THE SIGN MODELS OF SASSURE AND PIERCE
AND THE GLOSSEMATIC MODEL OF HJELMSLEV:
AN ANALYSIS OF THE VIETNAM VETERAN’S MEMORIAL

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THE SIGN MODELS OF SASSURE AND PEIRCE AND THE GLOSSEMATIC MODEL OF HJELMSLEV: A CASE STUDY ANALYSIS OF THE VIETNAM VETERAN'S MEMORIAL

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(Abstract)

Cultural meaning has been a critical dimension of landscape design over several thousands of years. Recent literature submits that the strength of cultural meaning has waned over the last century. It is also suggested, however, that the landscape architect is in a unique position to strengthen the status of cultural and symbolic meaning in the landscape (Corner 1990). Before this can transpire, it is necessary for the professional landscape architect to have a clear understanding of what constitutes meaning in the landscape. Theory is discussed as purveying a structural foundation comprised of principals and axioms for understanding meaning. Semiotics or semiology, the science of signs and symbols, offers one systematic approach for analyzing and understanding cultural meaning. This approach, executed extensively in a number of cultural disciplines, has no recognized foundation in the discipline of landscape architecture. The fundamental aspect of semiotics is the sign or the sign model. The research reported herein begins the construction of a foundation for semiotics in the discipline of landscape architecture through the examination of three classic sign models as they apply to a contemporary landscape. The Vietnam Veterans' Memorial in Washington D.C. is analyzed in light of the sign models of Sassure and Peirce and the glossematic model of Hjelmslev. Each model is applied to the individual design aspects of the memorial in an attempt to
understand the cultural meaning embodied in the monument. Based on the criteria, depth of analysis and clarity of language, the assets and liabilities of each model is determined through both an individual analysis and a comparative analysis.
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Chapter I

Introduction

The Status of Symbols in Today's Landscapes

The term, symbol, derives its roots from the Greek word, "sym-ballien" defined as "to throw together" or "to join" (Csikszentmihalyi and Rochberg-Halton 1981). There are a number of explanations as to how the term evolved, yet the following antidote is particularly instructive, as it depicts the critical role of the symbol as an icon or a device that joins people together. According to this legend, "sym-ballien," achieved status as a word, following an incident between two friends who were about to part from each other. The friends broke a coin in half, and each retained a portion of the monetary piece. Their intentions were to join these segments together upon meeting again; and "sym-ballien" of the coin pieces would signify their unification. The friends sacrificed the value of the coin to serve the elevated purpose of their friendship.

The broken coin represents an icon that symbolized a friendship between two people. The imposed meaning laden in the two broken coin pieces served in their absence to remind the two of their friendship, and of their objective to reunite. Since, or perhaps before the term's inception in ancient Greece, symbols have taken many shapes and forms, infiltrating all cultures through language, architecture and the arts. Symbols have similarly held an important and enduring relationship with the landscape.

While the above-mentioned broken coin served as an icon or symbol to bring two persons together, the earlier landscapes purportedly served in the more esteemed role of uniting both communities and cultures. James Corner (1990) traces the symbolic presence back to the earlier landscapes in antiquity and later in classical philosophy, where the
manifestations of artifacts and gardens in landscapes often served to create places where the culture could escape to marvel at the cosmos. Corner attributes the symbolic presence in these landscapes to the existence of theory, which purportedly served to link the two constituent components of the profession: craft and motivation; or techne and poesis, respectively. "Craft" represents the skill of making, while "motivation" characterizes the purpose that drives the skill (Corner 1990).

Corner maintains that the revolution in scientific thinking, coupled with the abating importance of religion in the Western society, has perpetrated an epistemological break with tradition. Concurrent with this epistemological break with tradition is the disintegration of theory in its role as the connective tissue between craft and motivation. Where previously "craft was motivated," the two now became separate entities. Corner discusses this situation in the following passage:

...techne became a separate body of instrumental or productive knowledge, and poiesis became an autonomous creation of subjective and aesthetic reality (which perpetrated) an irretrievable alteration of the role of theory in architectural production (Corner 1990, p.62)

Corner's argument holds that due to this division or epistemological break with tradition, there exists a crisis with cultural meaning, where "...culture simply cannot figure or recollect itself" (Corner 1990, p.2).

Consistent with Corner's assertions, Catherine Howett (1987) in the article, "Signs, Systems, and Sensibilities: Sources for a New Landscape Aesthetic," mourns the loss of
cultural symbols in the Western landscapes. Howett describes the landscapes of present in
the following passage:

It is true that in the de-sacralized, secular world in which we live, the ancient
stories of the race and its ritual and dance no longer serve to illuminate our place
within the cosmic order, giving meaning to daylight and darkness, seed time and
harvest and the struggles of heroes, saints, ordinary men and women (Howett
1987, p.8).

Howett suggests that not only do we neglect to incorporate ideas of life and death into the
designed landscape, but she takes this idea one step further to suggest that designers most
often "...obliterate any real or symbolic suggestion of disorder, decay, death, any hint of
risk, vulnerability or of mysteries beyond." (Howett 1987, p.8) The importance of
symbols or more generally, meaning in the landscape is echoed by others. For example, in
the book, Public Spaces, Carr, Francis, Rivlin, and Stone address the issue of symbolism
and its ability to enhance the meaning of public spaces (Carr et. al., 1992). Corner takes a
slightly stronger stance, as he claims that 'symbolism' represents "...the most fundamental
operation constituting meaning for human existence" (Corner 1990, p.77). Carr, Francis,
Rivlin, and Stone, following Kevin Lynch, suggest that a good public place is "one which,
in some way appropriate to the person and her culture, makes her aware of her
community, her past, the web of life and universe of time and space in which these are
contained" (1981, p.142) (Carr et. al. 1990, p.187). A general consensus is prevalent
amongst landscape architectural scholars as to the importance of symbolic or cultural
values in the contemporary designed landscape (Howett 1987, Corner 1990) and
particularly in public spaces (Carr et. al. 1992).
The implementation of meaning in today's landscapes first necessitates an understanding on the part of the designer about what constitutes meaning a landscape. In the following passage, Carr, Francis, Rivlin, and Stone (1992) attribute a successful, meaningful landscape to a particular insight on the part of the designer, which involves:

(tapping into)... some more universal human responses, perhaps programmed at a level deeper than cultural conditioning or at least so basic to the human experience as to be cross-cultural. Although we cannot expect every public space to reach such heights (or depths), the growing cultural diversity of our cities makes it necessary for the designers of urban public spaces to search for themes with this deeper appeal (p. 236, 237).

Yet, how does the designer begin to understand what constitutes this level of depth?

Research - Meaning in the Landscape

A number of research efforts thus far have addressed the issue of meaning, as it relates to the public landscape. At the forefront of this area of landscape architectural research, Mark Francis (1987, 1992) and Stephen Carr and others (1992) have employed several methods for examining multiple dimensions of meaning in outdoor public spaces. For example, Mark Francis conducted a quantitative research study (1987) that compared attitudes of government officials, non-users, and users towards two outdoor public spaces: a public park and user-managed community gardens. Francis queried each group to understand the various components that constitute meaning within the two spaces.

While Francis' study focuses on the public's perception of meaning in two public spaces, Carr, Francis, Rivlin, and Stone, in the book, Public Spaces, offer the designer's perspective in the course of examining a wider range of public spaces and their various meanings. This group employs case study analyses to explore various aspects of meaning
in a selected group of public spaces. These multiple dimensions of meaning are categorized as connections. The authors suggest a list of plausible connections as follows: individual connections, group connections, connections to a larger society, biological and psychological connections, and connections to other worlds (Carr et. al. 1992, pp.187-239). Additionally, the findings of this study illustrate different examples of symbolic references in public landscapes (Carr et. al. 1992). For example, the Vietnam War Memorial represents one case study conducted by this group; the symbolic meaning of the memorial is discussed in the following passage.

The Vietnam Memorial is a public place of great meaning. Subtle yet powerful, it quickly captures the full attention and the emotions of the visitor. It is also a public space of great national importance, providing a connection for people to the historical memories of the Vietnam War and serving as a physical record of the pain and tragedy of this controversial war. (Carr et. al. 1992, p.209)

Here, the Vietnam Veteran's Memorial is identified as a successful example of a meaningful public landscape. Carr, Francis, Rivlin, and Stone attribute the success of this space in large part to its ability to capture the full attention and the emotions of the visitor (Carr et. al. 1992, p.208). This case study, however, fails to progress towards an understanding of how or why this monument serves to evoke these emotive responses. This group recognizes this shortcoming and consequently suggests that additional research examine how a public space is meaningful (Carr et. al. 1992).

Where other research endeavors have demonstrated shortcomings, theory could provide an important methodological device for understanding meaning. Corner (1990) suggests
that landscape architectural theory could serve as an important device for reconnecting culture with today's landscapes. According to Corner, the purpose of landscape architectural theory is to establish principals and axioms that formulate a structure or foundation for the practice of this discipline. The direction of these principals and axioms should address the fundamental origins of meaning, involving the realms of perception and the phenomenological.

Hjelmslev, in the *Prolegema to a Theory of Language* (1961), offers a general description of the role of theory as a systematic approach for obtaining knowledge in the following passage:

...theory, then, in our sense of the word, may be said to aim at providing a procedural method by means of which objects of a premised nature can be described self-consistently and exhaustively. Such a self-consistent and exhaustive description leads to what is usually called a knowledge or a comprehension of the object in question" (p.16).

Semiotics, the science of signs and symbols, represents one theory or methodology employed for understanding meaning in a number of cultural disciplines. This theory relies on one's interpretations founded in both perception and sensation (Deely 1990). Where there is currently no semiotics foundation in the discipline of landscape architecture, the purpose of this research is to begin the process of setting such a foundation with the hope that semiotics will prove a method that can bridge the gap between cultural meaning and the landscape. At the heart of semiotics is the "sign" or the "sign model." In philosophical terms, the essential purpose of such a model is to rationalize the relationship between form and substance. This will be accomplished through an exploration of three classic sign and glossematic models as they apply to a contemporary landscape, the Vietnam Veteran's Memorial in Washington D.C., which has been written about extensively as a result of its
rich meaning. This research should reveal the assets and liabilities of the models in their analytic capacity for exploring the relationship between form and substance, specifically addressing the extent to which each model defines this relationship, i.e. distinguishing between form and substance, categorizing the relationship between the two. Secondly, a comparison of the analytic capabilities of each model will be executed to gauge what models are perhaps more applicable to the discipline of landscape architecture and a cultural analysis of the landscape. Finally, by examining these three versions of the most fundamental aspect of semiotics, this research will ideally shed some light on how the general science of semiotics fares as an analytic tool for examining meaning in the landscape.
Chapter II

Literature Review

Semiotics

Semiotics or semiology, as the science of the study of signs, represents one theoretical and methodological framework for examining cultural meaning (Deely 1990). While this science encompasses a number of different perspectives or approaches to sign theory, there are some broad generalizations that can be made about semiotics and its development over the last century. The contemporary form of this science originated in the disciplines of linguistics and philosophy with Ferdinand de Sassure and Charles Pierce, respectively. These two semioticians are responsible for developing the two provinces of this science nearly simultaneously in the early twentieth century. Ferdinand de Sassure established the framework for semiology, which laid the ground for the European tradition of linguistics. Charles Peirce is the contemporary founder of the American philosophical branch of this science, categorized as semiotics (Deely 1990). Since Sassure's and Peirce's development of this science, its scope has grown within the respective disciplines of linguistics and philosophy, as well as expanding to infiltrate a significant number of other cultural disciplines. In fact, semiotics characterizes a principal analytical mechanism in the contemporary European analyses of culture (Gottdiener et. al. 1986), and its application encompasses the following disciplines: zoo semiotics, the study of communicative behavior of animals; kinesics and proxemics, human bodily communication; olfactory sign, the code of scents; and aesthetic theory (Hawkes 1977).

