Probing the Black Box:
Experiments in Design and Design Education

by

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Roger Williams University School of Architecture

Submitted to the Department of Architecture
In Partial Fulfillment of the Requirements for the Degree of

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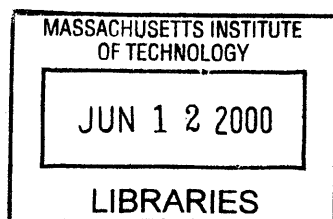June 2000

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Experiments in Design and Design Education

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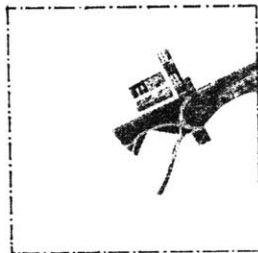## Master of Science in Architecture Studies

ABSTRACT:

Conventional analysis and design methods based on preexisting methods and assumptions preconditions and limits the designer's level of engagement with the specific context that is under investigation. A structural analysis is concerned with the disclosure of [subconscious] tendencies and agendas from within a form or site. This thesis develops methods that facilitate the organization and evaluation of 'design information' gathered from a structural analysis. The methodologies developed in this thesis place an equal emphasis on excavating the logic and tendencies of both the physical context and the logic of the conceptual structuring of the designer's processes. This approach acknowledges that each situation offers its own specific truths and that each project needs to readdress the issue as to what constitutes the discipline of architecture.

The methodologies developed in this thesis analyze the site through the lens of events as a means to suspend preconceptions and investigate the tendencies of the designer. It takes as axiom that some thoughts and intentions cannot be reached frontally, but rather require analogies, metaphors or other such strategies to uncover the subconscious meaning. The design methodology developed in this research is a proposal for such a strategy. This suspension allows for the emergence of intuitions and strategies directly from site and the context. These methods also become a means to elicit, record and classify the 'conceptual schema' or the structure of the designer's thought. They attempt, in a constructivist manner, to aid the students in clarifying their thought processes. This thesis will explore the mapping of concepts and approaches clearly and externally as a means to create an intellectual space for the designer to work within. This space becomes a way to test and evaluate ideas, and intuitions within a 'conversational approach'. This approach defines the role of the designer as both writer and reader.

Thesis Supervisor: John E. Fernandez
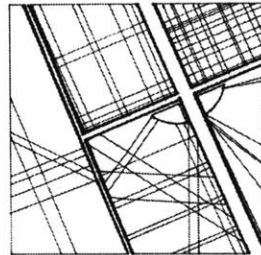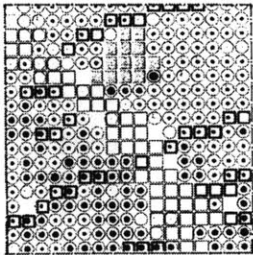Title: Visiting Assistant Professor of Architecture

0.1

Row 2: Adding

Row 3: Projecting

0.2

0.2   Introduction

This is a pedagogically orientated thesis that performs a series of experiments in and in support of the design studio as a means to critically inform, present and discuss the concepts of teaching and learning within the discourse of architecture. This study is empirical in the sense that it is concerned with observing actions that are guided by the experiments. This chapter outlines the framework and approaches under which the research was conducted. This thesis seeks to not only develop a pedagogy for experimentation within design, but also a means for the evaluation of the methodologies developed.

0.2.1   Research Framework

This thesis will document the development of a methodology crafted to a specific circumstance and reflect upon its use in design and design education. The circumstance considers the site of the specific investigation, the instructors interests and the curricular level of the students. The academic setting of the design studio will allow the research to examine both the use and appropriation of the design methods and their associated procedures. This thesis will also present the methods developed for evaluating the effects of educational interventions on the subsequent design decisions and conceptual development of the students. The specific experiments are explored within the context of two design studios and two design exercises. Although the explanation of the research is local to this circumstance, it will be framed and contextualized in a manner that allows it to be built upon and furthered.

The research model for this thesis, and for the documenting of its documentation, is based upon Alan Lightman's *Einstein's Dreams*. Lightman's fictional novel is a chronicle of thirty narratives, each depicting a world that Einstein may have dreamed prior to establishing the 'Theory of Relativity'. These worlds are described by viewing through the different lenses of the city. Each narrative suspends or relaxes certain rules and assumptions established in the others, which allows for that narrative to investigate an alternate set of possibilities. 'Within the 'microworld' [of the methodology] certain questions are relevant, and others are not.' [1] This methodology creates a space in which to pose simple hypotheses and then test them. Each microworld contains its own assumptions and addresses its own polemics. It affords an investigation of concepts as well as of techniques. Central to the notion of these 'isolated investigations' is the interaction of one such microworld with another. It is this notion of parallel narratives that served as the impetus for this research. The narratives of the novel are interjected periodically with an objective text that documents the points of incidence between the narratives. These objective texts provide a context that establishes a framework for the interpretation and evaluation of the narratives as a larger set.

0.2.2   Approach

The two studios that were used to explore the topics of this thesis research were taught at the Boston Architectural Center [2] during the Fall 1999 and Spring 2000 terms. Both advanced design studios

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[1] Laurie D. Edwards, *'Abstract'*, Microworlds as Representations, 1996

[2]   The pedagogical approach of the Boston Architectural Center is closest to the late 19th century Beaux-Arts tradition. To continue this   *atelier-esque teaching methodology*, the BAC draws most of its volunteer faculty from nearby architectural schools and the local community of design related professionals. The current curriculum of the BAC includes working in the architectural profession as a formal counterpart to the design studio. The students are required through the course of their studies to be concurrently involved in practice.

consisted of Bachelor and Masters students who were three to four terms prior to completing their education. The first studio, *Contextual Tactics or Clues for Spaces* (Fall 1999), was considered within the curriculum of the BAC to be a process-based studio (C1). The students in this type of studio were to focus on site and cultural analysis as a means to inform the conceptual development of a building project. This specific studio was used as a site to explore a design methodology that was meant to stimulate the student's intuitions and their methods of analytical observations.

The first design exercise was begun after the completion of the first studio. It translated the methodology used in the first studio into a set of guidelines and conditions for a methodology that would then be used to investigate and work within a specific context. This would occur in a spring term studio that focused on the downtown center of Detroit, Michigan. Detroit is a city whose pattern of abandonment leaves the city in a state that no longer respects the formal system that created it. Due to the porosity of the urban fabric, the street grid no longer is an appropriate device for understanding the city and the figure-ground is no longer an appropriate means of representing the city. Both devices need to readdress their specific, internal conventions to become relevant to the local condition of Detroit. The context was chosen, as this condition of patterning is a fertile ground for exploring the architectural topic of 'form and organization'. The design exercise used the methodology to disclose the concepts and polemics of the city that would be taught to the students in the second studio. This investigation is discussed in section 3.3 'Urban Analysis Drawings of Detroit'.

The second studio, *Material Practices or Lessons from Motor City* co-taught with Rolando Mendoza in the spring 2000 term, was considered within the curriculum of the BAC to be a tectonically-based studio (C2). The students were to focus on the development of structural and material characteristics as a means to inform and expand their design concepts. This studio became a site to explore the use and continual development of a methodology through the various contexts that the design studio would address. The intention of this studio was to critically investigate the relationships and boundaries between analysis and design as a means to probe the black box of the designer. This design studio will be discussed and evaluated in chapter 4.0 'Material Practices or Lessons from Motor City'.

The second design exercise, begun at the same time as the fall term studio, used the methodology as a means to revisit a design project. [3] The project, set in the financial district of lower Manhattan, is read through the methodology as a means to expose latent intentions. The design information exposed from the use of the methodology will be compared to the conceptual statements, notes and objectives written during the initial design process. This design exercise will be briefly discussed in section 6.1 'Applications of the Methodology'.

As the goal of these design studios is specifically towards the elaboration of knowledge from sites or artifacts, these two studios and design exercises, seek to make the participants increasingly aware of the relationships between thought, process and construction. These experiments aim to provide the students (and the instructors) with a means for understanding their own procedures and techniques for approaching, quantifying and prioritizing design information. The methodology makes these procedures understandable and accountable by making explicit the student's means for acquiring, manipulating and interpreting the information.

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[3] The project 'A DIA Center *in* Wall St., *under* F.D.R. Drive and *on top of* the East River' was completed in partial fulfillment of the requirements for the degree of Bachelor of Architecture at the Roger Williams University School of Architecture in May 1998.

1.0　　　Background

'For one thing, they [designers] tend to overvalue their intentions. They tend to assume that the meaning of the object is what they intend it to be and that its capability of generating conversation is what they take it to be.' [1] This chapter discusses the role of representation and documentation within design and design education. Current and emerging pedagogies concerning representation and the design process are discussed and used to formulate a basis for this research. This chapter frames the pedagogical intentions of the research within a theory of architecture.

1.1　　　Architectural Representations

The research began with an interrogation of representational and investigational techniques generally used in the education of an architect. There is a common tendency to use drawing in a very mechanical or linear way. 'In architectural education the act of drawing is commonly taught as a graphical technique and as a communication skill rather than as ways of conceiving and posing questions'. [2] At the initial step of translating thoughts from the site to paper, the methods and techniques used have a crucial and profound effect on framing the direction of the investigation. As students typically conduct drawings according to standards and conventions, these drawings can easily become tracings of existing situations. This type of approach, conducted with methods and assumptions created external to the specific investigation, limit and force the designer to fall back on preconceptions. This reliance on precedents, of both process and product leads towards a reproductive rather than generative approach to design and design education. The idea of a monologue or static technique allows one to be uncritical and unsure of the values embedded in the lines. The architectural drawing (i.e. plan or section) presents a resolution without the company of the processes that created it. While this is desirable for representation, it is questionable for investigation. The sketch, as a concept, comes closer to externalizing thought and process, but realistically only presents and tests possible resolutions. This still allows the much of the thought and criteria for evaluation to remain internalized. There becomes an increased reliance on the power of graphical 'signs', that are ridden with connotation. This technique of using preexisting models and methods for both analysis and design stifle the tendencies of both the designer and the specific site or topic under investigation. Their phenomenological character is established by connotations from historical use and not from information inherent in the technique. [3] A distinction needs to be made here between the concepts of communication and signification. An ideology of communication, similar to formal and classical analysis, is concerned with the transmission of knowledge as a product. An ideology of signification, similar to structural analysis, seeks to make the intentions or conceptual logic of such a product explicit in order for an understanding that permits the elaboration of knowledge. This thesis attempts to validate that the latter affords a critical dialogue between the designer and the drawing that the former does not.

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[1] Donald Schon, *'The Role of the Metaphor in Learning and Design,'* Paper, 1991

[2] James Corner, *'Projection and Disclosure in Drawing'*, Landscape Architecture, 1993
　　The work within Corner's studio at the University of Pennsylvania enables participation and exchange within the act of drawing. The less singular and deterministic (in context) a drawing, the more profoundly it can inspire creative and poetic production. This early work revolved around the use of 'composite drawings' to allow for plans, sections, views, textures, words and images to create an ongoing dialogue and investigation into the site and into each other.

[3] Merriam-Webster defines *phenomenology* as **2(a)1** : sensations in space and time, brought about by movement, as distinguished from the perceptions of objects, heavily influenced by place. And**2a(2)** : the formal structure of the objects of awareness.

Corner begins his essay *Projection and Disclosure in Drawing* by proclaiming that 'Any recovery of landscape in contemporary culture is ultimately dependent on the development of new images and techniques of conceptualizing. Whereas the plan leads to an end, the map provides a generative means, a suggestive vehicle that points but does not overly determine.' [4] He emphasizes the limits of current representations and the need to move from a prescriptive device to one that allows a reconception of the environment in terms of engagement and participation. The redefined role of the architect is to facilitate these types of engagements rather than to prescribe them. For this to occur, the method of approach needs to be both representational and instrumental.
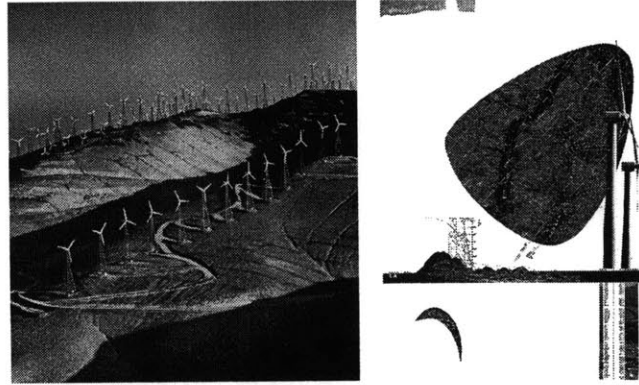
1.1, 1.2

The process of drawing or mapping is not meant to be a process of documentation, but rather a further investigation of the concept. 'Traditionally, architectural drawing has been regarded as a passive yet accurate means of representation, bound to objectivity and conveying the facts of building or the projection of a design. Alternatively, the drawing can be seen as a window into the architect's subjective vision, isolating its effect from the physical world of building.' [5] Through their use, the methodologies developed within this thesis attempt to become this window. The documentation of these methods can be considered a journal of design inquiry. This journal, by explicitly depicting the processes associated with the methodology, operates to disclose both the logic of the physical site and the logic of the designer's thoughts. The methods developed in this thesis aim at expanding and elaborating on the designer's body of knowledge, not simply reusing it. This requires that the method-ology provoke the student to uncover and investigate something normally outside of the designer's personal prejudices.

In this research, where the focus is on the cyclical relationship between process and product, the diagram becomes the favored medium in which to develop ideas. The diagram offers an 'abstract and

[4] James Corner, *'Qualitative Determination'*, Taking Measures: Across the American Landscape, 1997

From *Projection and Disclosure in Drawing*, 'disclosure refers to the act of opening and seeing; it is a process of discovery, an opening that never ends but continues to reveal more possibilities. It can reveal how typically prosaic and analytical methods of synoptic planning and land systemization harbor a more poetic and creative potential. They embody the acknowledgment of the primacy of rational synoptic measure in the forging of the American landscape, while revealing the fictional and metaphorical dimensions of the land's construction.' The work presented within his writings and from his office, *Field Operations*, resolves these statements by addressing both the dimensional and phenomenological aspects of an investigation in tandem. This comparison and contrast of the hard and the soft is accomplished by composing intuitively cropped photographic and satellite survey images with dimensional information and equations. *Windmill Topography* (14 x 20", 1998), presents a geological survey map cut in the form of the 'wind shadow' from the turbine. Corner places iconic photographs of the wind turbine cut as a silhouette alone on the horizon alongside strips of data depicting air temperature and wind pressure.

[5] George Wagner, *'Drawings, Machines and Morphosis'*, Thom Mayne Sixth Street House, 1989

logical means for representing, thinking about and explaining the complex and dynamic conditions that designers confront'. [6] 'The diagram suggests a movement away from classical composition and purely personal expressionism towards a more autonomous process.' [7] The accuracy or appropriateness of Eisenman's statement is not the reason that it was included in this document. The interest in his work and writings lie in the fact that he is constantly questioning the modes of operation and processes of design common to the discipline of architecture. The questions that are raised in his work are those that should be raised often, but rarely are. The questions that are posed and explored by this thesis research suggest the possibility of benefits for developing an alternative relationship between the architect and his thoughts.
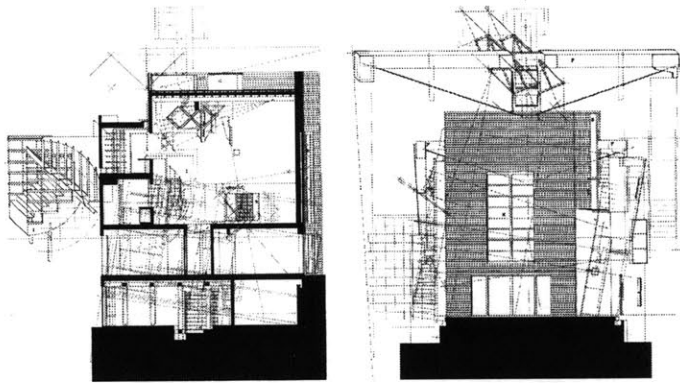
'They [the drawings] express the intensity of the work and act as a navigators' logs, recording the journey's details while describing the latest course. Therefore, the drawings are more witness of the design process than the prophets of objects to come.' [5]

1.2   Design Inquiry

'Over-personalizing the sketch will limit the designer's ability to critically evaluate the inherent concepts'. [8] In contrast, this procedural approach, as an external device, can alleviate the over-personalization and allow the designer to understand, present and critically evaluate the concepts. The use of an explicit methodology not only expands the designer's capacity for mental operations and procedures but also becomes a means for learning, as it is an 'explanatory tool' of the design processes. The resulting notation's or diagram's success should be measured by how well it communicates the intention; the analytical, discovery process and the direction of the synthetic, investigation process. The work should be means to develop an investigation into architecture as well as to depict it.

As an extension, this thesis also addresses the question proposed by Gregotti, as to 'whether one can transfer project experiences; that is, to what degree not only models, but also methods.' [10] A critical practice model combines practice and research (an activity undertaken with the objective of advancing knowledge); decreases the traditional separation between analysis and design; and increases the emphasis of a nonlinear approach to design. These three concepts become the basis for the methodologies developed in this thesis.

[5] George Wagner, *'Drawings, Machines and Morphosis'*, Thom Mayne Sixth Street House, 1989
[6] Mary Lou Lobsinger, *'An Architecture of Performances'*, Daidalos 74, Diagrammania, 2000
[7] Peter Eisenman, *'Diagrams of Interiority'*, Peter Eisenman: Diagram Diaries, 1999
[8] Donald Schon, *'The Role of the Metaphor in Learning and Design'*, Paper, 1991
[10] Vittorio Gregotti, *'On Procedure'*, Inside Architecture, 1997

1.4   Time and Event

In order to describe or operate in the modern city new analytical and generative techniques that engage time, shifting scales and multiple programs must be explored. If we consider that architecture does not exist until it is encountered, then any reading or representation of architecture needs to include notions of time. Time is defined here as a series of events, which is in turn defined as a series of actions. For such an architecture to be understood and created, it becomes necessary to develop modes of inscribing time-referenced phenomena. The notion of time and event are issues that are not attended to in traditional representations. Through the use of events, this research reintroduces the gesture of action as a means of informing the codes of drawings and documentation and therefore the process of creation. Reading a site through the lens of events downplay the visual characteristics of the context while highlighting the programmatic, social and spatial intentions. It attempts to describe, with alternate materials and methods, the logic of the site. It is this alternate reading of the site that this thesis explores. Conceiving alternative ways to view architecture suggests new methods of cartography for the building, the street and the city.
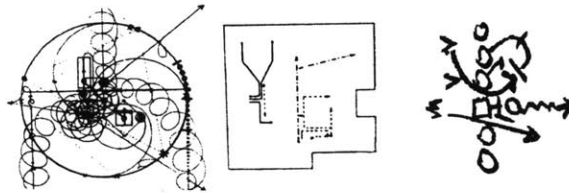
1.5

Examples of movement notation referenced by Tschumi in *The Manhattan Transcripts*. While these notations address physical movement, they are devoid of the intent or *logic* of the movement (that the 'Transcripts' were devised to uncover).

2.0   Development

The Manhattan Transcripts, developed by Bernard Tschumi, are an important reference to this research as they directly question the modes used by architects to represent and work within the city. This chapter discusses the theories and laws of the *Transcripts* as well as their role in the formulation of the *Contextual Tactics or Clues for Spaces* studio. The focus of the work in this studio is to continue the line of questioning, begun by Tschumi, in order to establish the guides and conditions needed to design a methodology that is concurrently analytic and synthetic. The objectives, structure and student work from the studio will be presented and evaluated as a means to discuss these guides and conditions.

To really appreciate architecture, you may even need to commit a murder.

Architecture is defined by the actions it witnesses as much as by the enclosure of its walls. Murder in the Street differs from Murder in the Cathedral in the same way as love in the street differs from the Street of Love. Radically.

'The usual function of advertisements- reproduced- again and again, as opposed to the single architectural piece- is to trigger desire for something beyond the page itself. And, as there are advertisements for architectural products, why not for the production (and reproduction) of architecture?' B. Tschumi, p10

2.1

2.1   'Architecture and Disjunction'

The theories of Bernard Tschumi are presented here as they play a strong role in the formulation of *The Manhattan Transcripts*, and therefore will aid in their understanding. Tschumi begins the essay *Violence and Architecture* by proclaiming that, 'There is no architecture without action, no architecture without events, no architecture without program. By extension there is no architecture without violence.' [1] By violence Tschumi meant not physical harm of one element to another, but the intrusion of one order into another. In this context 'element' refers to people, buildings and events; 'order' refers to the logic of an element, 'logic' is defined as the conceptual structure from which an element is created. Tschumi goes on to distinguish formal violence from programmatic violence. Where formal violence references the conflicts that occur between objects, programmatic violence references the social conflicts between disparate programs.

2.1.1   'The Manhattan Transcripts'

The Manhattan Transcripts are a series of drawings, simultaneously real and theoretical, compiled by Bernard Tschumi between 1978 and 1981. The intention of the work was to introduce the order of experience and time into architecture and architectural drawing conventions. Tschumi introduced a narrative or event into a space and then attempted a rereading or rediscovery of the space through an editing process. This editing process used the formal operations found in cinema, such as montage, repetition, disjunction, distortion, insertion, and fading to analyze the site. Tschumi believed that by looking at a 'foreign' event within the context of the city, it would provide the impetus for a clearer understanding of the logic of both the event and its context. Simply put, viewing the occurrence

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[1] Bernard Tschumi, *'Violence and Architecture'*, Architecture and Disjunction (Program), 1994

of the murder within the context of New York's Central Park would provide a platform for the understanding of the formal logic of the organization of the park. The *Transcripts* are an outcome of Tschumi's theory on the relation between space and program or architecture and film. Borrowed from the field of cinematography, the taxonomy of formal operations such as repetition, disjunction and montage describe and prescribe an architecture of fragmentation.

'They found the transcripts by accident, just one little tap and the wall split open, revealing a lifetime's worth of metropolitan pleasures- pleasures that they had no intention of giving up. So when she threatened to run and tell the authorities. They had no alternative but to stop her. And that's when the second accident occurred- the accident of murder . . . they had to get out of the park- quick. But one was tracked by enemies that he didn't know and didn't even see- until it was too late. THE PARK.' [2]
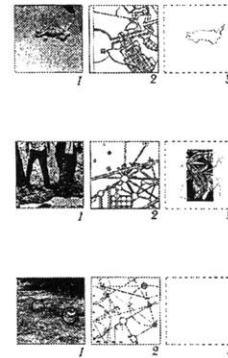
Rows 7-9 (T. to B.): Substitution, Anamorphosis and Transference. 2.2, 2.3

2.1.2   Structural and Procedural Analysis

The original intention of the tri-parte method of notation was to introduce the orders of experience and time to architecture, as they are normally removed from conventional architectural representation. Tschumi uses the idea of movement notation as a means of recalling the issues of activity in an attempt to include new and stereotypical codes into drawings. From left to right, the world [box] of events is abstracted from news photographs; the world of objects is composed of buildings abstracted from maps, urban plans, and architectural drawings; the world of movements, is abstracted from choreography or sport. The representation techniques such as the outlined images and distorted viewing angles reveal Tschumi's flare for the dramatic.

Following Laurie Edward's definition of the 'microworld', *The Manhattan Transcripts* graphical isolation of themes (events, movements and spaces) allows each to be developed without the restriction of the others. The individual squares are used as a framing device, normal, predictive and regular. The strength of the layout then allows the isolated explorations to be recomposed and read as a cohesive experiment. The nine square layout is the mechanism that allows this meta-reading of the

[2] Bernard Tschumi, *'MT 1'*, The Manhattan Transcripts, 1981
    Within The Manhattan Transcripts there are four distinct narratives through which the architectural logic of Manhattan is disclosed. MT 1 is stated in section 2.1.3; MT 2, 'The Street', is concerned with the borders that occur along 42nd Street, from the East River across to the Hudson; MT 3, 'The Tower' (The Fall), depicts someone's rise and fall within a typical Manhattan skyscraper; and MT 4, 'The Block', explores the events which occur in five adjacent inner courtyards.

