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Semiotics and the Language of Architecture: Transposing a 'Linguistic Analogy'

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Abstract : This paper delves into the realm of semiotics i.e. the study of signs and symbols, to explore linguistic levels within the language of architecture and its role in conveying meaning. Drawing upon linguistic concepts, the postulation of parallels between language and architecture aims to establish a theoretical premise for a semiotic analysis of architectural text. It examines the relations between various structural levels in architecture, explores the structural phase in architecture analogous to that of structural linguistics, and posits further analogies between architecture and natural language. The focus of the research is the transposition of linguistic levels onto architecture, in order to facilitate the analysis of the elements of architecture as visual language, with semiotics providing the framework for understanding how meaning is produced and interpreted in different sign systems. By employing the formal tools of linguistics, the paper aims to understand the structure of architecture as a non-verbal language and uncover valuable insights into a society's cultural values, social dynamics, historical narratives, and sociopolitical statements. It concludes by highlighting the potential for a superlinguistic analysis, summarising the importance of semiotic analysis in enriching the fields of linguistics and architecture, and expanding analytical methods from verbal to non-verbal languages and sign systems.

Keywords: Linguistic levels, semiotics, architecture, structuralism, visual language, semiotic analysis, non-verbal languages.

1. Introduction: Language, Architecture and Semiotics

In broad strokes, language is the complex system of communication that human beings employ in order to communicate: to convey what is on their minds. However, the view of language as a

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collection of sounds, constituting words that make up sentences, that then convey thought, is a relatively mechanistic view of language. Thoughts and ideas are not always in the form of phonemes, morphemes or syntactic strings. A vibrant picture or a sharp glare can sometimes convey more thought or feeling than an inarticulate remark. Although the speech act itself is a physiological and acoustical phenomenon, the underlying psychological properties are what make it language – more than a mere physical event (Derrida 1976). Hence language and communication embodies far more than that which the human vocal apparatus produces on neural command.

Semiotics, also known as semiology, is the academic field that deals with the study of signs, symbols, and their meanings (Chandler 2003). Semiotic methods of analyses are widely used in communication and cultural studies, to explore how signs and symbols convey information, generate meaning, and shape human understanding of the world. Semiotics is applied in various disciplines, including linguistics, to analyse the ways in which meaning is produced, interpreted, and transformed in different contexts, shedding light on how communication, culture, and perception function in human societies.

Semiotics draws heavily on linguistic concepts, partly due to the influence of Saussure, as well as linguistics being an established discipline in terms of the study of sign systems. Language is referred to as the most important of all of the systems of signs (Saussure 1983), and some theorists have even insisted that language is the interpreting system of all other systems, linguistic and non-linguistic (Innis 1986). Language encapsulates a plethora of diverse means of expression, which in the field of semiotics is termed as ‘text’. Although the term appears to privilege written texts, to most semioticians a 'text' is any system of signs in the form of words, images, sounds and/or gestures. Most broadly, the term text is used to refer to anything which can be ‘read’ for meaning. To some theorists, 'the world' is considered to be 'social text' (Chandler 2003).

One of the greatest socio-cultural means of visual expression, one that society is entirely immersed in, is architecture -- the visual

language of society. Much like language, when you are surrounded by something you tend to lose the sense of it. Architecture is a 'social text' that is often overlooked, especially in the realm of language study. It embeds, embodies and reflects the culture of a society (Bonta 1979; Jencks 1977). Architecture reflects the rapid changes that take place in a society and its culture. If we consider the transformations of built forms from the ubiquitous glass box buildings of modern day cities, to the ancient ruins dating back to thousands of years transcending time and culture -- people not only incorporate these changes into their world, they mould the shape of their world in accordance and begin to live within their perceptions (Jencks 1977). Architecture can express cultural values, social dynamics, historical narratives, and even political statements. Architecture has thus been society's language (Grafik 1998), and analysing this visual language can prove valuable insights into the elements of a society.