The concept of the sign and its multiple variations, delineates the foundation of all semiotics (Broadbent et. al. 1980) (Gottdiener et. al. 1986). John Deely (1990), purports that the whole human experience is potentially an interpretive structure mediated and
sustained by signs (p.6). The universe of signs is characterized as comprising of the following constituents: "the non-physiological part of perception; conception; scientific modes of discourse; and the value systems, or the socially constituted world views of social subjects, which are a function of social interaction" (Gottdiener et. al. 1986, p.3).

**Semiotics as an Analytic Tool**

Semiotics and its objectives as a science parallel nearly any other research methodology. This science characterizes a standard or genuine means for consistently advancing inquiry (Deely 1990). This line of inquiry generally serves to reveal "some truth about the world, some aspect of the world, or some field of investigation" (Deely 1990, p.11).

Deely (1990) suggests that this line of inquiry is more extensive than a method; he coins the phrase, "point of view," to illustrate the analytic capabilities of this science. Distinguishing between the two terms, Deely characterizes a "point of view" as encompassing more than one method, thereby representing the science as a wholistic entity. A method, on the other hand, represents one or more aspects of a "point of view." Therefore, in the situation that a point of view could be fully implemented by a single method, a narrow viewpoint would result (Deely 1990).

**The Semiotic Web**

The semiotic point of view is the perspective that results from the sustained attempt to live reflectivity with and follow out the consequences of one simple realization: the whole of our experience, from its most primitive origins in sensation to its most refined achievements of understanding, is a network, a web of sign relations (Deely 1990, p.13)
The spiders' web represents a frequently cited metaphor for understanding the science of signs in its capacity as a research methodology (Deely 1990)(Seebok 1975). Further exploration through this metaphor helps attain a new level of understanding about the science of signs, as there are some obvious parallels between the spider's web and this science. The following discussion highlights some of these parallels below.

In its metaphoric capacity, the spider's web provides a solid example for illustrating the form or structure of semiotic methods and theories. The spider produces a silky thread-like substance. The placement of each individual strand of silk thread represents a path initiated by the spider - a movement in a direction when an infinite number of directions are possible. The semiotician likewise narrows his/her focus to one perspective or one method for analyzing meaning, yet it is only one perspective, when there are potentially an infinite number of perspectives that could be developed to understand the same phenomena. For example, the second trichotomy of Peirce's sign model, defines three categories of meaning: the symbol, the index, and the icon. Yet it is fairly safe to posit that there are an inexhaustible number of ways in which meaning can be categorized or defined in addition to these three categories.

While the spider alone is responsible for developing the web in its entirety, the science of signs and symbols, or the semiotic web, results not from one designer, but from different theorists, establishing a number methods for exploring and understanding cultural meaning. The two entities differ by virtue of the players that create these forms, yet the ultimate form of the spider's web provides a strong model for understanding the science of signs and symbols.
Positioning each individual thread, one by one, the spider's efforts subsequently result in an intricate network of threads. These threads overlap, crisscross, and extend in many different directions to physically engulf one area. This network of methods and theories that comprise semiotics similarly overlap, crisscross, and extend in a number of directions to engulf one area of research - examining cultural meaning.

A particularly notable characteristic of the spider's web structure is that no two are exactly identical. The unique form and dimensions are a consequence of a number of factors. As I am not familiar with the science of arachnids, it would be difficult to address the perhaps exhaustive list of influential factors upon the formation of the web. However, it would be safe to ascertain that one critical factor is that of context. Whether the context represents a small nook under the kitchen counter, the doorway of an old barn, or the branches of a rhododendron shrub, the surrounding environment inevitably has a substantial influence on the resultant form of the web. In the process of relocation, the spider's webbing is not transported, but rather, the spider weaves a new web that melds effectively with the new set of circumstances and conditions.

Context similarly has a significant influence on the semiotic web. As opposed to a physical context, the context of semiotics is the cultural discipline in which it is embedded. As there are significant differences between each cultural discipline (as discussed previously), certain semiotics methods are more applicable to some disciplines than others. So when beginning to apply semiotics to a new discipline, it is important to start with the fundamentals of this science. These fundamentals should be extracted from the disciplines, where they originated, as opposed to transferring this information from discipline to discipline. It is equally important that the wholistic science of semiotics and
semiology is applied within each cultural discipline to identify the methods which are most applicable to understanding cultural meaning in this particular discipline.

A perhaps more significant aspect of the spider's web as a metaphor for the science of signs and symbols is its functional dimension. The primary objective of constructing the spider's web is to entrap the insect, which serves as the food for the spider. Each individual silk thread will have little effect alone in entrapping an insect. This is similarly the situation with each individual semiotic theory. Not one semiotic method or theory serves to identify a comprehensive understanding of cultural meaning. Each represents only one perspective. As Deely suggests, in the situation that a point of view could be fully implemented by a single method, a narrow viewpoint results (Deely 1990). Both the individual silk thread and the semiotic method represent part of a larger comprehensive system. As a collective entity of interconnected threads, the spider's web best serves its intended purpose, "to entrap other beings for the sustenance of one spider" (Deely, 1990, 14), or in the case of the semiotic web, the wholistic science, as a collective entity of interconnected methods and theories best serves to gain a comprehensive understanding of cultural meaning.

**Semiotics and the Design Disciplines**

The role of this science in the realm of the design disciplines is summarized by Catherine Howett (1987) in the article, "Signs, Systems, and Sensibilities: Towards a New Landscape Aesthetic." An account of this summary is provided in the following passage:

Architecture can communicate visual and conceptual messages according to the way a vocabulary of meaningful formal signs is ordered, much as spoken or written language makes sense to us because it follows rules of syntax and grammar in the arrangement of words whose meaning we know ... (Howett further illustrates the
role of this science as)...a structural and analytic framework for a reality that is familiar to all of us, once intellectual and affective responses that are automatic and pre-conscious are called to our attention" (Howett 1987, p.8).

Barthes discusses the role of semiotics in urban design in more poetic terms as a "scientific energy," which translates metaphor to analysis (Gottdiener et. al. 1986, p.92).

**Landscape Architecture and Semiotics**

Landscape architecture represents a small corner, which no spider has yet occupied as a feeding ground, as there is no apparent semiotics foundation within this discipline. A purported advocate for the development of this science in landscape architecture, Howett appeals to semiotics as an important analytic framework for examining symbols or meaning in the landscape (Howett 1987, p.8). Howett nevertheless casts the first silk thread outside of the web or the semiotic framework by introducing the notion of "multivalence" and guising its significance as an important premise of this science.

Apparently, Howett has extracted this notion from the book, *Signs, Symbols, and Architecture*, where Jencks submits five architectural aesthetic codes in the article entitled, "The Architectural Sign" (Broadbent et. al., 1980). Aside from the notion of "multivalence," Jencks discusses four additional codes, which are as follows: "fetishism and self-reflection," "distortion and disruption," "redundancy and miniaturization," and "hermeneutic, esoteric, and completely private" (Broadbent et. al. 1980, pp.88-91)

Clearly, the above-mentioned codes represent far-removed abstractions from the original sign models, or abstractions of virtually any aspect of the semiotics theory.

Coincidentally, Broadbent suggests that the scholarly literature that addresses the issue of meaning in architecture has frequently been questioned by several critics, due to the level of abstraction, the ambiguous nature of the material, or that the nature of the material is jargon-ridden (Broadbent et. al. 1980).
Additionally, Lindsey, Buchan, and Duncan address the issue meaning in the landscape in the article entitled, "The Residential Landscape as a System of Communication: A Semiotic Approach." The title of this study, however, appears to be misleading, as a semiotic approach is not actually executed here. Rather, this study involves the examination of residential artifacts for their propensity to convey messages about social status. The specific focus of this experiment entails testing the degree of concurrence amongst the members of a social group as to how they read the messages of each residential artifact, in terms of its meaning (Lindsey et. al.). Therefore, the study approaches the issues addressed by semiotics - the examination of symbols and meaning. However, Lindsey et. al. are not actually implementing "A Semiotic Approach," as this group is neither implementing a sign model, nor any aspect of semiotic theory. This study appears to be simply employing semiological terms (i.e. sign, sign set, semiotic) as a vocabulary apparatus to identify objects of meaning. For example, the term, "sign sets" is used in reference to the objects of the study.

There are no apparent precedental studies that address the science of semiotics as it applies to the discipline of landscape architecture. Therefore, it is unclear whether this science represents a feasible analytic tool for examining meaning in the landscape. There is, however, an urgency for the development of a methodology that addresses this issue, and semiotics, as the science of signs and symbols, represents one option that has been applied successfully to other a number of other cultural disciplines.

Semiotics: Application to the Design Disciplines
The science of signs has had fairly extensive application in the disciplines of architecture and urban design, as numerous publications addressing this topic have pervaded both disciplines. By 1980, more than 600 articles address this science as it relates to the discipline of architecture alone (Broadbent et. al. 1980). Despite the widespread application of this science in both disciplines, each discipline has come to place different emphasis on the various methods and theories of this science.

An exploration of semiotics literature in both fields sheds light on a number of problems with the cross-disciplinary transposition of semiotics material. At one level, there have been difficulties transposing semiotics models and theories between design disciplines. Additionally, there are problems with regards to the transference of semiotics information from the original disciplines of linguistics and philosophy to design disciplines. The following passage will demonstrate some of the problems incurred with the interdisciplinary transposition of semiotics information within the design disciplines.

Problems with the Interdisciplinary Transposition of Semiotics Information

Semiotics was first introduced to architecture in Italy in the 1950's. The discipline of urban design subsequently followed, and initially viewed archisemiotics as a prototype for the semiotics of urban space. More recently, however, semioticians in urban design have found the architectural model inadequate as a archetype for several reasons (Gottdiener et. al. 1986). Gottdiener, and Lagopoulos discuss some of the problems of architectural sign theory in the following passage:

...the misunderstanding of semiotic theory and the unwarranted extension of semiotic operations onto non-semiotic social processes; the slavish attachment, to the linguistic model; an identification of the architectural language with its poetic function alone; the opposite reduction of signification merely to denotative level;
and the neglect of the articulation between semiotic and non-semiotic processes in the social life of the city (Gottdiener et. al. 1986, p.13).

As a result of the above-mentioned liabilities, urban design semiotics has recently diverged from archisemiotics. Both disciplines occupy a common ground through the semioticians of Sassure, Peirce, and Hjelmslev. However, the influence of each scholar weights differently in the two disciplines. The semiotics figures whose influence weights most heavily in the discipline of architecture are Ferdinand de Sassure and Charles Peirce (Broadbent et. al. 1980) (Noth 1990). The former proved more influential in the early years, while the latter has recently gained notoriety in this discipline. Jencks maintains that Sassure's two notions of diachronic linguistics and synchronic linguistics represent an important underlying philosophy in the anthology of articles produced in the book, Signs, Systems, and Architecture. As a part of diachronic linguistics, Sassure's bilateral sign model has proven an important analytical tool for gaining insights into meaning of architecture (Jencks 1980). More recently, Peirce's trichotomous sign model has been employed more extensively in this discipline. However, the application of this model has essentially been limited to Peirce's second trichotomy, the object-aspect, and its three sign constituents: the icon, the index, and the symbol (Jencks 1980). Sassure and Peirce clearly represent the most influential semiotic figures in archisemiotics. Additionally, the semiotic theories of Morris and Hjelmslev have had some application in this discipline (Noth 1990).

The City and the Sign comprises a series of articles that addresses the science of signs as a method for analyzing meaning in urban space. In this anthology of articles, Hjelmslev's sign theory, particularly the theory of connotation and denotation, predominates this literature (Gottdiener et. al. 1986). The influence of this model is due in part to its close
alignment with the socio-semiotic perspective, which represents an important underlying philosophy in addressing the spaces of the city. This alignment is also due to the fact that the model addresses both "the non-semiotic environment and connections to ideological systems through the connotative sign theory" (Gottdiener et. al. 1986, pp.16,17).

