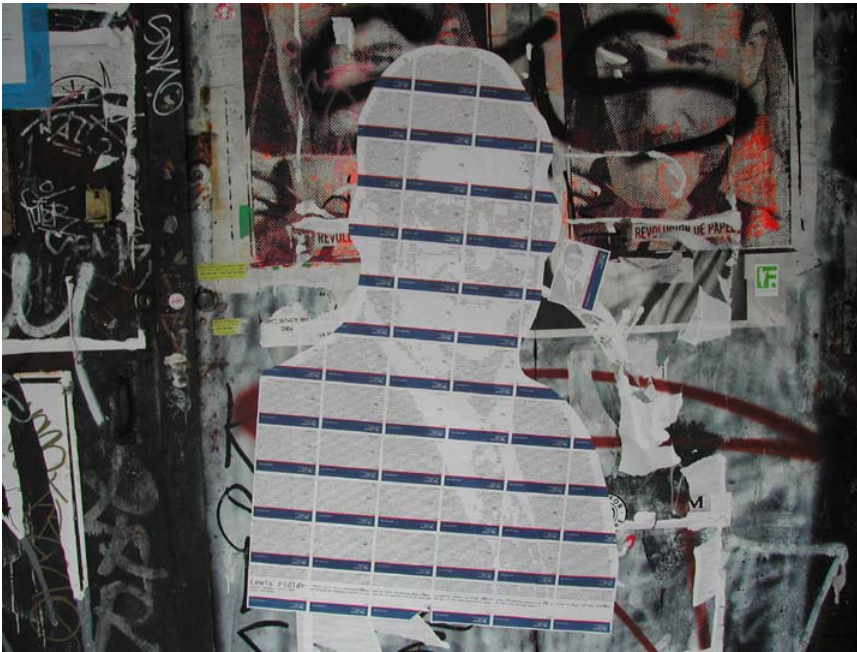
carving hacker team tags into the program manuals of the software they had cracked,



Fig. 05, 13 st. and 6th Ave.

and making graffiti tags written entirely in HTML code. It was all very nerdy but I began to feel that that I was onto something.

The duality of sitting behind a desk and writing code and walking around the city at night with a roll of posters was such an exciting mix of activities that I was immediately hooked. The first large scale project I created in this new genre was All City Council; a street art project and C application which renders the images of NYC council members in ASCII text composed of the anti-graffiti legislation which they drafted.



The final output was large format prints which appeared on or near council member's offices, and accompanying video documentation on the web. I remember being excited that this piece, unlike other screen based work I had done previously, felt truly *multimedia*. The term multimedia took on a totally new meaning for me, where the code I was writing turned into something I could touch and watch weather on the walls of the city over time. This genera, which I refer to as *geek graffiti*, felt totally unexplored and ripe for experimentation. I have created several street based projects since, and plan to continue working in this realm in the future.

Fig. 06, Lafayette St., NYC

DISSENT

An initial interest in graffiti springs from a more general interest in non-violent dissent, activism, and non-conformity. There is an anecdote in Kalle Lasn's *Culture Jam* which remains vivid in my memory after having read it many years ago. Lasn, the creative force behind Adbusters magazine and Buy Nothing Day, tells a story about parking his car in a large suburban shopping complex. Not only is the sprawling concrete parking slab unfriendly to the eyes and difficult to

walk through, but it was metered. In a moment of frustration and exasperation at the thought of paying to park in such an environment the author bent a quarter and shoved it into the meter. While this admittedly was not a thoughtful action that might cause the shopping center to reevaluate their parking system, it was an honest emotional reaction to a flawed system. In a society in which many such flawed systems exist I feel that more of these gut reactions are in order. Cut up your credit cards, toss the TV out the window, rip down the advertisement above the toilet, turn off the televised advertisements in the checkout lane, write "return to sender" on every piece of junk mail, and bend the quarter before you stick it into the meter. While these all may not be appropriate reactions all of the time what I find important is to allow oneself to express discontent when it is appropriate. Graffiti is an example of this type of reactionary yet creative outlet which focuses frustrations into a visual form.

In a culture where corporations are gaining more and more governmental influence, and consumption is being spread as a new religion, creative dissent should be not only tolerated but applauded. Despite what the letters of a graffiti tag may spell, on a macro level they are all saying the same thing. All graffiti on one level shouts "This is my city, and I will put my work wherever I wish." In his book *Aerosol Kingdom*, Ivor Miller states:

a pervasive theme in my interviews with writers was their anti-authoritarian stance. To burn, to bomb, to be stylistically unique while building off received forms were ideals. Not to conform, sell out, or passively resign were other ideals.

Miller, *Aerosol Kingdom*

The act of graffiti fosters the creative production of art as well as a mentality that questions rules which may not always make sense. I want to create works within the city that inspire others to create their own graffiti rather than anger them to outlaw it. New York City graffiti King Lee discusses the power of graffiti:

The authorities don't want this to happen again. If the trains are painted now in any shape or form, they will take those trains out of service, just because the influence that one car has is so powerful. They know that it is a political act, not just a "vile act of vandalism," as they call it; it has political impact on the inner structure of the youth in New York. If I was to see a whole-car right now, I can't deny that I would jump out of my boots and really love it, because that experience is a real freedom of expression. Yes, it is not supposed to be there, they say, but what is supposed to be there? It is a train, a subway car that takes everyone back and forth from home to work, it is lending itself to a clone society. If you think about it, the way trains were painted really signified the freedom in the inner human spirit, and to see it is a great uplifting feeling.

LEE, 2000, from an interview published in *Aerosol Kingdom*

ATTACK OF THE ADS

I find it interesting that while the city will crack down on an individual artistically rendering her name in her own neighborhood they will allow global corporations to artistically render their logos on our streets, buildings, schools, and country sides.

Why is the ad I see in the Gap more acceptable than any art that I hang on a public lamppost? Let's balance the scales a bit. We're talking about anybody having the right to express themselves.

Schiller as quoted in the New York Times article *Lawbreakers, Armed With Paint and Paste: Underground Artists Take to the Streets*

Graffiti has had a relationship with advertisements from the very beginning. In the 1970's and 80's writers would often borrow themes and letter forms from advertisements on TV and packaging. There were some train pieces made famous through the photography of Martha Cooper depicting graffiti references to Mickey Mouse, Rice Krispies, and Campbell's Soup. Since then, however, the graffiti on the trains has been brought to a stop and advertisers have started borrowing forms from graffiti culture to sell products. You only need to turn on MTV for five minutes to find examples of this. Where the trains were once covered from end to end in creative colorful and playful letterforms, now they are covered in advertisements.

You go into a subway car nowadays and you notice that the whole car has advertising from one company. And we are talking whole cars, so let's go back to whole-cars by one writer. So they are doing exactly what we did twenty-five years ago. It's kind of like "Look at that, they're biting us." That's the way that they are signifying the impact that graffiti had on society. Or when you see those whole-bus top-to-bottom advertisements covering even the windows, going by on Fifth Avenue. It's like "Boom!" you're going back thirty years in our movement.

LEE, 2000, in an interview published in *Aerosol Kingdom*

Advertising is a visual assault on our physical and mental space. Companies strive to get their mark up as big as possible in the most visible locations within the city. This may involve painting a logo in 200' tall letters on the 50 yard line, or putting a 200' tall cup of steaming noodles 20 stories off the ground. Graffiti artists have similar goals. Graffiti artists also strive to get their mark up as large as possible, as many times, in often highly visible public spaces. The major difference, however, is that graffiti has nothing to sell. Graffiti is art. It exists with aspirations of being seen and experienced. It is honest in its form and content. Advertisements, on the other hand, are deceptive and untruthful by nature, and exist with the very specific goal of trying to funnel money from individuals to companies. I find it puzzling that people find ones name written on a wall so offensive and at the same time find the 10 story billboard of a company's name so acceptable. Graffiti turns the city into a public zone for art while advertising turns the city into a homogenized zone for consumption. I wish to be a part of the visual battle for space within the city by creating graffiti which is more visually and

conceptually intriguing than the parade of advertisements that define our streets.

FORM VS FUNCTION

Part of my initial interest in graffiti comes from my background as a designer. Good design often fights the temptation of style in an effort to best represent content and intent. Graffiti, however, is very openly more about the style than the content. In most graffiti tags the way in which letter forms look is more important than what they say. It is all about style and form rather than legibility and function; a statement in direct confrontation with usability guru's such as Jacob Neilson. And while this emphasis on style and lack of readability should set off warning lights to my designer half, instead I find it very honest and liberating. Graffiti is a design discipline where the form is the content. Although this seemingly would be a form vs. function nightmare, I actually see a very tight relationship between the function of how graffiti is created quickly in time and the form of expressive sweeping curves and quick changes in direction. Graffiti is a very honest design discipline which asks the question, "How do I make the most expressive mark possible in the fewest amount of lines in the shortest amount of time?"

It is this relationship between speed, movement and form where the majority of my thesis interests lie. Computers offer a new and unexplored way of analyzing and processing graffiti tags made in real time.

Background

HISTORY OF GRAFFITI

Cavemen drew pictures on walls, but the Egyptians were the first language artists, then Romans bit the steez. The Greeks, Incans, and Native Americans all got with the program. There was graffiti on the New York subway a year after it was built. There is graffiti on the moon. If graffiti is vandalism, and vandalism a form of pollution, then man has left his mark with garbage at the furthest reaches of the universe. So you with your pathetic desire to be remembered are in good company. It's important to know how graff developed in your area code, so consult local experts, and remember, everybody lies!

There are undoubtedly a number of examples of artistic graffiti in the history of mankind, but none of these ever showed a sign of aesthetic or stylistic evolution.

In the 70s and 80s Philadelphia and New York City created what most people think of today as “graffiti.” While people have been writing on walls since the beginning of time, it was within this time period that the medium of spray paint was used to define a new artistic movement. Some attribute the first tags in NYC to a writer named TAKI 183. This mysterious name appeared all over the city, and when the New York Times published a single article explaining that TAKI was a graffiti writer from 183 St., a movement was started. Graffiti writers took advantage of the subway system as a way to distribute their work to all five boroughs of New York, and a visual style emerged that would travel around the globe. Graffiti became a part of New York, forever ingrained into the visual look and feel of the city.

As graffiti’s popularity continued to grow many people began to feel uncomfortable. Some began to associate graffiti as a symbol that city officials were losing control. Harsh legislation and funding for anti-graffiti campaigns were put in place that within the course of 15 years would almost completely remove graffiti from the subway system. Special police forces were created, penalties increased, and by the 1990s graffiti as a movement was all but dead. While dedicated individuals continued to create pieces, as a whole, the period of graffiti in New York was over.

Excerpt from the website of Los Angeles based graffiti crew 162
<http://www.onesixtytwo.com/>

Markus Mai & Arthur Remke,
Writing, Urban Calligraphy and Beyond,
(Berlin, 2003), p. 78



Fig. 07, from original NYT article

Today graffiti is adapting to these new situations. While spray paint pieces still exist, the medium is no longer as suited to the job as it once was. As the penalties grow harsher for putting art up illegally, the time it takes to paint in public is not desirable. Instead, graffiti production is being moved into the home. Many artists are creating work in the privacy of their own houses and installing, pasting, welding, and sticking their creations to the city. Sticker based graffiti is rising in popularity to the point where it is becoming more respected both within and outside of graffiti culture. Books have been published on sticker graffiti alone, and advertising agencies have already begun mining its form for “cool”.



Fig. 08, Revs in Dumbo.

Graffiti is in a period now where artists are exploring all types of non-traditional mediums. Artists such as SPACE INVADERS are installing tile formations onto building walls. REVS cuts tags from steel and welds them onto handrails within the city. WK and SWOON are exploring new uses of wheat paste as a method for installing printed images to the walls. ABOVE ties painted wooden arrows to telephone lines. And many artists such as D-Face and the LONDON POLICE are using vector based graphic software and digital printers to take work from the computer screen to the walls.



Fig. 09, Space Invader in Paris.

Many people (including the main stream press) are deeming this movement “street art.” As recently as July of 2004 the New York Times ran an article explaining evidence of this new movement, highlighting artists such as SWOON and REVS. It is articles such as this that have the potential to be the tipping point that the TAKI 183 article was 30 years ago. Based on the increasing number of street art related articles in the New York Times, the increasing amount of graffiti in popular culture (including feature length movies, video games, and books), it is my opinion that Graffiti is approaching a second peak. A new wave of artists are exploring new media and new ideas of what graffiti can be in urban centers all over the world, and are harnessing the power of the internet to reach more people outside of their own city.

WHAT’S IN A NAME?

A differentiation between terms often used in graffiti culture can often be helpful in understanding the views of different members of this group. There is an interesting discourse going on between artists creating work in the streets, and understanding these terms will aid in understanding their different motivations for doing what it is they do.

GRAFFITI

The word "graffiti" derives from the Greek word ‘graphein’ meaning: to write. There are many examples of writing found etched into ancient city walls and bathrooms. These early messages ranged from political slogans to “I was here.” While even earlier forms of wall writing exist, such as in ancient cave paintings, it is from the Greek meaning that the word is commonly used today. What New York City experienced in the 1970s was, however, something entirely new.

<http://www.jhblive.co.za/VodaCom4u/chapter2/default.htm>

When colorful letterforms began to show up on the walls and trains of New York City their power resided in their communication of form and style rather than in the words which they spelled. Writing on the wall became a formal experimentation, making its creation and existence something entirely new. Initially it was the media who deemed this artistic movement as “graffiti” and “vandalism.”

...use of the words “graffiti” and “vandal” by the media and government is a strategy to instill fear among the populace, creating the sense that the politician is defending them from a menace. The crusade against graffiti is in part a strategy used by politicians to blame the victims of poverty for expressing their reality.

Miller, *Aerosol Kingdom*, p.138

It was a negative term which heightened fear in the eyes of a public seeking order and control over the environment in which they existed. Eventually, the artists in this movement adopted the term despite its negative connotations (while some still contend that “Graffiti is scribbling on a wall. I don't scribble”). In the end “the Writer’s highest aim is to infiltrate urban space through the mass production of art works.” (Mai p.078)

PHASE II, from an interview published in *Aerosol Kingdom*

WRITING: (PIECING VS BOMBING)

Within the traditional Graffiti world of spray paint and marker there are two major camps: 1) piecing and 2) bombing. The term ‘piece’ is derived from ‘masterpiece’, and refers to highly detailed multi-colored images created in spray paint. Often referred to as aerosol art, this is the most time intensive and skill demanding realm of the graffiti world. Bombing, on the other hand, is from the quantity rather than quality school of thought. This openly aggressive term is used to describe the act of getting your mark up as much as possible in the most visible and death defying locations (e.g. overpass signs, subway tunnels, building ledges, etc.). Bombing consists primarily of creating tags and throw-ups. A tag is a mark in which letter forms are written in a single line width. These are created in both marker and spray paint and are the fastest form of graffiti to create. Throw-ups are made from two layers of spray paint, a fill in and an outline. Usually limited to two colors, these marks are intended to be made quickly and cover anything beneath them be it brick, advertisements, or other graffiti. Tags and throw-ups are the tools used by graffiti-bombers as they try to spread the influence of their mark throughout the city. Artists on both sides of the piecing and bombing debate will most often consider themselves writers above all else. Writing is at the heart of ‘graffiti’, and most members of this movement prefer the term ‘writer’ over ‘graffiti artist,’ which is a term used more often by the main stream press and has negative connotations.

STREET ART

While art has been produced and placed within the public realm throughout history, the term ‘street art’ is used currently to refer to artists exploring new mediums and methods of installation. Because it is a younger form of graffiti it is often more conceptual or experimental in nature than traditionally spray painted letter forms and figures. Although in the 1960’s and 70’s this term was used in reference to individual artists such as Basquiat and Keith Haring, today it refers to a small but highly influential movement which is gaining momentum in the number of artists, quality of work, and attention from the media. As this group of artists increases, however, the variation within the sub-culture gets more diverse in attitude and intent. There is currently a very interesting debate going on within the street art community as it attempts to define itself.

The divide in the traditional graffiti movement between *piecing* and *bombing* is now happening within the street art world as well. Much of street art is created through reproducible means such as silk screen, prints, or digital files, making it nearly as easy to make 200 pieces as 2. Street artist Swoon, has stated that she feels a great deal of responsibility when putting work up in the public, and intends that when someone happens upon one of her pieces they feel as if the creator must have put a great deal of thought and attention into it. Many other members of the street art community, however, treat their pieces more as logos in a guerilla marketing campaign. New York street artists Abe Lincoln Jr., for example, creates hundreds of variations of a simple cartoon image of a small bird pooping. The image is cute and funny, but its intentions are very different than that of Swoon’s. The effect of Abe’s pieces relies on him getting many of them up in many different places. His work is much more from the *bombing* side of street art, while Swoon’s is much more about *piecing*. This similarity between street art and traditional graffiti is just one clue among many which point to the fact that street art is just the modern version of graffiti, rather than they being two distinctly different art forms.