Transcripts to occur. The work was meant to go beyond the stifling and repressive inherited institutions of the current modes of representation general to architects: plans, sections, axonometric and perspectives, and conceive a liberation of technique.

Tschumi admits that although the influences of the formal operations are strong, the *Transcripts* are not prescriptive. 'Although a transformational rule (compression or superimposition, for example) is given arbitrarily, its implementation, articulation and final form depend upon the person who applies the rule. In other words, such sequences cannot result from a simple cumulative process of logical transformations for which instructions can be given to anyone.' [3]

1   2   3
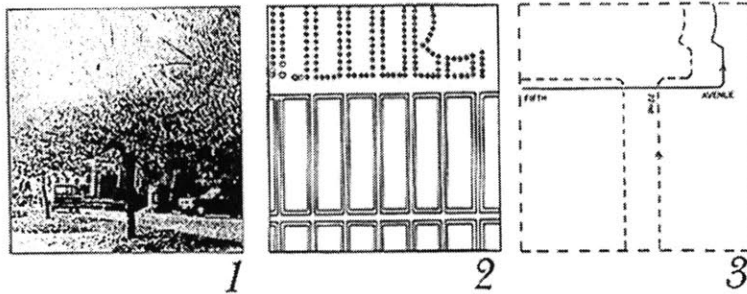
2.4

From left to right: events, spaces and movements or moments, sequences and intervals or objective, subjective and generative.

2.1.3   Extensions into Practice, or Not

It should be noted that through *The Manhattan Transcripts* Tschumi develops only a theoretical proposition. The *Transcripts* fall short of making, or being used to make, an architectural proposition. This mode of operation has allowed Tschumi to understand and explore, what he deems as, the appropriate level of engagement between program and building. Tschumi has deconstructed the site (or the scene) of the event and re-framed it in a story-board fashion that allows for the themes, conditions and *architectural elements to be investigated in isolation. What is gained most through an analysis of the Transcripts* is not only that they afford a critique of the normative practices of architectural representation but they become a strategy that deconstructs these representations that allows for them to be constructed along a different axis.

Though the *Transcripts* have not been formally revisited for a design project, the notions and themes have become increasingly apparent in the recent built projects of the office. In a recent article, Tschumi discussed that it was an interest in the structure, as opposed to the numbers, of mathematics that informed the direction of his research. [4] In other words, it was the questions that the *Transcripts* posed, and not their answers, which found their way into built work. In this sense the methodology that he used was generic, or nonspecific to a site. The *Transcripts* were more an investigation of concept than of site. [5] This seems to contradict their intention as a device founded to disclose the specific logic from a specific site.

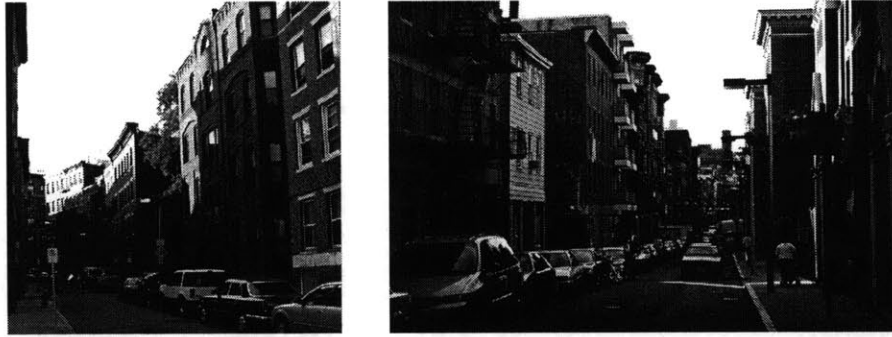[3] Bernard Tschumi, *'MT 1'*, The Manhattan Transcripts, 1981
[4] Bernard Tschumi (interviewed by ANY), *'Modes of Inscription'*, ANY Magazine, 1991
[5] Bernard Tschumi, *'Tourcoing'*, Praxis: Event Cities, 1998
    The 'Le Fresnoy National Studio for Contemporary Arts' in Tourcoing, France, perhaps comes closest to achieving the desired status of an 'anti-backdrop' building. The architectural project becomes an active participant in the events that occur on site. Covering the group of existing buildings with a singular roof physically combines the events of cinema, ballroom dancing, skating, horseback riding and gymnastics. This juxtaposition of programmatic elements embodies the violence that Tschumi deems necessary for architecture to exist. In this sense, the *Transcripts* can be seen as providing the theoretical conditions for the organization of space and program.

2.2   Extensions into the Design Studio, *Contextual Tactics or Clues for Spaces*

    The areas that have been addressed in the appropriation the *Transcripts* for the design studio are the rigidity of the structure and the lack of text within the boundary of the drawing page. The overall structure and organization of the *Transcripts*, as a rule, does not alter during its use. This implies that the methodology is stagnant and is not informed by the course of an investigation. The students were given the liberty to alter the methodology provided that they state their reasons for doing so. The lack of text also seems an unsubstantiated rule. The text should not become didactic in its use, but could function as an analogous investigation of the drawings. James Corner, referring to William Mitchell, speaks of imagetexts as 'absent and underdeveloped in the design arts. These are synthetic and dialectical composites of words and pictures that together contain and produce an array of striking and otherwise unpredictable images'. [6] The addition of text will provide an additional vehicle for the students to express, clarify and interrogate their thoughts and intentions.

2.5, 2.6

2.2.1   Objectives and Structure of Syllabus [7]

    The *Contextual Tactics or Clues for Spaces* studio will begin with an investigation of Tschumi's theoretical project, *The Manhattan Transcripts*. The student's work will focus on the use of a design methodology that focuses on a diagrammatic type of practice. This approach allows the user to isolate, organize, investigate, exploit and store ideas. This process-based approach has the ability to investigate how a building performs urbanistically, programmatically and most importantly, conceptually. The students will analyze the structure, content and intention of the *Transcripts* and derive a series of strategies that allow them to explore issues meaningful to their investigation of Boston's North End district. The investigation is divided into two segments, each with two exercises, structured to allow the students to continually construct, test and develop their strategies on different platforms and in different contexts.

    (The use of the *Transcripts* and these exercises were only used for the initial site analysis. The first assignment, consisting of the work of two students are presented and discussed within this section. The theories and procedures of *The Manhattan Transcripts* were presented to the students prior to the beginning of the first exercise. The students were also presented with the text from section 2.1 'Architecture and Disjunction'.)

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[6] James Corner, *'Eidetic Operations and New Landscapes'*, Recovering Landscape, 1999
[7]   The objectives and assignments listed in this section are excerpts from the syllabus that the students were given. Text that was not given to the students will be placed within parentheses.

The first segment of the term will be spent developing and appropriating design methodologies that are concerned with event, the architectural promenade and the street. They will be used to interrogate the programs and sites associated with the analysis and design projects. The projects begin with the assumption that any architectural intervention, by nature, is a continuation of context. This continuation need not be mimetic, but rather an active investigation of the principles, values and relationships embodied by place.

The first exercise becomes an obsession of urbanism. Compose a narrative or situation to explore the fabric of the North End district. Begin by selecting an event and partition it into instances that will be denoted by a set of images. Using the techniques established in the first exercise or a derivation thereof, create a series of drawings contextualizing the created narrative into the North End. The goal of this exercise is to document and analyze context through the use of events. This should be done in a manner that allows the interpretation the data observed in a useful and meaningful way that may inform the design process. These drawings are in essence a site analysis. Consider interpretive site issues (mood, emotion, activity and sequence) as an extension of traditional site analyses (massing, zoning, solar orientation and circulation). Pay attention to edges, thresholds, crossings and transitions when considering the zones that define the urban fabric.

## 2.2.2   Studio Works (District Analysis)
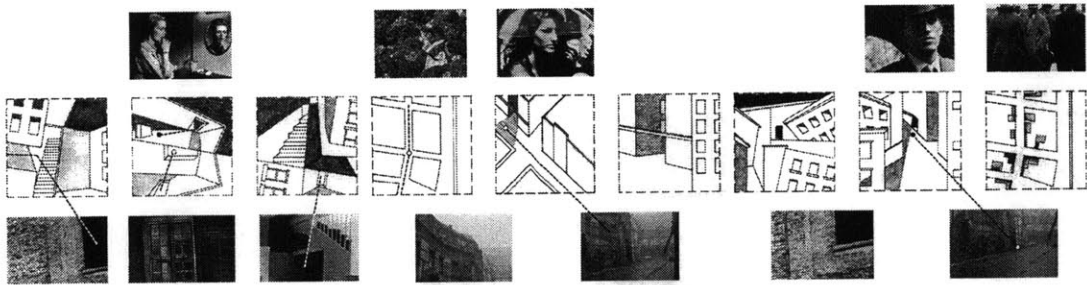
2.7
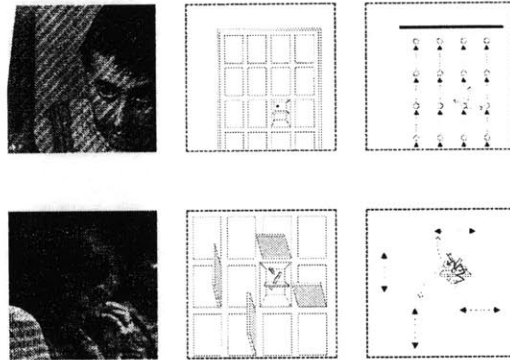
2.8

A woman who has lived here her whole life contemplates the life that she has had. She can only remember still shots of events and even still-er shots of spaces. She cannot place either in any order or arrangement. The thoughts appear as fragments. He has been here once before, three years ago. He remembers this store towards the artery and later he remembers this view towards the boats. He remembers nothing in-between. The thoughts appear as fragments. Both the visitor and the dweller perceive the North End in the same manner. Perhaps one knows it too well and perhaps the other knows it not well enough. Both memories are fragmented by time. The zone of interaction or exchange between the two types becomes the facade. This is the division of visitor and dweller. This is the division of public and private. The dimension and opacity of this boundary changes in respect to the time of day. This is the division of night and day.
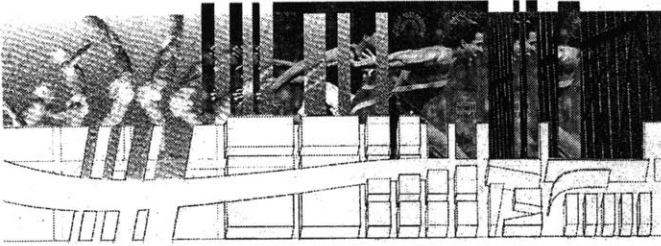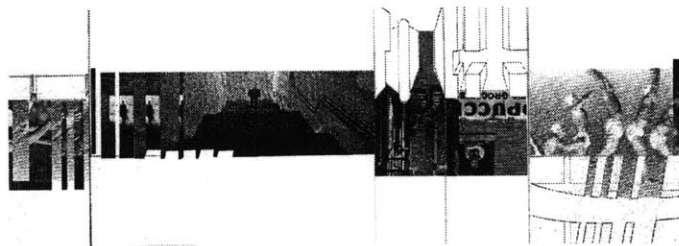
2.9
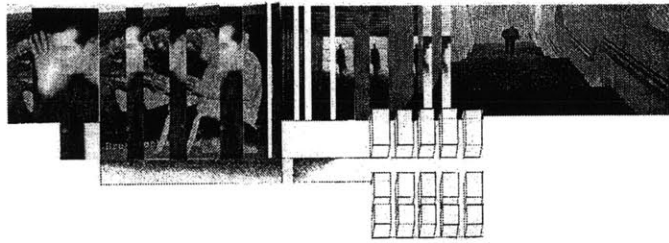
2.10

2.11

A woman of ninety, from the old country, bumps into a man of twenty one, rounding a corner. She knows his face. She stayed in the same one bedroom here always waiting for him to come back to her. He died in the war. She waited for him to apologize for leaving. He said he was sorry. He helped pick up her tomatoes running for the gutter. He darts down an alley across a street and down another alley. This time through twisting, rolling streets. He's being chased again. The other boys are older and faster but this is his neighborhood and his turn. He yells and flashes through the throngs of tourists who jockey for position. He hears the boy cursing. He knows by distant footsteps that he has put some distance between him and his single pursuer. He knows there are more. Descending a cobblestone hill, he sees another boy. The boy doesn't see him. He picks up a packing crate. The rage builds up in his arms and he strikes the boy down across his neck and head. The boy falls against the brick wall of another boarding house. He's not sure if the boy is alive or dead. It doesn't matter to him. He moves along the street again. He knows every crack in the sidewalk. He jumps a fence and crosses a concrete courtyard. He is home again. He has these points of incidences everyday, points between the everyday events. The points always occur in the same manner but the events never repeat. He is always looking out the same window towards the same old church.

2.2.3 Assumptions for Education

Forcing the students to first explore their ideas separately and then encouraging the establishment of connections among those ideas provided a means for the students to gain a comprehensive understanding of their own modes of inquiry. This isolated condition afforded an almost 'scientific' analysis of the variables, which allowed the students to test and evaluate their ideas in a much more comprehensive and rigorous way. This allowed them to pass on the information that they had learned to the other students and refer back to it themselves at later points in the term. The *Transcripts* were used only as a site analysis tool. The students disclosed interesting concepts and tendencies from the site, which informed the strategy for beginning a project, but the students then fell back to their established methods of developing a project; from plan to section to model. The issue of how this methodology interacts with other design processes and techniques is addressed in the second studio, *Material Practices or Lessons from Motor City*.

The students working habits progressively became more of an active dialogue between thought and process. The texts in the sketchbooks moved from didactically explaining what the students were doing to what they actually were thinking about. The texts became an alternative means to externalize and explore ideas. Other issues that were raised during the review of the students work was that there needed to be a means to evaluate what these educational interventions had afforded the students, what affect did the methodology have on the student's design processes and how well the methodology was structured in respect to its intentions. These issues are discussed in chapter 5.0 'A Means for Evaluation'.

The students had a difficult time appropriating or altering the structure of *The Manhattan Transcripts*. While most of Tschumi's rules were explicit in the accompanying text, the procedures and philosophies that were embedded into the graphics were not discussed explicitly. This stalled some of the students into producing drawings that embodied the graphical motif of the *Transcripts* but were devoid of the procedural aspects. This prompted the structuring of the next studio to explicitly declare the procedures of the developed methodology and provide annotated examples of how the drawings were directed and created. The separation of the functional aspects from the operational aspects is the focus of the first design exercise discussed in the following chapter. This insight into the structure of the methodology would provide the students with the vocabulary needed to use the method as designed and to appropriate the method for a different type of inquiry.

3.0   An Offered Methodology

In the context of this research, a methodology is considered to be an instrument used in performing an operation to help facilitate ideas in an exploratory way. This should be done in a manner that is flexible, yet structured and directed, but not overly prescriptive. This chapter presents the development of the design methodology through the initial exercise that crafted it. The methodology was created to explore specific architectural themes in a specific context. The spring term studio will be analyzing and working within the same urban context. This chapter will present the assumptions under which the methodology was created, its working principles and reflect upon its use as an investigational tool. The drawings done during the first design exercise will be used to present these topics.

3.1   Assumptions under which the Methodology was Developed

This methodology was developed to allow the students to create a strategy for understanding and treating the imposed, internal and external parameters. *Imposed parameters* refers to the objectives and philosophies set forth by the instructors of the design studio in acknowledgment of the place of the specific studio within the overall educational curriculum of the student. *Internal* refers to parameters generated from site-specific data while *External* refers to the parameters of the philosophies and intentions that the individual student brings to the studio. Specifically, this methodology was developed as a means to investigate the formal logic of a site in its current state. In this reference, the term site refers to an element, of any scale, that is under investigation. The operations and devices that compose the structural side of the methodology come from a stance that assumes the role of architecture is to organize (patterns, tendencies and spaces).

3.2   Principles of the Methodology

The objectives for the methodology presented above are elaborated upon through the presentation of the structural, procedural and graphical principles in the following subsections. A design methodology should be robust enough to accommodate change, as it will continue to be specifically defined and redefined through its own processes and discoveries. The programming and structuring of the methodology are the focal points of this section. The mode of inquiry embodied in the principles of the methodology is concerned with the use of the site and the context as a primary, conceptual generator for an architectural intervention.

'You can't remake the world without remaking yourself. It is an inward act.'[1]

The intention of this research is to foster the development of methods that afford a critical, analytical inquiry of one's design processes. Structuring and depicting this inquiry clearly and externally can facilitate an exploratory and broadened scope of learning. It provides a platform for 'slow sketching', where the documentation and the play of thoughts is done explicitly. The methodology contains rules and procedures which are meant to make explicit the structural and conceptual logic of the designer's thought. This allows the designer to externalize the intentions, intuitions and decisions of a process that is typically internalized. Using this structured methodology to approach architectural analysis and design forces the designer to clarify and evaluate those previously internalized processes.

[1] Paul D. Miller a.k.a. DJ Spooky, That Subliminal Kid, 'The Quick and the Dead', CD Jacket, 1998

3.2.1   Structural

'Thus we can identify three essential operations in mapping. First, the creation of a field, the setting of rules and the establishment of a system; second, the extraction, isolation [or de-territorialization] of parts and data; and third, the plotting, the drawing-out, the setting-up of relationships, [or the re-territorialization] of the parts. The design and setup of the field is perhaps one of the most creative acts in mapping, for as a prior system of organization it will inevitably condition how and what observations are made and presented.' [2]

The methodology begins with the establishment of the list of formal operations. The list allows the instructor to point the direction of the investigations toward issues that are deemed important within the studio. The initial list for the studio contains operations such as interweaving, intersection and extension that are meant to focus the investigations on conceptual themes that are concerned with issues of organization or disorganization.

In the same sense that a plan or section has its own internal conventions, so to does this methodology. Specific to this methodology, the field is composed of three squares, aligned horizontally. The medium of the first square is the photograph. The mediums of the second and third squares consist of combinations of the existing tools of architectural representation (i.e. diagrams, plans, the axonometric and the street map). Traditional representations are used in this unconventional format to allow the methodology to expose the possibilities and limitations of the representations existing, internal conventions. Through this type of interrogation the methodology attempts to inform the appropriation of these conventions for use within the specific site of the investigation.
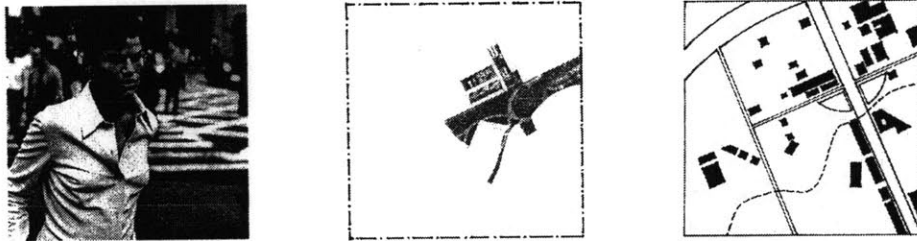
3.1

From left to right, photographs, collages and orthographic drawings or the instance, the element and the possibilities.

3.2.2   Functional

The photograph of the first square represents a specific moment or instance within the duration of the event. The second square is used to introduce the site under investigation. The third square, a cumulative of the first two, is used to introduce a design into the site under investigation. Only together can these notations disclose and present the architectural event of the site. Within a row, the movement is directional from left to right. The role of the events and formal operations are an attempt to float or suspend the designer's preconceptions associated with the site and topic under investigation.

[2] James Corner, 'The Agency of Mapping', Mappings, 1999

The photograph is used to depict the phenomenological 'quality of the instance'. This quality is to be quantified or contextualized within the second square by means of the formal operation. This motion is meant to explore the relation of the image and the formal operation to the site itself. The first square introduces the instance of the event as well as the formal operation that is to be used as the impetus for that row's specific investigation.

3.2

Formal Operation: **Adding**. The instance of the event is 'The introduction of the victim into the site'.


3.3
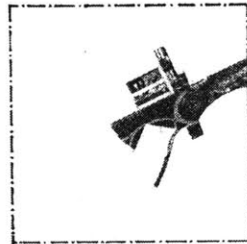
The victim was inserted into Grand Circus Park. The map piece collaged into Square 2 represents the extent to which the city is formally understood by this inhabitant. She only understands, and therefore acknowledges, the block.

The movement then oscillates between square two and square three. The second step of the process is the extraction or distillation of parts and conditions. It is an act of disclosing possibilities. [3] The intention of the second square is to identify the parts which constitute rather than depict the experience. This type of diagram allows for the theatrical construction of form through highly orchestrated relations and instructions. [4] This square exposes the formal logic of the physical site through the lens of events.
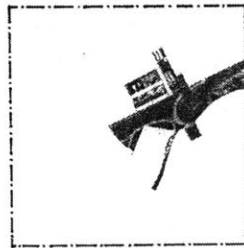

3.4

She does not understand any urban organizational or formal concept beyond 'the block'. The limiting factor is the incoherence of the city. As the urban fabric no longer corresponds to the formal system that created it, it therefore no longer acknowledges it.

[3] Timothy S. Murphy, *'The Abolition of the Law in the Nova Trilogy',* 'Wising Up the Marks', 1997
     In *Nova Trilogy*, William S. Burroughs used a 'cutup' method of folding separate texts; or parts thereof, onto one another to reveal the motivations and intentions hidden in the original texts.
[4] R.E. Somol, *'Dummy Text',* Peter Eisenman: Diagram Diaries, 1999
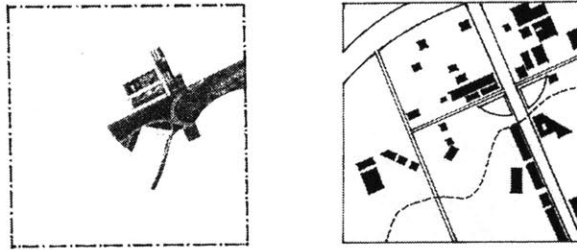
All of the lines that were not marked in the previous row were removed and the existing buildings were poched. The result is a series of objects within a field, a kind of loose knit urbanism. The city is interpreted as a porous field condition or an unbound surface in a constant state of periphery.

The third step or movement in the process is the depicting of the parts or data in a manner in which allows for an intellectual space in which to test and evaluate concepts. 'Plotting entails the 'drawing out' of new and latent relationships that can be seen amongst the various extracts within the field. There are, of course, an infinite number of relationships that can be drawn depending upon one's criteria or agenda.' [5] The structure of this methodology expands and investigates thoughts, rather than purely transferring ideas or results. In this sense, plotting requires a re-territorialization of the elements that were de-territorialized in the previous square. This step investigates and makes explicit the possibilities and limitations of both the site and of the language of architecture itself.

There are a series of movement patterns through which the notations of the methodology operate. As the images are instances of a continuous event, the narrative can be read as a linear thought. This occurs in the left most column of images. As the notations within all of the third squares are theoretically investigations of the same site, they can be read as a linear narrative in the same manner as the event is. This reading occurs vertically in the right most column.
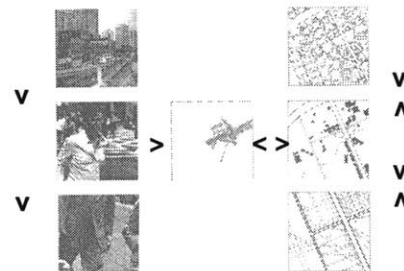
This diagram presents the 'flow' or referencing of design information during the creation of an individual row.