The above section outlined some examples of problems with the transposition of semiotics information between the design disciplines of architecture and urban design. This section additionally outlined models that are found most frequently in both disciplines. There is currently no semiotic foundation in the discipline of landscape architecture. This discipline, when broken down to its most fundamental elements, constitutes both objects and space. By examining the semiotic approaches executed in both architecture and urban design, it is possible to extract or identify prototypes or guidelines for developing this science in the discipline of landscape architecture.

The transference of semiotics material from the original disciplines of linguistics and philosophy to other cultural disciplines poses several problems or difficulties. These problems surface mainly as a result of the contrasting nature of the disciplines, whereby the objects of semiotic focus are different in nature. For example, linguistics examines the signs of natural languages; in the province of philosophy, semiotics addresses the 'domain of logic'; archisemiotics primarily addresses objects or buildings; and the focus of semiotics of urban design are the objects that define the space (Gottdiener et. al. 1986).

One problem occurs when design semioticians develop contrasting interpretations of the original semiotics information. For example, Broadbent and Jencks developed contradictory conceptions for Peirce's second trichotomy, the indexical sign. Jencks
depicts the index as a literal sign, which must be learned over time by the perceiver (Broadbent et. al. 1980). Hence, the legibility of the indexical sign is hinging on the condition that the perceiver has previously learned knowledge of its meaning. In contrast to Jenck's conception, Broadbent qualifies one condition of the indexical sign as legibility of meaning without cultural knowledge (Broadbent et. al. 1980). The contradiction in the different conceptions of this sign lies in the presence or absence of learned knowledge or cultural knowledge.

Another problem involves the transference of partial theoretical models (Agrest et. al. 1973). For example, in its application to architecture, Peirce's sign model is limited in nearly every case to the second trichotomy, the object-aspect, and its three constituents: the icon, the index, and the symbol (Broadbent et. al. 1980). By restricting application to the second trichotomy, these scholars are precluding the first and third trichotomies. The application of a partial theoretical model presents a problem, as this action is in contradiction with the overall objective of semiotics, as is depicted by Deely in the following passage:

...(Semiotics represents) a perspective or a point of view that arises from an explicit recognition of what every method of thought or every research method presupposes. Semiotic arises from the attempt to make thematic this ground that is common to all methods and sustains their transparency throughout to which they are genuine means by which inquiry is advanced (Deely 1990).

Therefore, by applying a portion of a model, such as one of Peirce's three trichotomies, these scholars are not employing this method consistently, and are therefore not advancing inquiry in a genuine way. As Deely suggests, semiotics represents a perspective that is equivalent with any other research method. Consequently, this tool should be used
consistently throughout all disciplines. This consistency should involve employing the
wholistic sign model in every application to attain what Deely discusses as "transparency"
- to advance inquiry in a consistent and genuine fashion. As Deely ascertains, a person's
ideological stance will inevitably influence the semiotician's perception of the sign. Yet, if
the doctrine of signs is employed consistently, this action will keep one factor constant.
Therefore, in the situation that a portion of the model is not applicable for any reason, it
would be beneficial to establish a rational as to why this portion was not applied.

An additional problem that occurs with the interdisciplinary transference of semiotics
information involves the situation where scholars confound theoretical fields (Agrest
1973). For example, Lagopoulos, in the book, The City and the Sign, outlines a general
semiological theory in the process integrating the sign theories of Sassure, Hjelmslev, and
Barthes. Here, Lagopoulos is not only employing portions of models, but he is taking this
one step further to confound these concepts out of the context of the original models to
form one wholistic model. Consequently, Lagopoulos is not adhering to the established
thematic ground "that is common to all methods and sustains their transparency
throughout" (Deely 1990, p.10,11), and is not being true to this research method as a
mechanism for the advancement of inquiry.

Clearly, there are a number of problems with the interdisciplinary transposition of
semiotics material. In this section, these problems have been highlighted through the
insights of Agrest and Gandelsonas (1973) in the article, entitled, "Critical Remarks on
Semiology and Architecture." These insights are supported by various examples
encountered in the cited sources.
As a result of these problems, the research design employed herein avoids the problems of contradictory interpretations, partial theoretical models, and confounding theoretical fields by returning to the disciplines of philosophy and linguistics to understand these models in their original context. The following section outlines a literature review of the three models of Hjelmslev, Sassure, and Peirce, based on linguistics and philosophy documents.
The Glossematic Model of Louis Hjelmslev

The focus of this research is the most fundamental aspect of semiotics or semiology, the sign model, which Hjelmslev characterizes as the glossematic model. A review of the literature has revealed that the glossematic model as an individual entity has limited precendental application in the design disciplines. The glossematic model, however, represents part of the theories of connotation and denotation. As the denotative sign, the glossematic model has much more broad application in both disciplines of architecture and urban design. Yet, before these theories can be explored, it is necessary to understand the glossematic model. Below is a discussion of this model.

Louis Hjelmslev developed the sign theory, glossematics, based on the foundation of Sassure's bialateral sign model (Deely 1990). As a derivation of this dichotomous model, glossematics is often discussed in relative terms to Sassure's sign theory. For example, Sassure purports the existence of two sides of a sign model: the signifier as the sound image and the signified as the concept (Noth 1990). Hjelmslev replaces Sassure's notions of signifier and signified with the terms, expression and content, respectively (Trabant 1990), where expression represents the material side of signs, while content is the meaning side of signs (Baer et. al. 1990). Hjelmslev further characterizes these dichotomous notions as the planes of the sign, and following Sassure and Weisburger, he views the sign as "...an entity generated by the connexion between ...(these two planes)" (Noth 1990 pp. 48,49). The connection or relationship is further depicted as one of solidarity, where "an expression is an expression only by virtue of being an expression of content, and a content is content only by being a content of expression" (Noth 1990 pp. 48,49). Hjelmslev diverges from Sassure's structural composition of the sign in his conception of the constitution of form. For example, Sassure's concept of language depicts one synthetic
form positioned between two substances, while Hjelmslev regards the expression-plane and the content-plane as two definitive forms (Trabant 1990).

The following sections are included here to demonstrate how semiotics fits into Hjelmslev's larger comprehensive philosophy of semiology. To establish a wholistic conception of the sign and its formation, Hjelmslev examines a broader province. This semiotician distinguishes between two realms, which include "a presemiotic sphere of the semiotically unstructured world" (Hjelmslev 1969) and "a structured system of sign forms" (Hjelmslev 1969). The former province comprises of an omni-present element, purport, which in essence is comparable with Sassure's concept, amorphous mass (Noth 1990). In the book, Prolegomena to a Theory of Language, Hjelmslev describes purport as an unanalyzed entity, which is delimited by its external functions (Hjelmslev 1969). The delimitation or manipulation of purport into formed substance can occur in an infinite number of ways. To illustrate the process of the formation of language through the manipulation of purport, Hjelmslev employs several metaphors in the following passage:

Each language lays down its own boundaries within the amorphous "thought-mass" and stresses different factors in it in different arrangements, puts the centers of gravity in different places and gives them different emphases. It is like one and the same handful of sand that is formed in quite different patterns, or like the cloud in the heavens that changes shape in Hamlet's view from minute to minute. Just as the same sand can be put into different molds, and the same cloud takes on ever new shapes, so also the same purport is formed or structured differently in different languages (Hjelmslev 1969 pp.51, 52).

The imposition of a language structure onto purport perpetrates a transformation from the "presemiotic sphere of the semiotically unstructured world" to that of a "structured system of sign forms." It is within the "structured system of sign forms" that Hjelmslev's
glossematic sign model manifests itself. The glossematic model diverges from Sassure's sign model, as Hjelmslev further stratifies the expression-plane and the content-plane each into three components (Noth 1990). For example, the expression-plane is sub-divided into expression-purport, expression-substance, and expression-form, while the content-plane is sub-divided in a parallel fashion into content-form, content-substance, and content-purport. While all six components represent important aspects of the sign development process, the actual glossematic sign model exclusively comprises of the two elements, expression-form and content-form. Hjelmslev characterizes these two components as functives of the sign function. The fundamental relationship between substance and form is established as follows: 'formed substance' represents a product of the projection of 'non-substantial form' onto 'formless substance.' Therefore, in the content-plane, content-form projects on content-purport to produce content-substance. A parallel condition exists in the expression-plane, where expression-form projects on expression-purport to produce expression-substance. To demonstrate the fundamental relationship between form and substance, Hjelmslev employs an analogy of a net to provide a clearer understanding. A net (or form) is thrown over the unformed matter (or purport) to create substance. The color designation in the English and Welsh languages provide a solid example of how this relationship can be applied to linguistics (Hjelmslev 1943)(Trabant 1987). This example is depicted in the following passage:

A segment of the color spectrum as linguistically unformed matter is symbolized by a rectangle (I) (although the delineation of the limits of this area of reality is actually inadmissible, as it already seems to symbolize some sort of forming process). The (various) languages now throw their various "nets" onto this unformed area of reality (II). The net thrown by the English language over this area (solid lines) is different from that thrown over the area by the Welsh language (dotted lines)...The area is given form in this way as a totality, and formed
substances are created as divisible, distinguishable parts of the previously unformed substance (Hjelmslev 1943/63/53)(Trabant 1987).

As discussed above, Hjelmslev's sign presupposes the expression-plane and the content-plane characterizing separate entities, and thereby representing different forms. In the situation that the expression-plane and the content-plane exhibit the same form, this structure represents a symbol. A better understanding of the concept, symbol, is demonstrated through an example in the game of chess. An individual chess piece is defined as a symbol, as each element of the expression-plane (the form of each chess piece) corresponds to an entity on the content-plane (the designated function/role of the chess piece). Because the expression-plane and the content-plane are inseparable entities, Hjelmslev characterizes symbols as non-semiotic entities, and these entities do not fall under the categorization of glossematics (Trabant 1987).

It has been established that Hjelmslev's glossematic model merely serves to distinguish between content-form and expression-form, or substance and form, respectively. Gothic architecture and particularly the gothic cathedral provides a good example for understanding this distinction. Frederick Hartt in the book, Art (1989) characterizes the attributes of gothic architecture as soaring height, immense interiors, pinnacles, spires, and towers, and images in stone, glass, and paint. Hartt ascertains the gothic cathedral to constitute "...a comprehensive medieval picture of the universe from the heights of heaven to the depths of hell" (p.447). All of the above mentioned features generally work together to create a sense of spirituality within this heaven and hell. A typical design feature of this archetype, not listed above, is the high vaulted ceiling. In light of Hjelmslev's glossematic model, the expression-form represents the high vaulted ceiling,
while the content-form represents the idea of shelter for creating a warm, dry place to pray.

Below is an introductory discussion of the theory of connotation and denotation. This theory is introduced here, not as part of the research endeavor, but to offer a sample for directions of future research projects.

Theory of Connotation

One of Hjelmslev's critical contributions to semiotics is the theory of connotation (Noth 1990). While Hjelmslev's glossematics model characterizes the denotative sign, the connotative sign represents a unit of style (Noth 1990) or otherwise depicts external information (Trabant 1987), belonging to a system designated as connotative semiotics (Noth 1990). Within this system, some examples of connotative categories or units of style include the following: "medium, tone, vernacular, national language, regional language, and physiognomy" (Hjelmslev 1943, p.119) (Noth 1990). The connotative sign evolved from Hjelmslev's original sign model. This sign, however, occurs at a different level than that of the denotative sign, as it formulates an additional content-plane, situated above the denotative sign. In this position, this sign serves as the connotative sign's expression-plane. Structurally, the connotative sign illustrates a semiotic where the expression-plane comprises of denotative elements of language and the content-plane is composed of stylistic values. In simplified terms, the connotative sign illustrates content, while the denotative sign is representative of expression (Noth 1990).