This paper[1] transposes a linguistic analogy on the language of architecture by positing linguistics levels within the realm of architectural signs, in an effort to set up the theoretical premise for a semiotic analysis of meaning. It posits the different levels formulated in architecture as a semblance of pragmatics, semantics and syntax and explore the analogous structure between architecture and language. Language is a system of signs that convey meaning, while architecture is a system of signs that communicates through spatial expressions, and semiotics is fundamental to understanding how the language of architecture communicates meaning. Both language and architecture have finite elements that can be recombined in infinite combinations to create meaning constructs of text - infinite diversity in infinite combinations symbolising the elements that create truth and beauty. In order to understand the structure of architecture as visual language we the visual signs of architecture as arranged at various linguistic levels, and present its analogy to natural language, therefore setting up the premise for further analysis of architecture using the formal tools of linguistics.

The paper is structured as follows: with a preamble on language, architecture and semiotics in the form of introductory remarks in section §1, section §2 explores the relations between linguistic levels and semiotics, section §3 postulates the structural phase in architecture, with a detailed exploration of analogies with natural language and linguistic structure, section §4 transposes linguistic levels on architecture to set up the premise of future analysis of the language of architecture, section §5 focuses on the possibility of future work in the form of a superlinguistic analysis, and section §6 summarises the paper with concluding remarks.

2. Linguistic models and Semiotics

The stream of semiotics that primarily achieved dominance is that of structuralist semiotics and its post-structuralist critiques derived from Saussurean traditions of linguistic study. It involves analytical methods which are concerned with the application of linguistic models to a much wider range of social phenomena. Such an endeavor aims at searching the 'deep structures' underlying the 'surface structures' of sign systems (Chandler 2003).

Julia Kristeva stated that 'what semiotics has discovered is that the law governing or, if one prefers, the major constraint affecting social practice lies in the fact that it signifies; i.e. that it is articulated like a language.' (Hawkes 1977). According to Saussure (1983), 'nothing is more appropriate than the study of languages to bring out the nature of the semiological problem'.

Semiotics is known to draw heavily on linguistic concepts, either because of the influence of Saussure or because linguistics is a more established discipline than the study of other sign systems. Saussure (1983) referred to language as 'the most important' of all of the systems of signs. Some theorists have even insisted that language is fundamental. Emile Benveniste observed that 'language is the interpreting system of all other systems, linguistic and non-linguistic' (Innis 1986). Claude Levi-Strauss (1972) described 'language is the semiotic system *par excellence*; it cannot but signify and exist only through signification'. Hence, language is almost invariably regarded as the most powerful communication system of all (Chandler 2003).

2.1 Double Articulation in Signs

In terms of natural language, one of the most powerful 'design features' is that which is referred to as 'double articulation' or 'duality of patterning'. Double articulation empowers a semiotic code to form an infinite number of meaningful combinations using a small number of low-level units which are meaningless themselves (Chandler 2003). For example: phonemes are meaningless units themselves but can be configured to comprise an infinite number of meaningful units. i.e. morphemes. Such infinite use of finite elements is a feature which in relation to media in general is termed as 'semiotic economy'. Double articulation is regarded as an essential and defining feature of language responsible for the creative economy of language (Chandler 2003).

The English language, for example, has about only forty or fifty elements of second articulation, i.e. phonemes, and yet these can generate hundreds of thousands of words. Similarly, from a limited number of vocabulary items it is possible to generate an infinite number of phrases or sentences that are subject to the constraint of syntax which governs strictly valid combinations. It is by combining words in multiple ways that we can seek to render the particularity of experience. In fact, if we had individual words to represent each and every particularity, we would need an infinite number of items which would exceed our capability of learning, recalling and manipulating them. Double articulation appears to be specific to human communication systems only (Chandler 2003).

A key semiotic debate persists over whether semiotic systems involving visual signs have double articulation or not. The philosopher Susanne Langer (1951) argued that while visual media i.e. photocopy, painting etc. have 'abstractable and combinatory' units such as lines, colors, shadings, shapes, proportions etc. which 'are just as capable of articulation; i.e. of complex combination, as words', they have no vocabulary units per se with independent meanings:

> "A symbolism with so many elements, such myriad relationships cannot be broken up into basic units. It is impossible to find the smallest independent symbol, and recognize its identity when the

> same unit is met in other contexts… There is, of course, a technique of picturing objects, but the laws governing this technique cannot properly be called a 'syntax', since there are no items that might be called metaphorically the 'words' of a portraiture." (Langer 1951)

Instead of dismissing 'non-discursive' media for their limitations, however, Langer argues that they are more complex and subtle than verbal language and are 'peculiarly well-suited to the expression of ideas that defy linguistic "projection"'. She states that we should not seek to impose linguistic models upon other media since the laws govern their articulation 'are altogether different from the laws of syntax that govern language'.