3.2.3 Graphical

The idea of a score, taken from musical composition, allows for the simultaneous play of different 'actors and themes' at different scales within a set field of composition. The field of this specific methodology is created such that it allows for these different scales to occur. The score or the set of notations completed by the student can be read through a series of different scales. Each of these different scales can be considered a 'microworld' that is concerned with a specific investigation. The square becomes the lowest common denominator in the set. Each square uses its own modes of

[5] James Corner, 'The Agency of Mapping', Mappings,1999

representation and is concerned with a specific procedure that defines a direction, but not a result, as to how the procedure is to be implemented. The next scale is that of the 'row'. Each row is concerned with the use of a specific formal operation as a means to distill elements and concepts from the site. A series of rows, or the 'page', can be considered an investigation of an architectural concern, such as organization, program or structure. A series of pages, or a 'Journal', consists of a set of concerns and polemics investigated for a specific architectural project. A collection of journals, or an 'Opus', is an accumulation of the thought and processes of a period of multiple projects or studios. Central to the concept of this research is the interaction of each scale of notation to the other. The methodology becomes a combinatory index of thought and process or a running journal of design inquiry. This idea of instruction and performance can engage event, time and context in a more meaningful dialog than current analytical or investigational methods.
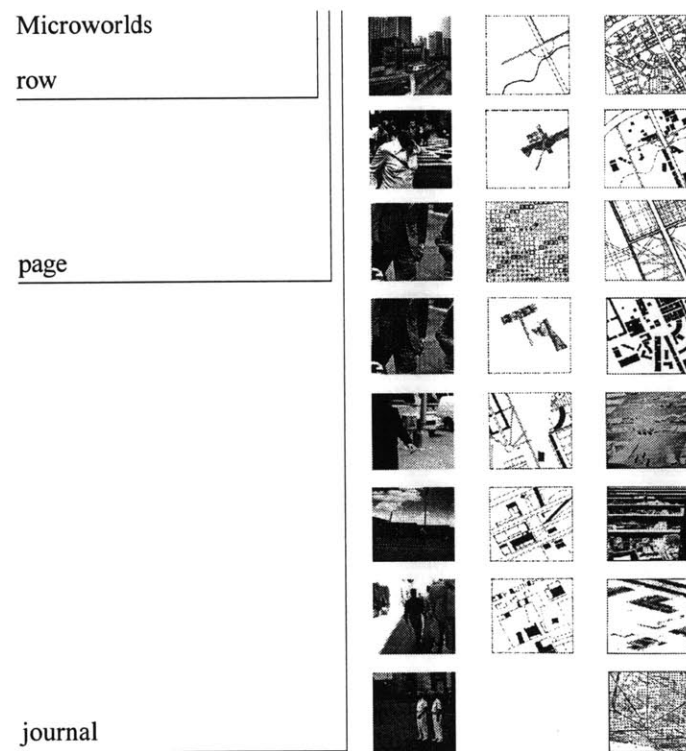

3.7

This diagram presents the 'scores' of the methodology, each a microworld. (Not referenced is the 'opus' or the complete work.)

3.3 Urban Analysis Drawings of Detroit

As this methodology is aimed at investigating the formulative potentials of architecture initially developed from external, site-specific parameters, it was first used to conduct a design exercise with no preconceived aims, notions or goals for the site under investigation. Through its use, it is meant to uncover organizational patterns, tendencies and structures that can be used to begin an architectural project. The intention of this exercise was to explore the types of conceptual scaffolds that this methodology may provide. This exercise was developed to aid in the understanding of how to structure a methodology that would be used as a teaching device.
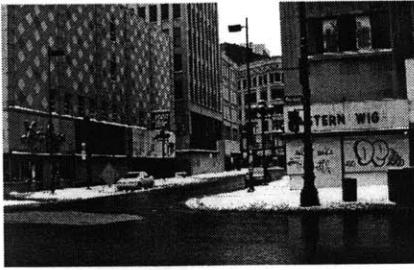
This photograph is taken along the main street axis (Woodward Avenue), of the downtown center, 12:30 PM. on a Thursday in early January. None of the buildings in this photograph, or to its immediate left or right currently support any uses.

The event used for this initial investigation was 'A Murder in the [Grand Circus] Park'. The text below each photograph is the formal operation that was used. The first numbered line of text denotes the specific 'instance' of the event that is depicted by the image. Both were written before the start of the drawings. The second and third lines present the thoughts and intentions that correspond to the actions performed in the second and third squares, respectively.
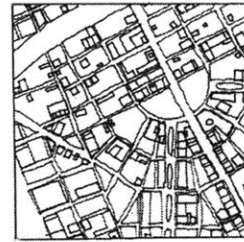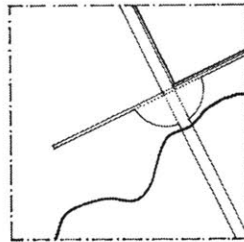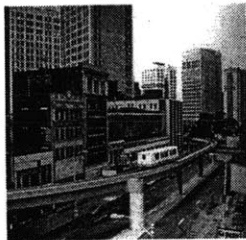

formal operation: **Imprinting**

1. The introduction of the city.
2. In drawing the site from memory, these were the only formal marks made within the city that were remembered. 3.9
3. Existing dimensional conditions of the street and buildings sketched from a 1995 Sanborn Map.
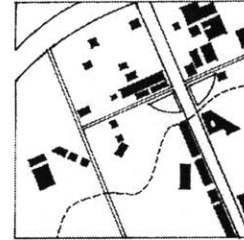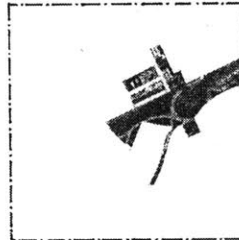
formal operation: **Adding**

1. The introduction of the victim.
2. The victim was inserted into Grand Circus Park. The map piece collaged into Square 2 represents the extent to which 3.10 the city is understood by this inhabitant. She does not understand any urban organizational or formal concept beyond 'the block'.
3. All of the lines that were not marked in the previous row were removed and the existing buildings were poched. The result is a series of objects within a field, a kind of loose knit urbanism. The city is interpreted as a porous field condition or an unbound surface in a constant state of periphery.
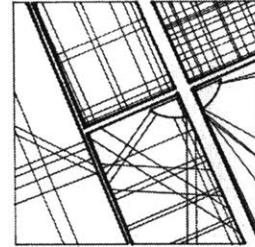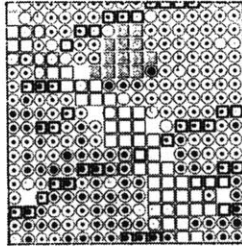
3.11

formal operation: **Projection**

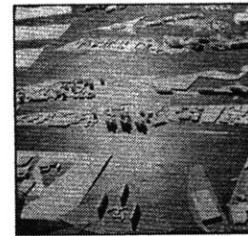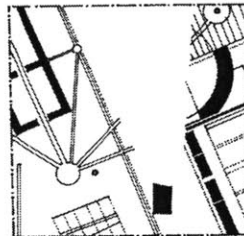1. The introduction of the stalker.
2. This image is from a 1998 Survey of Use [or abandonment]. (Detroit-Mercy School of Architecture) The circular forms represent private buildings and the rectangular forms represent public buildings. The denser the tone, the higher the amount of current activity or use.
3. The grid lines of the city were redrawn by projecting lines from all of the surfaces of the buildings that currently exist. The marks from the previous two rows were used to create the boundaries for 5 distinct zones, each with its own texture or pattern of 'grid lines'. There has been an extreme fracturing of the downtown city into numerous satellite cities.
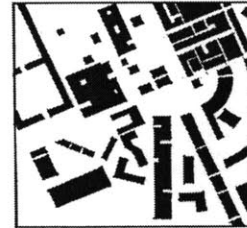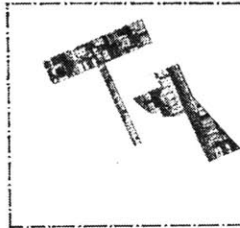
3.12

formal operation: **Adding**

1. The stalker looking to stalk a victim.
2. Two events are present, occurring simultaneously with no knowledge of each other. This reinforces the thought that any formal coherence of the city operates at a scale no larger than that of the block.
3. Using the patterns and textures created in row 3, a series of objects are inserted into the city. The character of each of these insertions is determined by the local, 'formal zoning' conditions. (A bottom-up approach to urbanism.) This presents a need to revisit the traditionally accepted notion that a fragmented, suburban field is a negative condition. Due to this extreme formal state, Detroit cannot be represented or understood through practices or techniques associated with centrality, linearity or the 'main street axial' organization.

3.13

formal operation: **Interfering**

1. The introduction of the stalker to a new urban context.
2. A drawing, which originally had urban-scale 'organizational devices', is now rendered as a void through the operation of erasure. The actions occur with no regards to the fabric of the city, to the grid of the city or to the other events within the city.
3. The bottom-up urbanism created in the previous rows reinforces the thought of a series if 'island' blocks and places an emphasis on this in-between landscape or junk space. The landscape becomes a collective space (physically and socially) which knits the disparate fields together.

3.4   Conclusions

This approach encourages a constant design inquiry that externally communicates the discovery process. Instead of imposing preconceived resolutions on the site, this method is instead aimed at indicating and extending the possibilities for 'approach' inherent in the site. The designer, through iteratively reading and writing these possibilities becomes both editor and composer. This methodology presents, and through its use constantly develops, a scaffold that allows the user to organize and examine his concepts, thoughts and intuitions.

The slowing down of the sketching or writing processes (laterally across three squares) affords a greater clarity of intention by forcing the externalizing of a mental concept. This slowing down occurs both horizontally and vertically within the methodology. The isolation of by row allows for a context free investigation of the relationship between a specific formal operation, an event and a particular context. One idea or theme is explored at a time, but simple structural guidelines and graphical procedures are provided to allow for the re-understanding of the theme in a more elaborate or combinatory [architectural] circumstance.

For use in design education, this methodology should be developed as a structure that can be used to both guide and document the student's activities. It is a process that cyclically builds and then excavates, constantly in search of an understanding of the context. The methodology should contain two faces, one structural and one functional. This allows for the 'constructor' of the methodology to point, but not overly determine, the direction of the investigation. This is done by selecting a series of operations and events relevant to the circumstance. The structural side will present an objective, procedure-oriented framework that contains rules and operations. This will provide the necessary rigor and framework for the student's investigations. This design exercise provided information on how the events and operations should be selected and how the operations should be ordered. The creation of different field systems, through the introduction of different operations and events will lead towards different arrangements of the de-territorialized elements and therefore will reveal alternative patterns and possibilities. The functional or subjective side allows the student to manipulate the rules according to their individual intentions and intuitions. As this is done explicitly, it can provide a framework for insight into the structuring of a student's analytical and generative processes. The student has the choice as to when, how and where to apply the rules as well as to how the results are interpreted. 'These are not works within themselves, rather a set of instructions for performing a work.' [6] The methodology discussed here is similar to the notes arranged on a musical staff. They are conditions or tendencies that do not exist without the necessary act of interpretation or performance.

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[6] John Cage, 'Foreword', I- VI: Methodstructure, 1997
         There is inherently a difference between the performance of music and the development or creation of a musical score.

4.0   **'Material Practices *or* Lessons from Motor City'**

This advanced design studio was co-taught with Rolando Mendoza, at the Boston Architectural Center, in the Spring 2000 semester. The text in the first one-half of this chapter consists of excerpts from the course syllabus, which present the structure, objectives and the exercises of the studio. Additional excerpts, such as weekly class abstracts, bibliographies and assignments are included in the 'Appendix', section 7.1. The second one-half contains examples of student work and observations regarding the localized use of the methodology (within the design studio). Further documentation of the students work will be presented, alongside of the analysis diagrams, in Chapter 5.0 'A Means for Evaluation' and in section 7.1.1 of the 'Appendix'. Chapter 5.0 will extensively document and discuss one student's use and appropriation of the methodology. The drawings, sketchbooks and the desk conversations will be used to formulate conclusions about the use of this methodology within an educational setting. Parentheses will be used to denote text that was added after the initial issuing of the syllabus.

4.1   Objectives, Structure and Criteria for Studio

The work of the studio will be to develop alternative means for the conception, design and representation of architectural space, stemming from investigations of material and structure. This body of research and design investigates the mapping of material, structural and infrastructural phenomena as a means of informing and exploring the intuitive design process. The specific method of exploration will be to read and construct the site through the lens of events and actions. The work is aimed at investigating the formative potential of architecture developed from external (site specific) and internal (program specific) parameters.

The design project will be an urban Bathhouse for downtown Detroit. Detroit once epitomized the success of urban industrial America, but now stands as the principal symbol of postwar urban decline. The investigation of the studio is to derive lessons from the so-called 'Motor City'. It will be an active investigation into the possibilities for public space, urban form and civic space in the post-industrial city. The structured inquiry of this research necessitates the project's removal off of reality and into abstraction. Though a Bathhouse in Detroit may seem absurd, such extreme positions can inform us about the state of architecture and the state of the city. It can inform us of their limitations and possibilities. The superposition of this typology into the 'project of the city' will provoke discourse on the definitions of both the practice of architecture and the discipline of making. The intention of this type of research is to interrogate the practices and techniques of two dimensional architectural representations and the repositioning of their role in the proposition of a three dimensional construct.

4.1

A photograph taken from the edge of Grand Circus Park. Elevated 21' above the street is the so-called 'people mover'. The path of the train loops the downtown area, only minimally referencing the vehicular grid of the city.

This studio consists of a series of design exercises that will progressively challenge the student's thoughts and intentions. Specifically, the studio will be conducting their explorations using the developed design methodology. Through the use of the methodology, the studio will explore the mapping of concepts, texts and approaches clearly and explicitly. This will create an intellectual space in which to work that will allow for thoughts to be explored in a thorough and rigorous manner. This will be used to familiarize the students with the concepts of procedure and device within both analytical and generative environments. The time spent in the studio will consist of site visits, lectures, presentations, student discussions and desk crits. The time spent in the field of Detroit will be used to explore, test and expand upon the investigations begun in the design studio. The students are expected to participate in the lectures and discussions. Students should appropriate the methodologies and objectives presented by the instructors so that they may actively pursue areas of personal interest.

This studio should attempt to:
draw inspiration from research and synthesize information about the 'sites' of investigation.
understand context as a set of social, political, technological and cultural factors (beyond the visual).
understand the consequences of choosing analytical and representational methods.
understand the inherent strengths, potentials and weaknesses of different methodologies and processes.
test and translate alternative ideas through different design proposals and experiments.
understand the consequences of choosing different combinations of scenarios of use, action and event.
test and record actions, processes and thoughts throughout the semester in an explicit manner.
develop a means to establish, explain and examine their own criteria and terms of criticism.

4.2   Sketchbooks

The one overarching exercise of the studio will be the keeping of a journal or sketchbook, to record the thoughts associated with the studio as well as those not. A requirement for the studio is the keeping of a 'journal of design inquiry'. It will serve as both a record of the student's investigations and a means to communicate them to a reader. The sketchbooks will be given out, as will a guide as to how they are to be inscribed. The act of drawing is the beginning of a dialogue between thought and construction. It becomes a survey and analysis for understanding the reality [of the city] within the flat space of a drawing by incorporating both visualization and scientific examination. [1] The act of drawing or mapping is not meant to be a process of documentation, but rather a further investigation of the concept. 'Traditionally, architectural drawing has been regarded as a passive yet accurate means of representation, bound to objectivity and conveying the facts of building or the projection of a design. Alternatively, the drawing can be seen as a window into the architect's subjective vision, isolating its effect from the physical world of building.' [2] This studio will use the sketchbook, its principles for inscription and the design methodology to explore this window.

(Given week Two) **The rules for the Sketchbooks are as follow:**
Each sketch shall be drawn twice, within a period no less than two days and no more than four days after the original.
Each two-page spread must contain at least 1 orthogonal drawing (i.e. a plan, a section or an elevation).
The left one-half of each page is meant for inscriptions concerned with 'Analysis'.
The right one-half of each page is meant for inscriptions concerned with 'Design'.
Inscriptions may continue across or redefine the boundaries set by the 2 previous rules.
Drawings and writings from explorations outside the bounds of the studio are encouraged to be included.

[1]   The word 'map' is derived from the Latin 'sheet'. The origin is not in the documentation of information, but rather an investigation into the geometry of the flat surface. These mappings have the ability to create a constant dialog and speculate on the direction of the investigation.
[2] Thom Mayne: *'Silent Collisions'*, Morphosis Buildings and Projects III : 1993- 1997, 1999

Montage, photography, Xerox and text should be explored as supplement to line drawing and sketching.

(Given week Nine) The additional rules for the sketchbook are as follows:
Each sketch shall now only be drawn once.
Each two-page spread must contain at least one 'thought' (i.e. text, image or drawing) from a previous spread.
The top of the page will investigate 'concepts and guidelines'.
The bottom of the page will investigate 'formal resolutions'.

The intention of these rules are to develop the sketchbook, and therefore the inquiry, both recursively and discursively.[3] The goal would be to develop a hybrid approach to design and documentation. The sketchbook should have the rigor of the recursive act but should also allow the preceding terms to used and recalled in a discursive, nonlinear manner. If this method of inquiry gets structured clearly and explicitly, it can then allow for someone to enter into your way of understanding the 'site' and therefore your way of constructing and interpreting the context. In this sense, the only requirement for the work of the studio is that it contains the desire to be read. The objective of the studio is to make architectural representation a text; writing, reading and then rewriting the architectural experiences.

4.3   Studio Works

The studio is structured as three main segments, with a total of six distinct exercises. The segments, in chronological order, fall under the topics of research, urbanism and architecture. The research segment will occur during weeks 1-4, and will include the testing and redesign of a methodology using an existing building as the site of investigation. The urbanism segment will include two 'site' investigations, one at the scale of the downtown neighborhood and one at the scale of the block. These will occur from weeks 5-6 and 7-8, respectively. The architecture segment will consist of three topical investigations within the context of a design project. Organization will be addressed in weeks 9-12, *program* will be addressed in weeks 12-14 and either *structure* or *light* will be addressed in the final two weeks, 14-16.

Of the six students in the design studio, three are discussed and evaluated within this document. The three distinct projects represent three distinct uses of the methodology. In the order presented in this section; one student used the formal composition of the images to develop formal strategies for addressing the site; one student used the emotional content of the images to develop a language of thresholds that would accommodate the program while the last student used the methodology as a means to create a language of experiences based on the material conditions of the site. Although only three students were chosen from the design studio for this 'structured' evaluation, the work from the entire studio played a role in the construction of the text within this document.

The studio began with a lecture on the design and use of the methodology, although the students were not presented with the urban analysis drawings that are presented in section 3.3 of this document. The students were given the abstract, the entire first chapter, 'Background', and the first six sections of the third chapter, 'An Offered Methodology' for reference.

4.3.1   Analysis of Building Projects (Research Segment)

(Given week One) The studio will begin with an exploration of the developed methodology. Initially replicating the techniques will provide insight into the structural and operational principles of

[3] as per Webster's,   *recursive:* an expression, each term of which by application of an action to preceding terms, linear in nature.
             discursive: to bound from thought to thought with no order, ramble. non-linear in nature.

the methodology. The drawings and their associated procedures will afford some rigor to the work and provide the necessary constraints and information needed to understand its benefits and shortcomings as a means of analysis. After the first two weeks of this four-week assignment, the student may propose changes or develop a derivative of the existing methodology, provided that they explicitly state their reasons for the new 'principles'. The event, and instances of the event, are for the students to decide.
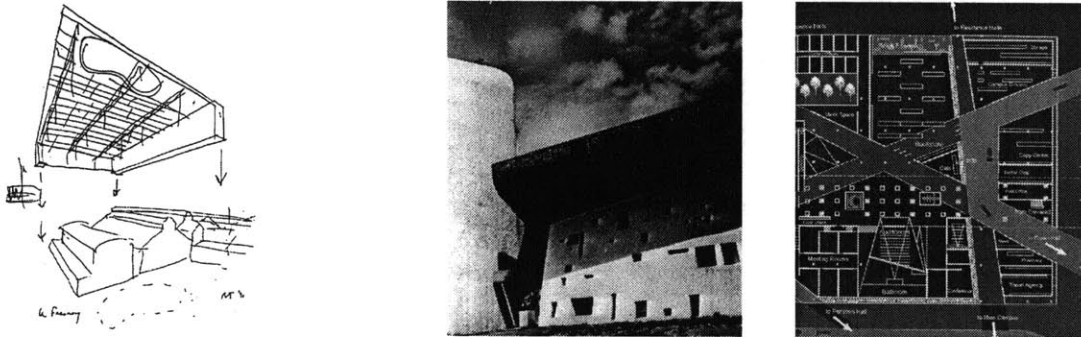
4.2, 4.3
4.4

A diagram by Tschumi, a photograph of Notre Dame du Haut and one-half of a diagrammatic plan by Koolhaas/ OMA.

The sites that the studio will be using for this investigation will be *'Le Fresnoy National Studio for the Contemporary Arts'*, 1991-1998, Tourcoing, France, designed by Bernard Tschumi Architects; *'Notre Dame du Haut, Ronchamp Chapel'*, Near Belfort, France, designed by Le Corbusier; and the winning entry for the *'Illinois Institute of Technology Student Center Competition'*, 1997- present, Chicago, Illinois, designed by OMA and Rem Koolhaas. The projects under investigation should be viewed as a blank site, as the assignment is not meant to search the projects for instances that corroborate the architect's theories or metaphors as they exist in the writings. The aim of the assignment is to arrive at an understanding of the formal logic or tendencies inherent in the building project.
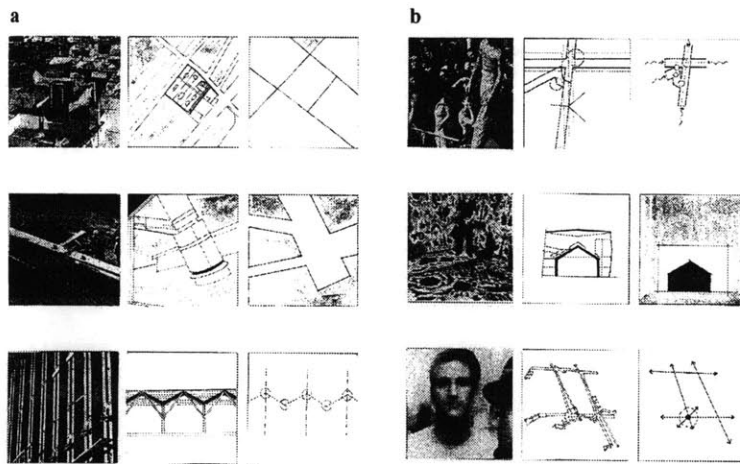

4.5

Student A: Two sets of drawings investigating the architectural site of Le Fresnoy. The event, chosen by the student, was a blind female musician being abducted by a man. The formal operations used were (a) projecting, imprinting and repetition, and (b) interweaving, enclosing and intersecting. The words were chosen in reference to the formal composition of the image, regardless of the action occurring during the specific 'instance'. Choosing the word first did not allow the formal operation to be used as an objective operation. It focused the student on searching for an occurrence of a pre-selected topic such as repetition. This change has shifted the methodology to be used as a 'formal' rather than a 'structural' analysis. Before the site was allowed to be 'viewed', the outcome had been predetermined and thus limited the designer.