From Swoon’s talk at AIGA|NY
Small Talk No. 3

NAMING CONCLUSIONS

These terms rarely fully characterize individual artists within the larger umbrella of graffiti. ESPO, for example, is a very influential and innovative graffiti artists who made his mark in graffiti history with clean and minimal spray paint pieces. And while being a part of the more traditional graffiti scene he has been featured in both group and solo exhibits in well respected SOHO art galleries. Similarly, REVS, while famous in the street art movement for crafting tags from steel and welding them to fixtures in the city, also has written extensively with spray paint and markers on walls and train tunnels

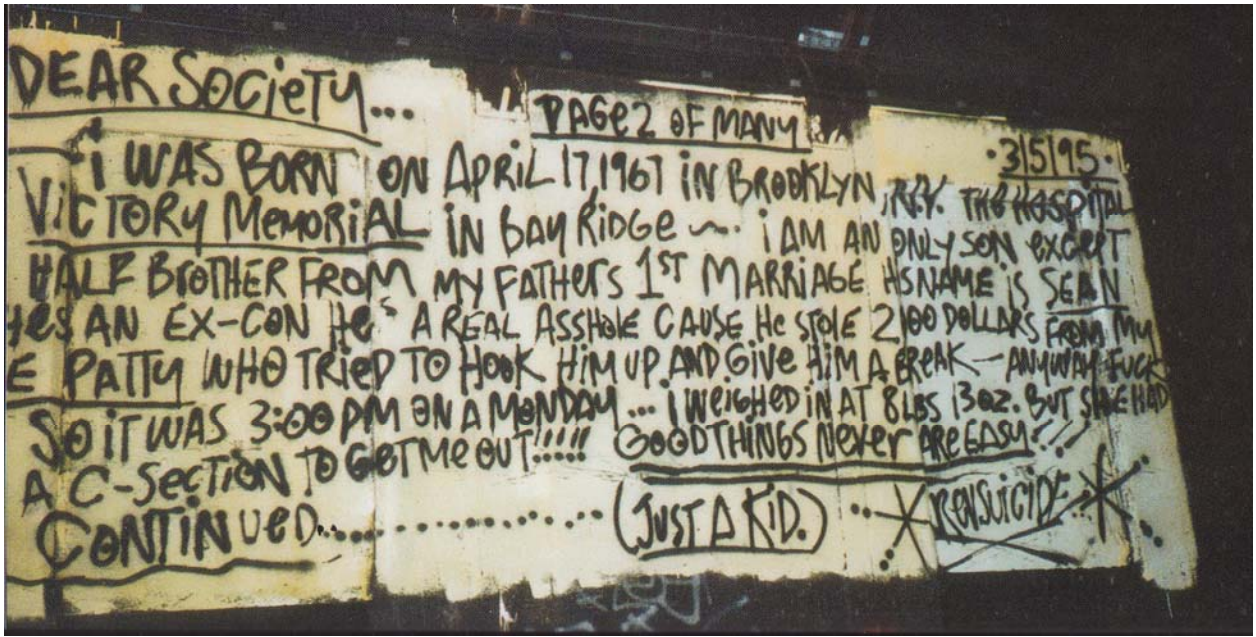
throughout the city. Although these names rarely fully characterize an artists work, it is interesting how they associate or disassociate themselves from these labels.

GRAF VS. STREET ART

Tensions have arisen on both sides of the graffiti divide. Writers, for example, often feel overlooked by society and the art world.

Historically their art form has been criminalized and the members have had to fight very hard for any respect and recognition from outsiders. They are willing to risk more physical danger from the locations they put their work up in, and risk more legally from a system and society which is likely to define their craft not as art but vandalism. Street artists, in their view, have had a relatively easy time gaining gallery and corporate appeal. Rhode Island School of Design graduate Shepard Fairey has turned his OBEY campaign into a profitable clothing and publication effort. Similarly, Pratt graduate SWOON, has been welcomed with open arms into the art world both in the US and abroad, and welcomed in the mass media with several major articles in the New York Times.

Street artists, on the other hand, have felt frustrations from a legal system and public opinion which often does not distinguish between a hastily drawn ink tag and a creation which required weeks of work. For this reason it is not uncommon for street artists to disassociate themselves from the term 'graffiti' in order to gain gallery and media appeal, while writers may dissociate themselves from the term 'street art' in order to gain more street credibility. These opinions related to terminology will change from artist to artist, and my intent on including this discussion here was not to generalize the mentalities of artists creating work in public, but to bring awareness to the issues being discussed within the culture.



In my writing I will use the term 'graffiti' to describe any creatively motivated mark illegally placed in the public realm. I will use the term 'street art' to refer to graffiti which is more experimental in concept and/or medium than traditional letter based compositions created in spray paint and marker. This is not to say, however, that marker work can't be street art. Revs, for example, has been writing his life's story in diary form in abandon subway tunnels around New York City. And while the form fits entirely within the realm of traditional written graffiti, due to its conceptual nature I would consider this a form of street art as well. More important than the medium of the graffiti is the intent of the artist, and the biggest distinction I can see in the graffiti world is between those whose goal is to have their mark seen by the most people, and those who are more interested in causing pause and consideration in the mind of individual viewers. Even these differences are small as artists in any medium have some desire for their work to be seen by its intended audience. In general I don't believe that graffiti artists are any more obsessive about having their work seen than any other artist, they just tend to skip the line.

DEFENSE

Graffiti, like any other creative endeavor, is 90% garbage. Just because I love some of it does not mean I have to love all of it, and just because I study some of it does not entitle me to defend all of it. Graffiti writing is defined by the creative formation and deconstruction of the roman character. Graffiti writers love writing and their lives revolve around the design and act of writing. "Johnny loves Suzy", gang signs (which as far as I am concerned are for the most part a graffiti myth) and hate slogans are not graffiti and I will not attempt to defend them as an art form. Graffiti, like rap music, is

Fig. 10, Revs, photograph from *The Art of Getting Over*

an art of rebellion and is supposed to piss off your parents. My argument, to further the music analogy, is not that my parents should enjoy listening to Public Enemy, but that they should understand that it is music which is based on the same structures as Beethoven and the Beatles, and that it is created by intelligent, creative, and thought provoking members of society. When people are presented with ideas which question the way in which they live their initial response is often defensive. It is my hope and intent that through the language of analysis people's defenses will be lowered just enough to get a glimpse of the beauty that is written all around them.

PRE-EXISTING SYSTEMS

Part of the genius and narrative of graffiti is that it often takes advantage of pre-existing conditions to aid in its creation and dissemination. The term 'Hack' is often used in the IT realm to describe the creative and unintended use of an already existing system to do something entirely new or different. Graffiti is a form of urban and cultural hacking. Perhaps the best example of this was its use of the subway system in New York during the 70s and 80s. Graffiti artists would paint on the outside of subway cars that would turn into mobile art galleries. Writers would send their work through Brooklyn, Manhattan, Queens, and the Bronx depending on which line they chose to work with. The pieces were often beautiful individually, but much of the true brilliance was their use of the pre-existing foundation of the subway to transport art and converse with other artists in different parts of the city. During the pre-internet days of the early 1980's these New York City youth figured out a hack that would allow them to send visually rich messages to all parts of the city.



Fig. 11, photograph by
Martha Cooper from *Subway
Art*

Another example of this is the use postal labels in the creation of sticker graffiti. The United States Postal Service has at any branch office adhesive labels for use with mailing letters and packages. Graffiti artists often take advantage of their free availability to mark with graffiti tags. Labels can be drawn upon with colorful magic markers in the privacy of the home and later stuck up in public places throughout the city. Not only does sticker graffiti take advantage of the system of free postal labels in its production, but it also takes advantage of the system of newspaper boxes in its display. Most street corners in New York have several different newspaper boxes filled with publications ranging from the Onion, to the Daily, to apartment advertisers.



Fig. 12, newspaper box in Manhattan

These boxes are water proof and have a double layered clear plastic front. Graffiti artists place sticker tags between the two layers of clear plastic creating a highly visible display that is safe from the damaging elements of wind and rain. Graffiti is an interesting art form not only because it shows up illegally within the city, but because it intelligently appropriates pre-existing systems for its own use.

THE INTERNET & GETTING UP

Style, form, and methodology, major concerns of most graffiti writers, are secondary in significance to the prime directive in graffiti: 'getting up.'

Castleman, *Getting Up, Subway Graffiti in New York*,

Artists in the younger street art movement have had an easier time rising to fame quickly than artists in the earlier graffiti culture. In the world of spray paint and marker tags getting up is the main goal. As graffiti is cleaned and buffed from city walls a writer must continually be active to keep a constant presence. Street art, however, has been born in the age of the internet, where a photograph of one piece could be viewed by hundreds of thousands of people. And while the same is true for traditional graffiti, many of these newer artists, myself included, have not had to go through the process of building recognition over the course of several years. Street artists are able to catapult into recognition with a single piece if it communicates well through a photo. The viral nature of the Internet allows for memes and single street art projects to be passed around the web quickly, gaining audiences from other cities and countries that would find it difficult to otherwise see the piece.

“...the medium that I am using now finds itself in some kid’s bedroom in Bosnia. How could that kid have seen what I did before this?”

FUTURA, from an interview published in *Aerosol Kingdom*, by Ivor Miller. p.143

The web, for better or worse is a vital element of “getting up” in today’s graffiti world. And while the street art community has embraced the web, traditional graffiti writers are more likely to fight its influence.

The traditional graffiti community has had a love hate relationship with the web, much of which comes down to the elements of time and location. Many New York City writers argue that there is no comparison between a piece done in an abandon train yard in Iowa, and the side of a building on Canal Street. A writer in a more rural environment might have a full day to work on a piece, where in downtown Manhattan this would mean certain arrest. Writers who have shown up on the Internet, in books and in magazines will get little credit from other writers unless they have seen the artists name up in their city streets.

The street art community, however, is growing up with the internet at its core. The Wooster Collective (<http://woostercollective.com>) is a daily web log reporting on the street art movement. In concept it is a simple image based blog site, but reaching a critical mass of viewership and respect it has turned into the holy grail of exposure for up and coming street artists. Street art is growing up on a global as well as local level. While New York City has a very active and influential group of street artists, the web has increased the scope of competition and notoriety to a world wide basis. As a member of the street art community I feel competition and inspiration from what is happening globally as much as locally. This is something very different than the goals and audience of graffiti artists 10-20 years ago. And while the reach of the web has lead to a global community of artists, it has had the negative effect of mediating the interaction between the viewer and the piece.

For better or for worse it is a fact that the majority of street art is viewed online. Even a large piece on the corner of Broadway and Canal St. will never reach as many people as front page of the Woostercollective website. Graffiti is an art form intimately tied to its location and to mediate its dissemination to the public is a necessary evil that most members are not 100% comfortable with; others are openly against it. Although I understand the resistance to having graffiti being purely viewed through photographs rather than in the city, I am somewhat surprised by the reaction as it spreads an artist’s work to a much greater audience. I think at the root of many graffiti artists’ issues with viewing graffiti through books, magazines, and the web is that it turns a purely democratic art form into a curated event. One of the great things about graffiti is that anyone can take part in it

without asking for permission or acceptance, and to mediate graffiti is also to exclude the majority of work. Books, magazines, and websites only publish what the authors and editors find to be the most interesting pieces, and this voice of “you’re worthy”, “you’re not worthy” is in many ways antithetical to what graffiti is at its core. Many traditional writers while feeling uncomfortable doing interviews with magazines, would rejoice if one of their tags happened to show up in the background of a popular television show or advertisement. The difference here is a chance happening that rewards those up in the most highly visible spots, which is very different from a system that rewards the work that looks the best in a photograph. It is a double edged sword where a group of artists wants to reach the largest amount of people but not to the point where they, or others they respect, might be excluded from a curated publication allowing artists who may be less deserving to attain credit and respect.

Currently there are very active community forums and image based sites representing both the traditional graffiti cultures, as well as the newer street art scene. There is a love hate relationship with this situation from both traditional graffiti artists as well as street artists, but in general the street art community has been more willing to embrace the web. I view the web and street both as places that are highly democratic, and allow artists to reach a vast number of people with little to no money. Graffiti artist and graphic designer FUTURA has stated that “the Web is really an extension of graffiti... [It] became a virtual wall that anyone was free to write on, however they wished.” (Miller p.142) Graf artists steel spray paint to make pieces, digital artists steal software to create pieces. Both give away their work for free and do not ask for permission or approval. I have ultimate respect for graffiti as it exists in the city, and fully agree that seeing an image of a Swoon piece online does not compare to happening across it in the city. With this in mind, however, I accept the existence and influence of the internet in the graffiti community, and embrace it for allowing it to show and share work from around the world which I otherwise would never have seen. *Getting up* today includes the internet.

GRAFFITI AND THE WEB

Looking back on it now I see that what I was doing initially on the ni9e.com site was *getting up*. In both the web and graffiti you chose a unique name, ideally short in length, and your goal is to create something new that will reach as many people as possible. Most importantly, both the web and city walls are places you can post work without asking permission. In a panel discussion titled *Street Seen: Documenting Street Art*, street artist SWOON stated that graffiti was a “truly democratic art form”. Likewise, the internet is currently a relatively unregulated, censorship free environment where cost is not a limiting factor in reaching a great number of people. Making the

switch from creating work in the public realm of web to public realm of the city was an exciting yet very natural shift in focus.

MY INTERPRETATION OF 'GRAFFITI'

The act of creating art in the public realm has two very different schools of thought: 1.) writing which has a 35 year history and has been declining in practice and popularity since its peak in the 1980's, and 2.) "street art" or "post-graf" which has only recently reached a large enough body of work to justify itself as a sub-category and has been growing in practice, quality, and exposure in the media. I feel that the work that is being called 'street art', rather than being an entirely new and distinct movement, is simply an extension and evolution of the graffiti movement which started with spray cans and markers in the 1970s. For this reason, I will refer to any art displayed within the city as *graffiti*; be it a dripping marker tag or large scale mixed media installation. Artists exploring new mediums and ideas on city walls should embrace the history of marker and spray paint based work that has come previously and learn from it. Even if the mediums and concepts are completely different, the voice of defiance and reclamation of space remain the same. Street artists would be mistaken to think they are making something entirely new, and should be comfortable associating their work with the revolutionary graffiti movement of the 1980s and 90s. To distance the work of writers as something different, less desirable or more illegal is to close ones eyes to the way these artists have changed the face of the city; effectively repeating the embarrassing mistake of the MTA and city government of erasing one of the most unique movements in modern art.

CALLIGRAPHY

"Movement ... is the very breath of Chinese calligraphy."

The beauty of graffiti tags is in their ability to express the movement required for its own creation. It is an art from that is intimately linked with its production in time and communicates through single hand drawn line strokes. Connections between calligraphy and graffiti have been made in the past, most notably in the title of a brilliant book by Markus Mai and Arthur Remke called *Writing, Urban Calligraphy and beyond*. Unfortunately for the purpose of my research, beyond the title this publication leaves these connections up to the minds of the readers. As I am interested in looking at graffiti with a studied and analytical eye there is much to learn from the history and forms of calligraphy.

Chiang Yee, *Chinese Calligraphy, an Introduction to its Aesthetic and Technique*, p.125

Fig. 13, Chiang Yee

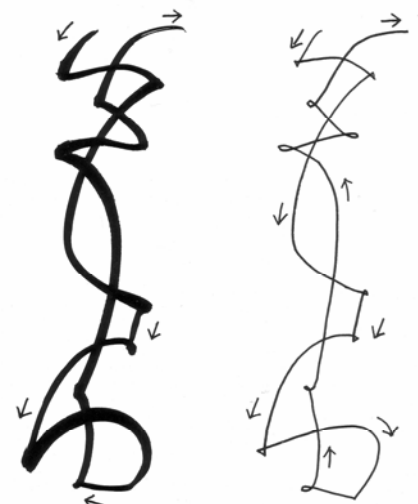


Figure 147. Example of turning brush: Wisteria vine.

Eastern and Western calligraphy styles share much in common with graffiti tags both visually and in their production. At their core both are traces of the human hand in motion. Herbert Reid, in his introduction to *Chinese Calligraphy, an Introduction to its Aesthetic and Technique*, states “The beauty of Chinese calligraphy is essentially that beauty of plastic movement, not of designed and motionless shape.” This is a major difference between Eastern and western calligraphy styles. Western calligraphy, while still being made through the hand in motion, aims to achieve an appearance of print. Chinese and Japanese styles, on the other hand, celebrate all that the handmade brush stroke can communicate.