2.2 Semiotics and Linguistics: Which subsumes which

Saussure (1983) saw linguistics as a branch of 'Semiology':

> 'Linguistics is only one branch of this general science [of semiology]. The laws which semiology will discover will be laws applicable in linguistics... As far as we are concerned... the linguistic problem is first and foremost semiological... If one wishes to discover the true nature of language systems, one must first consider what they have in common with all other systems of the same kind... In this way, light will be thrown not only upon the linguistic problem. By considering rites, customs etc. as signs, it will be possible, we believe, to see them in a new perspective. The need will be felt to consider them as semiological phenomena and to explain them in terms of the laws of semiology.' (Saussure 1983:16)

On the other hand, Roland Barthes (1967) declared that 'perhaps we must invert Saussure's formulation and assert that semiology is a branch of linguistics'. Although many semioticians accept Saussure's notion, however, locating linguistics within semiotics theoretically, makes it difficult to avoid linguistic models in exploring other sign systems. Semiotics has been found to commonly refer to visual signs or media, i.e. films, television, advert posters etc. as 'Texts' and to 'reading television' (Fiske 1978)

Such media are regarded by some semioticians as being in some respects as 'languages'. The issue primarily revolves around

whether such media is closer to what we treat as 'reality' in our everyday world of experience or whether they have more in common with symbolic systems. However, semioticians such as Chandler (2003) forewarn us of trying to force all media into a linguistic frame work.

Contemporary semioticians study signs not in isolation but as part of semiotic 'sign systems'. They study how meanings are made: they are concerned not only with communication but also with the construction and maintenance of reality.

2.4 Semiotics and Linguistic Levels

Semiotics and the branch of linguistics known as semantics have a common concern with the meaning of signs, however, it has been argued that whereas semantics focuses on *what* words mean, semiotics is concerned with how signs mean (Sturrock 1986). Semiotics embraced semantics, along with the other traditional branches of linguistics:

Semantics: the relationship of signs to what they stand for

Syntactics (or *syntax*): the formal or structural relations between signs

Pragmatics: the relation of signs to interpreters (Morris 1970)

Thus we find, semiotics is inherently related to linguistics, at the heart of which lies (Chandler 2003):

- Theory and analyses of signs.
- Signifying practices.

Hence, once we enter the realm of semiotics, 'anything' can be 'read' as long as it carries meaning. Semiotics can be applied to anything which can be seen as signifying something – in other words, to everything which has meaning within a culture.

In this paper, we have chosen to read a text within the semiosphere of culture produced by the code of architecture – the visual language of society. The primary reason behind such an endeavor is based on the fact that architecture to a certain extent can be propounded as a language – a cultural language.

Architecture is one of the greatest means of visual expression of a society and its culture. The language of architecture embeds embodies and reflects the ideas, beliefs, desires, aspirations or the culture of a society. It reflects the rapid changes that take place in culture and society whereby people not only incorporate the change into their world, they mould the shape of their world in accordance and begin to live within their perceptions. Architecture has thus been society's visual expression; its built forms the utterances. Architectural language ingrains and imprints the culture and beliefs of a society which in turn can be 'read' by the people. Therefore, analysing this visual language can prove valuable insights into the cultural elements of a society.

Since the person who creates the work of architecture ingrains the text and controls it, they have certain aspirations as to what they want to say and what they want perceived – this leads to a problem of the signifier and the signified - the two components of the sign according to the Saussurean school of thought and the key concept of semiotics. As semiotics is concerned with the nature of signs and the rules governing their behaviour within a system; it is thus involved with signification, or the production of meaning, which is accomplished via the relation between the signifier and the signified. Hence semiotics provides the perfect tool with which a "linguistic analogy" can be transposed to architecture in order to study the visual language of society, thereby drawing clues into the beliefs, visions, dreams, aspirations and cultural elements that incite, inspire and drive this society.

In the following sections we delve into functionalism in architecture and the need for a paradigm shift in analysing built form, leading to the exploration of the analogous linguistic levels in visual signs.