4.6

Student B: The event is a man on a pilgrimage to the chapel for the first time. Although the representational methods that the student used were different from those presented, the processes strongly embodied the operational and procedural characteristics of the presented methodology. The student went through the process of isolating an element, removing it from the context of the site and the recontextualizing it, through representation, back into the site. Completing these processes internally, in one step, allowed for only the initial reading to occur. This action of internalization stifles as opposed explores possibilities.
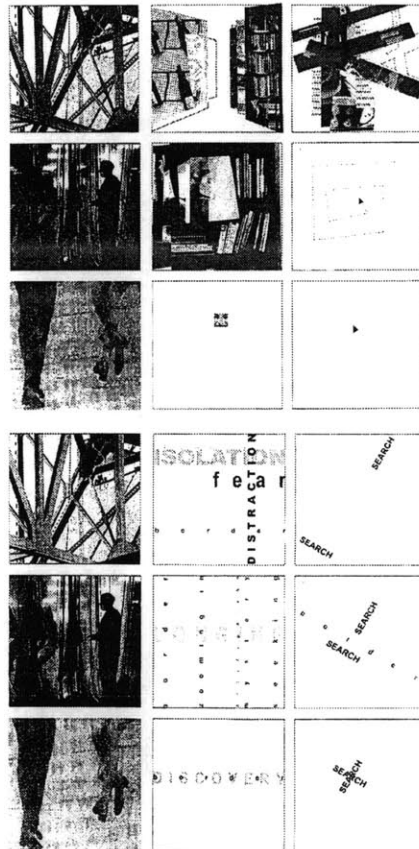
4.7

Student C: The event chosen by the student was two people meeting for the first time. The commonality of the event did not provide for anything progressive or outside of the bounds of the student's initial concepts to be understood. The student's understanding of the project was translated through, but not progressed by, the use of the methodology. The methodology was used as a representational device.

4.3.2   Analysis and Design (Urbanism Segment)

(Given week Five) We will start by analyzing the city, as before we can propose an urbanism for this place, we must first understand and explore what exists there. This approach becomes a means to define space and form as a set of possibilities rather than a static or preconceived entity. The aim of this exercise is to create a context in which to work. Your constructing of the context should be based on your reading of the downtown area.

The investigation will be undertaken at the scale of the district, from W. Elizabeth Street to Park Blvd. and from Clifford to the New Comerica Park. This investigation will use the methods developed from, or presented in the first exercise to create the basis for a design proposal. The event to be used in the first ½ of the exercise is to be of your choice, while the event for the second ½ is to be 'A Murder in the [Grand Circus] Park'. The requirement for each is a set of (at least) four rows of drawings and a subsequent model. These drawings will focus on the formal organization of the city. By using the methodology to create the context in which you will work will provide you with a means to establish, explain and examine their own criteria and terms of criticism.

### 4.3.3   Addendum to the Methodology

(Given week Five) (The following section consists of the text given to the students as an addendum to the previous texts concerning the principles of the methodology.) There are two major adjustments to the methodology, one structural and one procedural. The structural change consists of the transformation of the three distinct squares into three distinct zones. The properties, techniques and processes that were associated with the square are now associated with the zone (i.e. square one becomes zone one, etc.). This allows for multiple squares to be used within the confines of one zone. This affords a means to create an even 'slower' sketch. The use of the methodology in a design setting necessitated a change in the procedural aspects. To allow the methodology to continually progress the ideas and concepts to higher levels of resolution, the methodology must find a way not to become stalled or static. The events are broken down into eight segments, or two sets of four instances. Each week one set of instances is to be used. The complete narrative will be given so as to place the current set of instances within the context of the entire event. After each set of drawings are completed, a model should be built exploring the conditions and tendencies disclosed in the drawing investigation. The models should not replicate the drawings, but rather try to answer in an architectural language, the questions posed by the drawings. When the next set of drawings are to begin, the recently created model will serve as the new site for investigation. These motions between drawing and model are crucial so that we do not get lost in the details of a specific medium.

Every few weeks the drawings will be used to explore a different type of architectural investigation. The studio will begin with organization, then move into program and finally into structure or light. The choice of the last two will be determined on an individual basis, to allow you to focus on areas meaningful to the developing nature of your investigation. The formal operations, events and images will be given at the start of each two-week period. The 'operations' that you perform to contextualize the given event will be done in a strict order. The selection of the specific operations and their order in which to be 'performed' were chosen so as to guide your investigations towards particular architectural concepts that are important to the project at that point in the term. The order in which the operations are performed is based on a scale from operations concerned with *objects* or 'figures' to operations that are concerned with *the space between the objects* or 'ground'.
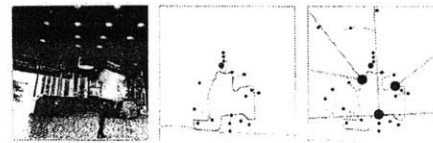
4.3.4   Analysis and Design (Architecture Segment)
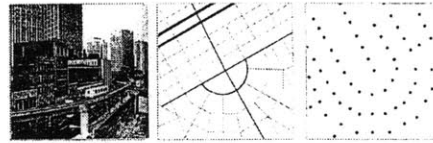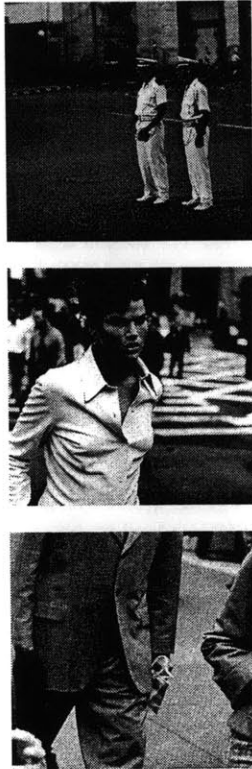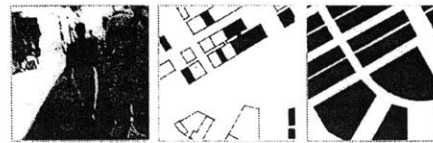
4.8

^ Student A. (1) An emphasis is placed on the intersection points of the grid as opposed to the actual lines of the grid. (2) The block is isolated and considered self sufficient and self referential. The city is to be built from the bottom up. (3) Due to the incoherence of the current planning and organizational devices, small scale 'local' devices are introduced.

4.9

^ Sequence of three images, instances and operations given to the students, from top to bottom: (1) formal operation of **Interweaving**, the site where the murder is to occur; (2) formal operation of **Super (im) position**, introduction of the victim to the site and (3) formal operation of **Extension**, the stalker is introduced to the site. The event is Murder.

> Student B. (1) One order intruding into another changes both dramatically. (2) The patterns that exist on the site do so in isolation of each other, and therefore remain weak and indifferent towards the larger site or context. Compressing and intensifying the patterns will create richer textures. Each expresses its own logic. (3) Each building is an object, with its own set of relationships to the city. Each building is part of a neighborhood with its own set of relationships to the others.

4.10
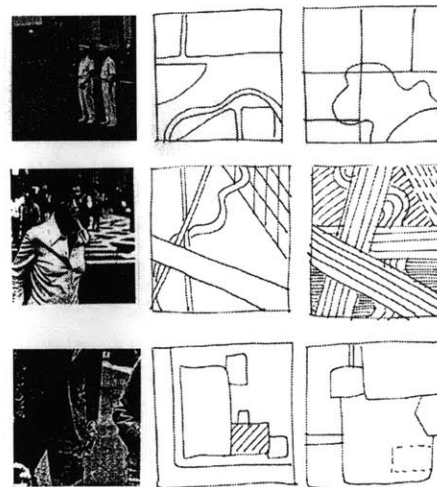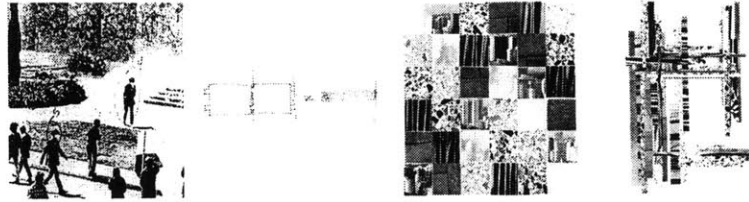
4.11

Student C. Square (1) presents the examination of the scene of the murder. Square (2) presents the examination of the site that explored the role of the material elements and conditions in the architectural event of creating surfaces. Displayed are two methods of constructing surfaces (or masques) that were disclosed through the examination. Square (3) presents a mathematical approach to understanding the structure and organization of patterns, while Square (4) presents an approach based on the intensity and texture of the patterns, tendencies and agendas.
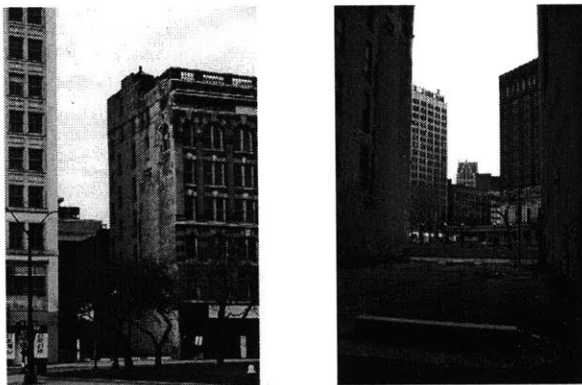

4.12,
A view into the site through the park. A view, looking directly south through the site to the park and the people mover. 4.13

(Given week Nine) The investigation will now move to the scale of the block, from the Kales Building To the Detroit Fine Arts Building and from the far side of the public alley to the edge of Grand Circus Park. The site for the final project is currently used as a public parking lot. The street address is 64 W. Adams Ave., Detroit, Michigan. The site is an infill condition 40' wide by 100' deep, positioned almost North-South. Facing the site, to it's left, is the Kales Building, a 240' high office building currently abandoned, to it's right is the Fine Arts Building, 85' high also currently abandoned. To the south of the site across the street is the Grand Circus Park (1956), with a municipal car park for 400 vehicles below the surface. To the south of the Park at a 20' elevation is the Bagley Ave. People Mover. To the east of Woodward Avenue is the New Comerica Park Stadium for the Major League Baseball American League Detroit Tigers. The documentation of the site that you are to produce should not be of the same *tense* as the dimensional text written above. The drawings of this analysis should be generative, in the sense that they become a means in which to begin a design project. They become a means to measure and prioritize the agendas of the site as well as those of your intuitions and intentions. The analysis should be seen as the creation of a scaffold, from the tendencies and agendas of the site, that allows for the intentions of the program an other architectural topics to be 'mapped' into the context.

The site to be used for this exercise is to be the last model constructed from the Urban scale investigation. Each of the three, two-week exercises will read the site through a different lens (event) for a different reason (architectural topic). Chronologically the events and topics are 'A Murder in the [Grand Circus] Park, Again' for organization, 'A Women Taking A Bath in a pool on Woodward Avenue' for program and 'A Man Falling from the top of the Kales Building' for either structure or light. All of the images, and their corresponding texts, will be provided by the instructors. (See Appendix 7.1.1)
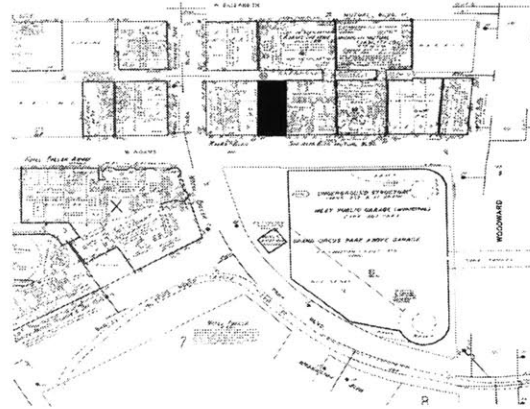
Site plan. (Sanborn Map Co.) The site is shaded black with the left one-half of Grand Circus Park directly to the South and Woodward Avenue to the East. Only one building, three to the right of the site, within the boundaries of this map contains any active use or program.
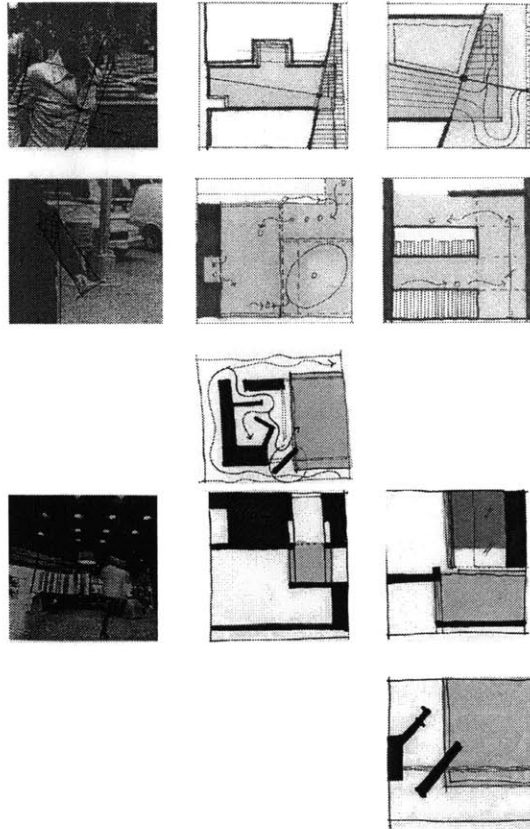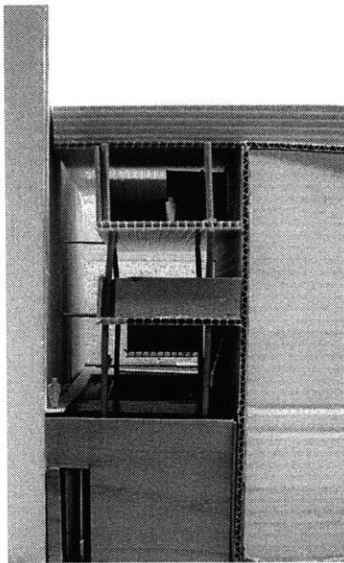
4.15
4.16

Student A. Initial 'building scale' drawings and model. The image's compositional structure was analyzed and imposed onto the building site. This allowed the student an alternative means of investigating the site. The imposition of one order onto another provided a platform to explore the limitations and possibilities in terms of the site's logic. These investigations are to inform, rather than dictate, the building of models. The drawings disclosed possible (row 1.) physical and visual axis, (row 2.) points of penetration into the site and surrounding buildings and (row 3.) possible internal sectional conditions based on the availability of light.

group of functions   group of functions

there is (enough space)

organizational type of space   instead of

Formal Operation: INTERSECTING

(men are moving across the plaza, away from the apartment, towards the hall, the site for the fall is introduced.)

what
I see → there are two groups of spaces, each one of them has different group of functions, each group of function is really one general function. They all choose their own paths not intersecting disturbing each other, even their paths intersect often, they do a not disturbed,

4.17
4.18

Student B. These drawings and resulting models operated on the image and the event within an abstract space that did not yet allow either program or a specific architectural site to influence the development the sequences and thresholds.

Formal Operation: INTERWEAVING

(the men are watching a film in the hall)

individual
intimate experience
in a public space

intimate experience
in public

feeling: little bit
uncomfortable, but fun.
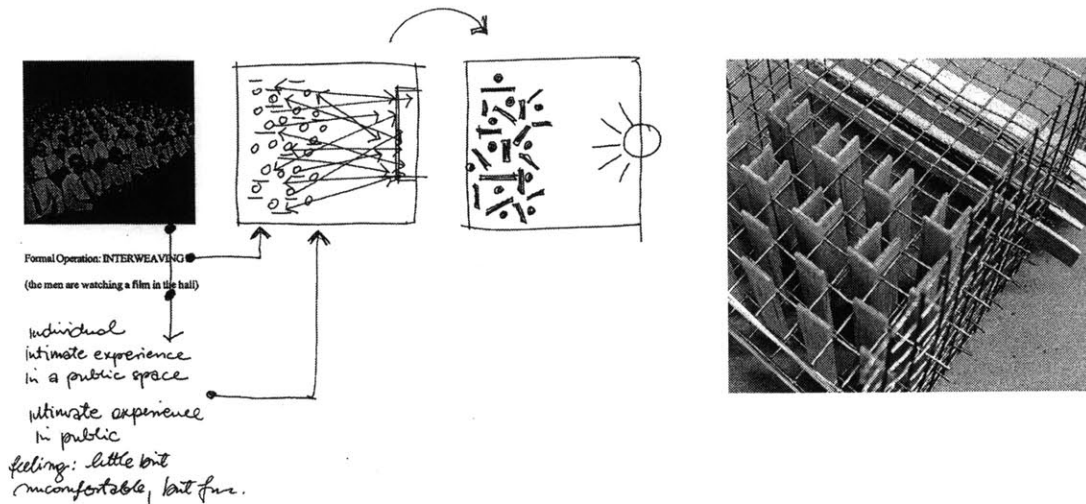
4.19
4.20

Student B. The phenomenological intent of the instance, as portrayed by the image, was used to create a type of threshold that would exist between two programmatic elements. This was done for each instance of the event, this creating a sequence of thresholds based on a narrative. The program, or the space between thresholds, was not addressed either formally or programmatically.
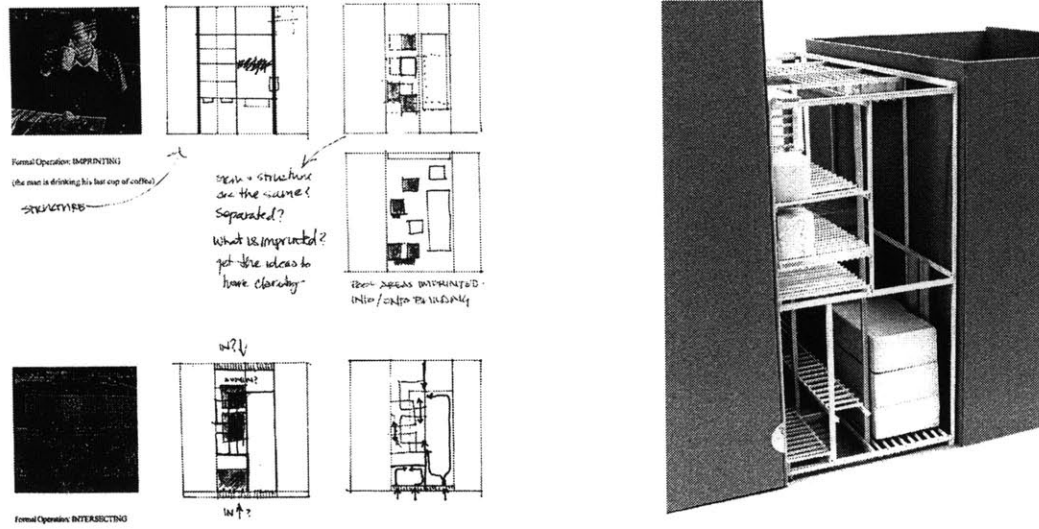
Student C. The first two rows of the drawings explore the imprinting of the structure onto the surface and of the surface on to the structure. This ambiguous relationship between structure and surface or matrix and edge attempt to extend the logic of the scaffolds and fire escapes from within the alley into the site. The third row explores the relationship between circulation and program within a complex scaffold that marked the intensities, textures and logics of the materials within the site boundaries. The intersection of the two are the points of intensity where the conditions disclosed in the first two rows will be further explored. The model begins to explore the relationship of program to the scaffolds created.

4.4   Conclusions

The students have been able to successfully use the methodology as a scaffold for the evaluating and prioritizing of their intuitions that were drawn from reading and constructing the site and context. This is facilitated by the graphical structure and the procedural aspects associated with the methodology. The procedures were performed iteratively and therefore constantly moved the student between the acts of reading and conjecture. This aspect of the methodology provided the platform for a continual design inquiry. This continuous inquiry questioned the separation between analysis and design while reinforced the separation of process and product. The tactics and techniques of the methodology vigorously stimulated the student's intuitions and reasoning abilities in a manner that facilitated the elaboration of knowledge. The structure of the methodology required the students to explicitly establish and examine both their design thoughts and design criteria. This required the students to also establish the terms of criticism for their work. The methodology facilitated the organization, depiction and evaluation of the 'design information' gathered from a structural analysis. The rules for the inscription within the sketchbook proved a strong means to get the students to think more critically about their thoughts as individual ideas and explore where those thoughts fell within the larger context of design and design education.

The use of this methodology, and specifically the introduction of 'events' into site and building analysis (and design), provoked the students to see the site as an itinerary rather than just a measured space. This allowed the students to see the possibilities and qualities that were inherent in, and encouraged by, the site. Instead of utilizing a formal analysis that relies on preestablished techniques and methods to understand the site as a formal product, this methodology encouraged the students to use an active design component as the primary means of analysis. The students were asked

design inquiry **39**

to redesign or re-configure the current site based on the notion that it now needs to consider the given event as the program it must support, or deny. The contextualization of an event into the site was the lens used by the students to view, analyze and make assumptions concerning the site. To restate, a structural analysis is concerned with the disclosure of [subconscious] tendencies and agendas from within a form or site. This approach acknowledges that each situation offers its own specific truths. 'Where formal analysis describes the apparent given, structural analysis questions the impulse [or logic] upon which that given is based'. [4] This separation aided in the distinction between modes of working and intentions. Using the notion of events as the means in which to read the site and the context aided in the suspension of the student's preconceptions. This suspension allowed the students to first reconsider the traditional notion of context as a visual concept and second, to use the information inherent in their reading of the site to develop methods of representation, inquiry and operation. This approach allowed the students to uncover patterns from the site and the context that were then used as the impetus for a building project. The patterns and the contexts constructed from them could not have been uncovered had the students approached the site using conventional modalities of analysis and representation.

The graphical structure of the methodology allows for the drawings to be created, explored and read as a screenplay. The screenplay analogy allows for isolated explorations of concepts and elements. The ability to explore thoughts and variables in isolation allows the students to focus and explore the possibilities and polemics of each thoroughly. The row, as the basis, of the drawing methodology is the device used by the students to perform a series of isolated experiments. The power of the row lies in its ability to interact with other rows. It requests that the students clarify and explicitly state their mode of operation. The students then referenced a series of rows as the conditions or guides from which to construct a model. The model serves as the larger and more elaborate [architectural] circumstance in which to combine the isolated experiments. The model progresses the concerns and conditions inherent in the drawings and creates a new site to be investigated by the continuation of an event in a new set of drawings. This iterative process continually increases the level of resolution of the drawings, the models and the concepts. This allowed for the students of this studio to combine the methodology with other existing 'devices', such as models, for exploring and testing ideas.

The first more conceptual studio discussed in this document did not have the complex, tectonic based design project that the second studio did. The design project acted as a vehicle to test and validate the investigational methodologies developed during the research. Where the first studio focused on how to use the methodology as a means to begin a design project, the second studio explored the use of the methodology as a means to facilitate the development of a design project. The second studio seemed a more appropriate environment for the testing of the methodology as the program of the design project placed an emphasis on promenade and circulation.

Coupling the drawing methodology with the making of models provided the students with the vocabulary and the understanding of procedures that would allow them to interrogate the codes and conventions associated with the act of making a model. The students approached the construction of the models in a manner similar to the way they approached the construction of the drawings. A framework was established and a series of architectural events that explored the conditions and the tendencies of the drawings were modeled. Each of these events were modeled in isolation of the others and then combined. This approach focused the students on clarifying the purpose or narrative of the architectural promenade both as an isolated idea and as an idea within the context of Detroit. Providing the students with the opportunity to use the methodology to inform the internal conventions of other orthographic representational devices; such as plan, section or elevation; was not explored within this research but remains as one of its primary concerns.

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[4] Peter Eisenman: *'Introduction'*, Investigations in Architecture: Eisenman Studios at The GSD, 1986

5.0   A Means for Evaluation

The evaluation of the work of the studio needs to encompass how well the students have learned specific concepts and to what extent the given methodology has affected their design processes. This section will discuss the criteria for evaluation, the methods of analysis developed within this research, examples of the analysis diagrams and a case study from the design studio. The chapter concludes with a discussion concerning what these types of diagrams have afforded, what they have not and what additional means are needed to evaluate such educational interventions.

There are two distinct pedagogical approaches within the architecture studio. One, perhaps more conventional, is focused on the final product. Emphasis given to how the product, as an artifact, embodies the designer's thoughts and concepts. The other is focused on the process, with the emphasis placed on how and why the process has developed in a certain manner. This approach is concerned with how the process affects itself. This thesis develops perhaps a third approach, where the emphasis is indeed placed on the [structuring of the] process, but not in respect to or isolation of itself. It is concerned with how the processes can arise from the products.