Chinese Brushwork, p.168

It is not difficult to differentiate the qualities of the printed character from those of good handwriting. In a printed character the strokes are of fixed length, thickness, position, and so on; printing does not allow for variation in these respects. As for the style – any one can copy that, for it is bound to be common and entirely lacking in individuality. We call such strokes ‘dead’. And the arrangement of them in the character is ‘dead’ too, for it is done wimply to fill up the square symmetrically. The result is neat, clear, and legible, but quite without aesthetic significance.

Chiang Yee, *Chinese Calligraphy, an Introduction to its Aesthetic and Technique*, p.113

Within the study of Chinese calligraphy it is Ts’ao-Shu (or *grass style*) which most closely relates to the writing done by traditional graffiti artists in the form of tags. This style is created “in a hurried, sketchy manner, for the sake of convenience; but, later, scholars found a certain beauty in it and an interest in practicing and perfecting it. The uncurbed force and rapidity of the style causes every character in a complete piece to have both an inherent and visible link with the rest.” (Yee p.94). The Chinese found a beauty in how the brush was able to communicate the movements necessary to create characters. Line width represented the pressure and angle of the hand in relation to the paper; while the saturation of the brush could reveal differences in speed (e.g. a fast dry brush will leave intended streaks showing the speed of the writer’s hand).

Calligraphy is created from the hand of an individual and not reproducible in the same way that is possible in printed or digital forms with the use of typefaces. Similar to graffiti tags, calligraphy characters stand out from the reproduced letter forms created for advertising and corporate interests. Chiang Yee writes about his experiences walking the streets of a foreign city:

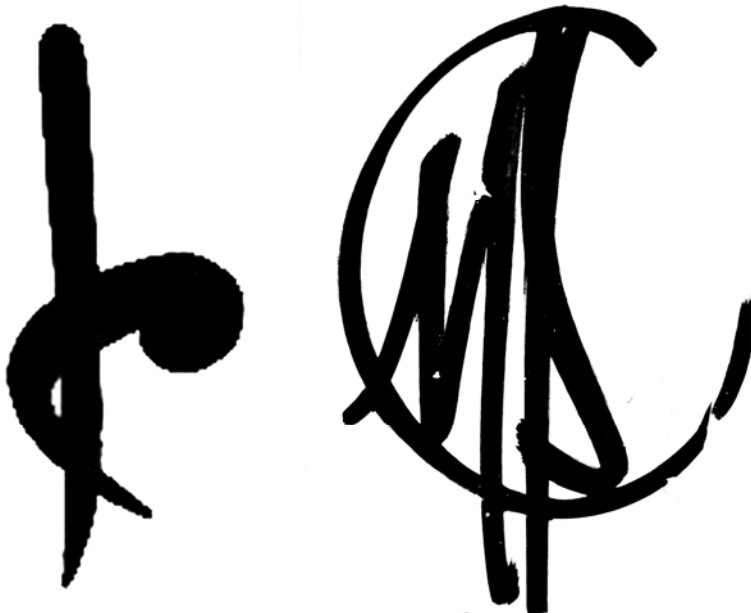
I walk the London streets without any sensation of surprise at the shop-signs or advertisements in the windows, for they are almost all stylistically identical. They are neat, regular and symmetrical, but they are collections of lifeless letters – a criticism we have always applied to the printed forms of our own characters.

Chiang Yee, *Chinese Calligraphy, an Introduction to its Aesthetic and Technique*, p.4

Graffiti tags, in the same way, pop from urban walls as forms full of life. This is why the eye will focus on a graffiti tag even when it is

engulfed in sea of mass produced advertisements. The eye immediately recognizes it as something made by an individual rather than a machine; a fact I find invigorating and inspirational as I walk through the city.

Another similarity between Chinese calligraphy and graffiti writing is their basis in asymmetry, and grounding in forms related to nature. Chinese writing aims for “asymmetrical balance, for the reason that it seems to ... possess more movement.” (Yee p.118). It makes sense that a form so intimately tied to the human body and movement would look to nature for inspiration. Writer AKIM states, “Shapes and elements taken from nature ... are already perfect and proffer incredible diversity and inspiration. ... I’m more likely to draw on the abstract repertoire of natural shapes” (Mai p.098). Writer ZASD similarly states “I recognize style as part of nature. The letters are my way to achieve order, their shapes are repeated in nature all the time” (Mai p.104). Both graffiti and calligraphy are created from natural movements of the body and in effect look to naturally occurring forms for inspiration.



Calligraphy symbol for mother

Graffiti tag photographed in Paris 2005

Fig. 14, asymmetry

Japanese calligraphy, or shodo, is also grounded in nature. The term ‘wabi’ is used in relation to writing which can be described as: suggesting of a natural process, irregular, intimate, unpretentious, earthy, murky, and simple.

Wabi actually ‘poverty’. This has no negative implications but hints at the innocent contentment that can be found when you listen to a gentle springtime rain tap-tapping on the roof of a simple cabin. Wabi is outside

H.E. Davey, *Brush Meditation, A Japanese Way to Mind & Body Harmony*, (Berkeley, 1999) p.29, 31

of intellectual complexity and all forms of self-truths of nature. Just as nature is asymmetrical, irregular, and imperfect, wabi is the flawlessness of natural imperfection

The similarities with urban graffiti are clear as Davey's comments relate strongly to the simple and unpretentious forms of graffiti writers. He continues by stating that "beauty can be coaxed out of ugliness" and that "wabi is the elegance of artlessness and even ugliness" (Davey p.30, 31), a relationship that graffiti deals with as it boards on the edge of beauty and decay simultaneously.

Virgil E. Herrick, *New Horizons For Research in Handwriting*, 1963

Notation As Language of Motion

Equally as relevant to my thesis interests as calligraphy is the way in which illustrators and calligraphy artists have attempted to visualize pen and brush strokes in print. Many authors of both Eastern and Western calligraphy styles have come up with different ways to express in print the motions required to produce a character. These illustrations are related equally to information visualization as calligraphy, and have an inherent beauty all of their own. In the end, my efforts in visualizing the movements of graffiti writers digitally are very similar to ways these authors and illustrators have visualized the creation of calligraphy. Through my research I have generated a sizable collection of images which represent an array of different styles and techniques created to depict the movement of calligraphy strokes. They represent a significant portion of my research efforts and I have found inspiration and insight in viewing these notation systems as their own unique writing system based in movement.

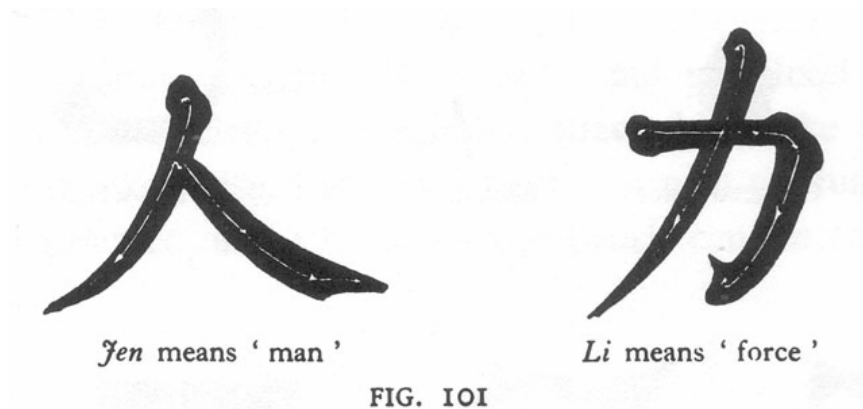


Fig. 15, Kwo Da-Wei

Hand Writing Analysis:

Before the popularity of typing in the creation of letters and words there was a greater interest and study of handwriting. In the late 1960's this study was termed *graphology*.

The study or "science" of handwriting, especially insofar as it expresses or reveals the character or personality of the writer; "the art (and perhaps the embryo science) of determining qualities of personality from script."
(Allport and Vernon)

In this sense, handwriting is a particularly valuable expressive gesture, for it is actually a gesture in space, frozen or congealed in time. It is also a gesture that can be read in depth, since handwriting from all periods of an individual's life span can be studied. Aware of the projective forces released in handwriting, psychologists now place graphology among *projective techniques*.

Lara G. Roman, *the Encyclopedia of the Written Word*, 1968

In collecting data for these early studies a writing instrument was used which measured the pressure applied to the pen over time. Graphs of and individuals hand writing were created where high and low peaks represented the relative amount of pressure applied to the paper. From these graphs the amount of tension in the writer's strokes could be depicted visually. It was believed at the time (current psychological theories have changed) that the level of tension found in ones penmanship could be telling of other aspects of their personality. My interest in this type of research is related more to the methods used to collect the data rather than the conclusions that were drawn from it. This is an early example of a highly sensitive system for creating analytical visual representations of gesture.

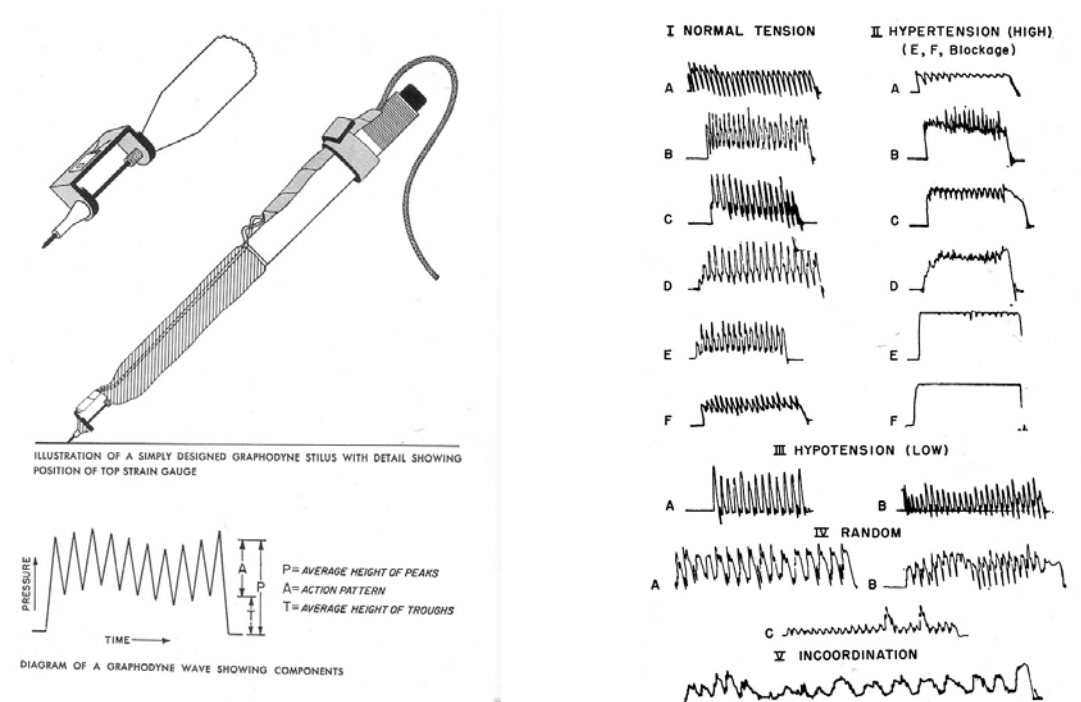
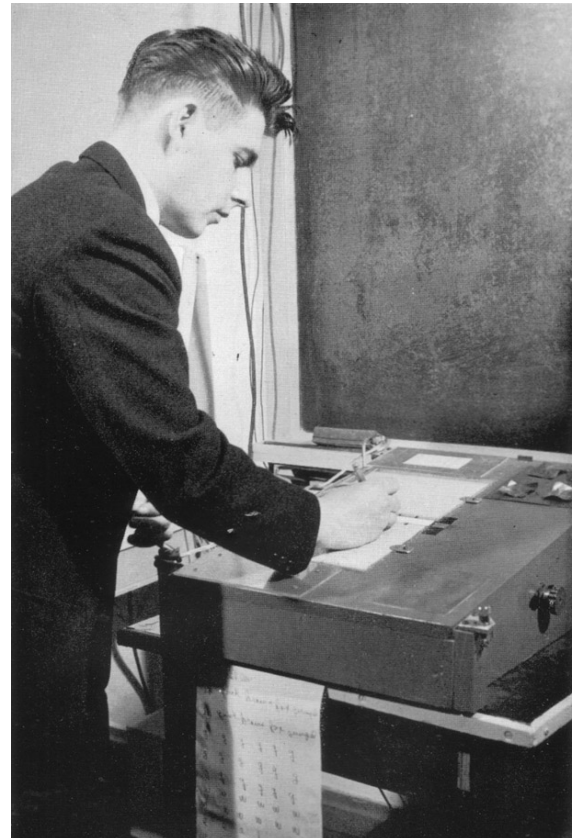
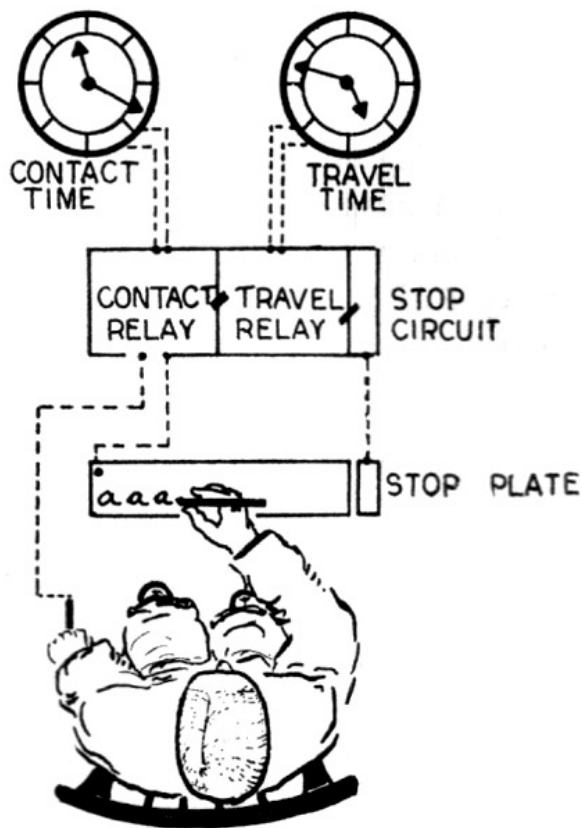


Fig. 16, *the Encyclopedia of the Written Word*

A different form of handwriting analysis was done at the University of Wisconsin and published in 1963. This study was focused primarily on writing speed. As pictured below, a test subject would sit in a chair with a pencil in the right hand and an electrode in the left hand. The lead in the pencil was conductive as was the paper. When the lead touched the paper the electrical circuit was closed and the 'contact' clock was set in motion. Likewise, when the pencil was picked up from the paper the 'contact' clock was stopped and the 'travel time' clock was started. With this system researchers could calculate fairly accurately the amount of time ones hand was spent writing as compared to traveling between letters and words. This non-digital system is fairly ingenious in its accurate calculation of time. Similar to the previous example, it is the apparatuses for data collection I find more interesting than anything else.

It is with the same dedication and curiosity that these researchers have studied handwriting that I wish to study graffiti. By creating such elaborate and complex systems they have signified the level of importance they place on handwriting, and how it may relate to the human psyche. In building my system I hope to place the same importance on the act of graffiti writing.

Fig. 17, *New Horizons For Research in Handwriting*



Precedents:

EDWARD TUFTE

Edward Tufte is a researcher, designer, and artist that has done some of the most influential writing in relation to data visualization. His view on visual communication is highly scientific and considered, assessing visual communication based on how meaningful and rich a graphic is rather than how stylistically moving it may be. He argues that representations of data be devoid of everything that is unnecessary, and that which is left over be telling of multiple levels of information. Tufte demands that every drop of ink on the printed page allude to some greater truth that lies within a data set.

One of the most powerful images I have come across in all my research and the initial impetus for my entire thesis project was the image on the cover page of this document. This image was published in *Envisioning Information* to illustrate the notion of layering and separation. Of it Tufte writes

...the various elements collected together on flatland *interact*, creating non-information patterns and texture simply through their combined presence.

I found the beauty of this image stunning. I look at it and see the gracefulness of human gesture revealed through it's interaction with the rigid analytical marks of digital visual language. After viewing this image I am able to look at calligraphy in an entirely new way. This is not to say that I am an expert in the subject after contemplating this elegant diagram, however, it does give me a glimpse of ways in which I can view and begin to understand other forms of calligraphy. What Tufte is illustrating here about calligraphy and design, I wish to re-create in relation to graffiti and technology.