3. The 'Structuralist' Phase of Architecture:

Similar to linguistics architecture suffered a phase known as functionalism analogous to structuralism, at the expense of semantics: in other words, architects have come to realise that the negligence of meaning in any built form can be a cause of its downfall (Nesbitt 1996).

According to Geoffrey Broadbent (1977), buildings invariably carry meaning and hence it is important to understand the processes by which such meaning can be ascribed: creating meaning intentionally prevents accidental readings, or an 'aberrant decoding' (Eco 1976).

In architecture, functionalism failed in its attempt at a machine-like and meaning-free architecture because of architecture's inescapable semantic dimension (Nesbitt 1996). The study of semiotics provides an effective way to approach the question of meaning in the language of architecture whereby, two dimensions of the system have been identified: *semantic* and *syntactic* (Peirce 1974). These correspond to Ferdinand de Saussure's (1983) *associative* (paradigmatic) and *syntagmatic* which are roughly equivalent to meaning and structure.

Although the language of architecture is devoid of the social contract of natural language: a set of conventions that allows the linguistic sign to function and produces consensus about meaning, nevertheless built forms can also be read as the signs de Saussure intended.

3.1 Reading the Social Text of Architecture

This realisation that built forms can be 'read' for meaning was revolutionary, in that architecture designed with deliberate meaning fast began displacing functionalism (Nesbitt 1995). This is not to say that architecture, or its works have always been purely functional. For example, the great eighteenth-century picturesque landscape gardens such as Stourhead in Wiltshire, which, with its splendid arrangement of temples, grottos and bridges, peering through the trees round a lake, actually 'tells' a story, or rather two separate stories simultaneously: The individual buildings symbolize certain incidents in the life of Henry Hoare—the maker of the garden—together with certain events in Homer's Iliad. Hoare was drawing parallels between the vicissitudes of his own life and those of Aeneas (Woodbridge 1971, Broadbent 1977).

Thus architecture designed with deliberate meaning has been rapidly taking over from functionalism. In fact, many an architect

consider only meaningful built forms to be products of architecture. Previously when Baird first wrote on the Theory of Signs as applied to architecture (Baird 1967), it was received with much criticism and hostility as buildings were supposed to be merely functional – designed with machine-like precision with or according to the latest available technology e.g. steel frame, concrete frame etc. (Broadbent 1977). However, times have changed, to the extent that serious conscious attempts have been made to give meaning to the buildings of the past, where meaning had not even been considered previously.

The functionalist ethic however, has prevailed for so long that it is considered morally right. The word 'functional' has got attached to rectangular buildings of steel and concrete. But as Broadbent asserts, these buildings themselves have become symbols of the 1920s, and are no longer functional as "They prove to be some of the worst buildings in history in terms of fitness for purpose". (Nesbitt 1995, pg-125).

Some of these buildings have been turned into museums, and most of the pioneering functionalist buildings of the 1920s have been altered from their original form to make them more fit for habitation.

According to architects, *all* buildings symbolize or carry meaning. As Pevsner writes in A History of Building Types: 'every building carries associations in the mind of the beholder whether the architect wanted it or not'. (Nesbitt 1995, pg-125)

Therefore,

> 'just as Chartres Cathedral carries meanings, so does the meanest garden shed.' (Nesbitt 1995, pg-125)

Architects realised that, if all buildings inevitably carry meaning then exploring how it does so will enable them to understand built forms better and in turn enable them to produce better and more meaningful forms—forms with which they will be able to symbolize or express something.

4. Linguistics Levels in the Realm of Architecture

The Theory of Signs by Ferdinand de Saussure, published in The Course in General Linguistics (1959) and Charles Peirce's voluminous papers (1860-1908) (Hartshorne and Weiss, 1974) provide the basic theory of signification: how one thing stands or reminds us of another—the core theory of semiotics. Charles Morris, a disciple of Peirce, sets the basic divisions of semiotic terminology into three linguistic levels (Morris 1938):

- Pragmatic
- Semantic
- Syntactic

The Pragmatic level deals with the origins, uses and effects of signs within the code in which they occur.

The Semantic level deals with the signification of signs in all modes of signifying—the ways in which they carry meaning.

The Syntactic level deals with the combination of signs without regard to their specific significations or their relations to the code in which they occur.