5.1   Criteria for Evaluation

The criteria for evaluation match closely the objectives stated in the studio syllabus and the statements made in the first two sections of chapter 3.0, 'An Offered Methodology'. The criteria will be broken down into two categories, general and specific. These categories contain a total of five questions that need to be answered in order to understand the role of the methodology within design education. As this thesis developed new, nonclassical ways of reading the site and writing the context traditional ways of evaluation are suspended. The students work will be analyzed in terms of their conceptual structure as opposed to their formal resolutions. An analysis of the techniques used to perform the acts of reading and writing will afford insight into the design processes of the student.

The general questions were formulated based on the position of the studio within the overall educational curriculum. The specific questions are those that arose directly from the use of procedures and methodologies within the design studio.

General:
Have the students performed a thorough exploration of different ideas, concepts and themes?
To what extent have the students been able learn and appropriate the concepts of their investigations?

Specific:
Is the methodology structured such that, regardless of user, the outcome is defined and restricted?
Has the methodology progressively made the intentions and intuitions clearer and more explicit?
What have the students been able to transfer from one investigation or from one project to the next?

5.2   The Evaluation Diagram

As the drawings will document the students thoughts, intentions and intuitions, the evaluation diagrams will document those documents. They will explore the given methodology's role in the creation of those drawings. The aim of this type of evaluation is to better understand how a conceptual approach to a project is structured and how that structuring affects the exploration or process *within* a **design project**. The investigation of the studio is segmented into two smaller assignments each reflecting a distinct design exercise. One is the investigation of organization, while the other is an investiga-

tion of program. This will allow the evaluation to look also at how the structuring affects the exploration or process *from* **design project to design project**. As such, an evaluation of the process then provides us with a means to bring a new openness to reflection and self-scrutiny in architectural endeavors. 'That is, to examine the conceptual underpinnings of our own enterprise as architects. The means of evaluation should allow one to see more, to broaden one's capacity of experience, not to claim truth.' [1] The content and structure of the evaluation diagrams provide a vehicle around which a discussion of personal conceptual development is possible.

5.2.1   Data Collection

Each set of evaluations is composed of three distinct diagrams. All three diagrams document the same body of work using the same X and Y axis labels and the same set of variables, but are constructed from fundamentally different points of view. The first diagram, 'Writing', is the student's interpretation of how they believe they are conceptually working within the framework of the methodology. The second diagram, 'Reading', is the instructor's interpretation as to how the students have been conceptually working based on the reading of the student's drawings as an artifact. Both diagrams were constructed simultaneously and in isolation of each other but prior to the student's presentation of their work. This was done after each two-week period of drawings were completed. The drawings of weeks five to six and seven to nine investigated program while the drawings of weeks ten to twelve investigated program. The two diagrams are then compared to produce a third diagram based on the commonalties between them. This diagram, labeled 'Intersection', showed the areas of agreement and difference between what the student intended the work to be about and how that work was actually interpreted.

(Given to the students in Week five) Following each two-week period, the studio will construct a series of diagrams of the previous two weeks. (The students were given the text from the following sections as an instruction manual for the construction of the analysis diagrams.) These diagrams will be constructed by the student, as the writer of the work, and by the instructors, as the reader of the work. The two will then be compared and the amount of overlap will show how clear the student's intentions are or are not displayed in their current work. The goal of the studio is that these series of diagrams eventually converge. This will demonstrate that the students are using the methodology as an effective means of documenting the inquiry in an explicit graphic manner.

5.2.2   Structural and Operational Principles

As any evaluation of design and design process is subjective, the diagrams do not attempt to pinpoint exact correspondences between the given formal operation and the disclosed conceptual theme, but instead they attempt to present value ranges or areas of intensity that occurred within the use of the methodology. The diagram is not concerned with the data as a specific or precise entity, but with the presentation of that data in such a manner that is becomes manipulable for thought and interpretation.

The type of diagram used for this evaluation is an extension of a typical 'scatterplot'. The standard bivariate scatterplot marks the intersections between the variables of the x and y axis. This type of representation places an emphasis on the spatial relation among these scattered 'plots'. This

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[1] Andrea Brown, *'Sabbioneta, Ideal City'*, Investigations in Architecture: Eisenman Studios at the GSD, 1986

affords a primary reading of the density or grouping of 'plots', as opposed to the reading of the 'plots' themselves.

5.1
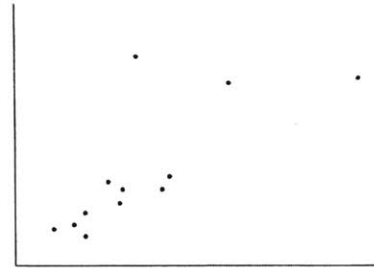
Traditional 'scatterplot' diagram.

There are two alterations made to this type of representation. These were done to address the issue of the exactness of data discussed in the first paragraph of this section. The first allows the dimension of the 'plot' to be parametric. The mark shows first if there is an intersection between the variables of the X and Y axis and second, what the intensity of the intersection is. There are three possible sizes for the plots. 'Small', meaning that there is an implied connection between the formal operation and the conceptual theme; 'Medium', meaning there is a strong connection and 'Large', meaning there is a strong and direct connection. This value range for the type of connection is needed, as the evaluation of the work from within the field of design cannot be rendered as a typical binary analysis. The second change to the diagram removes the right angle connection between the x and y axis that typically occurs in the lower left-hand of the diagram. This changes the nature of the scatterplot from a static frame to a range frame. This presents the displayed information as a subset within a larger scale of variables and concerns. Within this research, the larger scale is the complete design studio, with the subset embodying a focused investigation on such architectural topics as organization, program or structure.

5.2
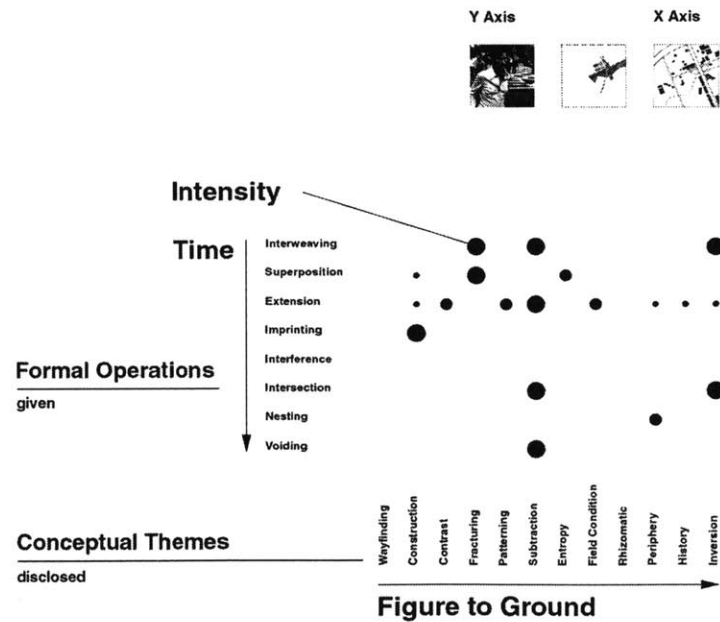
Revised 'scatterplot' diagram with Structural Principles.

The variables on the y axis are the formal operations that are given to the students by the instructors. The formal operations are listed, top to bottom, from operations that are concerned with proximity to those that are concerned with distance. The arrangement is also representative of the chronological order in which they were performed by the students. The following is a list of the formal operations and their definitions, as given to the students. The operations were chosen to reflect the objectives of the studio (i.e. an investigation into formal properties of the site under investigation).

Interweaving: blending together in a ribbonlike pattern, creating a surface from series of lines.
Super (im) Positioning: setting or placing one thing over or above something else.
Extending: stretching or pulling out, spreading something out to greater or the fullest length.
Imprinting: producing a mark or pattern on a surface by means of a [uniform] pressure.
Interfering: the act or instance of hindering, obstructing or impeding.
Intersecting: point or locus of points where a line, surface or solid crosses another.
Nesting: embedding one element (condition or concept) into another, whether solid or void.
Voiding: removal, in part or in whole, of an element, concept or condition from a specific point.

The x axis varies in relation to the topic of investigation but maintains a constant 'label' for the scale of the axis. The scale, left to right, refers to conceptual themes that are concerned with figure or object to those that are concerned with ground or space. An initial list of ten terms were given to the students, referencing the concepts that were important to this studio. Before constructing the analysis diagrams, the students were asked to redefine any of the terms, on their own conditions, and to add or delete any terms from the list.

Construction: investigation into the 'history' of form, (i.e. original, renovated, appropriated).
Contrast: juxtaposition between the original intent and the perceived intent of an 'element'.
Fracturing: of downtown into 'satellites' dissolution of planning and organizational concepts.
Patterning: each satellite has its own formal logic of organization created by fracturing.
Subtraction: understanding of process of removal of objects and pieces from the city.
Entropy: the logic of the 'disordering' of the city relies on understanding of origins.
Field Condition: or loose knit urbanism, reinterpretation of the variables in the figure ground.
Rhizomic: the 'logics' of the city may be broken, but can start again on an old line or new.
Periphery: the city is seen to be in a constant state of 'periphery' the landscape is dominant.
**Inversion:** the 'alley' is currently the most defined urban space and perceived 'boulevard'.

Wayfinding: finding a means of sign or mark or gesture that informs one of place or path
History: investigation into the formal development of the city as an outcome of specific events
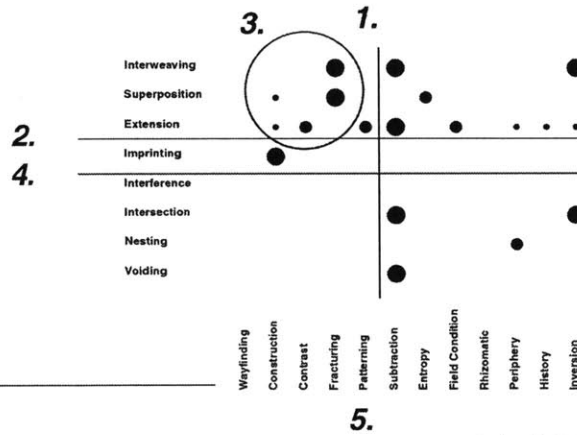
5.2.3   Reading Principles

The simplest reading, and the basis of all other readings, is the intersection. i.e. *In this specific row of drawings the use of the formal operation of 'Imprinting' established a strong and direct connection to the conceptual theme of 'Wayfinding'.*
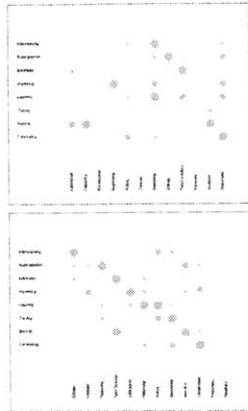
Two diagrams presenting the Reading Principles of the analysis diagram.

1. Division by X axis 'Label': A bias towards the concepts between the boundaries of 'figure' and 'ground'.
2. Horizontal (association with a single operation): The formal operation of 'Extension' provided the most fertile ground for conceptual investigation.
3. Clustering of 'Marks': The initial formal operations, concerned with 'proximity', provided a means to explore the concepts associated with 'figure'.
4. Division by Y axis 'Time': The initial operations resulted in an equal number of 'S' marks to 'L' marks, while the latter operations produced no 'S' marks. (As time progressed, the ration of implied connections to direct connections was reduced.)
5. Vertical (association with a single conceptual theme): The conceptual theme of 'Subtraction' was the most subscribed (in a consistent manner) conceptual theme by different formal operations.
6. X axis Label: By creating different labels for the labels or scales for the X axis, the conceptual themes can be reordered and the data viewed via a different 'lenses'. (Diagram 'A' represents the initial scale of the conceptual themes, occurring from figure to ground. Diagram 'B' reorders the scale to demonstrate the most prominent conceptual theme as it relates each formal operation, in sequential order.)

5.2.4   Writing Diagrams

The methodology used by these three students, over a two week period, has returned three distinct areas of 'conceptual emphasis', as determined specifically by the student. Student 'A' can be said to be concerned more with the 'ground' of the city, in respect to issues of history and its transformation. Student 'B' can be said to be concerned with both 'figure' and 'ground', with a bias towards 'figure' and the logic of its current state (of absence). He/ she started with a very broad exploration and then focused exclusively on a few themes. Student 'C' can be said to be concerned more with 'figure' and the contrast that exists between multiple 'figures'. The exploration contains strong strands of investigations occurring at both ends of the spectrum.
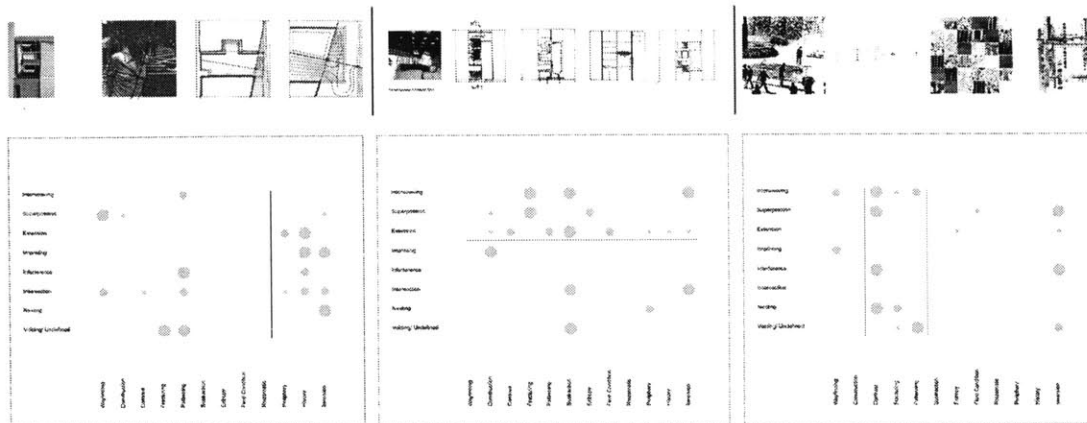
5.4

(L. to R.) 'Writing' diagrams completed by Students A, B and C, for Weeks Five and Six.

5.2.5   Reading Diagrams

The methodology used by these three students has returned three distinct styles of conceptual emphasis based on a reading of their drawings as artifacts. Student 'A' began with a very specific investigation of two themes and progressed into a broader level of investigation, while Student 'B' just the opposite. Student 'C' can be said to be consistently investigating three dispersed themes with different formal operations. Student 'A' can be said to initially be concerned more with the 'ground' of the city, in respect to issues of history and its transformation, but through time has expanded that initial emphasis to explore a larger range of themes. Student 'B' can be said to have started with a broad thematic exploration of the site that is concerned with both figure and ground. He/ she has progressed, with a bias towards figure, and focused the investigation on a singular theme, the logic of the figures current formal state.
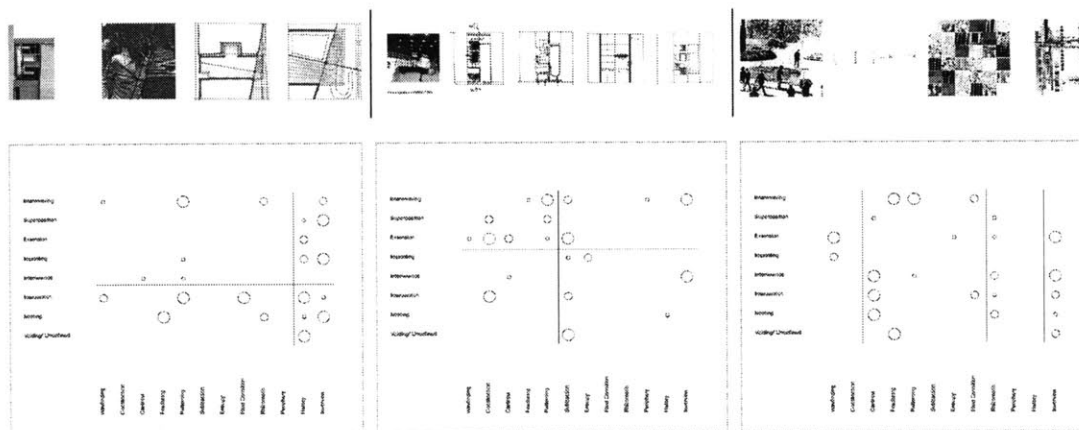

5.5

(L. to R.) 'Reading' diagrams completed by the instructor of Students A, B and C, for weeks five and six.

5.2.6   Intersecting Diagrams

These diagrams show the points of incidence between the implied intention and the perceived intention of the students drawings. The intersections in the diagrams of Student 'A' and 'B' can be said to be analogous in general reading to the previous Writing and Reading diagrams associated with those students. The intersections in the diagram of Student 'C' does not suggest the singular theme or focus as demonstrated in the associated Writing and Reading diagrams. Within this two-week period of study, there is not a noticeable increase in the number of intersections in the latter stages of use.
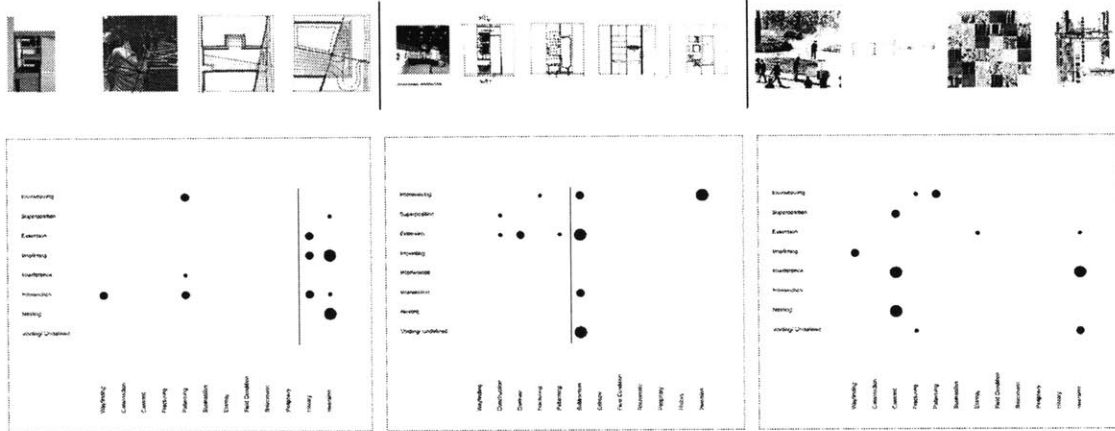
(L. to R.) 'Intersecting' diagrams for Students A, B and C, for weeks five and six.

5.3   Case Study

Additional set of conceptual themes for 'Program' Investigation (weeks Five and Six)

Marking (punctuate): wayfinding, using the program as an object or device for placement.
Marking (direct): using the intent of the program to dictate movement, visual or physical.
Overlap: imposing parts of multiple programs or parts of multiple readings of a program.
Density: a compression of multiple programs into one common area.
Excavating: a revealing of an element or condition or program.
Tension: the relationship or space between program types, perceptions or intentions.
Tracing: the creation of a program (types, perceptions or intentions) over existing elements.
Layering: imposing multiple programs or readings of programs within a specific region.
Blurring: the removal of distinction between program (types, perceptions or intentions).
Flexible Space: ability for program (types, perceptions or intentions) to change or alter.
Transparency (phenomenal): creating the ability to see through or between two programs.
Transparency (literal): ability to see through a program (types, perceptions or intentions).
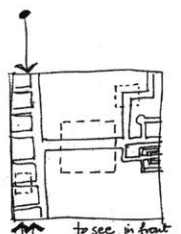
what to choose?
- HVAC systems running through the bldg - visible
- EXISTING BLDGS around showing what was there before
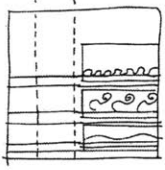- ... elements shown in context, not isolated
- segments that look ordinary

EVENT: a man falling

transparent (to use in right places)

to see in front
and back, before and
after, what is relevant
to now or that. What to use how to reference architecture?

Formal Operation: IMPRINTING

(the man is drinking his last cup of coffee)

WHAT
I SEE → before the event, he does not know what will happen.
He looks ordinary, simply drinking his coffee. To us,
who know what will happen after - his last coffee,
the whole picture changes, becomes dramatic
exciting, tense, intimate, compassionate,...
becomes interesting, one has a sense of time now
still, he's just drinking his coffee.
→ ordinary that we see becomes extraordinary
when we know it, big picture that show

look at multiple options
for each one of the
WHAT
SERIES OF IDEAS
HANG TOGETHER,
THEY FORM A
CONCEPT.

?

Formal Operation: DISPLACEMENT

(the man and two others are moving up)

(SECTION)

what
I see → space for - playground with the same toys that everybody are using
as much as they want, why would they do it together? Not to compete
to have fun (playfulness, freedom, enjoying)
what function in bathhouse could that be?
you're enjoying dynamically and loudly, but not disturbing
anybody there.
→ playfull

option of moving
through the space
as you wish.
being able to use
spaces in different
levels, even they
may not be designed
for that.

unconventional
public space

use it if you want

planned ... function

EVENT
EVENT
EVENT

Formal Operation: TRANSFERENCE

(the man is climbing onto a low wall)

what
I see → he has a power being there,
can observe, a
not comfortable, but claiming space
advantage
space not meant to be what he
is using it for. He uses it in
unexpected way. He is in the

5.7

Student B. Drawings, Rows 7-9, Week 10. Exploration of thresholds, movement patterns and sequences. between zones.

design inquiry 48

Writing: In the initial two week period, the student can be said to be concerned more with figure than ground. The conceptual focus is established as one strong form and one weak form. The strong form is concerned with the attributes or qualities of figure, or group of figures, such as fracturing, patterning and contrast. It is a notion that concerns space, but only in terms of the relationship between figures. The weak form demonstrates a persistent involvement with notions of the inversion of space. The marks in this weak form never occur as the only marks for the particular formal operation. The reading of this diagram is consistent for both of the weeks in this segment. In the third week there was a broad exploration across the spectrum of themes. Eleven out of the twelve conceptual themes were addressed and seven out of the eleven were addressed by at least three different formal operations (out of a possible four). In the fourth week the exploration was focused in two distinct forms, both strong. Both of the forms occurred in conceptual areas that were concerned with the relationship of the building to the larger site or context of the city. Wayfinding refers to the figure's relationship to the site as a means of understanding and organizing movement. Field Condition refers to the placement or relationship of a group of figures to each other and to the larger plane of the site. The fifth week marked the introduction of a new architectural investigation (program) and a new set of corresponding conceptual themes. (The scale of the X axis is still set from conceptual themes concerned with figure to conceptual themes concerned with ground. This allows general comparisons among the earlier charts to be made.) There is no specific focus, though the majority of grouped marks tend to fall towards themes concerned with figure. In the sixth week (or second week of the new exercise) there tends to be a focus around the themes of Marking and Layering. In this context, Marking is similar to Wayfinding, though instead of acting as a reference, it acts as a director of movement. These two forms are beginning to emerge in approximately the same areas as the two strong forms in the diagram associated with weeks five and six. When viewing the complete diagrams in conceptual order, it becomes apparent that there have always been two strong forms, one towards each side of the spectrum, with reoccurring moments of expanded and broadened exploration.
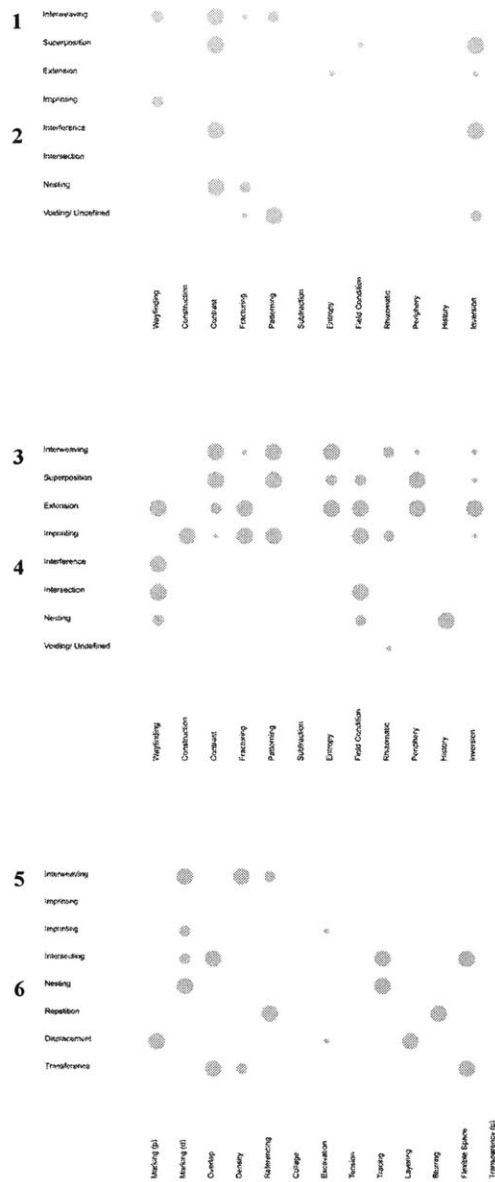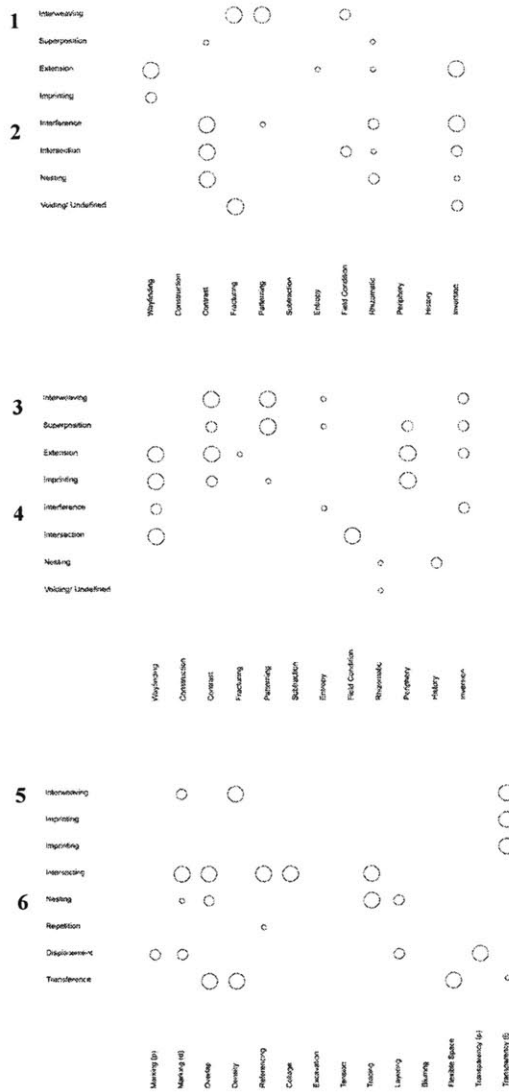

5.8

'Writing' diagrams for Weeks Five through Ten. (From top to bottom, each diagram represents a two-week period) The scale, left to right, is from concepts concerned with 'figure' to concepts concerned with 'ground'.