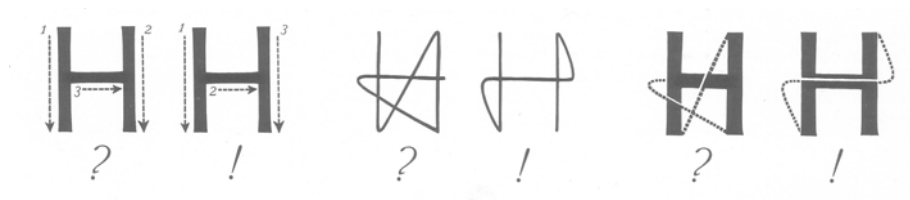


Fig. 18, Edward Tufte, *Visual Explanations*

Tufte deals with visual communication on large and small scales, from data sets as large as the universe, to as small as a frog. While I find all of it fascinating, his work that is most relevant to my own is in his depictions of gesture and character creation. In the image above Tufte illustrates different methods for representing pen movement in the creation of the letter 'H'. More important that the resulting image in this case is the rigor and thought process that he puts into every diagram. And while the *Graffiti Analysis* studies are not strictly data visualizations, I wish to adopt some of Tufte's ideas about allowing imagery to clearly communicate and educate. I plan to take some of Tufte's rigor and thought process but at the same time not completely mask my interests in making the end result visually engaging.

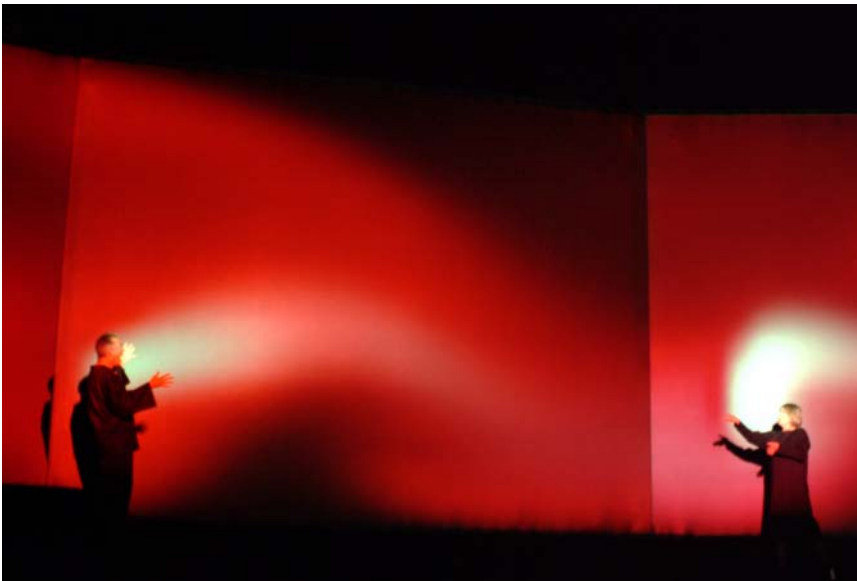


Fig. 19, <http://tmema.org/messa/>

ZACH LIEBERMAN AND GOLAN LEVIN

Zach Lieberman and Golan Levin's studies in gesture and human computer interactions are related to my interests in graffiti. Much of Zach's work deals with visualizing human movements and sounds. In his collaborative piece *Messa di Voce*, Zach and Golan Levin created algorithmic visualizations based on the human voice. Pictured above, performers can create imagery based on the volume and timbre of their voice in combination with the position of their bodies. Audio from the performers are visualized in real time through digital projection and computer vision. I aim to visualize graffiti gestures in a similarly engaging way as Lieberman and Levin have done with the voice.



Fig. 20, <http://tmema.org/messa/>

Another project by Zach and Golan which relates to my studies in gesture is their Manual Input Sessions. These performances involve both artists making shapes and movements with their hands (among other objects) on standard overhead projectors. The forms are read by a computer vision system and generate resulting shapes and audio. One point that I don't wish to over look is that the resulting performance is very entertaining. Although the topic of entertainment is often left out of academic discussions, I hope that people would have half as much fun viewing my projections in the city as I have had viewing Zach and Golan's on the stage.

From a technical standpoint their work is also related. Using code Zach and Golan have created many studies of human movement and gesture. Using both mouse and video they have experimented with how very human gestures can be extended and expressed in computation and code. By embracing the medium of pixels so whole heartedly they have been able to accentuate natural motions of the body in ways that are completely new. Because I am studying graffiti as a form based in movement over time, Zach Lieberman's and Golan Levin's studies in gesture are inspiring and relevant to this traditionally analog art form. I aim to take some of the ideas they have played with in the gallery setting and do something slightly more deviant that happens without invitation on city walls.



Fig. 21, <http://www.banksy.co.uk/>

BANKSY

BANKSY is a London based street artist who has pushed the boundaries of media and concept for illegally placed public art. He obeys the prime directive of graffiti by getting up in high quantity, but more importantly, he creates work that resonates with people visually, politically and intellectually. His brilliance comes across in both traditional graffiti media of paint and stencils, as well as non-traditional applications such as statue installation, art museums, and live animals. One stencil campaign took him to all of Europe's tourist attractions where he painted signs stating "this is not a photo opportunity", and "authorized graffiti area".



Fig. 22, <http://www.banksy.co.uk/>

In another project BANKSY installed life sized stuffed black crows on and around security cameras in the city. The birds were posed picking at the wiring and attempting to dismantle the closed circuit television systems (some of them subtly smoking cigarettes). An aspect of his work I find most inspiring is that he is equally creative, brilliant, and illegal. He has the ideas and is not afraid to turn them into reality. One of his more famous projects involved installing one of his own pieces in the prestigious Tate art gallery. It was neatly framed, hung and remained on the wall seemingly unnoticed by guards and visitors as a fraud for an extended period of time. In another project he threw “Free Me” signs into monkey cages (which the animals curiously picked up).

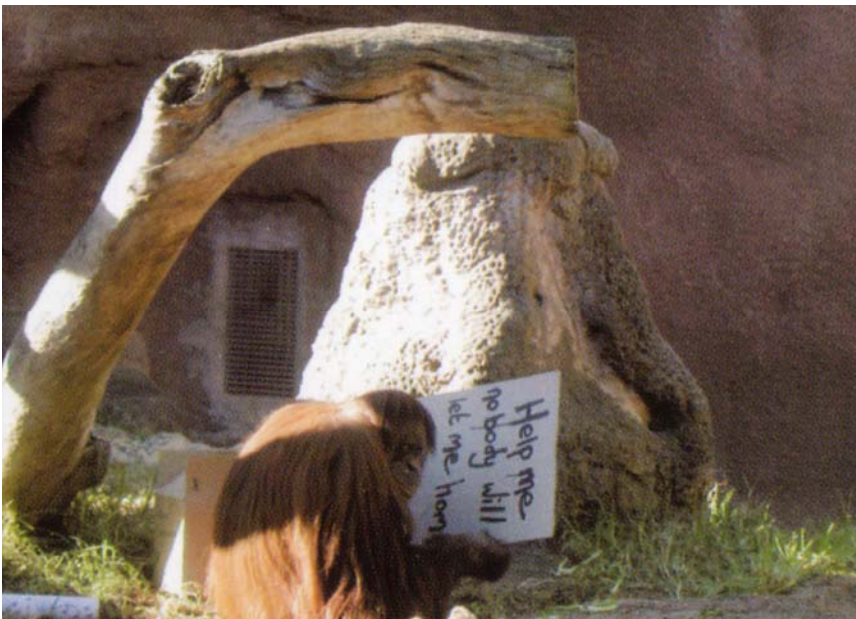


Fig. 23, *Graffiti World*

BANKSY, similar to other writers such as LEE, is very outspoken about the relationships between graffiti, public space, and advertisements.

Any advert in public space that gives you no choice whether you see it or not is yours. It's yours to take, re-arrange and re-use. You can do whatever you like with it. Asking for permission is like asking to keep a rock someone just threw at your head.

You owe the companies nothing. Less than nothing, you especially don't owe them any courtesy. They owe you. They have re-arranged the world to put themselves in front of you. They never asked for your permission, don't even start asking for theirs.

BANKSY, *Cut It Out*

His pieces, mostly found around London, speak strongly of discontent with the current powers that be both locally and abroad. And while his visual language and application is often extremely

aggressive (and at times crass), most passers by cannot deny the power with which he delivers his message. BANKSY serves as a model for what street art and graffiti can be; powerful, smart, and revolutionary.

The time of getting fame for your name on its own is over. Artwork that is only about wanting to be famous will never make you famous. Any fame is a bi-product of making something that means something. You don't go to a restaurant and order a meal because you want to have a shit.

Banksy, from his website
<http://www.banksy.co.uk>



SWOON

SWOON is a Brooklyn based street artist who has managed to bring street art into the public eye recently in New York City. A graduate of Pratt University in illustration, SWOON's pieces have a delicate and refined beauty which most people seem to welcome as they show up on walls within the city. SWOON, more so than many street artists, has embraced the language and media of creating work in and for the streets. Her block print cutouts are not simply put in the streets because it is the fastest way to gain an audience, but rather they are

Fig. 24

designed to be placed there. Her illustrations are cut from very thin paper and pasted to walls in Manhattan, Brooklyn, and now cities in Europe. Over time the paper begins to degrade and get covered in other graffiti which adds to its beauty. SWOON refers to this phenomenon as the pieces life cycle, and is interested in how street art pieces live and die in same environment as people (as opposed to the sterile walls of the gallery which give unnatural long life and preservation). The intricate lines and attention to details in SWOON's prints have been more widely appreciated by the general public, and has played a major role in opening up the term 'graffiti' to include something many people consider to be quite beautiful. Her work causes people to stop on the sidewalks and reconsider what graffiti and street art can be. And although many people disassociate her work with the greater realm of graffiti, it is a stepping stone for public discourse and acceptance of work that appears illegally in urban environments. In many ways I view SWOON as the socially acceptable or PC version of BANKSY. SWOON speaks the same language of revolution as BANKSY, but in a more soothing and lyrical voice. Her work is almost completely devoid of the feelings of fear and uncertainty that often accompany graffiti and street art. When many people come across a tag in the city they often recoil at the thought of running into its creator; upon encountering a SWOON piece, however, people often wish they could meet the author. She has successfully crossed the fear divide between the graffiti community and the general public.

You have your public and private spaces. And you get this space, it's owned, because somebody owns that building, but the outer wall of the building sort of creates the visual space. You get some fine lines between the front of somebody's house or their door or a front of a business where they hang their sign. And then you get a wall that has a billboard on it. And you're like that's a space being sold to a company that wants to address me. (So for me if this space is being sold to address the public then the space becomes public space.) It's kind of a little logic that I work with, I don't know. (Laughs) That's just the way I look at it. That's the way that it feels to me, my sense about navigating my own city.

Swoon, in an interview with
gammablablog

It's not that I completely disbelieve in the notion of private property, but it was advertising that got me started to think about public rights to a space. My ideal is a do-it-yourself city. I want to see more hands on, more participation, less gray mask of civic order. I'm interested in how we can command more uses of our streets. It sounds aggressive, but I also want to be playful and joyful. Once walls become used as a message board, I think, "If you're talking to me, I'm going to talk back."

Swoon, in an interview with
Pitchaya Sudbanthad

Other Works

ZOETROPES



Fig. 25, Smith St., Brooklyn

Zoetropes is a street art project done by the Brooklyn based arts group Toyshop Collective. SWOON is an active member of the group and explains its objective is “to break down the barriers between the specific spaces that you go to experience art, and the ability to create things and enjoy the creations of others in the more functional parts of your daily life, like walking down the street, or riding the subway to work.”

SWOON,
<http://www.glowlab.com/projects/Swoon/swoon.html>

My first experience with the Zoetropes project was stumbling across one on my way out of a bar last summer on Smith St. in Brooklyn. As I was crossing the street I noticed a bike wheel hanging from the midpoint of a stop sign post. Upon closer inspection I realized that around the outer perimeter of the bike wheel rim were steel panels with hand painted illustrations. The images were part of a simple animation and when the wheel was spun one could play the animation.

Experiencing these simple animation machines late that night had a profound impact on my view of graffiti and what was possible within the genre. Zoetropes was a low tech example of interactive animated graffiti. A viewer's experience of the piece is not the normal one directional flow of information from the graffiti to the eyes of the

viewer, but rather it required one to take part in the viewing experience; to reach out, grab graffiti, and give it a spin.

To activate the short film cycle exacts a moment of pause and interaction with one's surroundings.

http://glowlab.blogs.com/psygeoc on/2004/02/participant_35.html



Fig. 26
<http://www.toyshopcollective.com/zeotropes/>

GRAFEDIA

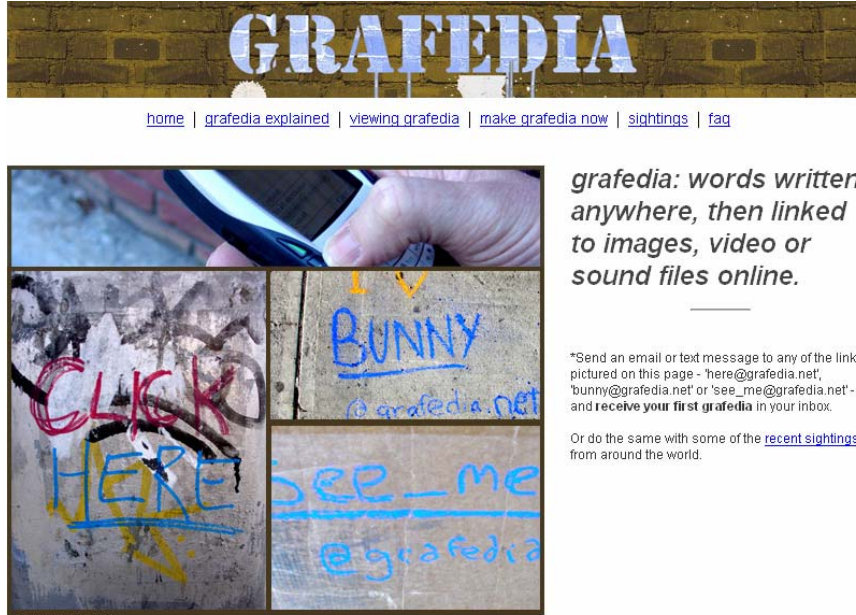


Fig. 27, <http://www.grafedia.net/>

Grafedia is a project by NYU ITP student John Geraci which combines wireless technology and urban graffiti. The project is described by the creator as follows:

Grafedia is [hyperlinked text](#), written by hand onto physical surfaces and linking to rich media content - images, video, sound files, and so forth. It can be written anywhere - on walls, in the streets, or on sidewalks. Grafedia can also be written in letters or postcards, on the body as tattoos, or anywhere you feel like putting it. Viewers “click” on these grafedia hyperlinks with their cell phones by sending a message addressed to the word + “@grafedia.net” to get the content behind the link.

<http://www.grafedia.net>

Graffiti and wireless technology combine in this project to give people a completely new experience of graffiti. Similar to Zoetropes, viewers are invited to interact with graffiti. Grafedia also goes one step further by inviting people to create their own graffiti. Grafedia is very different from my Graffiti Analysis studies as it has little to do with the pre-existing community and art form of graffiti writing, but instead seeks to create an entirely new form of urban communication and a new group of interested wall readers. And while the content and intent is very different, I do feel that grafedia’s use of technology in graffiti is in many ways more successful than my own. By taking advantage of the fact that most urban pedestrians have cell phones John is tapping into a pre-existing system for creative communication that is very in line with the development and ideals of graffiti culture. And while this project does not address my interests in movement and the act and graffiti writing, I appreciate the way in which Grafedia has introduced graffiti to an entirely new group of people.

BIKES AGAINST BUSH



Josh Kinsburg's Bikes Against Bush project is one of the geekier forms of graffiti I have ever seen. Created as a protest piece for the republican national convention, this graffiti project incorporates everything from physical computing, blue tooth technology, cell phones, the Internet, web cams, and GPS. "Using a wireless Internet enabled bicycle outfitted with a custom-designed printing device, the Bikes Against Bush bicycle can print text messages sent from web users directly onto the streets of Manhattan in water-soluble chalk." During the days of the convention people were invited to send messages through a web browser to Josh's bike. His handlebar mounted cell phone would send text data to his onboard laptop which would control six spray chalk cans hanging off the back of the bike. Protest statements were printed onto the street as he rode and documentation was posted to his website.

Fig. 28,
<http://www.bikesagainstbush.com>

<http://www.bikesagainstbush.com>

Although there have been several computer controlled spray paint systems built previously, (see Hektor, StreetWriter, and GraffitiWriter) Josh's project allowed for user interactivity in a way that was new. Technology was being used to allow people to spray their messages to the pavement from the comfort of their own homes; inviting people to not only witness the graffiti, but also be a participant. And while the final output of my thesis will not allow for direct interaction with the public, I hope to use technology in a new way which engages the interest and imagination of the public in a similar fashion to Bikes Against Bush.