Morris envisaged these three levels as situated within each other: The basic study of signs will be a pragmatic matter with the study of meaning or semantics as a part of this and the study of syntax or the structure of sign systems will in turn be part of semantics (Broadbent 1977).

In sections §4.1-3, these linguistic levels are explored in the realm of architecture:

4.1 Pragmatics

Architectural Pragmatics consists of looking at all the ways in which architecture, as a sign system, actually affects those who use buildings (Broadbent 1977). Architecture is probably, at the pragmatic level, the most complex sign system of all. Words act on one sense at a time—we listen or we read them. Music affects only hearing; whereas architecture affects a wide range of senses

simultaneously: seeing, hearing, smell, heat/cold, and also the esoteric senses as equilibrium and sense of position and movement (kinaesthetics) (Nesbitt 1995).

Hence, if architecture means something to each of the senses, we can question how the messages get through: Claude Shannon calls it information channel—like the telephone lines through which messages are transmitted (Shannon and Weaver, 1949). Anything which conveys information physically, a phone, a book, a drawing, a building, is an information channel. Any building is constantly sending out messages—visual, acoustic, thermal etc., -- which can be received by one of the senses and decoded according to the observer's personal experience. It is a perceptual matter, so different people react differently, according to what they consider important, and according to which level their senses are stimulated.

In analysing architecture pragmatically – in terms of its effects on people – physiologists, psychologists and physicists suggest certain norms for human comfort in terms of lighting, temperature, noise, and other levels. They have shown that most of us will be satisfied at certain levels, comfortable at others, and delighted or euphoric even at others again. Such knowledge can be used to generate a kind of architecture based on known requirements for environmental control, by designing buildings specifically as environmental filters. The psychologists have also moved towards a more conventional analysis of what things mean to people—thus moving towards semantics.

This work has taken a number of forms:

1) Attempts to measure directly what people say about cities, individual buildings or rooms—their verbal responses.
2) Attempts to measure the attitudes underlying what people actually say.

Such work covers the whole range of physiological, psychological and social reactions to buildings and thus some of it is concerned with what it means to people. A range of techniques has been used

in this research such as the Osgood Semantic Differential, which enable us to plot with some accuracy the meanings which people attach to certain concepts in three dimensional 'semantic space'. R.G.Hershberger tried to establish a basic set of scales for such work (Hershberger, Sanoff and Cohn 1972), C. A. Acking and Basil Honickman (1969) devised scales and put them to different uses. Acking projected photographic slides of interiors to his subjects and asked them to mark them against his concept scales. He then analysed these scales and measured feelings of comfort and security, estimation of social status, physical appearance, degree of originality etc. Honikman also asked his subjects to look at pictures of rooms and rate them against scales: bad/good, dirty/clean, dark/light etc.

One problem with Semantic Differential, as many experimenters have found, is that the scales in use are set up by the experimenter. Hence, the scales may themselves suggest things to people which they may have otherwise not thought of – a problem that appears to plague any social survey. On the other hand, the scales may also ask people to think of things in ways that they may find impossible. The Repertory Grid technique developed by George Kelley was designed to overcome such objections (Kelley 1963). Originally it was meant to investigate what people thought about other people. In this technique the subjects were first asked to write onto cards the names of people familiar to them: father, mother, sister, brother, favourite teacher etc. These cards were then systematically grouped into three where in each group two people shared a particular quality which the third person did not. These qualities were listed as constructs such as friendly, helpful, intelligent, etc. and the constructs were then graded according to the level of importance placed on each by the subject. Honickman and others have adapted this technique to establish constructs against which people 'construe' the built environment (Honickman 1973).

But there is a fundamental problem in directly applying results of such research. For Example, if we could estimate – for a particular

population – a particular room type and house form, or whatever was overwhelmingly more popular and build only that type, it would become boring and monotonous to the point that people who thought it fashionable would no longer prefer it. However, the Semantic Differential and the Repertory Grid technique may be useful for different purposes: in establishing the degree to which architect and client, student and teacher, or even architect and psychologist agree or disagree on fundamental issues concerning architecture.

4.2 Syntax

Syntax is concerned with the structure of sign-systems such as the ways in which words are grouped together to form sentences (Crystal 1987).