Reading: In week one there is a slight emergence of one weak form. Each formal operation explores both different and more conceptual themes than the previous operation. The methodology is increasingly investigating a broader range of themes. In the second week there are three clearly marked strong forms, occurring to the left (Contrast), the middle (Rhizomic) and the right (Inversion) of the scale. When viewed with the first week, the middle form appears as a continuation of a previous form, while the forms focused specifically on either figure or ground exist primarily within the operations concerned with distance. In the third week there is a broad exploration, but there exist five distinct forms, each referenced by three of the four formal operations. These are focused heavily towards the left and the right. The themes from left to right are Wayfinding, Contrast, Patterning, Periphery and Inversion. The fourth week shows a slight continuation of one of the previous strands, that of Wayfinding. The fifth week marked the introduction of a new architectural investigation and a new set of corresponding conceptual themes. There is only one definitive form, occurring under the theme of Literal Transparency. It is addressed by three consecutive formal operations. This accounts for more than one-half of the conceptual 'time' spent during the first week. In the sixth week there is now definitive form or focus, but there are two groupings, each occurring at one end of the spectrum. When viewing the complete set of diagrams in sequential order it becomes apparent that the initial two focal points (from weeks one and two) have each branched into the one or two adjacent conceptual themes (in week three) and then have refocused to three themes again (week four).
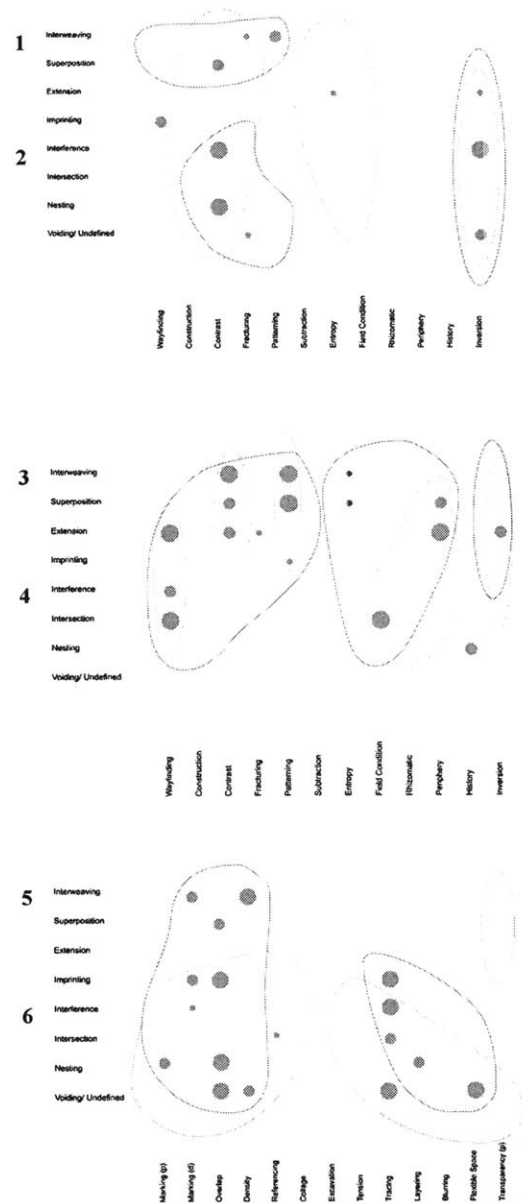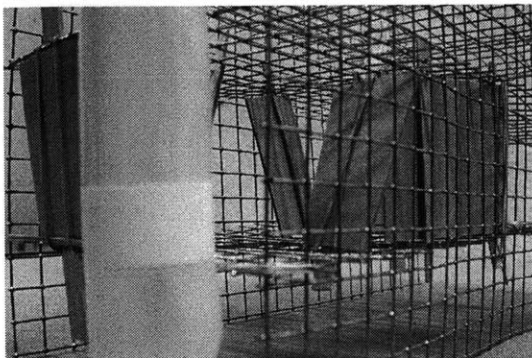

5.9
5.10

'Reading' diagrams for Weeks Five through Ten. (From top to bottom, each diagram represents a two-week period) The scale, left to right, is from concepts concerned with 'figure' to concepts concerned with 'ground'. The model was completed during the ninth week as represents one of the threshold conditions explored in the drawings (image 5.8).

Intersection: These diagrams show the actual intersection between the Writing and Reading diagrams as well as the major focal areas of each. The thin outline is representative of the grouping of marks displayed in the Reading diagram, while the thicker outline is representative of the same from the Writing diagram. The third string of diagrams discuss the intersections of the first 2 strings in relation to both the correspondences and the dis-correspondences. This will be discussed referencing two-week segments. In the first diagram the areas that the student thought they were operating within were expressed explicitly in the drawings and read clearly by the instructor. The instructor also read an additional strong form that was not at all marked by the student. In the second diagram, the number of commonalties increased, but the points of disparity also increased in difference. While the instructor saw the student as spending more time in investigating the notions of figure and ground in isolation, the student thought they were operating in the area common to both.

The third diagram, as stated in the previous two discussions of this time period, seems to restart the investigation. The same type of overlap and disparity that occurred in the first diagram occurs here. There exists a substantial common area between the instructor and the student but also a strong form read by the instructor that is not referenced by the student. There seems to be a degree of unseen latency in the student's work that emerges only after a 3 or 4 week exploration.


5.11
5.12

'Intersecting' diagrams for Weeks Five through Ten. (From top to bottom, each diagram represents a two-week period) The scale, left to right, is from concepts concerned with 'figure' to concepts concerned with 'ground'. The outlines represent the focal areas from the Writing and Reading diagrams. The model was completed during the eleventh week as an attempt to resolve the series of threshold conditions previously created.

1
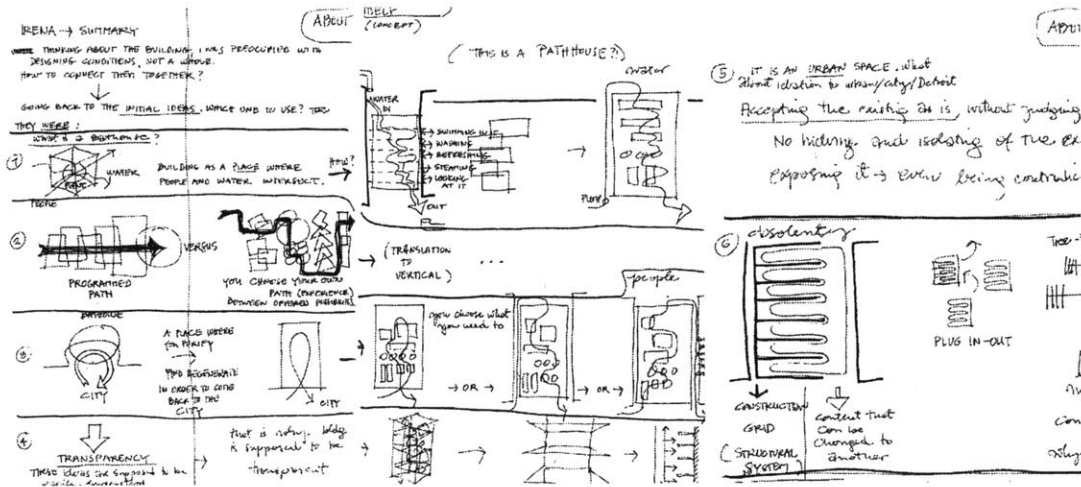
5.13

2
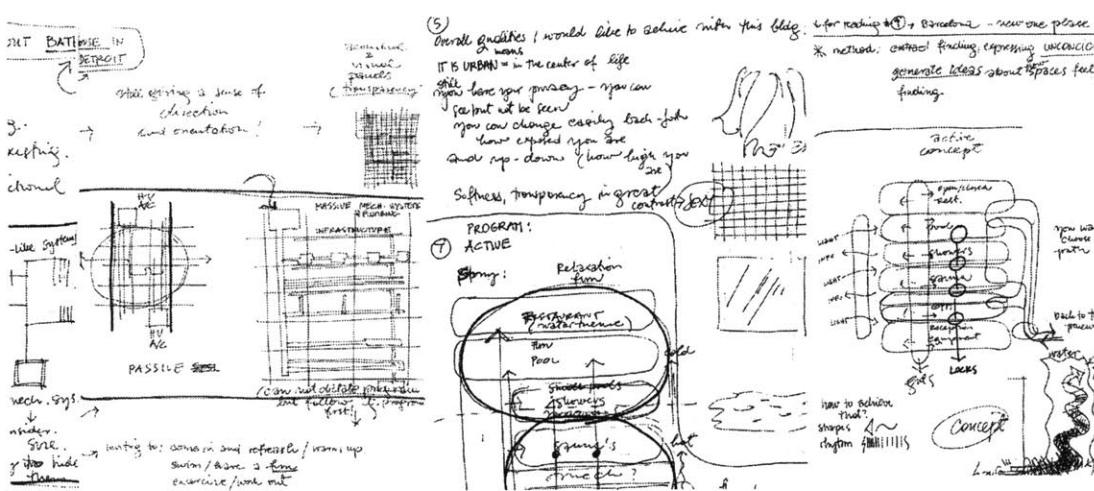
5.14

Student B used the conventions of the sketchbook to begin to inform the combination of the multiple concepts and conditions disclosed through the methodology. The drawings explored the transition from space to space while the models developed these motions into architectural thresholds. The sketchbook then rewrote the initial District scale Analysis drawings to explore the possibilities for understanding the placement of these thresholds within the 3 dimensional context of the site.

5.4   Conclusions

The actual construction of the diagrams benefited differently the student and the instructor. For the student, it provided another means to evaluate the work that had been performed and to visualize the conceptual areas they were focusing on. The making of the diagrams allowed for a further clarification of the students intentions. This became useful when the work was to continue, as it became suggestive of possible directions, or redirections. For the instructor, the evaluation diagrams provided a means to make a visual and explicit record of what would typically be said to the student in a desk conversation or presentation. As an artifact, the largest benefit of the diagrams was in their ability to answer the questions posed concerning the structural and functional aspects of the methodology.

Are the structure and procedures of the methodology such that, regardless of user, the outcome is defined?

As the diagrams, with identical variables and conditions, were constructed for three of the students in the studio, the results can be compared to see if the different students approached and disclosed similar conceptual themes by means of similar formal operations.

The methodology used by these three students has returned 3 distinct areas of 'conceptual emphasis'. At this scale of reading (a two-week period covering the use of eight operations), it can be said that the methodology is not overly restrictive and has not prescribed a singular, focused outcome.

Have the students performed a thorough exploration of different ideas, concepts and themes?

This could be read by looking at the distribution of the marks to see how many of the concepts important to the studio were addressed and to what extent they were explored.

Ten of the twelve conceptual themes were addressed during this two-week investigation, with five of the twelve themes being addressed at least twice. The initial operations broadly explored the spectrum of concepts deemed important, the following operations focused strongly on a single theme.

Has the methodology provided a means to progressively make the intentions and intuitions more explicit?

The diagrams were done both *by* the authors and *of* the authors (by the instructors). Their comparison would demonstrate the drawing's readability as artifacts of the process. An intersection between what was intended by the author and what was read by the instructor would confirm a point of incidence. The more explicit the students are able to make their drawings, the more readable they would be to someone other than the author.

The number of intersections started at 35% of the total possible number of intersections and rose steadily as the semester progressed. (The number of possible operations is determined by the total number of different marks made by the Writing and Reading diagrams. Dividing the total number of actual intersections by this number gives the 'readability percentage'.)

The other two questions, **'To what extent have the students been able learn and appropriate the concepts pushed by the investigation?'** and **'What have the students been able to transfer from one investigation or from one project to the next?'** are not answered directly by the analysis diagrams. Additional means of evaluation are proposed in section 6.3 'Directions for Extension'.

As the analytical diagrams focused only on the reading of the drawings, they neglected to observe or consider the relationship of the methodology that created the drawings to the rest of the activities that occur in the design studio, such as the making of models. The translation of the concepts from drawings into the architectural circumstance of the model were not conducted and documented in a manner as explicit as the creation of the drawings. Viewing the models alongside the analysis diagrams, in the absence of the actual drawings, could provide for an interesting discussion about the relationship of the conceptual structuring of a project to its architectural results.

6.0   Conclusions

This chapter reflects upon the assumptions, experiments and conclusions of the specific investigations in the previous sections to discuss the concerns, results and possible extensions of this research.

6.1   The Re-Use of the Methodology

6.1
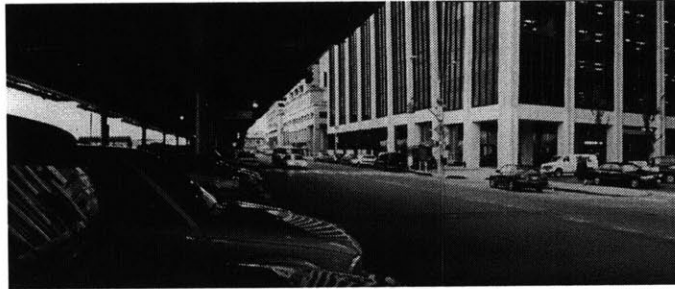
A photograph taken from beneath the elevated F.D.R. Drive looking down South Street. To the right is the East end of Wall Street. The site is now currently a parking lot servicing the select of the Financial District.

The second design exercise, began at the same time as the spring term studio, used the same methodology as the studio to investigate a previously completed project. The event and the formal operations used to conduct this investigation were the same as those used within the second design studio. The methodology was used within the design studio as a means to teach the students specific concepts and guide their investigations towards addressing certain issues. The second design exercise, presented in this chapter, used the methodology developed for the design studio without adjustment. The procedures were used in a new context to explore what was actually embedded into the methodology and how crafted it was to the specific circumstance of Detroit. This was a necessary investigation if the methodology is to be developed so that it can be used to addressed different sites, contexts and architectural topics. This type of exercise will provide insight into the process of developing the methodology as a scaffold that is able to be appropriated by the specific circumstance.

The following paragraph is an excerpt from the project document written after the completion of the project. Further documentation of the project (i.e. models and orthographic drawings) are presented within the 'Appendix', section 7.2.

'The site is seen as a solid block, in this block the major public spaces are defined as absences of building, voids out of the solid. The major public spaces, both interior and exterior attempt to reintroduce the complex village character into the Wall Street section of lower Manhattan. The elevated F.D.R. Drive exists as a barrier confronting the east-end of Wall Street, and therefore as a barrier confronting the East Side of Manhattan. The building should attempt to reconnect the pier to the city through a re-urbanization of the peripheral condition of South Street. This thesis should be an exploration into non-hierarchical organizational systems. It is an investigation into the perception and engagement of objects within a field.'

The text is extremely vague and open-ended in nature. It discusses the areas that the thesis addresses by didactically explains what the building is. The students, of both studios, initially presented their work by describing the elements of the projects in terms of what they are as opposed to

what they do (i.e. this is a private space within a public zone, as opposed to, this volume exists as a solid within an open volume. It serves as a marker that reinforces the axial relationship between the city and the pier. It creates a path for the user to be brought along.). The understanding or logic as to why or how a condition was addressed, or what this addressed condition now means to the site is not discussed. It is not discussed either because it is completely internalized or because it is not clearly known. This thesis research supposes that it is the second, but only because of the occurrence of the first. Until the externalizing of the processes and intentions occur, the student cannot completely understand his actions and therefore cannot continue to evaluate or elaborate upon them.

The aim of this second design exercise was to arrive at a clearer understanding of the intentions behind the actions that produced the design project and to find a way to convey these concepts and intentions. The drawings were constructed as a means to clarify and evaluate the original statement of intentions.
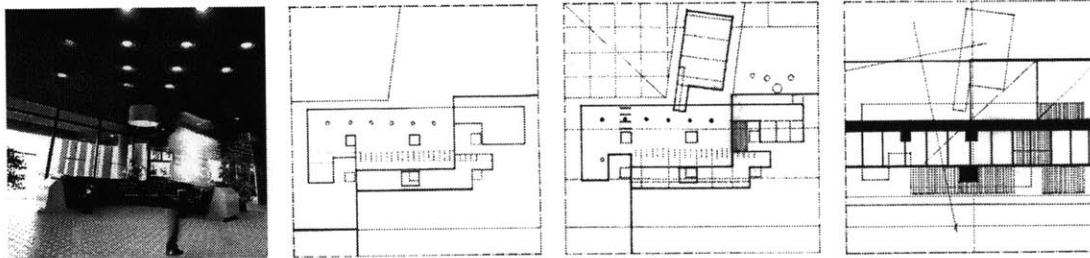
6.2

formal operation: **Imprinting**

Square 1. The interior of 121 Wall St., looking through the site to the city. This serves as the introduction to the site. Logic: Horizontal volume with infrastructural and structural elements, repeating at different scales in different rhythms.

Square 2. All of the primary lines in the lower floor plan are redrawn, while all of the secondary lines are erased. Each group of lines contain among them a different pattern and rhythm.

Square 3. These rhythms and patterns were drawn explicitly to look for commonalties among the primary lines that created them. Three distinct scales of 'patterning' became apparent.

Square 4. A section of the project is overlaid onto the plan from which it was cut. There was a correspondence between the three distinct patterns and three levels of the project. Each level and therefore each pattern related to a different scale of context. The upper level related to the traffic of the elevated F.D.R. Drive, the ground level related to the traffic of South St. and Wall St., while the lower level related to the traffic occurring within the East River.
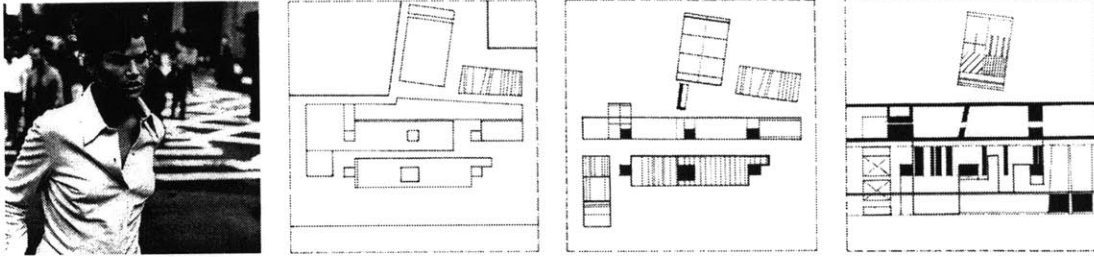
6.3

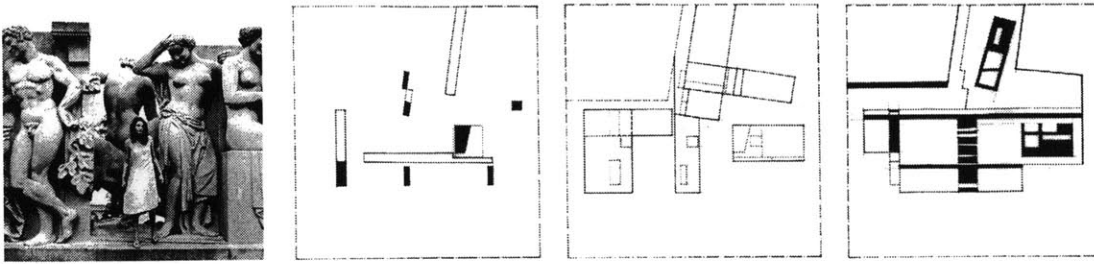formal operation (Row 2): **Projection**

1. The introduction of the victim. This occurs at the intersection of Wall St. and South St.
Logic: An undefined, porous space with large scale, graphical organizational devices that work only as signage.

2. As the victim enters the volume of the building, and moves into a space associated with a specific pattern, all other patterns, discernable upon entry, are now hidden. The drawing graphically isolates all of these spaces.

3. The isolated spaces are all given different textures based on the visual information that the victim can observe from one of the spaces. The textures represent the regulating lines of each of the spaces.

4. These new patterns are now used as a grid system that determines how elements are to be added to the space. The spatial goal was to densify the plan to a point where the different zones were no physically distinguishable but not visually separated. It became apparent that the project was trying, formally, to create an urbanism within a container. The container (enclosure of the building) needs to have a stronger relationship to both the urbanism on the inside as well as the urbanism on the outside.
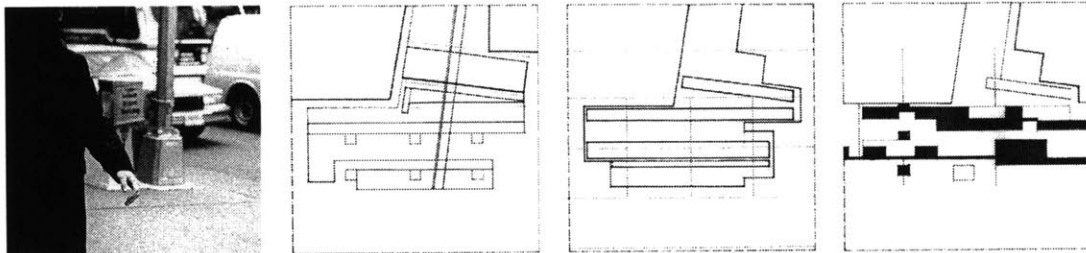
6.4

formal operation (Row 3): **Adding**

1. The introduction of the stalker. The stalker is approaching the site from the east-end of Wall St.
Logic: The only purpose of the stalker is circulation and observation. It is concerned with path and promenade.