Defining My Form

OVERVIEW:

My thesis takes as an input the act of graffiti writing to create new forms that are telling of the time and motion in which the original stroke was created. A major portion of my design efforts will be in visualizing movement. The resulting composite images will be a collaboration between my software and the writer's movements.



Fig. 29, Manhattan Bridge, 2004

TAGS:

I am focusing my study specifically on tag form of graffiti, which I define as characters created from a single line width through the direct contact of a writing device and a surface. Tags are the purest form of graffiti, the form that is found in the most abundance, the form that has the tightest relationship with time, and the form which is most misunderstood by the general public.

TIME BASED MEDIA:

The beauty of tags cannot be viewed without their context. The form typically does not translate well to the printed page, and it translates even less when stripped of its surrounding environment. Graffiti needs its environment to tell its story because it is a time based medium. Tags are expressive of the manner in which they were

created. Hurried movements of the hand and arm are captured in paint and marker, and while the tag itself may or may not be particularly pleasing, it tells a story when viewed with its surroundings. How did the writer get a private moment with the wall? How was entry gained? How many people had written in that spot previously? How often are police in that area? Was the writer alone? What were the possible escape routes available? Within the context of time and space the paint can take on added meaning. For this reason I find tags and throw-ups more interesting than pieces. Tags are designed to be as visually stunning as possible and take only seconds to execute. Full multi-color pieces, while being visually dynamic and technically difficult, commonly lack the element of time in their creation. Permission pieces often lack the vitality of even a simple pen tag. Graffiti is an art form that is reliant upon its creation in time.

A RETURN TO FORM VS FUNCTION:

Coming from a design background, an aspect of graffiti which I find quite beautiful is the close relationship between its form and the way in which it was created. Dynamic tags created in ink are expressive of the motions of the arm and hand. Its form is very telling of the physical movement of the body that went into its creation, as well as the constraints of time that are placed upon its production. Marker tags have grown in popularity as they present less risk of being caught from their easily concealable size. Flowing single line compositions of dripping paint are applied to walls, telephone booths, and advertisements. Many find this form to be the least appealing form of graffiti, but I find it one of the more interesting. These tags are designed and created under an extreme economy of means. Most can be created in one single fluid movement of the hand and arm and can be completed in seconds. Their form is poetically expressive of their medium.

BRIDGING THE GRAFFITI VS STREET ART DIVIDE:

Graffiti Analysis is a conceptual graffiti endeavor that explores new media, and because of this it will be considered by most people to be a “street art” project. By involving traditional tag based graffiti artists as an input to my digital system, however, I hope to reach out to the writing community which is still the backbone of all that is holy and deviant in graffiti. Street artists that distance their work from the term ‘graffiti’ create an unnecessary divide between the already small community of artists creating work illegally in public. Street artists should be humbled to be putting up their art in a city with such a rich history in graffiti as New York City. Graffiti was pioneered here by people who were willing to risk jail and even death for their art, and to act as if street art is something entirely new and unrelated is a mistake that is as insulting as it is ignorant. Changes in technologies and legislation are allowing the form of graffiti to change from

having its basis in writing to more varied media, but in the end it is one movement. *Graffiti Analysis* will use new media to look at traditional written graffiti in a new way. And while I don't expect all writers to be supportive of this project, I would hope that it will be of interest to a significant portion of both the street art and writer communities.



INPUT DEVICE:

In graffiti writing, as with any other art form, there is an importance placed on the tools. Graffiti tags are often made with highly specialized and customized inks and markers. Ink recipes and marker modifications are discussed and debated between writers in person and heavily in online forums. Inks are created from products such as shoe polish, break fluid, house paint, calligraphy inks, paint thinner and even sulphuric acid, ranging in goals of color variation to difficulty of removal. Markers as well are created from everything from Chap Stick tubes, to shoe polish containers and achieve different effects such as greater line thickness and drip control. A graffiti writer's drawing tool is a very personal and intentional choice, having a great effect on the look of the tag. Combinations of markers and inks are often kept secret by writers in an effort to stand out from others in the community. In calligraphy there is similarly close attention paid to the brush, ink, and paper. In his book *Chinese Calligraphy*, Yee states "Nor can a good stroke be made with any kind of pen or pencil. The brush alone – the same brush as the painter uses – can effectively reproduce the movements of clouds and trees" (Yee p.112).

Fig. 30

As of 12/11/04 there are 1,966 entries in the "INK RECIPE SUPERTHREAD", and 1,264 entries in the "marker modifications" thread at 12ozprophet, a popular graffiti community web site.
<http://www.12ozprophet.com>



Fig. 31, from *All City*

The interface in my digital system will be the writer's tool of choice. To ask a writer to create their tag with an inferior writing device (or a computer mouse) would be the equivalent to handing a trained painter a crayon, or professional pianist a child's keyboard. Writers will interact with a digital system the same way in which they interact with a wall, and should feel as comfortable as possible recreating a gesture which they have made hundreds of times before.

LANGUAGE OF FEAR:

When humans don't understand something, they want to destroy it, abolish it. And that's what happened.

Society holds intractable prejudices against graffiti for reasons including the lack of access codes to appreciate the vibrant Writing. (Mai p.078)

Quote by New York City writer Lee from an interview published in *Aerosol Kingdom*, by Ivor Miller

Tags are the form of graffiti which piss people off the most. Their form, like calligraphy and other art forms, requires a learned eye in order to appreciate. What the general public often sees, however, is a mysterious language which they don't understand appearing over night from an unseen hand. People tend to fear that which they do not understand, and people generally do not understand graffiti. Not only do they not understand what it says, which is often not the point, but they don't understand the mentality of questioning the rules. People seek order in their everyday lives, and writing illegally on city walls ruins the illusion of control and order.

They're saying that the kids run the subways. That the system is out of control... That there are 15 and 16 year old kids that are running the system, and that graffiti is a symbol of that.

From the documentary *Style Wars*, by Tony Silver and Henery Chalfant

It was fear which lead to the \$150 million graffiti removal campaign of the 1980s. (figure from Miller p.136). In an embarrassing effort which simultaneously bankrupted the subway system and removed one of the most interesting and uniquely American art forms of the last 50 years, a string of republican mayors effectually removed graffiti from the subway system. What we are left with today is a system which can no longer afford to even paint the walls a solid color or keep trains from breaking down when it rains. Fear and ignorance lead to the destruction of a vibrant art and the disillusionment of a group of creative, motivated, and underprivileged youth who in the boroughs of New York City sparked a creative movement that has traveled around the world only to come back again in the form of commercialism. In an ironic twist you will now see graffiti themed Nike and MTV adds occupying entire cars; but it is not to fear, for it is now part of a controlled system.

Adjusting for inflation this is roughly equivalent to \$253,000,000.

LANGUAGE OF INFORMATION:

Graffiti Analysis aims to visually educate the general public and allow them to see through the fear and appreciate the beauty that can be found in a well executed tag. A more familiar and controlled language of vectors and pixels will augment the ink to visualize the movement of the graffiti writer's gesture. The tag will be presented through visualization and explanation of movement. Graffiti is treated formally in the same way others have approached calligraphy and penmanship. The rational language of science and data will allow viewers to feel more comfortable in exploring forms which are foreign to them. In doing so the viewer is given a system for understanding, allowing them to view other tags and forms of graffiti in a more informed manner.

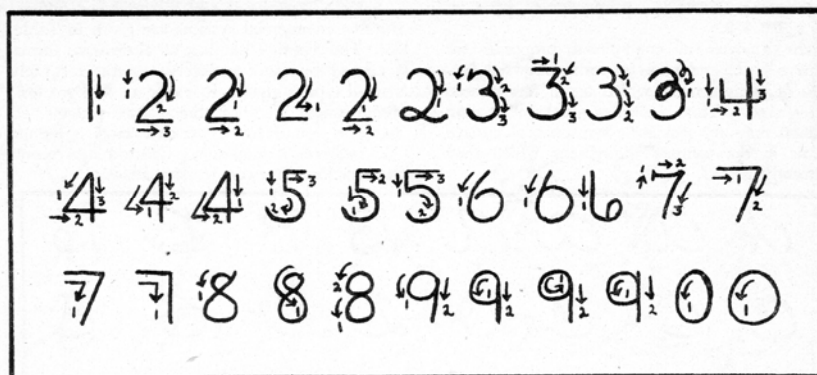


Figure 6 — Manuscript numeral forms proposed by commercial systems

Fig. 32, *Handwriting in Wisconsin. A Survey of Elementary School Practices*

Most of the type and letter forms that we deal with on a daily basis have been analyzed and quantified. We are taught from early elementary school the proper way to form letters by hand. The type faces we use in computer software have been painstakingly designed

and refined to fit various purposes. Even forms of writing that are based on time and movement, such as calligraphy and illumination, have been highly scrutinized and studied. Graffiti remains relatively un-analyzed in terms of form, and is more often discussed in terms of its legality. The act of analysis and research is a statement in and of itself that will give a sense of legitimacy to the craft. With such a system I aim to inform as well as inspire others to become interested in graffiti. Tags will be less “unsightly” to an educated and interested public.

Methodology

In most projects I work on, especially in the academic environment, my creative process involves considering and assessing several different ideas. This was the case during the course of my thesis project where I seriously considered four concepts: *Graffiti Motion Analysis*, *Graffiti Taxonomy*, *Quantitative Graffiti Analysis*, and *Graffiti Gallery*. At their core these prototypes all deal with the notion of bringing analysis, technology, and greater understanding to the realm of graffiti. They are targeted primarily to an audience un-informed and potentially un-interested in graffiti, but aim to be of value to graffiti fans as well. These different concepts may seem radically different from one to the next, but they represent my thought process and how I came to my current iteration of *Graffiti Analysis*. The following four prototypes were presented over the course of the first few months of my thesis process.

GRAFFITI MOTION ANALYSIS (PROTOTYPE 01)

I began my investigations of graffiti analysis with interest in the motion systems developed by the handwriting and calligraphy communities. These illustrations capture in print the path and chronology of pen strokes. Their forms, while meant to be educational and informative, take on a life of their own, becoming new and separate gestures from the original gesture they intended to describe. This was my impetus for my first prototype and remains a driving force in my final iteration as well. Prototype 01 takes these instructional calligraphic illustrations and applies their vocabulary directly to graffiti writing.

In this iteration, a writer would write their tag on tracing paper attached to a glass plane. Light would be able to pass through both the paper and glass. On the opposite side of the glass a video camera records the ink over time as it is applied to the paper. The intent of this system is to capture the tag overtime without any other visual information (e.g. the writers hand, arm, shirt cuff, silhouette, etc.). In doing so, the motion and form of a graffiti tag could be viewed in isolation without any outside information. This short video clip would then be captured to a computer harddrive, converted into

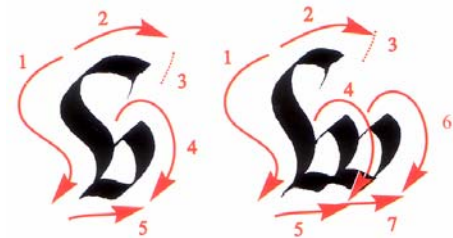


Fig. 33, *Calligraphy & Illumination, a History and Practical Guide*

Quicktime format, and imported into an application built for video analysis.



Fig. 34, Early writing input setup

The video footage would then be analyzed by a custom made application to algorithmically generate illustrations modeled after the language developed by calligraphers. The result would be an animation created from the combination of the original graffiti tag layered with explanatory vector graphics. This animation would loop over time and be archived in a database where it could be viewed by itself, or compared against other tags by other writers. This data would be accessed through the internet and be viewed by individuals in the privacy of their own homes.

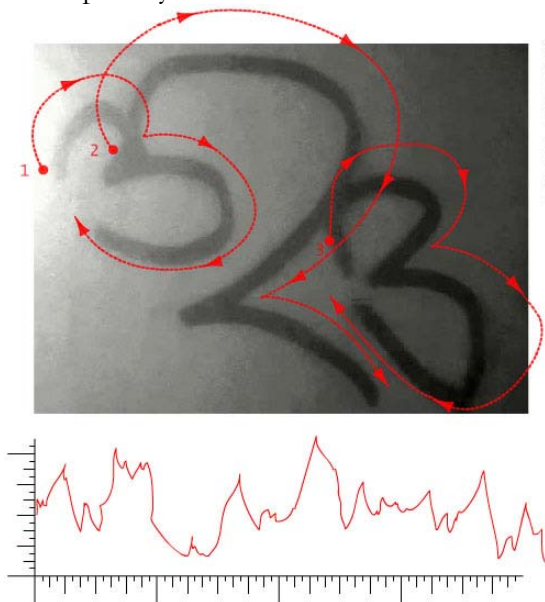


Fig. 35, visual output from Prototype 01

In conjunction with the online implementation I was more excited about how this form could be reintroduced into the city as a new, highly nerdy, form of graffiti. The video analysis application would also have the functionality of printing the resulting images into an .eps file. These would then be printed on sticky back 8.5 x 11 sheets of paper and placed in the city next to tags created by the same writer. Attentive pedestrians would see a tag written on the wall with a descriptive poster next to it describing in detail the movement made in its creation. This same process could be repeated for various writers and show up in different parts of the city. My intention was for the visual language of the prints to be so far removed from that of the original tag to the point of ridiculousness. My treatment of the tag would have been overly academic and nerdy to point where it crossed the line into nerd-sheik. A comment I received from a classmate, Jenks, related to this prototype has remained in the back of mind. He said that no matter how geeky the graphics are, as long as you are putting it back up there is going to be something punk about it. This element of 'punk' he described is the notion of dissent which drew me to graffiti in the first place. Similarly, the mental image of some crazed scientist or mathematician running around New York City and graphing all the graffiti tags seemed funny and intriguing.



Fig. 36, Prototype 01 at 13th St. and 5th Ave.

Reactions to this prototype were reserved yet generally positive, but more importantly, I could tell from the lively conversation it produced that I was pursuing a line of thinking that was on some level thought provoking. Although I felt comfortable developing this prototype further I wanted to first explore completely different ways of analyzing and creating work within the graffiti genera.

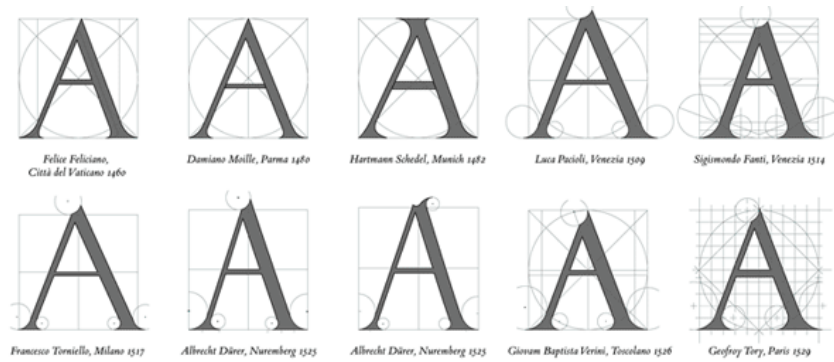
GRAFFITI TAXONOMY (PROTOTYPE 02):

While my first prototype dealt with investigating the motion of a graffiti tag, my next study would be of form. Where Prototype One dealt with analysis of a single mark, prototype two would look at hundreds; creating visuals from a collection of a large number of tags found throughout the city. Graffiti Taxonomy was a study of isolating similar characters in multiple tags to allow for more telling comparisons in form.

The first step in this process was to gather data. For my first set of data collection, I chose the Lower East Side area of New York City, between Delancy and Houston. I walked in a deliberate path so as to walk down every street in the neighborhood, photographing hundreds of graffiti tags along the way. I would shoot any tag that was made through direct contact (e.g. marker, not spray paint), and that had at least a few letters I could read. It was not necessary to read the entire tag. Any letter 'A' or 'S' was of value to my research. After walking for several hours, I returned home with about 400 photographs of different tags.

Once the files were transferred to the computer I organized the tags by name. Amongst the various names I calculated the popularity of letters within the area. For example, the letter 'S' showed up the most with 60 different variations (by 60 different writers), where as the letter 'C' only showed up in only 16 different variations. Focusing on the most popular letter I chose to narrow my scope to the letter 'S' (in a second version I chose the letter 'A'). Using the collection of tags containing the letter 'S' I removed the background of the images in Photoshop, leaving behind the dark ink on a white background. Within the black ink of the tag I then isolated just the letter 'S' and blew it up large scale. I repeated this process with numerous different tags until I had 25 different examples of how to write the letter 'S'. Next I laid these images out at similar scales in a neat 5 x 5 grid. The close proximity and related scales allowed the eye to make quick comparisons between the letter forms, revealing a world of styles wrapped up in a single letter. This process is an intentional and direct reference to Tufte's notion of small multiples. Tufte states:

At the heart of quantitative reasoning is a single question: *Compared to what?* Small multiple designs, multivariate and data bountiful, answer directly by visually enforcing comparisons of changes, of the differences among objects, or the scope of alternatives.