Trabant depicts the role of the connotative sign in linguistics, as functioning to reveal distinctions between either speakers or listeners by addressing the notions of "nations,
classes, regions, communicative situations, and individuals" (Trabant 1987, p. 100). In its capacity, the connotative sign serves as a revelatory device about various cultural influences. For example, this sign would ideally reveal the information that "he is an Englishman, he comes from London, he is a linguist, he expresses himself carefully, etc..." (Trabant 1987, p. 100).

The theories of connotation and denotation have also been applied to the design disciplines. The design literature suggests that the primary function of the object is denotative, while its secondary function, or the stylistic component, is connotative. Returning to the example discussed above of the gothic cathedral and its high vaulted ceiling, one can postulate that the denotative function, or the primary function of this ceiling is to create a warm, safe, and dry place to worship. The connotative function, or the stylistic component, would be the idea of reaching to the heavens and thereby evoking a sense of spirituality.
**The Sign Model of Ferdinand de Sassure**

Sassure's critical contribution to semiotics involves the theory of sign systems, called semiology. There are a number of systems that constitute sign systems; some examples are as follows: system of writing, the alphabet of deaf-mutes, symbolic rites, polite formulas, military signals, and linguistics. According to Sassure, a superior example of a sign system is that of the linguistic sign; his notion of signs is consequently discussed in linguistic terms (Sassure 1964) (Kramden 1987). Before addressing the sign, however, it is necessary to discuss its contextual framework, the sign system.

What is a sign system? The structural framework represents a dichotomy of concrete versus abstract, or substance versus form. Although these two aspects are dichotomous in nature, the relationship between the signifier and the signified characterizes an important symbiosis. Form, through its imposition onto substance, establishes a patterned appearance, thereby providing a rational for "the essentially variable substances of 'reality'" (Hervey 1982, p.10). If not for the existence of form, substance would characterize an amorphous mass of senseless events (Hervey 1982). While form does not necessitate the existence of substance, substances are responsible for solidifying the reality of forms. Without substance, forms would represent vacuous entities, that lack practical applicability. Signs represent forms which semiological systems achieve their characteristic function of mediating between form and substance. The signifier and the signified therefore create an indivisible unity, which Sassure equates to the two sides of a piece of paper. The role of the sign in this process is that of a form through which it acts as mediator between thought substance and physical expression (Hervey 1982).
A necessary condition that presupposes the existence of a linguistic sign is an unmotivated alliance between the signified and the signifier (Krampen 1987). To elaborate on the terms of the unmotivated relationship, the connection between the signifier and the signified is not natural, but rather, is based on convention. Nearly every term in linguistics is categorizable as a linguistic sign, as the sound pattern does not correspond with the concept that it is signifying (Hervey 1982). The relationship is strictly one of conventional rules of the language (Krampen 1987).

Sassure's sign designation is limited to defining forms that mediate an arbitrary relationship between the signifier and signified. Below, Sassure's model addresses the possibility of additional forms that mediate a relationship between form and substance, but do not constitute signs. To label a slightly motivated or slightly natural connection between the signifier and the signified, Sassure defines the mediating form as relatively arbitrary. Sassure elaborates on this categorization through the use of several numerical examples. For example, the number 'eleven' represents an arbitrary sign, as the relationship between the term and the concept is unmotivated or unnatural. On the other hand, a comparison of the numbers, "13, 14, and 15" reveals a trace of a natural connection between the digits and the concept, as the concept in part represents the number ten in each case (Krampen 1987). Therefore, the mediating form here is labeled as relatively arbitrary.

The symbol designation represents another form typology. The symbol mediates a motivated or a natural relationship between the signifier and the signified. It is necessary for Sassure to exit the realm of linguistics to illustrate an example of this typology. He delineates the signifier as the scale and the signified as the concept of justice (Sassure 1982). The relationship between the two represents a natural one, as the scale serves as
device that generally measures the weight of something accurately and thus fairly. Fairness subsequently equates with justice.

With regards to the design discipline of architecture, the literature suggests that the signifier generally characterizes the following: forms, surfaces, spaces, volumes; all as they demonstrate properties of texture, rhythm, color, and/or density (Broadbent et. al., 1980). The signified, on the other hand, characterizes the ideas manifested in these forms. To allude to the example of the high vaulted ceiling of the gothic cathedral, the signifier characterizes the form in all its intricacies of the high vaulted ceiling. Here, one of the signifieds could be characterized as representing the idea of reaching to the heavens.

The above discussion is a general example of how the signifier and the signified represent form and substance. Sassure's sign model, the arbitrary sign, takes this process one step further to define an arbitrary or unnatural relationship between the signifier and the signified. Again, the gothic cathedral provides an example. The high vaulted ceiling is an identifying feature of this archetype. The relationship between this design feature and the idea of gothic architecture is arbitrary and consequently, characterizes an arbitrary sign. It is necessary for the viewer to have previous knowledge about what characterizes gothic architecture to recognize the value or the meaning of the sign.

The mediating forms outside the realm of the sign model such as the relatively arbitrary form and the symbol are also applicable to architecture. The relatively arbitrary form mediates a relatively motivated or an indirect relationship between form and substance. An example of this form can be found in the high vaulted ceiling of the gothic cathedral. The signifier characterizes the form of the high vaulted ceiling; the signified represents the
idea of reaching to the heavens. Here, it is evident that there is a relatively arbitrary or relatively motivated relationship between form and substance, as the form of the ceiling does not directly represent the heavens. However, it demonstrates a relationship with the heavens, as the ceiling is directed upward to give the idea of reaching for the heavens.

The symbolic form mediates a motivated or a natural relationship between the signifier and the signified. In architecture, the symbol characterizes any architectural form that has a natural relationship or closely simulates the idea that it is signifying. The form's function is legible without previous learned knowledge about the relationship. Some examples cited in the design literature include a poultry stand shaped like a duck (Venturi) or a hot dog stand shaped like a hot dog (Broadbent et. al. 1980).
The Sign Model of Charles Peirce

Peirce's sign model contrasts from that of both Sousand's and Hjelmslev's models, as he views the sign as trichotomous. Peirce characterizes the sign, otherwise termed as the representamen, as an extension of his philosophical foundation of 'Thirdness' (Hervey 1982, p. 26). This philosophical idea is briefly summarized as "the mode of being of that which is such as it is, in bringing a second and a third into relation with one another" (Peirce 1977)(Hervey 1982, p.24). Peirce classifies the sign into three trichotomies, which comprise of the following: the sign-aspect, the object-aspect, and the interpretant-aspect. The relationship between these components involves the process of signification, whereby:

the sign, or representamen, is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the interpretant of the first sign. The sign stands for something, its object. It stands for that object, not in all respects, but in reference to a sort of idea, which I have sometimes called the ground of the representamen (Peirce 1955, p.99)(Noth 1990, p.42)

The first trichotomy, or the sign-aspect, addresses the sign in its capacity as a quality, an existent, or as a law. Peirce designates the terms, qualisign, sinsign, and legisign to represent these categories, respectively (Peirce 1955). The qualisign addresses the sensory character of a sign, or its inherent visible appearance (Oehler 1987, p.5). Peirce alludes to "a feeling of 'red'" as an example of this sign (Peirce 1955). The sinsign differs from the qualisign, as this sign distinguishes its individual reality or its original form (Krampen et. al. 1987). The sinsign represents a singular object or an event. The legisign, a human constructed law, characterizes the third sign-aspect. This sign generally depicts a type of object, unlike the sinsign, which represents a singular object. For example, the form that is categorized as a tree, represents an example of a legisign.
Peirce's second trichotomy, the object-aspect, addresses the sign as it relates to the object. Peirce establishes three potential relationships between the sign and the object. These are as follows: the icon, the index, and the symbol. The icon does not represent a sign of actual existence, however, it shares a resemblance with a fictional or a real object, whereby its physical properties of the icon pose a similarity to the physical properties of the object it is signifying (Hervey 1982). In its capacity as a sign, the icon generally describes the object; it has at least one common feature with the object; and/or it denotes the quality of the object (Krampen et. al. 1987 p.226). For example, an icon could represent a diagram, which schematically depicts properties of geographical areas, buildings, and electrical circuits. Another example of an icon that one might encounter on a daily basis involves the stick figures used to symbolize women and men on bathroom doors (Hervey 1982).

The index is a sign that relates to its object, as a pointer or a marker. Additionally, this relationship characterizes one of cause and effect (Hervey 1982). The presence of the object is necessary for the sign to posses its character; whereas the presence of the interpretant is not necessary for the sign to possess significance. Some examples of indexes are as follows: a signpost, a weathercock, an arrow, the symptom of a disease (Oehler 1987, p.6) or lightening as a sign of thunder (Hervey 1982).

The third object-aspect, the symbol, presupposes an arbitrary relationship between the object and the interpretation of the object. This association is therefore determined primarily by habit or convention (Hervey 1982). Additionally, an interpretant is necessary for the symbol to possess character as a sign (Peirce 1955). Hervey characterizes some
examples of symbols as follows: signaling systems, systems of classificatory labeling, logical and algebraic systems (Hervey 1982, p.31).

Peirce's third trichotomy, the interpretant-aspect, addresses a third party, who interprets the first sign as an equivalent, or perhaps a more developed sign (Peirce 1955). This trichotomy is sub-divided into the following categories: the rheme, the dicent, and the argument. A rheme is indicative of a particular kind of object. This sign represents its object in the form of characters (Peirce 1955). Some examples include proper names and names of classes, or a more specific example involves the label of the letter, "H" on the hot water tap, which indicates that hot water comes out of this device (Hervey 1982). A dicent, or a diasign, quite simply represents a sign of actual existence (Noth 1990). For example, a windsock generally indicates wind direction (Hervey 1982).

An argument, or a sign of law, represents a sign that maintains the truth of something in the role of mediator between a premise and a conclusion. An example of an argument is a syllogism either in linguistic or logical form (Hervey 1982). A syllogism, in essence, represents a form of reasoning consisting of three propositions. The first two propositions, called premises, have one term in common furnishing a relation between the two other terms, which are linked in a third, called a conclusion (Doubleday Dictionary).

Peirce's sign model, specifically the second trichotomy, is referenced in a number of design literature sources. Below is a discussion of some examples of how the second trichotomy applies to the design disciplines. The first sign typology, the index, represents the situation, where the sign relates to its object as a pointer or a marker. With regards to the designed landscape, an example of an indexical sign is any design feature that serves as a
site line, as this feature generally serves as a pointer or a marker to connect different spaces. This type of design feature is found in the Entrance Plazas of Lowell Heritage State Park. Carr, Francis, Rivlin, and Stone discuss the designers' intentions to connect the two entrance plazas of this park through the use of two site lines, accentuating delineation with lamps, benches, and pavement.

The icon describes an object; it has at least one feature in common with an object; and/or it denotes the quality of the object. Examples of this sign typography are prevalent in a number of contemporary landscapes. To name one example, an important design feature in the Church Street Marketplace in Burlington, Vermont was to reflect the surrounding vernacular landscape. Carr, Francis, Rivlin, and Stone specifically discuss the design feature of "the massive boulders embedded in the pavement" as symbolizing the bare earth in texture and color. This feature can be categorized as an icon, as the boulders serve to describe the object; have at least one feature in common with the object, texture and color; and therefore denote the quality of the bare earth.

The symbol represents an arbitrary relationship between the sign and the object. It is necessary that the interpreter have previous knowledge of the relationship between the sign and the object to understand the value of this sign type.

One example of a symbolic landscape is that of People's Park in Berkeley, California. Carr, Francis, Rivlin, and Stone ascertain that its symbolic value stems from the events that occurred there decades ago. With associations of community activism that occurred in this park decades ago, the signified, there is strong evidence of symbolic meaning in the park itself, the signifier. Yet, there is an arbitrary relationship between the signifier and
the signified. The interpreter is unable to access this symbolic meaning unless he/she has
previous knowledge of the occurrences. Therefore, the sign here is a symbol.