Saussure actually draws an architectural analogy to show how the syntactic (he uses 'syntagmatic') and the semantic (which he calls 'associative') dimensions interrelate:

> 'From the associative and syntagmatic point of view a linguistic unit is like a fixed part of a building, e.g. a column. On the one hand the column has a certain relation to the architrave that it supports; the arrangement of the two units in space suggests the syntagmatic relation. On the other hand if the column is Doric, it suggests a mental comparison of this style with others (Ionic, Corinthian, etc.) although none of these elements is present in space; the relation is associative.'(de Saussure 1983, p.122)

The study of syntax received a tremendous boost in the 1950s when Noam Chomsky first published his 'Syntactic Structures'. Chomsky (1957) suggested that each of us possesses an innate capacity for generating sentences. We possess certain understandings of the world which he calls 'deep structures' which underlie every sentence it is possible to utter (Chomsky 1965). They are raised to form the 'surface structure' by which we express our ideas by means of certain generative rules.

They give us a basic sentence form such as:
'The boy sees the girl.'

But before we actually utter it we can also apply certain transformational rules such as:

transformation into the passive: 'The girl was seen by the boy.'

into negative: 'The boy did not see the girl.

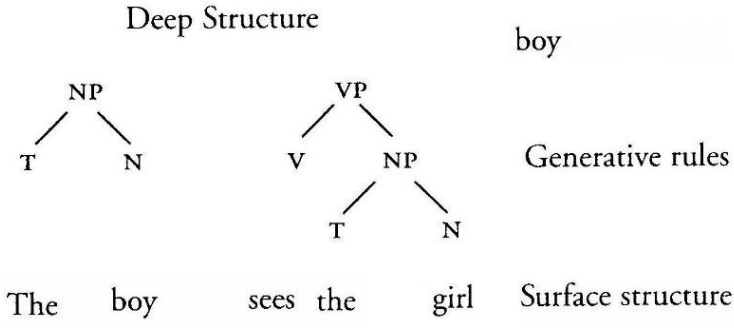
into interrogative: 'Did the boy see the girl?'

into affirmative: 'The boy did see the girl.'

into predictive: 'The boy will see the girl.'

and so on.

Like other syntacticians before him Chomsky analysed his sentences into forms such as noun (N), verb (V), Noun Phrase (NP)- -Noun Phrase: The + Noun; Verb Phrase (VP): V + NP, and so on. A basic sentence therefore can be analyzed as follows:



(Diagram 1: Source: Nesbitt '96:130)

The concept of a 'deep structure' (though not in the same terminology) can be traced as far back as 1904 whereby, the English linguist C.T. Onions (1970) suggested that all our relations with the world outside ourselves could be expressed in one of the following forms:

He waits (he is merely there, in the environment)

He is a Frenchman (he has certain describable characteristics)

He eats ortolans (he has a direct, physical effect on other things in the environment)

He gives me some (he engages in a transaction with me)

He pleases me (his actions have an emotional effect on me)

Chomsky, on the other hand, concentrated on exhaustively describing the workings of his generative and transformational rules in the form of algorithms—fixed sets of rules of a kind familiar to computer scientists, such that, provided they are fed with the correct data they will automatically generate a 'correct' solution.

Some architects have tried to work in this way. Peter Eisenman (1972), for instance, has drawn directly on Chomsky to describe the way in which he has personally developed a complex of rules for the generation and transformation of architectural forms. In House II (diagram 2), a typical case, Eisenman started with a cube of space. He then sub-divided it with a 3x3 grid to give a total of nine 'compartments' on each floor. The notional grid could then be realized physically by rows of columns, a system of parallel walls, or both. Eisenman decided on a further diagonal division of his centre with a wall 'system' running towards it from one side and a column 'system' from the other. He looked at the negative spaces left between his walls—which could be allocated to certain living activity. Eisenman's primary concern was with the abstract perfection of his system once the form had been determined the functions might follow. He continued this ruthless pursuit of abstraction to such an extent that gradually the 'system' demanded an oblong slot along the centre of the master bedroom. The beds, in which case, have to be arranged on either side, suggesting that those who use them are expected to lead such disciplined lives that they will never risk life and limb by impulsively trying to cross the gap (Alexander 1979).