Fig. 37, *Visual Explanations*

The example above from *Envisioning Information* uses type designs of the Roman 'A' character to illustrate this point. And while what I did with the graffiti 'S' characters (and later with the letter 'A' as pictured below) is strikingly similar to Tufte, I wondered, "Why this same process has not been repeated in relation to graffiti forms? Why am I the first?" There is a seemingly endless supply of character designs being buffed and painted over every week in the city. There is intent and skill in these creations that are worth our time to study.

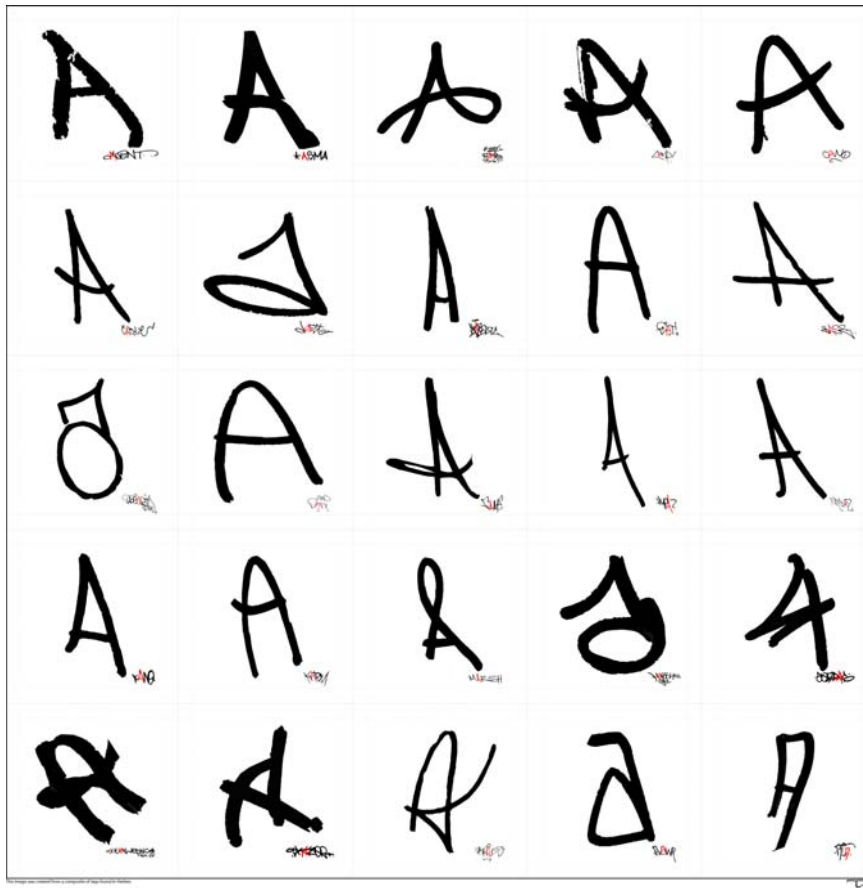


Fig. 38 Graf Taxonomy of the letter 'A'

After these characters were laid out in Illustrator they were printed on standard 8.5 x 11 sheets of paper from a home printer and tiled to

create 36" x 36" compositions. These posters were then wheat pasted to walls ideally in areas where the research for the original tags were gathered. The final result is composed completely from graffiti tags found in the city, just re-ordered, scaled, and cropped to be more telling of the numerous styles. Even though viewers are still looking at graffiti tags the forms are presented in a way which allows for greater understanding of the medium, and makes clear the design and intent behind the crafting of the characters. Elements of tags are isolated and re-introduced into the city as a new form of graffiti which educates a non-graffiti literate public, as well as celebrates variations in written style.



Fig. 39 Graf Taxonomy print on University and 14th St.

This prototype has been by far the most successful approach I have developed. People are not only drawn to its form visually, but it achieves a primary personal goal of inviting everyday people to view graffiti in a new and different way. The imagery is informative and allows people to see intent, design, and craft where they otherwise might have only seen blight. As I went back to re-visit these posters in the daylight to take photos I was able to watch people interact with them. They had a stopping power I have never experienced before in anything I have personally put up in the city as graffiti. I watched as a woman carrying two bags of groceries stopped and spent a full 2 minutes studying the poster closely. I re-visit many of my projects from time to time so see how they are weathering, or if they are even there at all, and never before have I seen so many people actually stop and look. The satisfying part to me about this is that I have not added anything that was not already there. Every drop of ink on these posters was from graffiti elements already existing in the city just cut up and re-organized. I found one poster, which after surviving

several weeks on 6th ave., people had begun adding their own letter 'A's. This interaction was unexpected and extremely rewarding. In another poster, on University and 14th st., I walked by to find that one of the original graffiti writers whom I had sampled from, 'NEA', had come across it and wrote her name over her own letter 'A' which she had identified in the poster. I was completely blown away that this poster had come full circle.



Fig. 40 Graf Taxonomy print on University and 14th St.

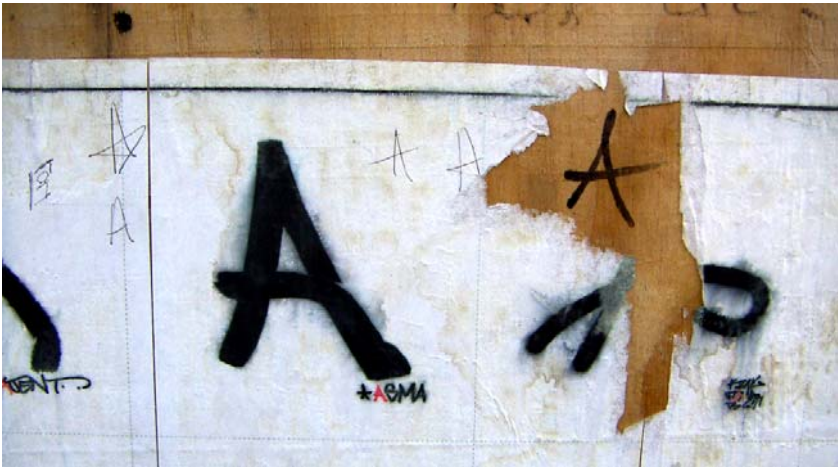


Fig. 41 Graf Taxonomy print on 5th Ave. and 13th St.

This prototype was well received by academic critiques, friends, graffiti fans, street art fans, and people on the web. Something about it seemed to click with people of varying interests. In the end my decisions not to pursue this project in a thesis format had more to do with its relative completion conceptually, lack of “technology”, and on a personal level I was looking forward educationally to developing my coding skills rather than my Photoshop skills. Had I chosen this

project as my thesis I would have been in production mode from the first month of the school year all the way to the thesis show. Very little thinking conceptually or programmatically would have had to been done and my year would have consisted of trimming thousands of images in Photoshop. I am still very excited about this project, and plan after graduation to pursue its production into a book length publication where I do treatments for every letter of the alphabet each in different neighborhoods of New York City. It was necessary for the time being, however, for this project to take a back seat to something that would foster a more technical and mental struggle. It has been a bit difficult to escape the shadow of the Graffiti Taxonomy project and create graffiti related work that communicates as effectively. In the end I'm not sure if my current thesis iteration will ever be as successful as this simple idea, but I am comfortable putting it on the shelf for another day.

QUANTITATIVE GRAFFITI ANALYSIS (PROTOTYPE 03)

In Prototype 01 I addressed the question "how is it made?" in prototype 02 "what does it look like?", and in prototype 03 I asked "where is it and how much is there?" This iteration of graffiti analysis was the closest to true data visualization of any of my proposals, and aimed to visualize where graffiti was in Manhattan.

The first part of this project would be the development of a public online database. This database would have a unique identifying code for each city block in all of Manhattan. Anyone would be free to login and upload data related to these blocks. Graffiti would be quantified and recorded on a block by block basis in categories such as the number of stickers, the number of marker tags, and the number of spray painted pieces. For example, if I were recording data for the project related to the block boarded by 5th ave., 6th ave., 12th st. and 13 st., I might enter such findings as: 65 marker tags, 26 stickers, 18 uses of spray paint, and 5 uses of wheat paste. This archive would exist online and gather data from people interested in graffiti, data visualization, and urban life.

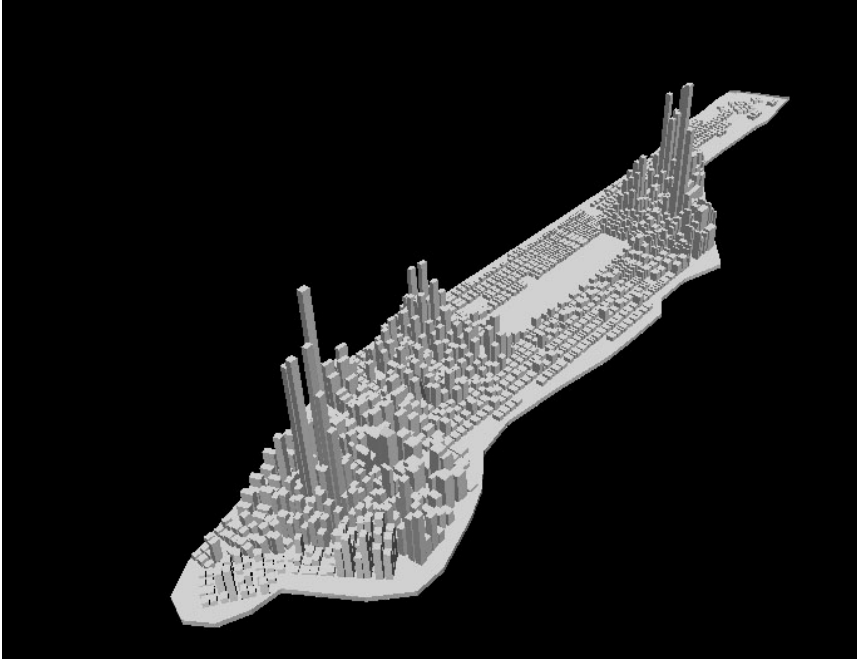


Fig. 42, Screen capture of Prototype 03

The purpose of this backend data would be to dynamically create real time graphics. Each city block in Manhattan would be scaled vertically in a 3D environment based on the quantity of graffiti it contained. A block with a lot of graffiti in the lower east side would appear very tall in comparison to a residential block on the upper west side. The resulting imagery would have an intended similarity to the verticality of the skyline of New York City, but it would tell an all together different story. In this map the spikes in downtown would not refer to the towering financial center structures, but rather a few blocks north to Canal St. which is covered in different forms of graffiti. Midtown in this map would no longer tower over the rest of the city. Instead spikes would appear in areas of Harlem, peaking at the graffiti hall of fame on 128th st. The city would be re-imagined through the lens of graffiti, giving a telling account of where this activity is taking place

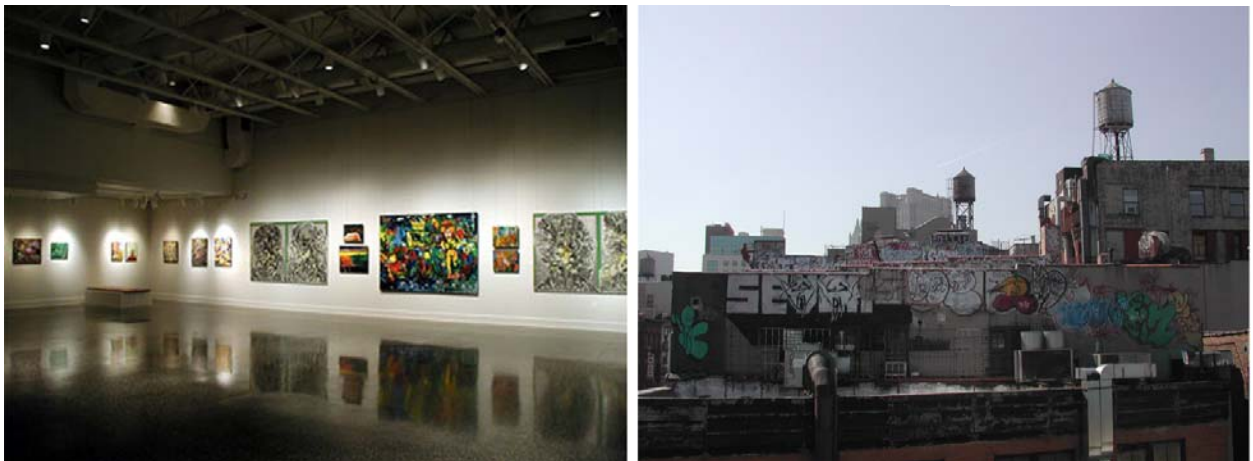
This 3D map would be viewable online and be constantly changing and updating with every piece of information it received from data uploaded by participants. Other data sets could be pulled from existing sources to compare against the graffiti visualization. Maps of art institutions, schools, museums, police stations, crime, and economics could be layered on top to view graffiti's relationship to these other systems. The data would speak for itself and could be of interest to graffiti advocates, graffiti removal campaigns, community groups, and police forces. Beyond the specific meaning of the data I personally would also have interest in the map as a visual metaphor depicting the ability of a group of active but disconnected members to affect the look and feel of a massive city such as New York.

The most obvious problem with this quantitative approach to analyzing graffiti is the data collection process. It would take a significant amount of time and participants to produce the data necessary to create a telling visual. The website would need to achieve a certain level of popularity and interest in order to reach a state of equilibrium where it would start to build and grow on its own. Additionally, even if the interest were there the databases public nature could create serious problems. Differences in people's classification of what they choose to count in their data collection process would vary. "Is that band poster graffiti?" "Do I count that lock smith sticker?" People would also have the ability to intentionally alter the data. For example, if someone wanted to see the block they live on appear as a sky scraper they may enter inaccurately large numbers just to affect the map. These are problems that are common to all public data sets. WIKI-pedia is an example of a site that has thus far surmounted many of these problems. It is an online encyclopedia where anyone is free to enter text on any subject. It has generated enough interest where it is self sustained and self regulated. But, while examples such as this do exist there are most likely thousands of others that have failed. I still find ideas within this prototype interesting, however because it depended on the work of hundreds of willing participants I felt that it was not a realistic project to complete in the format of a thesis.

GRAFFITI GALLERY (PROTOTYPE 04)

In my forth prototype I chose to focus on the differences between sanctioned and unsanctioned art. While many graffiti artists have been successful in crossing over into the gallery scene, the fundamental differences between the two are quite large. Museum galleries and urban graffiti, while both being forms of creative expression, exist within completely different systems for viewing and distributing work.

Fig. 43, un-known art gallery and roof tops in China town



One system archives and preserves work while the other expects it to whither with the movements of the city. One system is curated and functions on an invitation only mentality, where the other doesn't bother asking for permission or acceptance. In one system the walls are always perfectly white and pristinely lit and in the other they are covered in grime and decay. One system assigns monetary value and sells creative work where the other gives it all away for free. One system is about controlling the environment in which art is viewed and the other revels in the chaos of the city. These are of course over simplifications of the differences between art museums and graffiti, but the fact remains that these two systems which are both interested in creativity and art seem to be at odds with each other. I find these differences interesting and chose to deal with them in my forth prototype Graffiti Gallery.

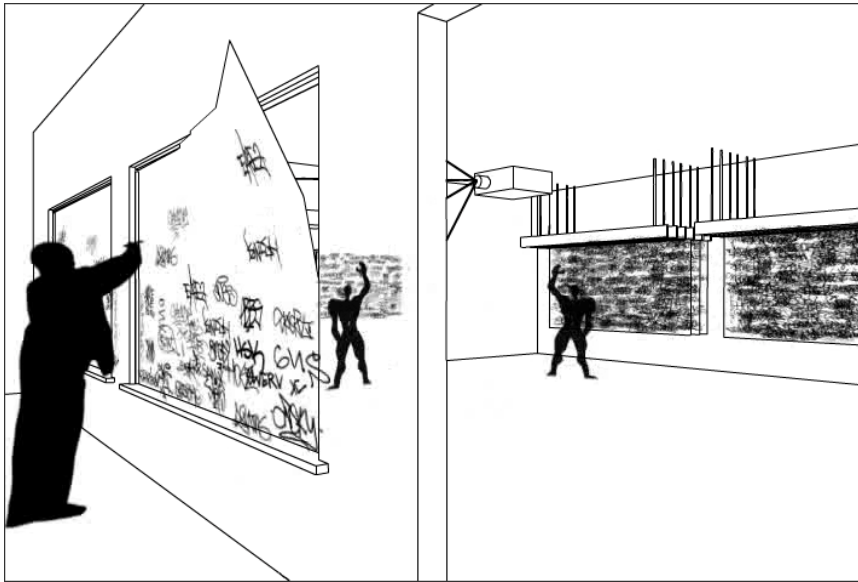


Fig. 44. Screen capture of Prototype 04

In this scenario gallery visitors are invited to write their name / tag on the exterior glass of the gallery after museum hours. The glass is covered in an imperceptible clear plastic film which both protects the glass and allows the graffiti to be removed once it has achieved a certain level of coverage. This plastic film is removed when full of names and placed on the inside of the gallery. As a participant writes their name or tag on the exterior glass the movements are captured with a computer vision system. A video camera on the backside of the glass detects the added ink and records the data into a motion analysis application. The motion of their writing is used as an input to a computer program which creates visuals based on the pen movement and projects it back onto the back side of the glass in real time as the tag is written. The projection behind the tag remains animated and only begins to fade as more tags are created. Algorithmically generated digital visualizations based on pen

movement are recorded and replayed in the order they were written on a flat panel LCD screen within the gallery. Here the gallery visitor can get a speed up view of the activity happening on the outside of the gallery's glass wall.