Peirce's first and third trichotomies are virtually undocumented in the design disciplines.
The first trichotomy, the sign-aspect, outlines general information about the design form.
One sign-aspect, the legisign, or the sign of law, generally categorizes a type of object.
The legisign merely represents a categorization tool. The type of design form would
characterize a legisign. Examples of legisigns in the landscape are as follows: a bench, a
tree, a walkway, a fountain, a bowling green, etc... This list could continue infinitely. The
sinsign represents a singular object or event, or an individual reality of this designed form.
An individual bench is comprised of a number of sinsigns. For example, one sinsign
represents wrought iron handles. The qualisign represents the sensory character of the
sign. A qualisign in the landscape could be a lighted lantern that evokes a sense of warmth
upon the landscape in the evening.

The third trichotomy is subdivided into three categories: the rheme, the dicent, and the
argument. The first of these categories, the rheme, represents its object in the form of
characters. There are no examples of rhemes in the literature. An inscription on a
monument that refers to someone or something could be categorized as a rheme. A
dicent or a diasign quite simply represents a sign of actual existence. Due to the
ambivalent nature of this definition, virtually it appears that any design form could qualify
as a diasign. An argument maintains the truth of something in the role of mediator
between a premise and a conclusion. In the role of a syllogism, the argument represents a
mechanism for advanced interpretation.
Conclusion
Cultural meaning in the form of symbols has historically been an important dimension in the landscape over many thousands of years. Symbols have taken many shapes and forms, infiltrating all cultures through language, architecture, and the arts. Recent literature in the discipline of landscape architecture demonstrates that symbols have historically been a long-standing and significant presence in the landscape. A number of landscape architectural scholars argue that symbols and cultural meaning represent a critical aspect of the public landscape. Despite this claim, some theorists suggest that the presence of symbols in the public landscape is dissipating. To date, the research efforts of several scholars involve the identification of landscapes and landscape elements that elicit meaning, as a means for understanding how the public landscape can be meaningful. Carr, Francis, Rivlin, and Stone discuss one possible direction for future research might involve examining how a designer creates meaning. By gaining insight into this concern, these researchers suggest that this effort could potentially create new directions for design and management policies for public spaces.

Semiotics, the science of signs and symbols, represents an important analytic tool for examining cultural meaning. In fact, this science represents the primary method of cultural analyses in the European countries. Although this science has had fairly widespread application in the design disciplines - specifically those of architecture and urban design, there is currently no apparent foundation in the discipline of landscape architecture. As a critical component of this science, the sign delineates the foundation of all semiotics and semiology. The primary evaluative device for analyzing meaning is the sign model. A number of variations of sign models have developed over the last century. Due to the
magnitude of sign models and theories and variations thereof within the different cultural disciplines, a plausible entry-point is vague.

This science has had fairly widespread application in the design disciplines of architecture and urban design. A review of the semiotics literature in the design disciplines helped identify three prototypical sign models for application to the discipline of landscape architecture. The sign models of Ferdinand de Sassure and Charles Peirce weighted heavily in recent architectural literature, while Hjelmslev's semiotic theory is employed in the recent semiotics literature of urban design.

A review of the semiotics literature in the design disciplines was beneficial for identifying sign models as a means for examining cultural meaning in the landscape. A comprehensive understanding of these models, however, was not obtainable from the semiotics literature in the design disciplines for several reasons. Gottdiener and Lagopoulos depict several problems with the interdisciplinary transposition of information between architecture and urban design. As a result of the problems incurred with this transference of information, it was necessary to construct a literature review of the sign models in their original context of philosophy and linguistics. This review encompassed several sources, inclusive of original documents written by Peirce, Sassure, and Hjelmslev. To understand how these sign models could be applicable to the discipline of landscape architecture, it is necessary to apply these models to a contemporary landscape. The following chapter will discuss the process for selecting a landscape and carrying out this application.
Chapter 3

Methodology

The previous section outlined the sign models of Peirce and Sassure and the glossematic model of Hjelmslev. To understand how these models and more generally, the science of semiotics apply to the discipline of landscape architecture, it is necessary to apply the models to a contemporary cultural landscape. The Vietnam Veterans' Memorial in Washington D.C. was selected as a contemporary cultural landscape; this selection was based on several factors. Firstly, the memorial has been written about fairly extensively, via the newspaper, journals, and books. Additionally, a number of sources cite this memorial as a powerful landscape of cultural meaning (Howett 1987)(Carr et. al. 1992).

The design of the Vietnam Veteran's Memorial resulted from a national competition. Of 1,420 entries, Maya Ying Lin produced the winning design, which, in simple terms represents two polished black granite walls, 200 feet long, converging at a 132 degree angle, forming a "V" shape. Each black granite retaining wall, comprising of 140 panels, aligns with both the Lincoln Memorial and the Washington Monument. The earth directly adjacent to the wall slopes away from this structure at a 5 degree angle, until it reaches the apex, where the wall stands approximately 10 feet high.

For the purpose of this research, the memorial is broken down into a list of design features. The procedure for developing this list is discussed below. Washington Post articles about the memorial from the time period: May 1981 to November 1982 are reviewed. This time period spans from the month of the competition to the month of construction completion. Additionally, a number of journal articles addressing the memorial were chosen to supplement the information obtained from the Washington Post.
The content-analysis involves the identification of statements made about various design aspects or features of the Vietnam Veterans' Memorial. To narrow the scope of the study, the content-analysis primarily addresses the designer's perspective, which in this case, involves statements made by Maya Lin. Once the list of statements is compiled, the glossematic model of Hjelmslev and the sign models of Peirce and Sassure are applied to each design feature. This qualitative data is used to accomplish several objectives.

One objective involves the evaluation of the analytic value of each sign model. To determine the analytic value, it is necessary to assess the assets and liabilities, based on the following criteria: the level of depth at which the model explores the relationship between form and substance. For example, does the model merely distinguish between form and substance, or does it take the analysis one step further to define this relationship into a category. If the model does serve to categorize the relationship, than the clarity of the definition will be determined. A second objective entails a comparison of the analytic capabilities of the three models to gage which model best serves to analyze the cultural value of the landscape. The process of examining three versions of the most fundamental aspect of semiotics theory only brushes on a portion of the wholistic science of semiotics. By shedding light on one aspect of the science, particularly a fundamental aspect, this exercise will hopefully provoke further exploration into a number of other methods and theories within the realm of semiotics.
Chapter 4

Results

As a result of the content-analysis of designer’s statements about the memorial, the following list of design features was comprised.

- two walls
- two walls meeting at a 132 degree angle
- the wings of two walls form elongated triangles
- two walls slice into the gradual incline
- two walls situated below ground level
- list of 57,939 American names

/names are 3/4” high etched in white on polished black granite
/listed in chronological sequence in which they died

/names begin and end at the vortex of the V

- polished black granite

Each individual design feature included in the above list is explored in light of the glossematic model of Hjelmslev and the sign models of Sassure and Peirce. The results of this analysis are found in Appendices A, B, and C. This raw data also served as a foundation for evaluating the analytic capability of each model individually, as well as a comparative analysis of the three models. (The comparative discussion of the three models will ensue in the following chapter.)

With the data from Appendixes A, B, and C, an individual analysis of each sign or glossematic model is implemented to determine the assets and liabilities of each model
with regards to its analytic value, based on the criteria discussed in the methodology section. An individual analysis of each model is discussed below.

**Individual Analysis of Hjelmslev's Glossematic Model**

Hjelmslev's glossematic model delineates a bialateral structure or a two-sided entity, comprising of two planes: the expression-plane and the content-plane. In essence, Hjelmslev's glossematic model establishes a structural framework for distinguishing each design feature into content-form and expression-form, or substance and form, respectively. For example, with regards to the design feature, "two walls meeting at a 132 degree angle," the design aspect itself represents the expression-form, while "the site lines with the Washington Memorial and the Lincoln Memorial" represent the content-form. The full application of Hjelmslev's glossematic model to the design features of the Vietnam Veteran's Memorial is discussed in Appendix A.

Hjelmslev's glossematic model serves to distinguish between form and substance, yet, it fails to take this analysis further to categorize the relationship between form and substance into typologies of meaning. Consequently, Hjelmslev's bialateral model demonstrates a limited analytic capacity for examining culturally imposed meaning in the landscape.

**Individual Analysis of Sassure's Sign Model**

According to the criteria established in the methodology chapter, the analytic value of Sassure's sign model is moderately beneficial. Sassure's sign model employs the terms, signifier and signified to distinguish between form and substance, respectively.
This sign model explores another level of depth through the categorization of a 'mediator' or the synthetic form, which serves to define the relationship between the signifier and the signified as unnatural or unmotivated. Sassure refers to this form as an arbitrary sign.

With regards to the Vietnam Veteran's Memorial, an example of an arbitrary sign involves the relationship between the list of 57,939 American Names as the signifier and commemoration of those persons who were killed or missing in action as the signified. This example is explained in greater detail in Appendix B. While Sassure's sign model clearly demonstrates longitudinal depth, this depth is limited to one category that depicts one type of relationship between substance and form.

Additionally, Sassure addresses other mediating forms that do not constitute signs, yet they serve to define the relationship between form and substance. Both the symbol and relatively arbitrary forms serve to mediate between form and substance. There are a number of design features within the composition of the Vietnam Veteran's Memorial that constitute symbolic or relatively arbitrary forms. For example, the signifier characterizes the two walls meeting at a 132 degree angle, and the signified represents the site lines aligning with the Lincoln Memorial and the Washington Monument. As the relationship is indirect and only slightly natural, it can be categorized as relatively arbitrary. This example is elaborated on in Appendix B.

In an example of a symbolic form, the signifier characterizes two walls slicing into a gradual incline. The signified represents "a rift in the earth" or "a scar." Here, there is evidence of a natural or perhaps even metaphoric relationship between the signifier and the signified, and the mediating form here is a symbol.
Hence, Sassure actual sign model is only moderately beneficial as an analytic tool. The model distinguishes between form and substance; the model takes this analysis one more level to define one type of relationship between form and substance, yet its latitudinal depth is limited as the sign represents only one category. However, if one were to consider mediating forms that do not constitute signs, Sassure defines two additional categories that define the relationship between form and substance.

**Individual Analysis of Peirce's Sign Model**

In light of the criteria established to examine these models, the "analytic value" of Peirce's trichotomous model ranks high. This evaluation is based on several factors. First, Peirce's model, specifically the second trichotomy, explores the relationship between form and substance at several levels. For example, at one level, this model serves to distinguish between form and substance, designated as the signifier and the signified, respectively. Peirce's second trichotomy takes this analysis one step further to categorize the relationship between form and substance, the signifier and the signified, into three typologies of meaning. These three typologies of meaning: the icon, the index, and the symbol are delineated with clear and concise language.

Peirce's model is not only limited to categorizing the relationship between form and substance, but the first trichotomy also serves to categorize form in its existence at several levels: a general level, an individual level, and as it evokes a quality.

Peirce's third trichotomy is discussed as an area of advanced interpretation. The third trichotomy is beneficial, as it offers more insight into understanding the meaning of the various design features. The theme represents one interpretant-aspect, which is indicative
of a particular kind of object. The design feature, the list of 57,939 American Names, qualifies as a rheme, as these names, in the form of characters, are representing the soldiers who died or are missing in action. The diasign quite simply represents itself in the capacity of a sign. Here, the two walls quite simply represent themselves, in the capacity of a sign. An argument is an analytic tool that functions as a syllogism to get at other possible interpretations that were not originally intended by the designer. For example, 1) The color, black, is associated with "death" and "sorrow." 2) The memorial that commemorates the Vietnam dead and missing in action is black. 3) The memorial symbolizes "death" and "sorrow."