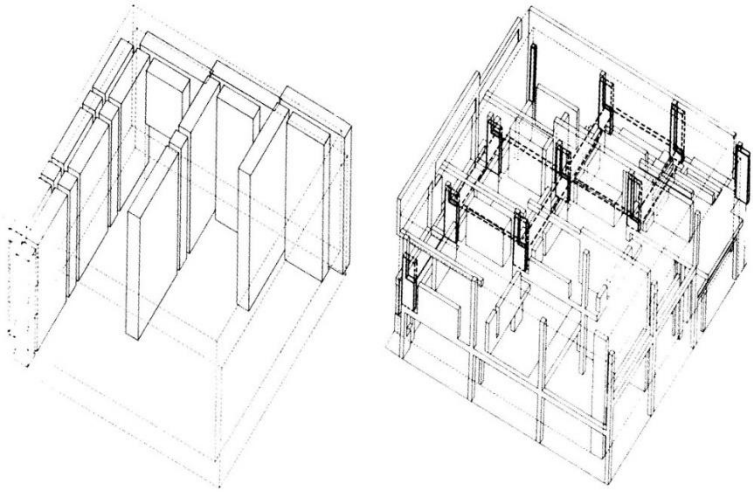


Diagram: Eisenman developed his House II design according to a set of syntactic rules. He divided the basic "cube" of space by a 3 x 3 grid which could be "built" with columns or parallel walls. He decided to use both systems, meeting against a diagonal division of his cube. He then looked at "negative" spaces thus formed and allocated them to various functions of living. But the results look like a Le Corbusier Villa

(Diagram 2: Source: Alexander '79:313)

Eisenmann is not the first architect to deal with such complex syntax. Towards the end of his life, Sir Edwin Lutyens (1942) was working on such a rigorously structural piece called an 'Armature of Planes' – which is described as:

> 'a building made up of solids and voids…which…are geometrically related… to state this relationship it is first of all necessary to visualize space…as divided along three planes, mutually at right angles, into a number of cubical…cells. One series of planes is horizontal… the two other series…. are vertical, at right angles to one another.
>
> This visualization of a space divided in all directions becomes an "armature of planes" or foundation of three-dimensional relationships. It should be thought of not as a grid or frame of three intersecting set of lines…but as almost invisible "lines of

> cleavage", the whole being like a glass cube made up of smaller glass cubes.' (Nesbitt 1996:131)

A Venezuelan architect, Domingo Alvarez, demonstrated this quite independently: what it would be like to be in Lutyens' 'glass cube'. Alvarez found it difficult to describe to his students just what he meant by 'space' so he made small mirror lined boxes to demonstrate this. The experience of being inside Alvarez's glass cube brings one nearer to inhabiting a pure spatial syntax than any other kind of built reality ever could (Alexander 1979).

Yet even this does not diminish the fascination for spatial syntax. Lionel March and Philip Steadman (1976), for instance, demonstrate a whole range of possibilities for describing architecture in such syntactic terms in the 'Geometry of Environment' and most of those concerned with computer aided designs find themselves dealing, sooner later, with grids, lattices and with systems of coordinates for locating points in space. Some such as William Hillier and Arthur Leaman (1976) believe that the whole of architecture can be explained in terms of the rules by which individual spaces can be clustered together, whilst Steadman and William J. Mitchell explain with equal conviction—the rules by which whole spaces can be divided up. Such work with severe mathematical basis goes to show what kind of blind structural 'planning' is possible.

However, even if syntactic rules are important for the analysis of underlying 'structures' in architecture, according to Broadbent (1977),

> "those who pursue syntax for its sake at the expense of semantic dimensions, finally are doomed to the same kind of failure as 'functionalists'".

Thus except for Alvarez, everyone who has tried to build a 'syntactic' architecture – architecture of pure syntax devoid of semantic content – has stumbled against the reality of three dimensional 'expression'. Architects came to the realization that semantic implications could not be ignored, which is why they have turned to semiotics whereby many semioticians have concentrated their attention primarily on the semantic dimension.

4.3 Semantics

One of Saussure's most basic concepts was anticipated by Vitruvius (Morgan 1914) who wrote:

> '...in all matters, but particularly in architecture, there are those two points: the thing signified and that which gives it significance. That which is signified is the subject of which we may be speaking and that which gives it significance is a demonstration of scientific principles.' (Cited in Nesbitt 1996:133)

Saussure's concept of a sign is exactly like this: he thinks of it as a two-part entity consisting of a signifier and a signified, formally united by a social contract. The signifier in this case consists of some material representation —the speech sounds, marks on paper etc. from which maybe a word is formed, whilst the signified consists of the concept to which the word refers. The relationship between word and concept is quite arbitary e.g. the English call a certain animal 'bull' while the French call it 'boef' and the Germans call it 'ochs'—a particular animal which happened to be grazing on the Franco–German border might well be called by both names, simultaneously.