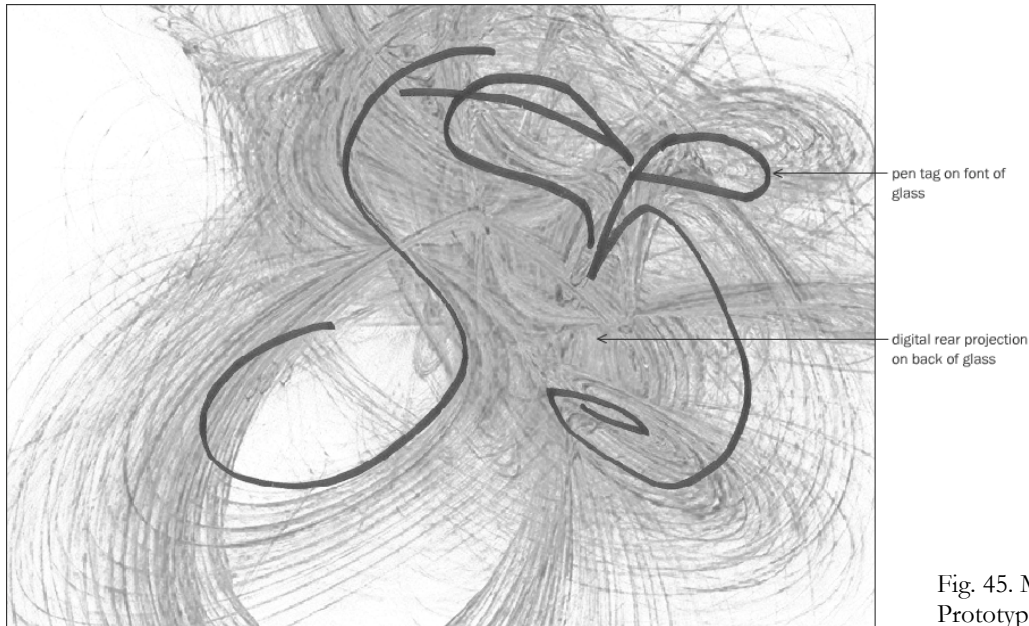


Fig. 45. Movement visualization of Prototype 04. Artwork from <http://levitated.net>

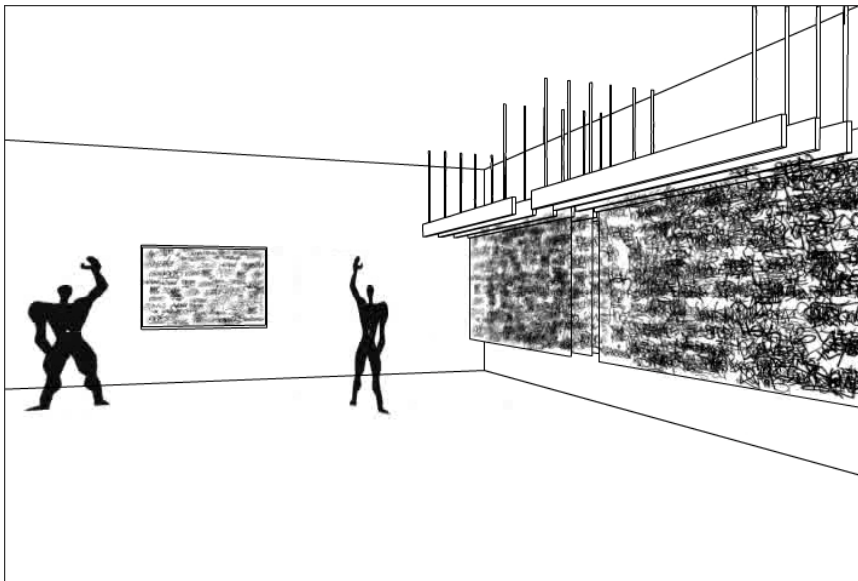


Fig. 46. Interior rendering of Graffiti Prototype 04

When the outside of the gallery glass has been covered in tags and signatures the clear plastic film is peeled off and hung inside. The gallery becomes a space for viewing what was originally created in the public realm. The video motion tracking system records gestures which are passed through the glass, processed, and re-projected back onto the back side of the glass and into the eyes of people standing on the sidewalk. Is the tag or signature any more or less of an art

form after it has been processed by the system on the inside of the gallery? Does the graffiti tag become art once the gallery owner decides to peel it off the glass and hang it in the gallery? These are the types of questions I was intending this installation would provoke.

The major problem with this prototype was its scale. It would only really be effective if the show were able to take over an entire small gallery space, which would be highly difficult to procure (especially since the piece questions the role and authority of the gallery in the first place). I did feel that some of the issues the piece could have raised would have been interesting, and I liked that it invited typical gallery visitors to take part in writing their names in public (possibly for the first time). Personally I was less satisfied with this prototype because it was dealing as much with the art world as the graffiti world. My initial interests lay in bringing technology to the world of graffiti rather than make a point about curated vs. democratic art.

WHAT I LEARNED:

After exploring graffiti by looking at its motion, form, quantity, and artistic justification I felt that my first prototype was the closest to what I was interested in developing. Graffiti writing is an act which revolves around time. Tags are designed to be written with the most expression in the shortest amount of time. Graffiti happens in those few seconds that none of us see. Writers steal these un-guarded seconds and they accumulate in small bits to change the way the city looks and feels. Writers have written their names hundreds and hundreds of times; their hand constantly tracing the same motion. This movement is at the core of graffiti writing, and it is the one thing that is not visible. In the city we see the end result of the motion, but we almost never see the actual motion. My thesis, *Graffiti Analysis*, archives and visualizes this motion. Graffiti is a creative form of self expression that has never (as far as my research as shown) been digitized. By capturing the movements of graffiti writers I will be digitally archiving for the first time these un-seen few seconds that affect the visual landscape of urban centers. My work from this point forward has revolved around recording and visualizing the gestural movement of graffiti writers.

What I Made

PROJECT OVERVIEW:

Graffiti Analysis looks at the creation of graffiti tags as data source. The gestural movement of practiced graffiti writers is highlighted and made visible through technology in ways that have previously not been explored. By projecting graffiti tags in motion onto city walls people will be given an opportunity to view these forms in an entirely different way than the dripping ink that is commonly associated with crime.

INPUT: DIGITIZING GRAFFITI

The first step in my project involves digitally capturing graffiti tags. In December of 2004 I published a short video explaining the basic premise of the graffiti analysis project on my ni9e.com website. Interested and active graffiti writers were encouraged to send me an email. I also posted photos of 25 writers who I was dying to meet. My intent in targeting specific writers was that I wanted my thesis to highlight people who are currently active. I am more interested in involving those tags that I see everyday in different parts of the city rather than those that might be particularly beautiful or technically proficient. These are the writers who have embraced the tag, having repeated its basic movement the most amount of times. Based on this short online treatment I have received emails from people from as close as Brooklyn and as far as Australia.



Pictured above are tags from JESUS SAVES, AVONE, and HELL. When I began my investigations theses people were at the top of my

Fig. 47. JESUS SAVES, AVONE, HELL,

list of pie in the sky writers I would love to meet and involve. These are among the writers that I see more than anyone else when I walk around NYC. I, like other graffiti aficionados, am a very different kind of urban pedestrian. I am constantly looking in neglected doorways, newspaper boxes, the backside of signs, and all the while taking photographs constantly. And while I don't claim to have intimate knowledge of the entire city I do feel that I know what writers are up between Downtown Brooklyn and 23rd St. as much as anyone. In my existence within New York JESUS SAVES, AVONE, and HELL, through sheer quantity have had a bigger effect on the visual landscape of the city than most other graffiti writers. I was interested in meeting with them not because of how many times they have been published in graffiti magazines, or how often they show up online, but because they have made a lasting impression on my perception of New York City.

Through my initial video and invitation on my web site, as well as frequent posts to my blog site (<http://blog.ni9e.com>), I was lucky enough to get in contact with these writers and have them express interest in participating. Because the NYC vandal squad has recently been increased in size and funding there have been many arrests recently. I would like to thank these writers for taking a chance and meeting with a stranger in these times where it is once again dangerous to be a graffiti writer. My invitation was made even more difficult by the fact that a similar tactic was used by the vandal squad in the past. In a conversation with DURO3, he said that the police put out a fake announcement saying that they were shooting a documentary film on graffiti, and interested writers should meet them on location to be in the movie. Dozens of writers were apparently arrested that day, and it is understandable why they might be more reserved about reaching out to others in the future.

Although meeting with influential writers will be an on going process, as of the completion of this document I have captured graffiti gestures and corresponding visualizations from JESUS_SAVES, AVONE, and HELL. I would have been happy to have met with only one of these writers, but to have been able to include all three is beyond what I initially hoped for.

Fig. 48. Stills from initial online treatment.
http://ni9e.com/graf_analysis.html



TECHNICAL OVERVIEW:

Writer's motions are digitally captured with a custom hardware and software application which I have developed. The bulk of the computing relies on a video motion capture system.

The first step in the process was to attach a small light source to the writer's marking instrument of choice. The software application tracks the central point of the light, ignoring any other movement of the writer's body, or movement of dripping ink. The motions of the tip of the pen are the genesis for all of the data that will be gathered.



Fig. 49. Input device

The pen is used in conjunction with a dark box camera enclosure that ensures the best possible capture environment. One end of the box is a clear piece of the plastic cut to the native 4:3 aspect ratio of the security camera that is used for the motion capture. From the edges of this plastic, four walls taper down the point where the camera is housed, creating a rectilinear cone shape which matches the field of vision of the camera. The camera is mounted opposite the plexi-glass at roughly 24 inches distance. When the writer creates their tag on the clear plastic the camera only records the point of light generated from the marker as the tag is drawn.



Fig. 50. Security camera input device.

Additionally, DV footage is shot from a tri-pod on a close up view of the back of the hand, as well as the writer's full body in silhouette. The video from the security camera is sent to a video capture card which relays the signal to a custom C++ application. This application creates visuals based on the input from the writer. Speed, direction, and acceleration are documented visually on screen. When the tag is complete all of the data is saved into a .graf file, which is able to be loaded into a second application built for playback.

IMAGERY:

The data is processed in an application written in C++. Based on X, Y, and Time variables graphics are created dynamically dictated by speed, direction, and acceleration of the pen. The resulting images are designed to be both visually intriguing as well as informative. Graffiti is an art form that strives for visual impact, and for this reason I feel it is not disingenuous to seek a visually appealing and striking form in the digital re-creation of the gesture. This said, I am most interested in the output being visually expressive and informative of the motion that created the tag. The line width is based on the speed of the pen; slow movement draws a thin line while fast sweeping strokes result in a thick line. Particles extend from the point of movement to express the direction and speed of the pen tip. Time is represented linearly in the Z direction as the origin of the tag begins at 0 and extends towards the viewer. These visuals have a life of their own, but are also informative of the original gesture. The goal of the resulting imagery is to both highlight the beauty of elegant motions of the hand, as well as educate potentially interested members of the public.

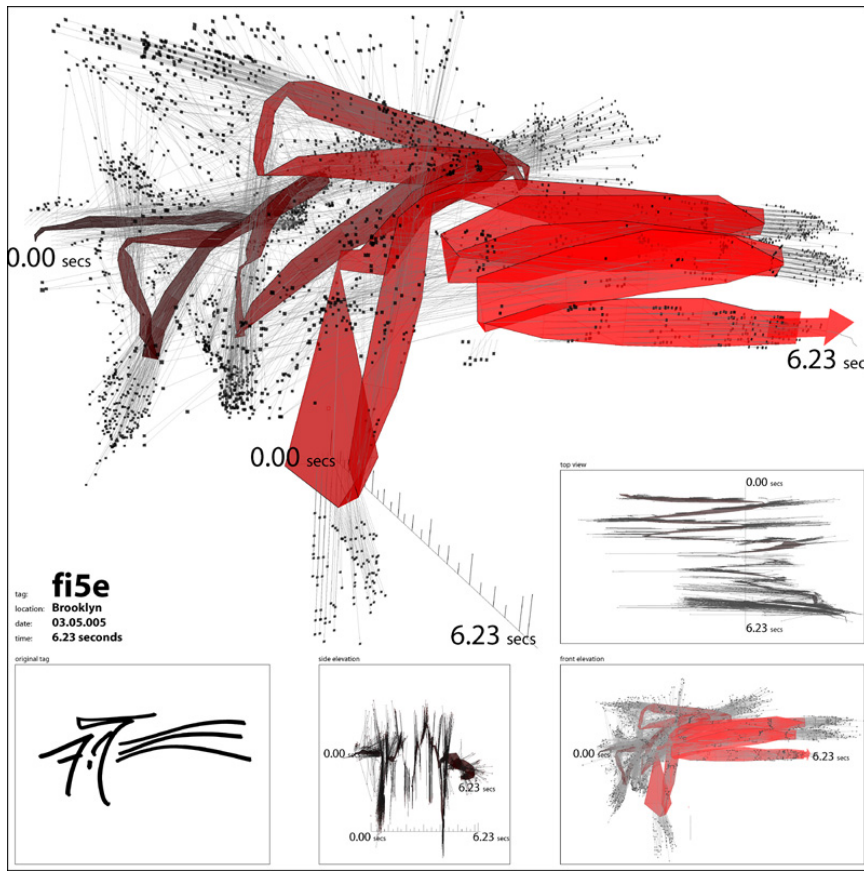


Fig. 51. Graffiti Analysis print prototype

Graffiti gestures are saved as raw data in .graf files (essentially .txt files which my system can import and export), and visually as .eps files. The .eps files will be used in the tags reproduction for high resolution print files, and the .graf files will be used to re-play the animated tag in the 3D environment of my application. In the end, writers movements were captured in three different ways: 1.) as raw data which I can retrieve and play in an interactive screen based environment, 2.) printable images of the analysis, and 3.) video footage of the tags production. From this point on the input process is complete.

OUTPUT TO PROJECTION:

The final implementation of my thesis work are large scale outdoor digital projections. Using a digital projector, a portable power supply and laptop, imagery from the *Graffiti Analysis* application is projected on city walls. Video footage as well as algorithmically generated visuals are produced depicting the movement of the tag as it is written. Projections range in scale and location from 10ft to 10 stories. Locations are picked based on considerations of ambient light level, available surface area, wall texture, and visibility. The

projections are performative and last between 3 minutes to 20 minutes. Specific times and locations for projections are not announced, as they are intended to be discovered by pedestrians in the same way that traditional graffiti is viewed.



The car battery charges an 1800 watt DC to AC inverter which powers the digital projector. The laptop runs from its own battery and is connected to the digital projector via a short VGA cable. The projector is 2200 lumens in brightness, which I have found to be the minimum needed to achieve a viewable image at large scale in an urban environment that never reaches total darkness. The projector, laptop, and myself as the controller are seated in the back seat of the car while one conspirator drives and another runs the video camera. The projector sits on boxes raising it above the bottom edge of the window. During performances the window is rolled down and the lens cap is removed. Driving around areas of Brooklyn and Manhattan spots are picked based on current lighting and crowd conditions. Finding walls in areas of low light and an unobstructed expanse for projection is the highest priority. Also of importance is locating areas where there are people. While it isn't necessary that there be a large group in the area, there does need to be at least a few people to witness the event. It is in this situation that the Graffiti Analysis application becomes a performances tool to present the animated graffiti data at large scale.