Peirce's sign model presents one general liability, similar to the other two models, as it represents only one method for examining meaning. However, this is only one perspective, or one string of the web, when there are potentially many ways by which meaning could be categorized or defined.
Chapter 5

Comparative Discussion of Results

Hjelmslev's glossematic model delineates a bialateral structure or a two-sided entity, comprising of two planes: the expression-plane and the content-plane. The expression-plane represents the "material side of things," while the content-plane depicts the "meaning side of signs." In regards to the example of the Vietnam Veteran's Memorial in Washington D.C., Hjelmslev's glossematic model is establishing a structural framework for categorizing each design feature with attributed culturally imposed meaning into content-form and expression-form. For example, with regards to the design feature, "two walls meeting at a 132 degree angle," the design aspect itself represents the expression-form, while "the site lines with the Washington Memorial and the Lincoln Memorial" represent the content-form. The application of Hjelmslev's glossematic model to the design aspects of the Vietnam Veteran's Memorial is discussed in Appendix A as well as in Chart A.

By categorizing the content and expression of each design feature, Hjelmslev's model serves merely to distinguish between form and substance. As a result, Hjelmslev's bialateral model demonstrates a limited analytic capacity as a means for examining culturally imposed meaning in the landscape.

Similar to Hjelmslev's glossematic model, Sassure's sign model (See Appendix B) represents a bialateral structure or a two-sided entity. Rather than expression-form and content-form, Sassure employs the terms, 'signifier' and 'signified,' respectively, to characterize the two sides of this bialateral structure. The underlying relationship between the two components is demarcated as the dichotomy of substance versus form. Sassure's model demonstrates superior analytic capabilities by taking this analysis to another level.
Sassure’s sign model is structured so that a mediator or a synthetic form, is positioned between the signifier and the signified and defines the relationship between the two as unmotivated or unnatural.

Sassure's sign model is fairly limited in latitudinal scope, as the sign model addresses only one category of meaning. This model yields limited information about the different dimensions of meaning in the Vietnam Veteran’s Memorial. There is only one design feature that characterizes as an arbitrary sign. This involves the example, where the signifier represent the list of 57,939 American Names, and the signified represents the commemoration of those who were killed or missing in action. The relationship between the signifier and the signified is unmotivated or unnatural.

While Sassure uses only one sign designation, he discusses other forms that serve to mediate between form and substance, such as the symbol and the relatively arbitrary forms.

The mediating form is relatively arbitrary when there is a slightly motivated or slightly natural connection between the form and the substance. An example of a design feature that is relatively arbitrary occurs where the signifier represents two walls meeting at a 132 degree angle, and the signified is characterized as forming site lines with the Washington Monument and the Lincoln Memorial. This example is discussed in further detail in Appendix B.
Another form typology is the symbol. The symbol mediates a motivated or a natural relationship between the signifier and the signified. For example, the signifier characterizes as the placement of the two walls slicing into the gradual incline. The signified characterizes a rift in the earth. This example is discussed further in Appendix B.

The above comparison of Sassure's and Hjelmslev's models clearly demonstrates that Sassure's model represents a superior analytic tool, as this model addresses an additional level of depth by casting the relationship between signifier and signified into a sign typology. Yet the sign model explores only one type of meaning, an unmotivated relationship between the signifier and the signified. This model lacks the latitudinal depth, as it fails to explore different types of meaning. It is necessary to look outside of the sign model to categorize other types of meaning, specifically the design components which can be categorized as relatively arbitrary and symbolic. These categories are discussed in further detail below.

Similar to both Hjelmslev's and Sassure's models, Peirce's second trichotomy distinguishes between object and sign, or form and substance, respectively. Both Sassure's sign model and Peirce's second trichotomy achieve a higher level of depth than Hjelmslev's model by defining the relationship between form and substance. Semantically, the two models differ in the outlook of what constitutes a sign. For example, Peirce establishes three sign categories to define the relationship between substance and form. These signs include the symbol, the index, and the icon. Sassure establishes only one sign category, the arbitrary sign; he introduces two additional categories as concepts, labeled relative arbitrariness and symbol. A comparison of the two sets of categories reveals some obvious parallels
between Peirce's symbol, index, and icon and Sassure's arbitrary sign and the concepts of relative arbitrariness, and the icon. These similarities are discussed below.

The arbitrary sign represents an unmotivated alliance between the signifier and the signified. Similar to Sassure's arbitrary sign, Peirce's symbol represents an arbitrary relationship between the sign and the object, a relationship that is determined primarily by habit or convention.

Sassure's concept of relative arbitrariness closely aligns with Peirce's indexical sign. Sassure discusses the role of the relatively arbitrary sign as characterizing a slightly motivated or slightly natural connection between the signifier and the signified. It is further characterized as a function of the relationship between objects (See Appendix B). Peirce characterizes the index as a sign that relates to its object as a pointer or a marker. Peirce offers an additional definition of this sign as a relationship of cause and effect (Hervey 30).

Sassure's symbol designation correlates with Peirce's iconic sign. Sassure depicts the symbol as representing a motivated or a natural relationship between the signifier and the signified. To further illustrate this example, Sassure employs a metaphor of a scale to portray the concept of justice. Similar to Sassure's symbol, Peirce's icon categorization describes a metaphor. Peirce characterizes the icon a sign that depicts physical properties that are similar to the physical properties of the object it is signifying. Peirce further describes this sign as having at least one or more of the following relationships with the objects: it describes the object; it has at least one common feature with the object; and/or it denotes the quality of the object.
While there are obvious parallels between the two sets of typologies, a further exploration of this comparison of these sign designations reveals certain areas where Peirce's second trichotomy demonstrates superior analytic capabilities to Sassure's comprehensive sign model. One area where there are critical differentiations between the two models is through the definitions of the categories. On the one hand, Sassure's delineation of the sign typologies tend to be somewhat nebulous. Due to the ambiguity of the language, it is difficult to gauge a clear understanding of each category, and consequently necessitates the use of his examples to gage an understanding of these categories. Peirce, on the other hand, creates a much more elaborate description for each sign typology, and the use of examples is therefore not necessary to comprehend each sign typology.

As discussed above, in its analytic capacity, Peirce's indexical sign corresponds with Sassure's relatively arbitrary form. Peirce describes the indexical sign as the situation where the sign relates to the object as a pointer or a marker; this sign has additional implications as relating to the object in a relationship of cause and effect. These statements are for the most part self-explanatory. On the other hand, Sassure discusses the relatively arbitrary form as the situation where there is a slightly motivated or slightly natural connection between the signifier and the signified. This definition is ambiguous; it is unclear what the terms, "slightly motivated" or "slightly natural connection" mean. It therefore becomes necessary to consult one of Sassure's examples to gain insight into the definition of this sign typology. Sassure discusses the relationship between digits to illustrate an example of this sign typology (See Appendix B).
In addition to the use of more descriptive language in the second trichotomy, there are a number of other factors that contribute to Peirce's trichotomous sign model representing a perhaps more elaborate analytic tool. While the second trichotomy has some similarities to both Sassure's and Hjelmslev's models, Peirce's trichotomous model explores several other dimensions of form and substance and their relationship through the first and third trichotomies.

From the first trichotomy, the sign-aspects, the legisign and the sinsign, serve as valuable analytic tools or organizational mechanisms for structuring general information about the form and additionally establishing a contextual foundation for the sign information in the second trichotomy. The legisign categorizes general information about the design - specifically addressing the type of form. For example, an important legisign of the Vietnam Veteran's Memorial would be characterized as the two walls. The sinsign addresses a more detailed level of information, as this sign-aspect categorizes the individual aspects or design components of the Legisign. The sinsign serves to distinguish the two walls as being unique to the Vietnam Veteran's Memorial. Virtually every design feature could be categorized as a sinsign. Some examples include the following: "two walls meeting at a 132 degree angle," "two walls slice into the gradual incline," and "two walls situated below ground level." A third sign-aspect, the qualisign, addresses an entirely different realm of information - specifically the sensory character of the sign, as it appeals to the five basic senses of sight, touch, taste, hearing, and smell. An example of a qualisign is the use of polished black granite to create a "peaceful and gentle effect." See Appendix C and Chart C for further results.
Peirce's third trichotomy, the interpretant-aspect, establishes advanced interpretation (Buchler 1955). One interpretant-aspect involves an argument, or a "sign of law," which maintains the truth of something in the role of mediator between a premise and a conclusion. An example of an argument is a syllogism in either linguistic or logical form (Hervey 1982). With regards to the Vietnam Veteran's Memorial, the argument, executed as a syllogism, allows the incorporation of the interpretations of other than that of the designer about the meaning of various design features. For example, 1) The color, black, is associated with "death" and "sorrow." 2) The Vietnam Veteran's Memorial is black. 3) The memorial symbolizes "death" and "sorrow." Therefore, the argument establishes a framework of logic to incorporate the interpretations of others.

The rheme is indicative of a particular kind of object. This sign typology generally represents its object in the form of characters. The only example of a rheme in the Vietnam Veteran's Memorial derives from an argument. For example, 1) The letter, V, stands for Vietnam and veterans 2) Several critics allude to the memorial as a V shape. 3) The V shape of the memorial stands for Vietnam or Veterans. Therefore, the character, V, stands for the object, which in this case represents a memorial for the Vietnam Veterans.

A Dicent, or a Diasign quite simply represents a sign of actual existence. Due to the ambivalence in this sign delineation, it is apparent that virtually any of the above-mentioned design components could qualify under this sign typology.
Appendix A

Hjelmslev's Glossematic Model

Hjelmslev's sign model delineates a bialateral structure or a two-sided entity, comprising of two planes: expression-plane and content-plane. The expression-plane represents the "material side of things," while the content-plane depicts the "meaning side of signs."

ANALYSIS:

Two walls are placed at a 132 degree angle to create a site line with the Washington Memorial and the Lincoln Memorial. "Two walls meeting at a 132 degree angle" represents the expression-form, while "a site line with the Washington Monument and the Lincoln Memorial" represents the content-form.

The wings of two walls form elongated triangles to point at the Washington Monument and the Lincoln Memorial. "The wings of two walls form elongated triangles" represents the expression-form, while "to point at the Washington Monument and the Lincoln Memorial" represents the content-form.

Two walls slice into the gradual incline to create a rift in the earth or to create a scar. "Two walls slice into the gradual incline" represents the expression-form, while "a rift in the earth" or "a scar" represents the content-form.

Two walls are situated below ground level to create a journey into the earth. The expression-form represents the "two walls situated below ground level," while the content-form is characterized as a "journey into the earth."
The list of 57,939 American Names is placed to commemorate those who were killed or Missing in Action. With this example, the expression-form represents the "list of 57,939 American Names," while the content-form is the "commemoration of those who were killed or missing in action.

The means by which these names are situated similarly reveals several additional relationships between expression-form and content-form. The names are 3/4" high etched in white on polished black granite to convey a sense of overwhelming numbers while unifying the individuals into a whole. In this example, the "names are 3/4" high etched in white on polished black granite" represents the expression-form, while "the names convey a sense of overwhelming numbers while unifying the individuals into a whole" represents the content-form. These names are listed in chronological sequence in which they died to return to the time frame of the war. Here, the "listing in chronological sequence in which they died" represents the expression-form, while "returning to the time frame of the war" is categorized as content-form. Lastly, the names begin and end at the vortex of the V to demonstrate the war's beginning and end meet; and the war is complete. "The names begin and end at the vortex of the V" represents expression-form. "The war's beginning and end meet; the war is complete" represents content-form.