2. As the stalker enters the building, he descends to the lower level in search of the victim. He methodically searches across the grain of the building, zone by zone. All of the spaces that are defined only by physical elements, within the lower level, were drawn. This created a series of distinct, clearly defined spaces.

3. As the stalker searched, the spaces became rendered as striations across the grain of the floor plan.

4. Although the spaces were easily searched, the boundaries or thresholds between the clearly defined spaces became the focal point of the circulation. These thresholds not only distinguish the larger spaces, but also attempt to create smaller pockets or blisters of space along these circulation paths. These blisters provide additional 'ways' to view and move through the spaces.

6.5

formal operation (Row 4): **Inserting**

1. The hiding of the victim.
Logic: An introduction of an element, similar in proportion, but different in scale and texture.

2. Before the stalker is able to continue his search, he must first survey the means of escape. All of the vertical elements that contain circulation, either stairs, ramps or elevators are rendered as solids. The rest of the landscape plays little part in the vertical movement and therefore is not included in the square.
3. Clearly defined geometrical areas are drawn; marking the amount of circulation space needed to support the vertical means of egress.

4. Combined with the thresholds and striations in the previous row, this square attempts to nest or hide within the open volume of the lower floor circulation elements that are clearly marked. These nested volumes also play a role in defining the different zones of texture and activity discovered, while still remaining somewhat 'not as solid as they appear'. The tension between ambiguity and definition, urbanism and architecture, and public and private are the apparent focal points of the project. The reading of the fourth vertical row as a narrative begin to make comments as to how the project can be continued to either reinforce or refute those assumptions.

The aim of this exercise was to explore how tightly crafted the methodology was to a specific physical site and context. What this exploration exposed was that the methodology is actually crafted to a specific philosophy. In this case, the selection of the events and formal operations emphasized the development of an architecture that was crafted around the 'architectural promenade' that was concerned with the movement from the city through the building and back again. It defines architecture as a system which organizes and establishes the formal relationships between space, material and program based on the events of the site and context. The methodology only becomes specific to a physical site through its own use. In this sense the methodology can be said to be a dialog between thought and construction. What was ultimately taught to the students was not the desired conceptual themes, but rather a particular philosophical stance towards the production of architecture.

6.2   On the Design (of a) Methodology

The most important aspect in the development of a methodology, for use in design education, is the acknowledgment that there needs to be both a structural and a functional facade. To re-quote James Corner, 'The design and setup of the field is perhaps one of the most creative acts in mapping, for as a prior system of organization it will inevitably condition how and what observations are made and presented.'[1] The methodology can be used by the instructor to point the student in a general direction and encourage him/ her to look within the site for certain types of characteristics and conditions. In this research, the taxonomy within the methodology and therefore its concerns were made apparent to the students. This was done to provide the students with the means to eventually appropriate the methodology. This will allow them to explore and examine areas meaningful to them and to inform the direction of their architectural research.

[1] James Corner, *'The Agency of Mapping'*, Mappings, 1999

The variables of the methodology were changed at one point during the second studio. These changes were made to shift the focus of the students from an investigation of form and organization to an investigation of form and program. This periodic 'introduction of new variables' allows the instructor to set benchmarks or key-frames that the students must continually progress towards. This allows the methodology to constantly refocus and further its interest. The ability for the instructor and the student to change the methodology, as well as the ability for the methodology to change itself are necessary in a system that is concerned with creating and spawning dialogues between the designer and the processes of design. This ability requires the understanding of the distinction between the structural and functional aspects described earlier.

Through the removal of the specific events, operations, and architectural topics, the methodology developed in this research can be seen and used as a blank scaffold. The instructor, by virtue of the selection of events, operations and topics can embed both a pedagogical and architectural philosophy into the methodology to be discovered and explored by the students.

6.2.1   On Procedures and Rules in Architectural Education

Within the educational setting, the use of a methodology that focuses on a structured organization and an external depiction of thought and process, has allowed the students to establish a strong dialogue between their personal inquiry and the local conditions of the site. The act of inquiring is focused on excavating the specific site and architectural program, while the governing structure of the inquiry is focused on excavating the contents of the designer's black box. Processes, techniques and thoughts that are typically internalized and unstudied are now externalized and rendered explicit for the student and professor to study. This process of externalizing becomes an explanatory tool of the design inquiry, providing an explicit context for *the reader* to understand *the writer's* intuitions and intentions. Within this research, the students strived to be both the reader and the writer. It requires for the thoughts to be broken down and investigated thoroughly. The externalizing also provides a 'detachment' from the representation. To re-quote Schon, 'For one thing, they [designers] tend to overvalue their intentions. They tend to assume that the meaning of the object is what they intend it to be and that its capability of generating conversation is what they take it to be. Over-personalizing the sketch will limit the designer's ability to critically evaluate the inherent concepts' [2] This detachment permits the representation to be evaluated and critiqued by the student, as would be done by the professor.

Through the creation of a set of rules for inscription, this methodology facilitates a type of self-reflective or 'conversational' inquiry to design. The methodology affects the direction of the investigation, but does not overly determine the outcome. These rules dictate where and when actions should be performed but do not determine how they are to be performed, what they are to be performed on or how to read that performance. These rules add the order and rigor needed to perform such an investigation while allowing the play and freedom of performance needed for such an investigation to be beneficial to the individual student in terms of elaborating their existing design knowledge.

6.3   Directions for Extension

The long-term extension of this research is to explore and document the development of the methodology in different settings and through different aspects or stages of the design process. The short-term extensions of this research are focused on developing additional means to evaluate what the

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[2] Donald Schon, *'The Role of the Metaphor in Learning and Design',* Paper, 1991

methodology has afforded the student, to develop a stronger means to evaluate the work of the studio and to develop a more explicit means of presenting the act of inquiry.

Due to the limited scope and time frame of this research, Gregotti's question as to 'whether one can transfer project experiences, that is to what degree not only models, but also methods?' remains partially unanswered. What has become evident in the work of the studio is the benefit of a continuous or constant inquiry. The drawings, explicitly depicting the process, become a way of providing the conceptual context in which the investigation is occurring. This allows the students to engage the work in a 'rhizomic' manner. Certain strands of the work (or the inquiry) may continue while others are broken, spliced or stopped. The strands may reappear or begin again, either along the old lines or along new ones. In this sense, each investigation contains explanations, not to be treated as a product but as a means that can be used to inform future investigations. Conventional studios that are segmented into stages, where only the results from one stage are transferred to another disturb the cognitive connection that has been established between the student and the mode of inquiry. This permits only the transfer of knowledge as opposed to the elaboration of knowledge. An extended study which documents the use, appropriation and development of the methodology through the different design stages of a single project or through a series of different design projects within a single studio would provide the information needed to further explore the notions of 'transfer and elaboration' in the context of design knowledge and design process.

6.3.1   Additional Means of Evaluation

Although the evaluation diagrams were beneficial in evaluating the methodology, in terms of its structuring and operation, they were not a successful means of answering the question, *'as to what extent have the students been able learn and appropriate the concepts deemed important within the investigation?'* The following is a proposal for an exercise that attempts to answer this question while continuing the objective of the studio and the research.

Closure is to be measured by a functioning artifact. The final assessment as to what the students have learned and internalized will rest in their ability to create an artifact that will allow another student to instantiate a specific conceptual theme. As you cannot separate the conceptual theme from its own instantiation, and since this research is concerned with the excavating and understanding 'context', the students will use their current design projects to develop this artifact.

Each student will first select a conceptual theme that they believe they have learned and explored within the current design project. The student will create an instrument, in the form of a set of rules or procedures, that will describe how to, and how not to add a set of elements to a 'site'. This addition is to be done in a manner that will result in the instantiation of the selected theme. The student will use their current design project as the context or material from which to derive the guidelines, rules and procedures for the instrument. The rules should focus on establishing relationships between the elements and the conditions of the site as well as between the elements themselves. The 'site' is considered to be the current design project of the user of the instrument. The set of elements given to the students would initially consist of a variety of 'basic' volumes, such as cubes, cylinders and oblongs of different sizes and proportions. This set could be elaborated depending on the level of the students and the type of the design project.

For the developer of the instrument this exercise will allow him/ her to validate their intentions and assumptions about their processes and products. For the user of the instrument this exercise will allow him/ her to investigate their current project through a different 'lens'. The use of the instrument continues the ideas set forth by the methodology. The instrument is conceived as a way to act upon and view the context. This exercise will allow both the creator and user to develop a capacity for the use and understanding of procedures within analytical and generative processes.

6.4   Comments from the Thesis Defense

The discussion following the presentation focused on the pedagogical approach explored by the research. The committee raised questions concerning the appropriate 'visibility' of a structured methodology within design education. It is inevitable that the instructor will teach with a bias. However, if this bias is made clear and intentional to the students then they can contextualize and understand their work as resulting from a particular philosophical stance towards the production of architecture. This requires that the methodology remains an explicit and external means of discussion between the instructor and the students, and that a clear distinction be maintained between the structural and functional facades. Through this discussion it became apparent that what this research developed was a framework that allowed students to place, examine and understand 'design information'. This information came from the site, from the instructor and from the students themselves.

7.0   Appendices

Contained within this section are extracts from the course syllabus, assignments and student work that is not directly referenced or presented within the main body of text. The course reader and the class abstract are included to provide additional insight into the context that the students and professor was engaged in.

7.1   'Material Practices or Lessons from Motor City'

Course Reader (Chronological, Weeks 1-12)

Alexander Caragonne, *'Texas Rangers, Appendix'*, Appendix 6 Excerpts from Design Examination Work 410K
Rem Koolhaas, OMA, *'S,M,L,XL '*, Bigness *or* The Problem of Large
James Corner (of Field Operations), *'Landscape Architecture '*, Projection and Disclosure in Drawing
Bernard Tschumi, *'Architecture and Disjunction'*, Spaces and Events III
Bernard Tschumi, *'The Manhattan Transcripts'*, Introduction, MT1 (the park) + MT2 (42nd street section)
Karl Daubmann, *'ACSA Paper Proposal'*, Dynamic Hybrids and the Post-Fordist City
Vittorio Gregotti, *'Inside Architecture '*, On Procedure, On Technique
Jose Camilo Vergara, *'The New American Ghetto'*, Introduction, American Acropolis or Vacant Land
James Corner, (Dennis Cosgrove ed.), *'Mappings'*, The Agency of Mapping: Speculation, Critique and Invention
James Corner (of Field Operations), *'Recovering Landscape '*, Eidetic Operations and New Landscapes
Stan Allen, *'Points + Lines '*, The Barcelona Manual (Competition Entry)

Class Abstracts (Weeks 1-12)

Week 1:   Introduction of Course/ Research/ Site
                Lecture: 'Detroit + The Generic City'
                Video: Tom Tykwer's *'Run Lola Run '* (German with English Subtitles)
                Readings: *('Texas Ranger '*- Hejduk) *('Bigness '*- Koolhaas) *('Projection and Disclosure '*- Corner)
                Content: Introduction to Drawing Methodology and the rules for the Sketchbook
Assignment: Collect materials for precedent analysis

Week 2:   Introduction to Design and Analytical Tools
                Lecture: 'design (ing) methods'
                Discuss: Use of Interpretive and Generative Techniques (or Events and Tectonics)
                Readings: *('Spaces and Events '*, Program III- Tschumi) *('The Manhattan Transcripts ')*
                Content: Introduction of alternative design approaches based in localized conditions
Assignment: Use of the methodology to investigate building precedents and creation of memos

Week 3:   Theme and Intent
                Discuss: Contextual Tactics or Clues for Spaces Investigations
                Critique: Initial student presentations 'Building Precedents'
                Readings: (Other student's 'memos' on precedents)
Assignment: Re-editing of analysis

Week 4:   Theme and Intent
                Critique: Student presentations of building projects, (with Guest Critics)
                Readings: *('Dynamic Hybrids and the Post-Fordist City '*- Daubmann) *('On Technique '*- Gregotti)
                Content: Methods of addressing the site and of addressing the act of tool building

Week 5:   Site Visit : Detroit, Michigan (proposed for February 17th- 21st)
Lecture: 'Integrating the Intersticial', Karl Daubmann, Professor, Graduate School of Architecture, U.MICH.
Critique: U.MICH Student presentations
Readings: ('The Agency of Mapping: Speculation, Critique and Invention '- Corner)

Assignment: Analysis, Documentation, Notation and Research

Week 6:   Urban: Gestures
Desk Crits: Initial site research, resulting agendas

Assignment: Investigate research agendas in drawings or models

Week 7:   Urban fabric : Notations
Critique: Detroit Analysis DRAWINGS DUE (with Guest Critics)
Readings: ('Eidetic Operations and New Landscapes'- Corner)

Assignment: Editing of investigations and urban assumptions to clarify intentions and readability

Week 8:   Urban Bathhouse
Final Project Introduction SITE MODEL DUE

Assignment: Editing of project and program statements

Week 9:   Urban Bathhouse
Lecture: 'Influences on Form'
Discuss: Program and Project responses (Desk Crits)
Readings: ('The Barcelona Manual'- Stan Allen)
Content: Translation of site agendas into a model of the constructed context

Assignment: Investigation of organization, drawings then model

Week 10:   Urban Bathhouse
Short Lecture: 'Orginazational Measures'
Desk Crits : working session

Assignment: Investigation of organization, drawings then model

Week 11:   Urban Bathhouse
Discuss: Urban sequence vs. Internal sequence
Readings: ('The Development of the Organic '- Journal Quaderns)
Lecture (MIT): Daniel Libeskind: 'Recent Work')

Assignment: Investigation of program, drawings then model

Week 12:   Urban Bathhouse
Review: 'Mid-Project Review' (Guest Critics)

Assignment: Review changes to the structure of the methodology

7.1.1   Assignments

Images, instances and texts. Chronologically, as given to the students, Murder then Bathing.
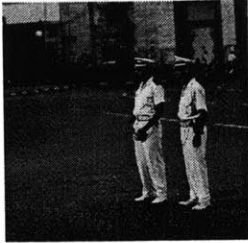
1. Interweaving
(the site where the murder is to occur)

2. Super (im) Position
(introduction of the vicitm to the site)
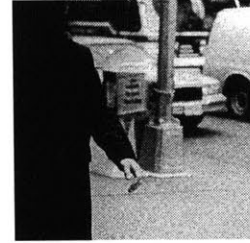
3. Extension
(the stalker is introduced to the site)

4. Adding
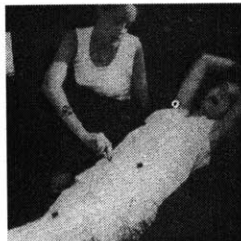(the stalker is re-introduced to the site)

5. Imprinting
(the stalker flees the site of the murder)

6. Intersection
(the city is being searched for the stalker)

7. Interfering
(the body is found in the street)

8. Nesting
(the stalker attempts to hide in the streets)

9. Voiding
(the stalker is caught)

The event from which these instances were derived is 'A Murder in the [Grand Circus] Park'. These images were assigned in weekly sets of three, from Week Five thru Week Seven.
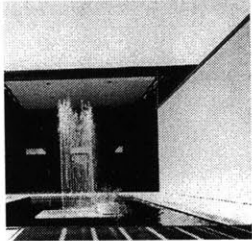
1. Layering
(the site for the bath is introduced)
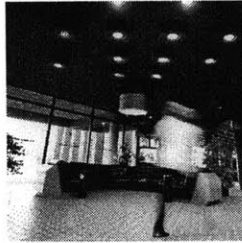
2. Tracing
(the bather walks through a public space)
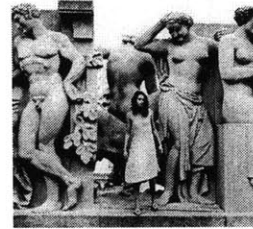
3. Inverting
(bather is introduced to the bathpool)
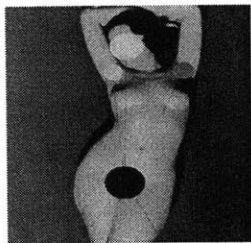
4. Intersecting
(bather is introduced to the bathers)
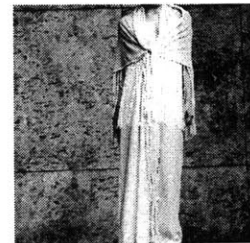

5. Blurring
(the bather descends into the pool)
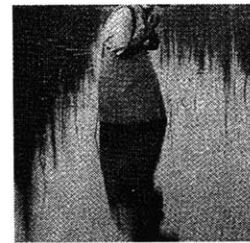
6. Striating
(the bather is introduced to the water)
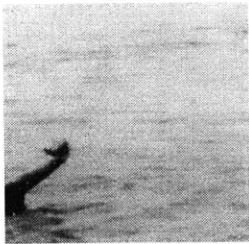
7. Laminating
(the bather bathes and frolics)

8. Gridding
(the bather ascends from the pool)

9. Blistering
(the bather is re-clothed)

The event from which these instances were derived is *A Women Taking a Bath in a Pool on Woodward Avenue*. These images were assigned in sets of three, from Week Nine thru Week Eleven.

Final Project Introduction

       Built upon the rise of the auto industry, the City of Detroit began to decrease in population with the first of many highways built in the 1920's, which drew city dwellers away from the city's heart. After the race riots of 1967, extreme social and economic devastation occurred. Since the 1970's, Detroit has witnessed a loss of over half of it's population, shrinking from a city of 1,850,000 in 1950 to just under 1,000,000 in 1995. Over 64,000 housing units have been demolished in the city, and in some of the neighborhoods less than 40% of the housing stock still stands. The central business district continues to shrink in size, and a large portion of the inner city industry has either collapsed or moved outside of the city's boundaries. Detroit has transformed from a densely populated and booming metropolis into a landscape of empty lots and abandoned buildings in which a large number of people nonetheless continue to live and work.

       The Roman Bathing Process: In Rome the baths were intended to be used daily. They were visited at the close of the workday before returning to the home. Physical exercises took place in the Apodyterium before bathing to stimulate blood circulation. The Tepidarium functioned as a place for natural relaxation for about 30 minutes in the lukewarm atmosphere. The second step was to the hotter Caldarium, followed by a brief stay in the hot dry environment of the Laconicum where soaping and massage were performed. A plunge into the Frigidarium usually concluded the bathing process.

| Demonstration	Exhibitionism	Voyeurism
Community Arbitration	Bath Attendants Room	Boiler
Community Outreach Offices	Check In Office	Chemical Storage
Multi Purpose Room (s. Tepidarium)	Children's Pool 90°	Chiller
Multi Purpose Room (lg. Apodyterium)	Cold Bath (Frigidarium) 54°	Cooling Tanks
Reading Room	Female Changing Rooms	Electrical Station
	Female Shower Room	Heating Tanks
	Female Toilets	Laundry Room
	Grotto	Pump Room
	Hot Bath (Caldarium) 105°	Testing Facilities
	Indoor Pool 90°	Water Filtration
	Male Changing Rooms	Water Storage
	Male Shower Room	
	Male Toilets	
	Outdoor Shower Facilities	
	Outdoor Swimming Pool	
	Sauna Bath (Laconicum)	
	Sweat Room	

Surplus Circulation (30%)

       The initial assignment is one concerned with programming. Currently all three programmatic groups (Demonstration, Exhibitionism and Voyeurism) are treated equally in respect to area, 10,000 square feet each. For next class, you are to readjust the distribution of this 30,000 s.f. for the 3 groups based on your initial site research performed in downtown Detroit. Obvious preference should be given to one of the three. Also, break down the area (and other such performance requirements such as: spatial intent, emotional content, thermal comfort, lighting concerns, material intent, etc. and others deemed important by you.) for each of the listed programmatic elements. The explicit statement of 'performance requirements' for the elements is the emphasis of the assignment.

7.1.2   Studio Works and Evaluation Diagams
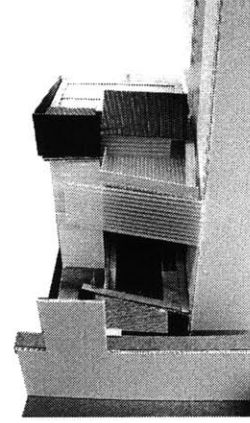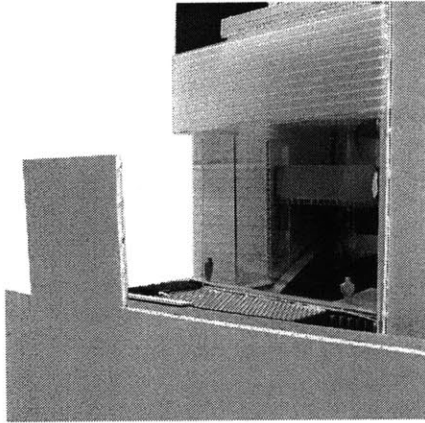
7.1, 7.2

Student A. Building model (from Grand Circus Park). The different textured materials are a response to the tendencies on the site.
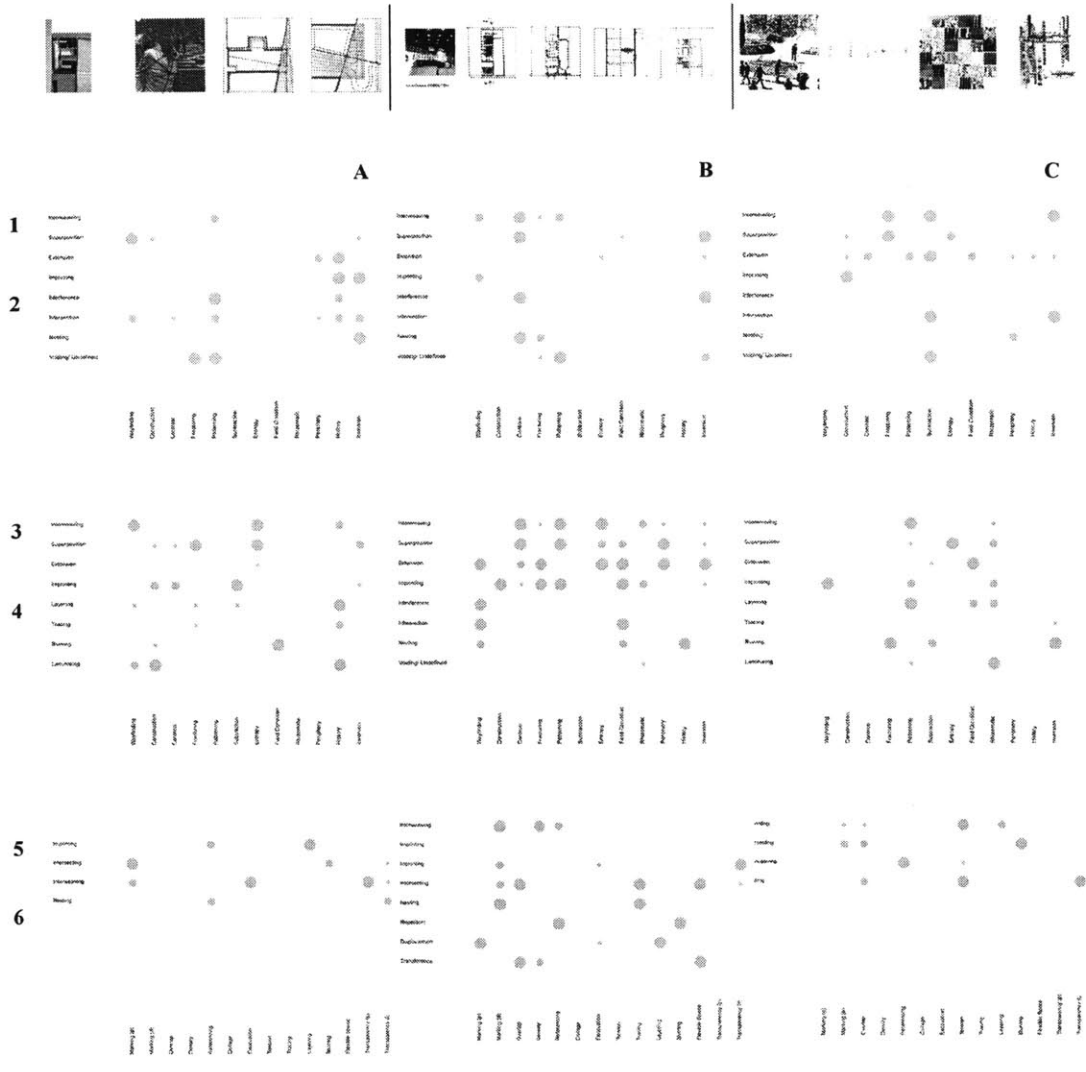