Fig. 52. Graffiti Analysis public urban projections



Fig. 54. AVONE projection in
Carroll Gardens, Brooklyn

Fig. 55. JESUS SAVES projection
in Carroll Gardens, Brooklyn



Fig. 56. AVONE projection in
SOHO, off Broadway

APPLICATION AS PERFORMANCE TOOL:

The C++ application I have developed becomes my own control panel for manipulating and projecting graffiti tags in real time. There are four main elements of the application that can each be controlled individually:

1. algorithmically generated visualizations of the movement,
2. close up video footage of the graffiti writers hand in motion,
3. silhouetted full body imagery of the graffiti writer in action, and
4. graphs depicting changes in speed and rotation.

Each of these visual elements can be turned on and off, scaled, and positioned independently of each other to best fit the specifics of the site. I manipulate the visuals as they are being projected so as to incorporate them into the environment. For example, the video footage can be scaled and positioned to neatly fit the edge to edge dimensions of the building façade, or the full body footage can be positioned to be life sized and standing on a ledge. The application is configured in such a way that these adjustments can be made visually very quickly.

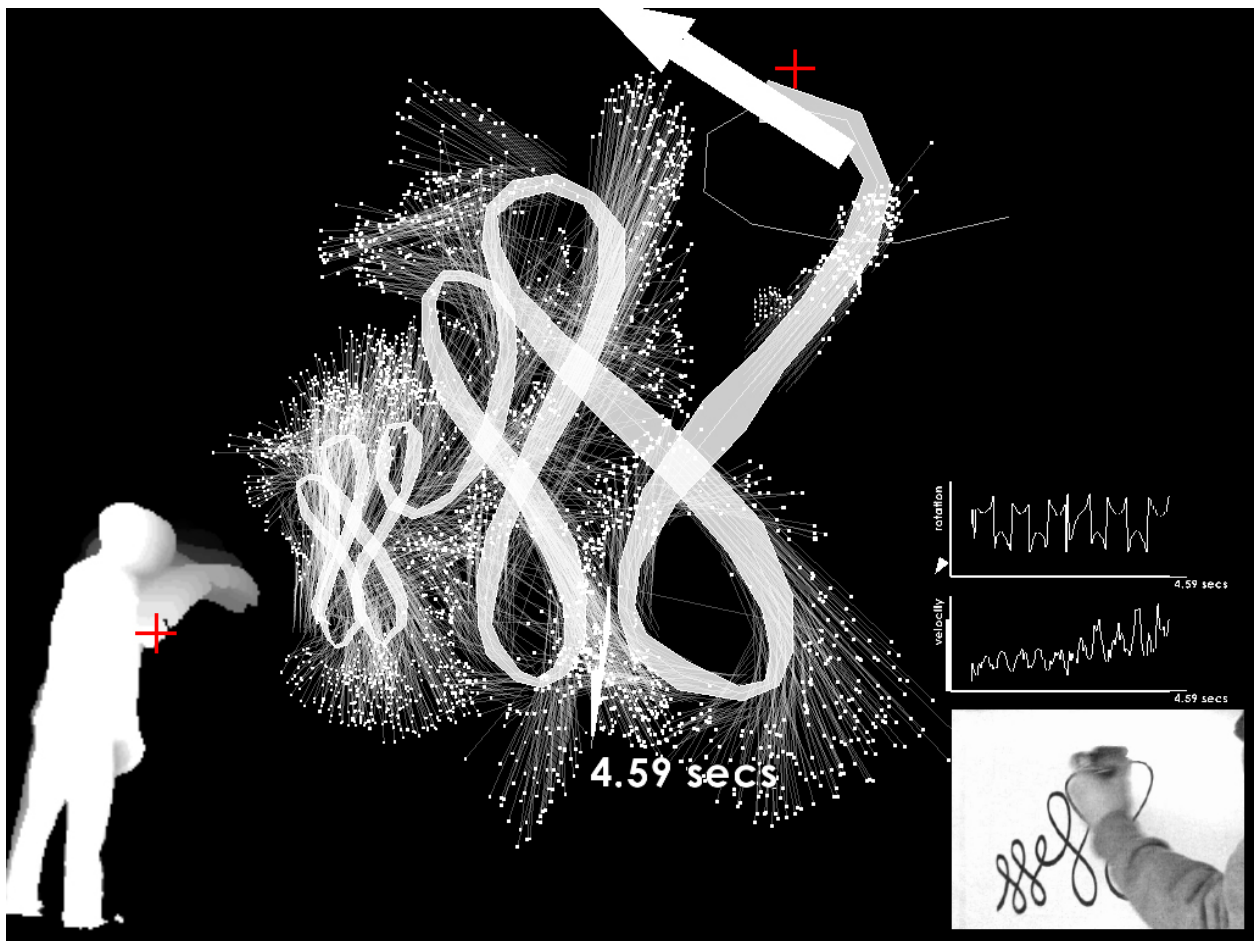


Fig. 57. Graffiti Analysis application screen capture of HELL's tag

These performances happen at various locations in the city highlighting different writers marks involved with the project. Events are documented in video and photographs whenever possible, and it is this documentation which is shown online and in the gallery situation.

SECONDARY OUTPUT:

Graffiti Analysis is a system and process more than a single final output. Although the ideal intended viewing situation would be as a pedestrian happening by a digital projection at night, there are several other output formats which are also important. In addition to the performative digital projections, other output scenarios include print, the gallery, and the web.

OUTPUT TO PRINT:

A digital print ... should be thought of as illusory – a mere sliver or minor facet of what really exists in the digital realm.

John Maeda, *Maeda@ Media*, p. 161

The Graffiti Analysis application also allows a user to at any point in the animation save the image as a printable .eps file. This has been used in earlier iterations of the project to produce poster size illustrations suitable for wheat pasting back into the city environment. And while this functionality does not play a role in the final implementation as a digital projection it is a useful tool which I plan to use in the future to produce prints related to the project.



Fig. 58. Print installation on Court St. in Brooklyn

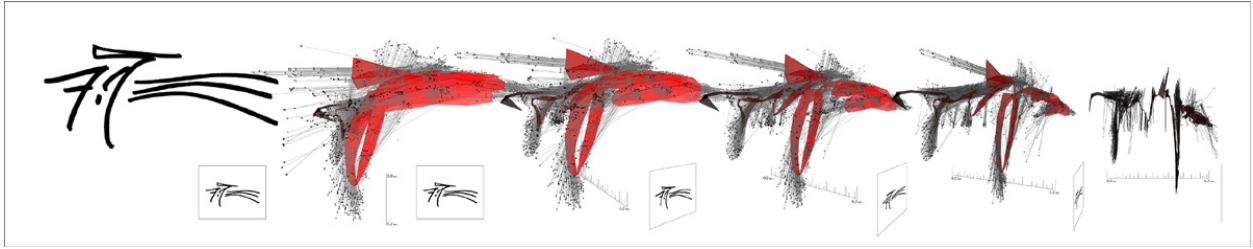


Fig. 59. Rotation print rendering of fi5e tag

OUTPUT TO GALLERY:

The gallery environment offers all together different possibilities for the presentation of *Graffiti Analysis*. In this setting a visitor can view the project in two ways: 1. as documentation of the application being projected in the city, and 2. as the application used to create the projections. One computer runs the documentation and another runs the interactive application.

On the computer running the Graffiti Analysis application visitors can interact with the tag in the same way that I do when performing the piece with a digital projector. By moving the mouse users can rotate, zoom and pan within the 3D environment. Gestural data can be viewed in animated real-time playback or frozen still in time. Viewers can load in the data from the different writers involved in the project and explore their tag in an intimate way not possible in the streets. The application is presented as the tool I used to create the piece rather than the piece itself. The actual piece exists first and foremost as a performance in the city, second as video documentation of that performance, and thirdly the application as an artifact of the performance.

Different tags from different writers can be loaded in, studied, and compared. These forms function as a type of animated sculpture. Gallery goers interact with these digital objects in much the same way as they would view other physical sculptures. The form is meant to be viewed and appreciated from different angles in the same manner as a bust, only in the digital environment it is the 3D object that moves rather than the person. Through interacting with these forms people will be able to view graffiti tags in a totally new fashion. My intent is that once they leave the gallery they will never look at these tags in the same way again.

OUTPUT TO WEB:

I believe strongly in new media work being documented properly on the web. For many multimedia projects it is the documentation that is experienced rather than the piece itself, and for this reason the documentation must be thoughtful, considered, and most importantly it **MUST EXIST**. A project site will be developed in the

future archiving the various implementations of the *Graffiti Analysis* project. In the end I presume that 99% of the audience for my thesis will view my work through this site rather than in the city or in the gallery. While containing text and images the main content of this site will be a 3 – 6 minute documentary film piece explaining the workings and final forms created in my explorations into graffiti analysis. A future goal is to re-code the entire performance application in Processing so that it can be presented through a browser window. Visitors of the web based version of Graffiti Analysis will be able to view video and photographs of the events, as well as interact with the graffiti tag motion data in a web based version of the application.

I have already begun editing and archiving video and photographs documenting the projections, and plan to publish them to the ni9e.com site in the near future. The web is an important part of getting up and my project will not truly be complete until this archive exists.

Evaluation / Conclusion:

CRITERIA FOR SUCCESS:

- 1.) Does my project allow people to look at graffiti in a new way?
- 2.) Is it of interest to the general public, graffiti writers, and new media artists (in that order)?
- 3.) Did I push my personal boundaries programmatically, socially, and artistically?
- 4.) Did I create graffiti?

I feel that I have most strongly satisfied the first criteria, and am most questionable about the last. If my project does something well then it is in its ability to depict graffiti forms in a new and engaging way. The forms generated from the *Graffiti Analysis* application have left a positive impression on non-graffiti fans as well as the writers involved in the project. I know that I will never look the same way at a JESUS SAVES tag after seeing it transformed and projected 10 stories high, and I am confident that many others will have a similar reaction.

The question “is this really graffiti?” has always caused me stress. I very much want it to be considered graffiti, but understand why many will not consider it to be so. It is hard to make an argument that my projections are graffiti when it leaves no visible mark. It was a hard decision for me to move past the printed wheat paste iteration, and towards the more transient digital projection. I have fought the projection from the beginning because I felt that it was not “true graffiti”, and that the expensive equipment was counter to what graffiti is all about. After many conversations over the course of several months with my advisor, Zach Lieberman, I decided to give in and do one test with a projector just to get him off my back. I had been hearing similar criticism from others I respected as well regarding the non-effectiveness of print, and decided I should look at alternatives I had previously decided against. After doing one projection test against an old brick wall in Carroll Gardens, Brooklyn, I was completely sold on the idea. The digital projection was so engaging and revealing of both the tag and the texture of the wall beneath it. The addition of true motion as opposed to motion depicted in print was too valuable a communication device to turn away from. The effect of seeing graffiti in motion on a wall was moving. Zach, and most other people I showed the results to agreed that this direction was much more powerful. In the end I decided that it was acceptable if people didn’t view the projections as a form of graffiti as long as it allowed them to look at graffiti in a new way. In this sense some of criteria #4 was sacrificed to fully satisfy criteria #1; a decision I am confident is correct.

WHAT I LEARNED FROM THE PROCESS:

Going through this development from working on the screen to working on the streets has been an amazing journey. I have never had more fun writing code as I am now; knowing that it will show up in the end as a part of the visual landscape of the city.... even if only for a minute.

Having never worked on a single project for this long I have learned a lot about when it is beneficial to accept criticisms from those whose opinions I respect, and when it is time to trust my own instincts and ideas. Over the course of a year you hear a lot of negative comments in the academic environment. In part, these comments are what you pay the big bucks to hear, but at the same time it makes it difficult to stay confident, positive, and self-motivated. That being said, the academic process was without a doubt beneficial, and I have cherished many of my encounters with students and faculty. Knowing, however, that your thesis project is never going to please everyone should be printed on T-shirts and handed out at orientation. It would have saved me some sleepless nights. Learning to trust my own ideas was an important part of my thesis process.

REACTIONS:

The strongest positive reactions I have heard thus far have come from students at Parsons, friends, and members of the graffiti and street art scenes. I always aim to make work that is interesting to my teachers and people I look up to, however, I can stomach negative comments from my studio critiques more than I can from my friends, girlfriend, and peers. And while there have been many intelligent criticisms of my work, I have been pleased thus far with the reactions from the majority of both of these groups.

My final aural review and critique at Parsons was the most positive response I have had in this setting over the course of the last year. For the first time I felt that the quality of the output (digital projections) was doing justice to the quality of the input (motions of the writers). In addition, this was also the first time I presented the application along with decent video and photographic documentation of the projections in the city. My thesis had reached a level of completion that had not occurred in previous presentations.

Scott Patterson, a former studio instructor and one of my favorite people at Parsons, was at the review. He had seen my thesis at the midterm when I was still struggling with the idea of print as the output. His advice at the time was to find the final piece that would

make the entire project click into place in the same way that my *All City Council* project had come together a year earlier. His comment during the review was that I finally found a way to make the *Graffiti Analysis* thesis as intriguing as the *Graffiti Taxonomy* prototype which I was worried I would never top. He is one whose opinion I hold a great deal of respect for, so it was personally rewarding to hear his vote of confidence in the project.

Also in attendance at the formal review was the first graffiti writer I met with on the project, HELL. I didn't notice him in the crowd until midway through the presentation, but it was wonderful to have him there as it has been a personal goal from the very beginning to make something that was of interest to the graffiti community. During a debate on whether or not the video documentation should be shown he commented that he felt strongly that it should. He stated that this project is not graffiti but something different, and to show the video footage would not take away from the mystery behind the work. He felt that because everything in my thesis revolved around motion and movement, that to not show the documentation in video (ie motion) would be a mistake. I tend to agree with him, and to have his voice as part of the review was a wonderful closing to the academic portion of my thesis.

I have also presented my body of graffiti work (thesis included) at a design and technology festival in Toronto recently. And while the reactions were overwhelming positive, it was interesting that the time spent in design and production does not equate at all to the level of enthusiastic responses. While my thesis work received many comments, it was my postal labels against bush piece that was by far the crowd favorite. This is a project that I started and completed in 48 hours. Since then I have worked on a similarly small yet effective project. In a project I call *Explicit Content Only* I removed all of the non-curse words from N.W.A.'s *Straight Outta Compton* album (<http://ni9e.com/nwa.html>), leaving 2 minutes and 58 seconds of sequential expletives. The entire process which took only 2 weeks to create resulted in more web traffic than I have ever received. Although my thesis project satisfied other personal goals, such as meeting new and interesting people, learning new code and technology, completing a large scale project, etc., I know that in the end it is the idea behind a project that will most effectively resonate with people, not the amount of time invested.

FINAL THOUGHTS & PLANS FOR THE FUTURE:

Technically speaking I know that I am not doing anything that hasn't been done before. Within the realm of graffiti, however, I feel that this is something new, and I am excited to capture and archive this

form which I love in a way not previously done. After dealing with one project and subject matter for over a year I am surprised that my interest level is still very high. Although I have begun to tire of hearing people's opinions on my work in the academic sphere, I am more excited than ever to meet with more graffiti writers, and continue to get up in the city and the on web.

Now that the application and technical considerations are for the most part solved I look forward to continuing with the more fun elements of my thesis. I plan to meet with more graffiti writers from New York, and search out new locations for projections. The woostercollective has taken an interest in my work and I plan on doing some performances this summer in connection with their events. As the project begins to get more attention I suspect that more writers I am searching for will surface, and more venues for presentation will present themselves.

I am also looking forward to returning to the Graffiti Taxonomy studies I began as an earlier prototype to my thesis. I am going to spend June and July shooting thousands of photographs from all over NYC. In August I am moving to Brussels for 6 months while my girlfriend attends law school. During this period I plan to spend a great deal of time editing these photographs into a complete alphabet of graffiti characters. I intend to create a book from the images and look for a publisher upon my return to New York in January, 2006.

Personally, the Graffiti Analysis sessions have allowed me a unique glimpse into a world I may have otherwise missed. I move in the city differently than I did a year ago. If you ask people who know me they will tell you that walking around town with me you'll hear a lot of, "hold on one second while I get a photo of this!" I am excited about what is going on around me, and I feel strongly that it is important. BANKSY refers to graffiti as "one of the few tools you have if you have almost nothing." And whether or not I am making my own graffiti or not, in digitally capturing and archiving the movement of graffiti tags in a new way I feel like I am taking part in something significant. Perhaps in the future someone will be interested in using this data in ways in which I have not yet imagined.

Banging Your Head Against A Brick Wall

My adventures at Parsons into the world of Geek Graffiti have been an amazing experience that has helped me find a unique voice within the worlds of graffiti and new media. I have met amazing people in both arenas which I plan to continue to grow from and with in the years to come. I don't know what kind of a future there is in being an expert on Geek Graffiti, but I am excited to find out.

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*All photos not specifically credited were taken by the author.