The last example involves the use of polished black granite to create a mirror effect. In this example, the expression form is depicted as the polished black granite, and the content-form is the mirror-effect.
<table>
<thead>
<tr>
<th>Expression-form</th>
<th>Content-form</th>
</tr>
</thead>
<tbody>
<tr>
<td>two walls meeting at a 132 degree angle</td>
<td>in a site line with the Washington M. and the Lincoln M.</td>
</tr>
<tr>
<td>the wings of two walls form elongated triangles</td>
<td>&quot;to point at the Washington M. and the Lincoln M.&quot;</td>
</tr>
<tr>
<td>two walls slice into the gradual incline</td>
<td>&quot;a rift in the earth&quot;</td>
</tr>
<tr>
<td>two walls situated below ground level</td>
<td>&quot;a scar&quot;</td>
</tr>
<tr>
<td>list of 57,939 American Names</td>
<td>&quot;journey into the earth&quot;</td>
</tr>
<tr>
<td>Names are 3/4&quot; high &quot;etched in white on</td>
<td>&quot;The names convey a sense of overwhelming numbers while unifying the individuals into a whole.&quot;</td>
</tr>
<tr>
<td>....polished black granite*</td>
<td></td>
</tr>
<tr>
<td>Listed in chron. sequence in which they died</td>
<td>&quot;return to the time frame of the war (for the soldiers)&quot;</td>
</tr>
<tr>
<td>The names begin and end at the vortex of the V</td>
<td>&quot;Thus, the war's beginning and end meet; the war is complete;&quot;</td>
</tr>
<tr>
<td>polished black granite</td>
<td>&quot;to create a mirror effect&quot;</td>
</tr>
</tbody>
</table>
Appendix B

Sassure's Sign Model

A brief description of each typology is described below, followed by several examples. An arbitrary sign exists under the condition that there is an unmotivated alliance between the signifier and the signified. Sassure draws from linguistics to further illustrate this typology. The majority of words in the English language represent arbitrary signs, as with each word, the sound pattern does not correspond with the concept that it is signifying. The concept of relative arbitrariness is discernible from the arbitrary sign, as a function of the existing degree of natural connection. This concept illustrates a situation where there is a slightly motivated or slightly natural connection between the signifier and the signified. Sassure exits the realm of linguistics to illustrate an example of this concept; he employs two numerical examples to distinguish between the arbitrary and the relatively arbitrary signs. Characterizing the number 'eleven' as an arbitrary sign, Sassure maintains that there is an unmotivated or unnatural relationship between the sound pattern and the concept. To portray an example of the relative arbitrariness, Sassure employs the numerical digits, "13, 14, and 15" to demonstrate that there is a degree of natural connection between the digits (or the sound pattern) and the concept. A closer scrutiny reveals that the natural connection is a function of the relationship between the objects and not the objects themselves. If one were to examine each number individually, such as the number, "13," there would be virtually no natural connection between the digits and the concept, and the sign typology would be arbitrary. However, a comparison of the digits, reveals that the number, 10, is present in each set of digits, and this concept partially represents the number, ten, in each set of digits. Therefore, the slightly natural connection exists as an indirect relationship. An examination of the relationship between the three numbers demonstrates one common factor between the three numbers, which in this case represents
the number, ten. The symbol characterizes a motivated or a natural relationship between the signifier and the signified. Saussure exits the realm of linguistics entirely to illustrate an example of this category. The signifier represents the scale, and the signified characterizes the concept of justice. The relationship between the two is a natural one, as the scale serves as a device that generally measures the weight of something accurately and thus fairly. Fairness subsequently equates with justice.

ANALYSIS:
The following is a presentation of the analytic results of the Vietnam Veteran's Memorial in light of Saussure's sign model. This analysis involves the examination of individual design components and the categorization of each design feature into one category, based on the type of meaning that each feature evokes. Below is a description of the sign categorization of each design component and a discussion about the categorization process.

The two walls meet at a 132 degree angle to establish a site line with both the Washington Monument and the Lincoln Memorial. Here, the signifier characterizes the two walls meeting at a 132 degree angle; the signified represents the site lines aligning with the Washington Monument and the Lincoln Memorial. This relationship can be classified as relatively arbitrary. Recalling that the concept of relative arbitrariness represents an indirect relationship between the signifier and the signified, where the meaning exists only when considering the role of the external factors. This relationship represents an indirect one, as the signifier (the two walls at a 132 degree angle) relates to the signified (a site line...
with the Washington Monument and the Lincoln Memorial) only when considering the walls' relationship with the Washington Monument and the Lincoln Memorial.

The second design feature represents the wings of two walls forming elongated triangles in order to point at the Washington Monument and the Lincoln Memorial. The signifier represents the wings of two walls, while the signified represents the notion of pointing at the Washington Monument and the Lincoln Memorial.

Similar to the example above, this relationship is classified as relatively arbitrary. Here again, the relationship between the signifier and the signified is indirect, and a slightly natural connection is made only by addressing the contextual and external factors. Therefore, the wing of each wall has meaning only as the wall relates to the Washington Monument and the Lincoln Memorial.

The third design feature addressed in this research effort involves the two walls slicing into the gradual incline to create a rift in the earth or a scar. The signifier characterizes the two walls slicing into a gradual incline, while the signified represents a rift in the earth or a scar. Here, there is a natural or perhaps metaphoric connection between the signifier and the signified. The mediator here is therefore symbolic.

The forth design feature represents the two walls situated below ground level to create a journey into the earth. The signifier represents the two walls situated below ground level, while the signified represents a journey into the earth. The mediator here is categorizable as symbolic, as there is a natural connection between the signifier and the signified.
The fifth design feature represents the list of 57,939 American Names to commemorate those who were killed or missing in action during the Vietnam War. The signifier represents the list of 57,939 American Names, while the signified represents those who were killed or missing in action. This design feature represents the only sign that qualifies as an arbitrary sign. Each name corresponds with the concept, which in this case represents an American individual who died. The name reveals no qualities about the individual who died, and evokes its full meaning only to those who have previous knowledge about this arbitrary relationship.

The way in which Lin chose to implement the list of 57,939 American soldiers' names opens the doors to additional symbolic signs. For example, the names are 3/4" high etched in white on polished black marble. The intentions of this effect are to "convey a sense of overwhelming numbers while unifying the individuals into a whole." Therefore, the signifier in this case represents the technique behind the lay-out of the names, while the signified represents the effect of conveying an overwhelming sense of numbers, while unifying the individuals into a whole." The mediating form here is symbolic due to the natural or metaphoric relationship between the signified and the signifier.

Additionally, Lin listed the names in chronological sequence in which they died in order "to return to the time frame of the war (for the soldier)." The signifier represents the list of names in chronological sequence, and the signified involves returning to the time frame of the war. This relationship is symbolic, as a result of the natural relationship between the signifier and the signified.
Another design aspect of the implementation of names is beginning and ending the list at the vortex of the V to demonstrate how the war's beginning and end meet; and the war is complete;" The signifier is the list of names both beginning and ending at the vortex of the V. The signified represents the idea that the war's beginning and end meet, and therefore the war is complete. This feature is symbolic, as a result of the natural or metaphoric relationship between the signifier and the signified.
Table II: The Sign Model of Ferdinand de Sassure

<table>
<thead>
<tr>
<th>Sign Model and Other Mediating Forms</th>
<th>Signified</th>
<th>Arbitrary/Relatively Arbitrary/Symbolic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signifier</td>
<td></td>
<td></td>
</tr>
<tr>
<td>two walls meet at a 132 degree angle</td>
<td>In a site line with the Washington M. and Lincoln M.</td>
<td>relatively arbitrary</td>
</tr>
<tr>
<td>wings of two walls form elongated triangles</td>
<td><em>to point at the Washington M. and the Lincoln M.</em></td>
<td>relatively arbitrary</td>
</tr>
<tr>
<td>two walls slice into the gradual incline</td>
<td><em>a rift in the earth</em></td>
<td>symbolic</td>
</tr>
<tr>
<td>two walls situated below ground level</td>
<td><em>journey into the earth</em></td>
<td>symbolic</td>
</tr>
<tr>
<td>list of 57,939 American Names</td>
<td>commemorate those who were killed or MIA</td>
<td>arbitrary</td>
</tr>
<tr>
<td>Names are 3/4” high “etched in white on polished black marble</td>
<td><em>The names convey a sense of overwhelming numbers while unitifying the individuals into a whole</em></td>
<td>symbolic</td>
</tr>
<tr>
<td>Listed in chron. sequence in which they died</td>
<td><em>return to the time frame of the war (for the soldier)</em></td>
<td>symbolic</td>
</tr>
<tr>
<td>The names begin and end at the vortex of the V</td>
<td><em>Thus, the war’s beginning and end meet; the war is complete.</em></td>
<td>symbolic</td>
</tr>
</tbody>
</table>
Appendix C

Peirce's Sign Model

A brief synopsis of Peirce's second trichotomy, including each sign typology is discussed below. The first object-aspect, the icon, represents a sign that depicts physical properties that are similar to the physical properties of the object it is signifying (Hervey 1982). In its capacity as a sign, the icon generally has one or more of the following relationships with the objects: it describes the object; it has at least one common feature with the object; and/or it denotes the quality of the object (Krampen et. al. 1987, p.226). It is also important to note that the presence of the object is not necessary for the sign to be read. The index represents a sign that relates to its object as a pointer or a marker. Additionally, the indexical sign is characterized as a relationship of cause and effect (Hervey 1982). This sign typology necessitates the presence of the object, while the interpretant's presence is not essential for the sign to be significant. The third object-aspect, the symbol, presupposes an arbitrary relationship between the sign and the object. The association between sign and object is determined primarily by habit or convention (Hervey 1982). Additionally, an interpretant is necessary for the symbol to possess character as a sign (Peirce 1955).

ANALYSIS - SECOND TRICHOTOMY

The following is a presentation of the analytic results of the Vietnam Veteran's Memorial in light of Peirce's second trichotomy. This analysis involves the examination of individual design components and the categorization of each design feature into one sign typology, based on the type of meaning that each sign component evokes. The results of this
analysis are illustrated in Chart C. Below is a description of the sign categorization of each design component and a discussion about the categorization process.

An analysis of the design features of the Vietnam Veteran's Memorial in light of Peirce's second trichotomy is as follows. Two walls meet at an 132 degree angle to create a site line with the Washington Monument and the Lincoln Memorial. In this situation, the object represents the two walls meeting at a 132 degree angle, while the sign represents site lines with both the Washington Memorial and the Lincoln Monument. The relationship between the object and the sign is indexical, as the site lines serve in the capacity of a pointer. Lin suggests: "The whole point of the V shape was to point at the Washington Monument and the Lincoln Memorial..."

The object of the second design feature represents "the wings of two walls forming elongated triangles." The sign represents the intention "to point at the Washington Monument and the Lincoln Memorial." As the sign is intended to function as a pointer, this sign can be categorized as an indexical sign.

The third design component represents an object characterized as two walls that slice into a gradual incline, where the sign represents a "scar". A scar is generally defined as either a mark left by a healed wound, sore, or burn, or any blemish remaining as a trace or resulting from an injury. Lin situated the two walls so that they slice into the gradual incline of the earth, thereby creating a mark or a blemish on the earth that is a result of the Vietnam War. With this design feature, Lin is not actually creating a scar. Rather, she is attempting to create the effect of a scar. Therefore, she is denoting the quality of a scar by placing two walls to slice into the gradual incline and thereby creating a scar in the earth.
Therefore, the sign is essentially denoting the quality of the object, while the object is not present.

The object represents two walls situated below ground level, which is intended to depict the sign, "a journey into the earth." The physical properties of the sign are similar to the physical properties of the event the sign is signifying. The two walls situated below ground level are intended to denote a journey into the earth.

There is apparently only one example of a symbol within the comprised list of design components. A list of 57,939 American names are listed to commemorate those who were killed or missing in action. In this situation, each name represents an arbitrary sign of an individual person. The sign is a soldier who died or is missing in action from the Vietnam War. This sign can be characterized as symbolic for several reasons. There is an arbitrary relationship between the sign and the signifier. The association between the signifier and the signified is determined primarily by convention. Additionally, an interpretant is necessary for the symbol to possess character as a sign (Peirce 1955).