7.3, 7.4
7.5, 7.6
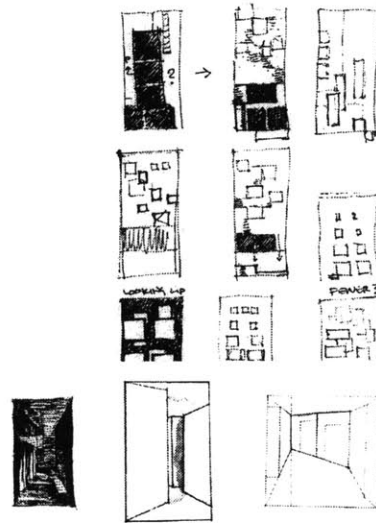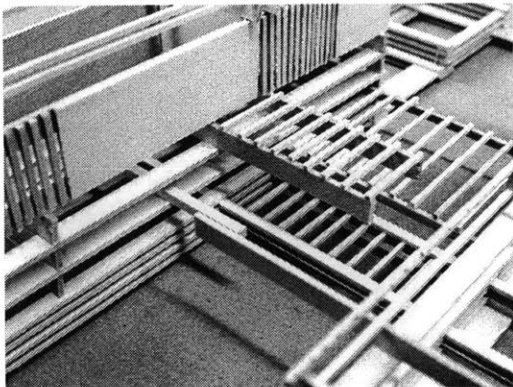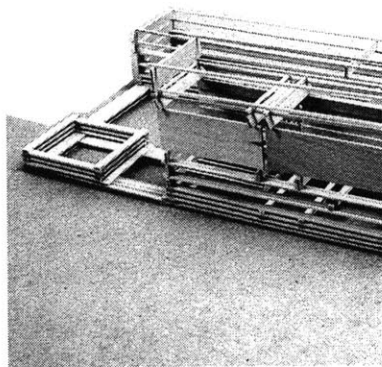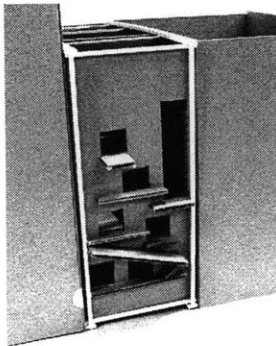
Student C. Initial study models representing the intensities and textures that exist within the boundary of the block.
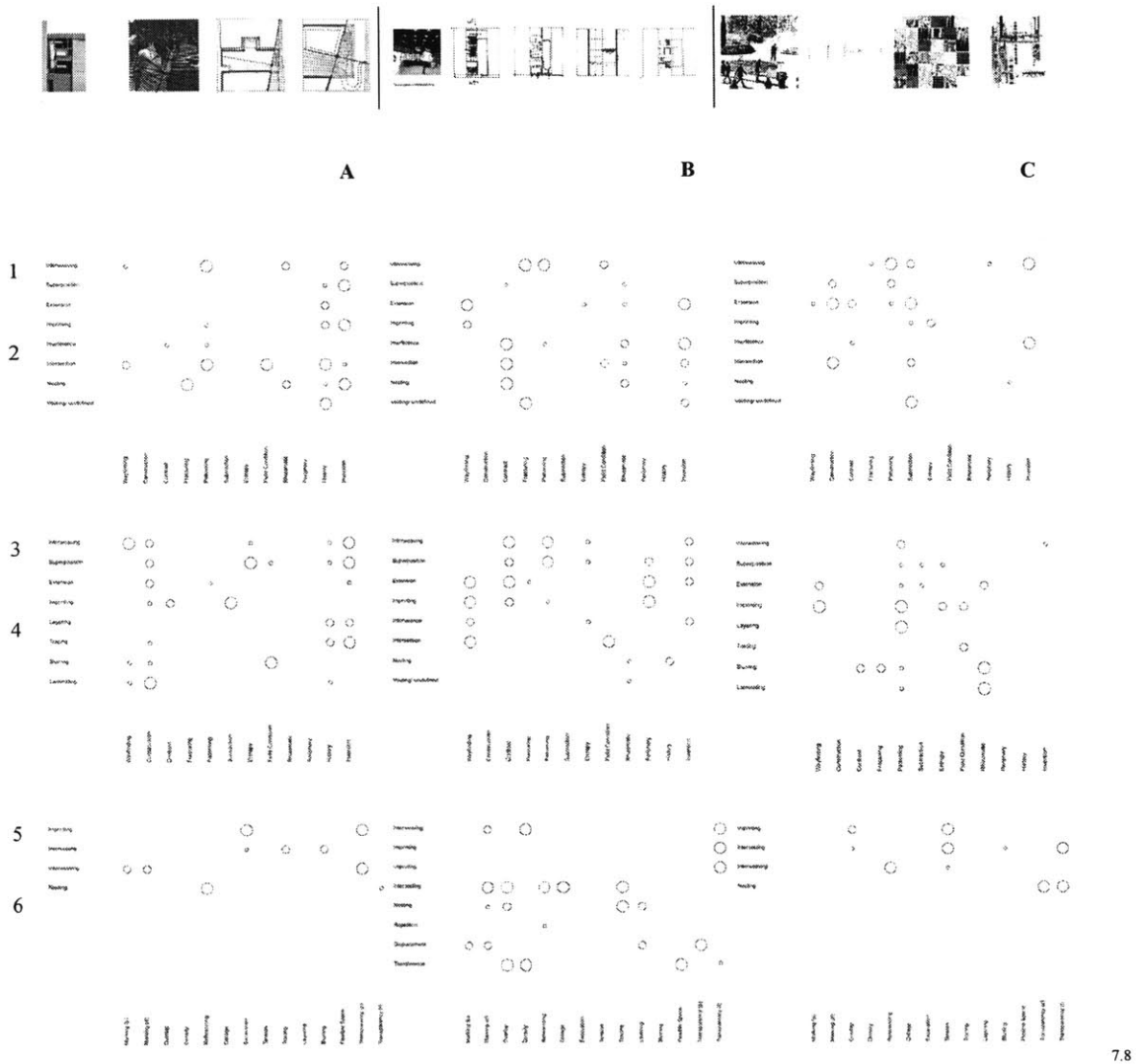
A   B   C

'Writing' diagrams for all three students for a six-week period.

7.7

A **B** **C**

1

2

3

4
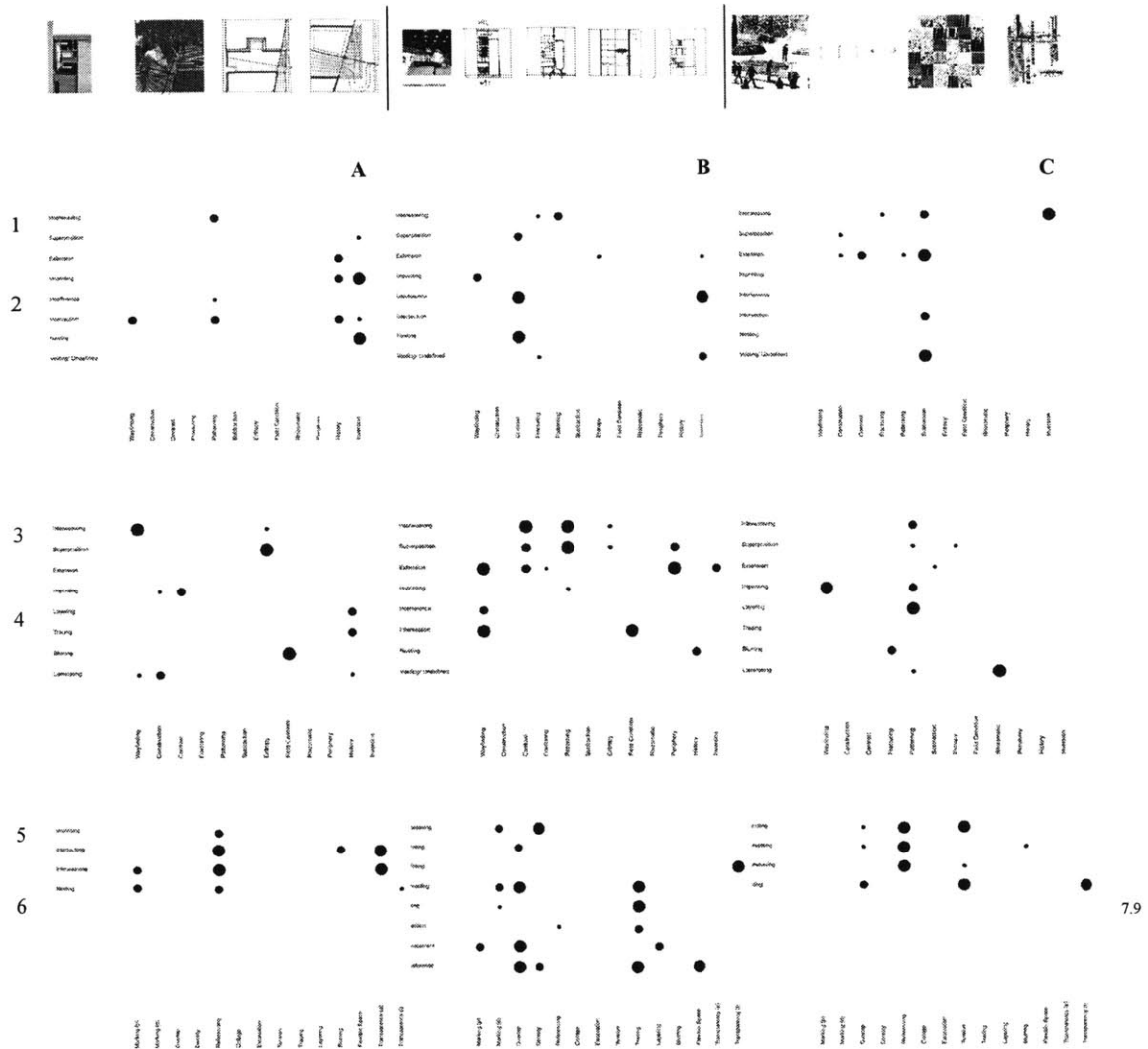
5

6

7.8

'Reading' diagrams for all three students for a six-week period.
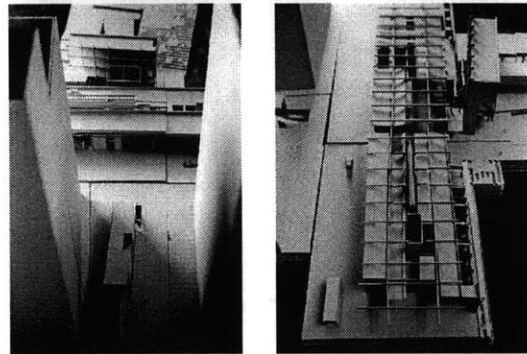
A   B   C

'Writing' diagrams for all three students for a six-week period.

7.2   'A Downtown DIA Center in Wall St., under F.D.R. Drive and on top of the East River'
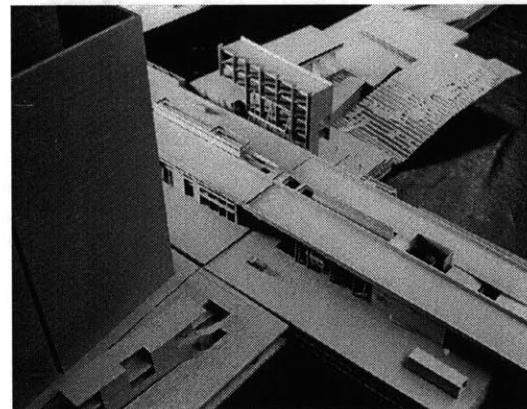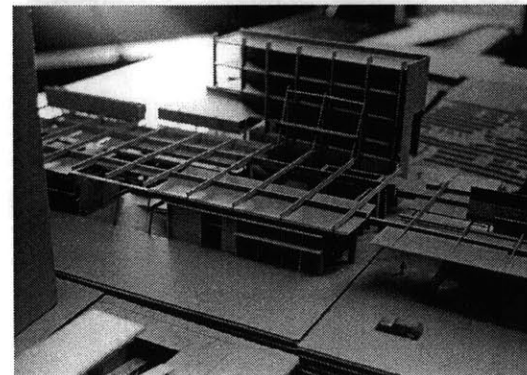

7.10

A view looking East along Wall St. towards Pier 13 and the DIA Center. View North along South St. (w/ F.D.R. Drive removed).
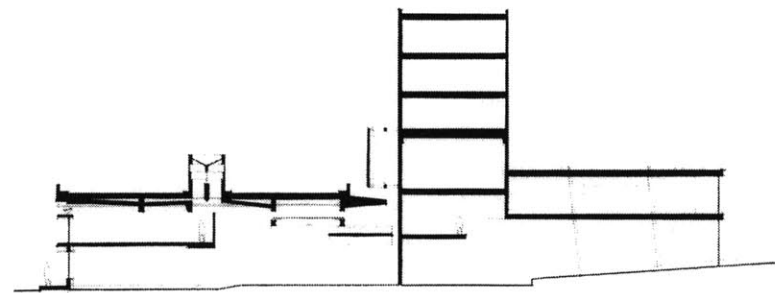
7.11,
7.12

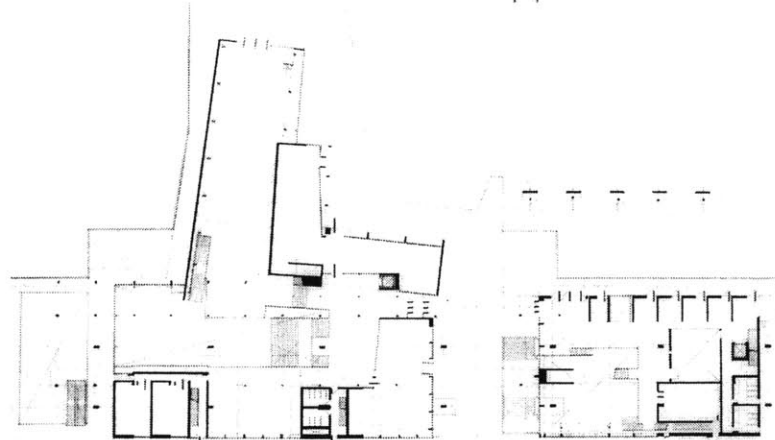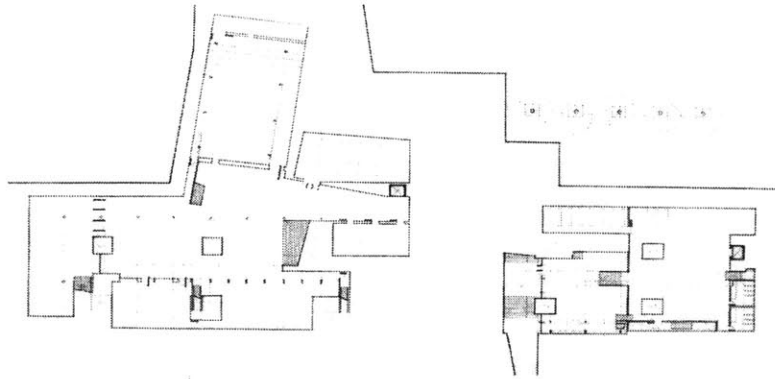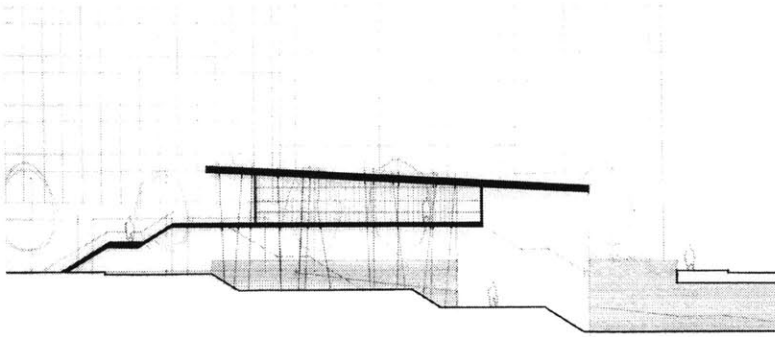Earlier study models showing the three 'sites' of the project, the Wall St. Pavillion, the Gallery under FDR Drive and the pier park.

7.13,

7.14

design inquiry **70**

7.15
7.16
7.17
7.18

Pavillion Section, Lower Level Plan, Ground Level Plan and a Gallery Section. These drawings served as the site for the design exercise presented and discussed in section 6.1, *The Re-Use of the Methodology*.

7.3 Presentation Diagrams

Principles of the Methodology
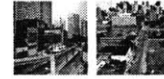
A Murder in Grand Circus Park.

Imprinting
The introduction of the city.
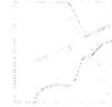
Adding
The introduction of the victim.

Projecting
The introduction of the stalker.
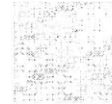
Adding
The stalker continues down the street.
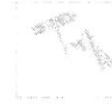
Interfering
The stalker moves from block to block.

Formal Operations

creation of field | de-territorialize | re-territorialize

rows 1- 5

Structural (space)   *Functional (space)*

7.19
Diagram depicting the structural and functional facades of the methodology. The areas emphasized (in bold) constitute the information that is given to the students by the instructors at the start of the exercise.
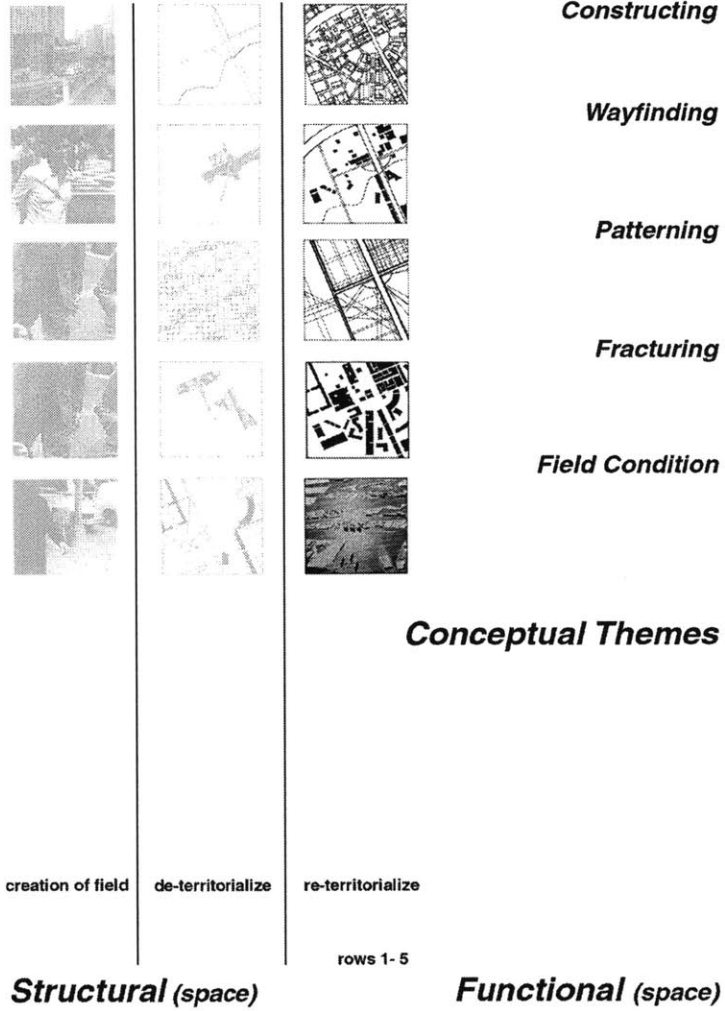
Principles of the Methodology

Constructing

Wayfinding

Patterning

Fracturing

Field Condition

Conceptual Themes

creation of field	de-territorialize	re-territorialize

rows 1- 5

Structural (space)   *Functional* (space)

7.20

Diagram depicting the structural and functional facades of the methodology. The areas emphasized (in bold) constitute the conceptual themes and architectural conditions disclosed by the students during the exercise.

A Re-Use of the Methodology

	zone 1	zone 2	zone 3

Crafted to Philosophy | *Crafted (through use) to the Specific Context*

rows 1- 5

Imprinting, Projecting, Adding, Voiding and Inserting

7.21

Diagram depicting the relationship between the methodology, the embedded information and the site of the investigation.

8.0　　　Bibliography

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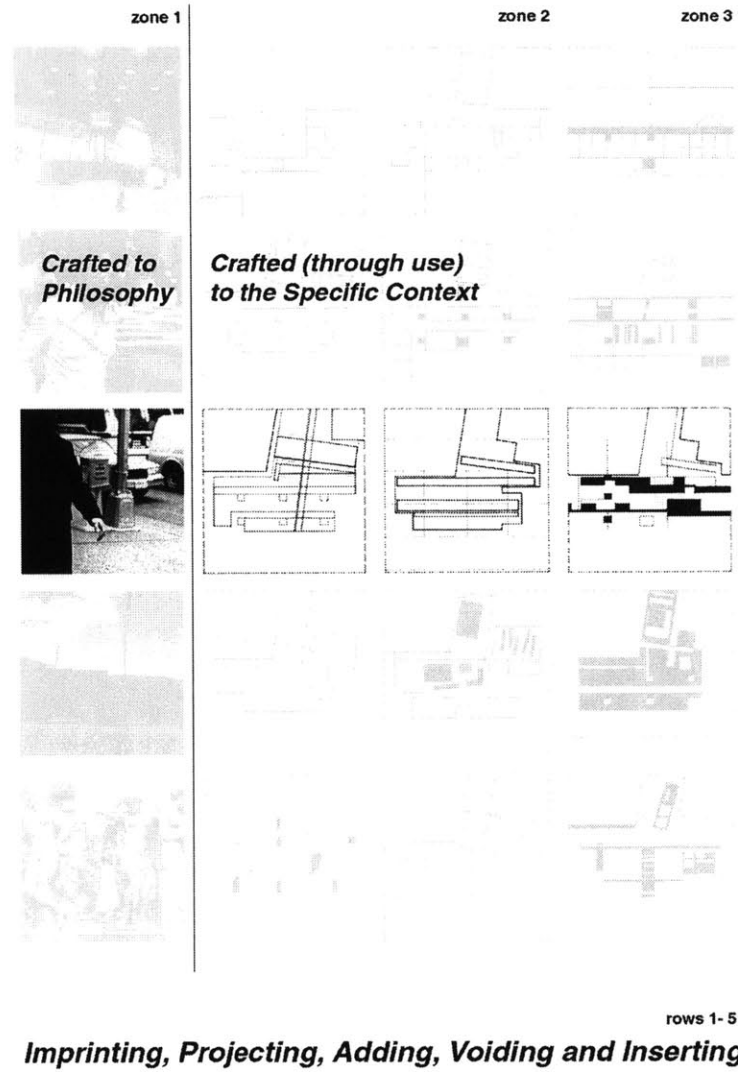*Edwards, Laurie D.*: **Microworlds as Representations**, *Crown College, U.C. Santa Cruz, 1996*

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