The means by which the names are listed presents an additional set of signs. For example, Lin wanted to "return to the time frame of the war (for the soldier)." Rather than list the names in standard alphabetical order format, Lin, to convey the idea of returning to the time frame of the war, listed the names in the chronological sequence in which they died. The common feature between the sign and the object is the sequence by which the soldiers died and the sequence by which the soldiers are listed. Due to the shared quality between the object and the sign, the sign can be categorized as an icon.
Another aspect of Lin's implementation of the list of names is beginning and ending at the
t vortex of the V in order to convey that the war's beginning and end meet; and therefore,
the war is complete. Here, the common quality between the object and the sign is a sense
of completion. Due to the shared quality between the object and the sign, the sign can be
categorized as an icon.

The last design component to be discussed in light of Peirce's second trichotomy is the use
of polished black granite. This material was employed in order to create a mirror effect.
Here, the object represents the polished black granite, while the sign represents the mirror
effect. This example involves the use of a material to create a certain effect. This sign
illustrates a cause and effect relationship and therefore, this sign is categorizable as
indexical.

ANALYSIS - FIRST TRICHOTOMY

This portion of the analysis is presented in a hierarchical structure, where the general sign
information, the legisign, is presented, followed by more detail-oriented sign information,
accessed through the sinsigns and the qualsigns. An examination of the Vietnam
Veteran's Memorial reveals several possible legisigns. One typology of form in this case
would characterize two retaining walls. The gradual incline could be characterized as
another typology of form. The sinsigns represent the individual design components or
distinguishing characteristics that make the two retaining walls unique to the Vietnam
Veteran's Memorial. Nearly every design feature or design component qualifies as a
Sinsign. The designated list of Sinsigns are as follows: two walls meeting at a 132 degree
angle; two walls slice into the gradual incline; two walls situated below ground level; list
of 57,939 American names; names are 3/4" high etched in white on polished black granite;
names listed in chronological sequence in which they died; names begin and end at the vortex of the V; and polished black granite. Based on the content analysis, there are several design features that qualify under the sign designation, Qualisign. For example, one Qualisign involves the use of polished black granite to create a "peaceful and gentle effect." This sign specifically appeals to the sense of sight. Additionally, Lin addresses the senses of sight and sound by situating the walls below ground level, away from the busy street, "to create a very serene, tranquil place."

ANALYSIS - THIRD TRICHOTOMY

A Rheme of the Vietnam Veteran's Memorial would be a name or all the names that represent a person. The names represent the object, or in this case, the person who died, in the form of characters. An example of a Diasign is the two walls, considered separately form any other design components. The two walls, quite simply represent themselves, in the capacity of a sign. There was much controversy in the period between the design's inception and the construction of the memorial. For example, the opposition interpreted the design components quite differently than the designer had intended. A syllogism represents an effective device for demonstrating a rationalization of how this alternate or advanced interpretation occurs.

Several examples of these syllogisms are as follows:

1) The peace sign is a symbol of the anti-war movement.
2) The shape of the monument resembles a peace sign.
3) Therefore, the monument is a symbol of the anti-war movement.

1) The color, black, is associated with "death" and "sorrow"

2) The memorial that commemorates the Vietnam dead and missing in action is black
3) The memorial symbolizes "death" and "sorrow."

The design decision by Linn to situate the walls below ground level provoked a number of different interpretations. See the following syllogism:

1) An "interment," a "pit," a "ditch," and a "trench" all characterize objects that occur below ground level.

2) The memorial is situated below ground level.

3) Therefore, the memorial could potentially be construed as an "interment," a "pit," a "ditch," or a "trench."

An Argument can also be employed to explore the possibility of an additional Rheme.

1) The letter, V, stands for Vietnam and Veterans

2) Several critics allude to the memorial as a V shape.

3) The V shape of the memorial stands for Vietnam or Veterans
Table III: The Sign Model of Charles Peirce

<table>
<thead>
<tr>
<th>Design Component</th>
<th>Aspect</th>
<th>Qualisign/Sinsign/Legisign</th>
</tr>
</thead>
<tbody>
<tr>
<td>two walls</td>
<td>a type of object</td>
<td></td>
</tr>
<tr>
<td>two walls meeting at a 132 degree angle</td>
<td>a singular object or event</td>
<td>legisign</td>
</tr>
<tr>
<td>two walls slice into the gradual incline</td>
<td>a singular object or event</td>
<td>sinsign</td>
</tr>
<tr>
<td>two walls situated below ground level</td>
<td>a singular object or event</td>
<td>sinsign</td>
</tr>
<tr>
<td>the wings of the two walls form elongated triangles</td>
<td>a singular object or event</td>
<td>sinsign</td>
</tr>
<tr>
<td>list of 57,939 American Names</td>
<td>a singular object or event</td>
<td>sinsign</td>
</tr>
<tr>
<td>names are 3/4&quot; high etched in white</td>
<td>a singular object or event</td>
<td>sinsign</td>
</tr>
<tr>
<td>names listed in chronological sequence/ by death</td>
<td>a singular object or event</td>
<td>sinsign</td>
</tr>
<tr>
<td>names begin and end at the vortex of the &quot;V&quot;</td>
<td>a singular object or event</td>
<td>sinsign</td>
</tr>
<tr>
<td>polished black granite</td>
<td>a singular object or event/mirror effect (illusion of form)</td>
<td>sinsign</td>
</tr>
<tr>
<td>polished black granite</td>
<td>a quality/to create a &quot;peaceful and gentle effect&quot;</td>
<td>qualisign</td>
</tr>
<tr>
<td>two walls situated below ground level</td>
<td>a quality/to create a very serene, tranquil place</td>
<td>qualisign</td>
</tr>
</tbody>
</table>
Table III (Peirce continued):

<table>
<thead>
<tr>
<th>SECOND TRICHOTOMY (object-aspect)</th>
<th>Sign</th>
<th>Index/Icon/Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>two walls meeting at an 132 degree angle</td>
<td>In a site line with the Washington M. and Lincoln M.</td>
<td>Index</td>
</tr>
<tr>
<td>the wings of the two walls form elongated triangles</td>
<td>&quot;to point at the Washington M. and Lincoln M.&quot;</td>
<td>Index</td>
</tr>
<tr>
<td>two walls slice into the gradual incline</td>
<td>&quot;a scar&quot;</td>
<td>Icon</td>
</tr>
<tr>
<td>two walls situated below ground level</td>
<td>&quot;journey into the earth&quot;</td>
<td>Icon</td>
</tr>
<tr>
<td>list of 57,939 American Names</td>
<td>to commemorate those who were killed or MIA</td>
<td>Symbol</td>
</tr>
<tr>
<td>Listed in chronological sequence in which died</td>
<td>&quot;return to the time frame of the war (for soldier)&quot;</td>
<td>Icon</td>
</tr>
<tr>
<td>Names begin and end at the vortex of the V</td>
<td>&quot;Thus, the war's beginning and end meet; the war is 'complete,'&quot;</td>
<td>Icon</td>
</tr>
<tr>
<td>polished black granite</td>
<td>To create a mirror effect</td>
<td>Index</td>
</tr>
<tr>
<td></td>
<td>&quot;to see yourself reflected in the names&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;(the VV) should see their own reflection in the names&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;mirror image doubles and triples the space, to create a 'simple meeting of earth and sky and the remembered names&quot;</td>
<td></td>
</tr>
<tr>
<td>Third TRICHOTOMY (Interpretant -aspect)</td>
<td>Design Component</td>
<td>Argument</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------------------</td>
<td>----------</td>
</tr>
<tr>
<td>list of 57,939 American Names</td>
<td>Names represent soldiers (in the form of characters)</td>
<td>The monument is a symbol of the anti-war movement</td>
</tr>
<tr>
<td>wings of two walls form elongated triangles</td>
<td>The monument's shape resembles a peace sign motif: the color, black, is assoc. with 'death' and 'sorrow.'</td>
<td>The Vietnam Veterans' Memorial is black.</td>
</tr>
<tr>
<td>polished black granite</td>
<td>two walls situated below ground level</td>
<td>The memorial is situated below ground level</td>
</tr>
<tr>
<td>two walls meet at a 132 degree angle</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chapter 8

Conclusion

This paper has implemented the theory of semiotics as a structural framework for understanding cultural meaning in the landscape. This systematic approach has been applied fairly extensively in a number of cultural disciplines, including architecture and urban design. This theoretical perspective currently has no recognized foundation in the discipline of landscape architecture. Therefore, this research establishes a basis of semiotics and semiology in the process of examining the most fundamental aspect of this theory, the sign model. Three classic sign models were explored as they apply to a contemporary landscape. The Vietnam Veteran's Memorial in Washington D.C. is examined in light of the sign models of Sassure and Peirce and the glossematic model of Hjelmslev. The results of this analysis are organized into three separate sections.

In the first portion of this research, a list of individual design features is developed, based on a content analysis of designer's statements in the Washington Post and various design journal articles about the Vietnam Veteran's Memorial. The three sign models were then applied to this list of design components. The data developed from this process then laid the foundation for subsequent sections.

The following section outlines the important criteria for evaluating the analytic value of these models. These criteria can be briefly summarized as the level of depth that each model attributes between form and substance and the clarity of language that defines this relationship. Using these criteria, the analytic value was assessed to determine the assets and liabilities of each model.
Hjelmslev's glossematic model has limited analytic value, as it served merely to distinguish between form and substance, or expression-form and content-form, respectively. Sassure's sign model takes the analysis to another level by defining the arbitrary sign, as the relationship between form and substance that is unmotivated or unnatural. If considering non-sign categories, Sassure outlines two other categories that define the relationship between form and substance. However, the language employed by Sassure for defining these categories was somewhat ambiguous; it was therefore necessary to grasp the meaning of these categories through using the examples that Sassure employs.

The analytic value of Peirce's model ranks high, as this sign model serves to distinguish between form and substance; it creates three categories that define the relationship between form and substance; and it employs clear and concise language to describe these categories. Peirce's model addresses an additional realm of information through the first and third trichotomies. The first trichotomy serves to categorize form at several levels: a general level, an individual level, and as it evokes a quality. The third trichotomy offers additional categories of interpretation, and additional insight into typologies of meaning.

The subsequent section involves a comparative analysis of the three models. Clearly, there is overlap amongst all three models, as each serves to distinguish between form and substance. Apart from this similarity however, there is an obvious hierarchy in terms of the analytic value of each model. Hjelmslev's model lies on one end of the spectrum as demonstrating limited analytic capabilities. On the other hand, Peirce's model clearly offers the most advanced interpretive structure of these three models.
In the process of evaluating the analytic value of the most fundamental aspect of semiotics, the sign model, and determining that this systematic approach, particularly Peirce's model, offers valuable insight into cultural meaning, this research opens the door to a number of other facets within the science. From this basic structure stems a number of additional theories and models that offer different perspectives for understanding cultural meaning in the landscape. For example, Hjelmslev's glossematic model is synonymous with the denotative sign in the theory of connotation and denotation. The theory of connotation and denotation has fairly broad application in the disciplines of urban design and architecture; it would be an interesting perspective for examining cultural meaning in the landscape. Aside from interest, it is necessary to weave the whole spider's web in order to catch the insect. It is necessary to implement all the semiotic theories to gain a comprehensive understanding of cultural meaning (Deely 1990).

The direction of future research is not, however, limited to other theories within the semiotic framework. Another interesting project would involve examining how the models used herein apply to other types of landscapes. This research focused on one landscape example, the Vietnam Veterans' Memorial. Conclusions were made about the analytic capabilities of these models drawing from this one example. By applying these models to other types of landscapes, more accurate conclusions could be made about the capabilities of each model.

As discussed in the introduction, the landscape architect is in the unique position to strengthen the status of cultural meaning in the landscape. Before this can transpire, it is necessary that he or she gain a clear understanding of what constitutes meaning in the landscape. This research demonstrated that the sign model, particularly that of Charles
Peirce offers a solid analytic mechanism for examining cultural meaning. This model or any aspect of semiotics theory could be introduced into the design studio as a means for exposing aspiring landscape architects to different types of meaning.
Cited References


**Cited References from the Washington Post**


Vita

Born: 12/28/66

Virginia Tech
MLA

Bowdoin College
AB