However, this relationship between signifier and signified is conventionally arbitrary in that it must be respected by everyone. No one can change it unilaterally: a social contract exists between all English speaking people that the word 'bull' must be used to refer to a certain animal. If anyone uses another word for 'bull', or coins a new word for that purpose they will have broken the social contract. This is one of the fundamental differences between language and architecture—with a few exceptions no such social contract exists to the meaning of architecture.

Others like C.K. Ogden and I.A. Richards (1966) have developed Saussure's concept of sign in various ways, for they felt his two-part entity was rather inadequate. They took his signifier (calling it symbol) and his signified (which they called thought or reference) and added a third element, the referent, which is the actual object, person or event to which one is referring, hence their semiological triangle:

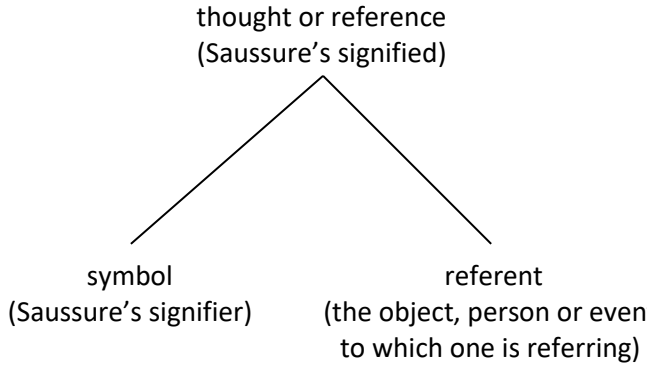


Diagram 3: (Ogden and Richards 1966)

Although this has become popular in linguistic circles, yet some like Louis Hjelmslev felt that this too was inadequate. He expressed the sign as a four-part structure which takes the following form:

Hjelmslev:	Saussure	Ogden and Richards:
form	signified	referent
Plane of content:	substance	thought
Plane of expression:	substance	reference
form	signifier	symbol

(Diagram 4: Hjemslev 1953, Nesbitt 96:134)

There may be advantages in splitting the concept which links signifier and referent in this way, because it allows for a process of encoding between one's immediate thoughts about the object and the way we choose to refer to it by means of words or other signifiers.

Buildings too can be read as signs – in the way Saussure intended. The possibilities for a semiology of architecture was first explored by Italian theorists such as Carlo Ludovico Ragghianti (1937) and Roberto Pane (1948). Their successors have had serious disagreements as to the levels at which concepts from the analysis of language should be drawn into the analysis of architecture. Renato De Fusco and Maria Luisa Scalvini (1970) equated the

exterior of a building (Palladio's Rotunda at Vicenza) with Saussure's signifier and the interior with his signified. Umberto Eco (1968), however, took a different view. For him the signifier could be the staircase and the act of walking up the signified. Broadbent feels both these interpretations add something of value to architectural debate, and suggests a third, following Ogden and Richards, that any building, at any time can be the signifier, signified, or referent—or all three simultaneously (Broadbent 1977). For example, the Parthenon exists, as a referent, an object, still standing on the Acropolis in Athens; it also exists as a signified—by photos, diagrams and words. For many people still it is also a signifier of all that was best in ancient Greek democracy. And then again it could be seen as a 'symbol' of perfection in architecture which never actually existed.

Certain theorists including Eco were not pleased with the extension of Saussure's sign to include the referent (Eco 1968). They show that there is no necessary relationship between a signifier, a signified and a referent. However, even the most extreme metaphysical philosophers admit that a real physical world actually exists. Sign systems are not of much use if they do not refer to it.

But Eco points out - a particular sign vehicle (signifier) may signify a fictitious object (such as the unicorn) or merely a set of abstract thoughts (signifieds) for which no object exists. This problem can be solved by simply taking the referent as a 'thing'--- what is or may be an object of perception, knowledge, or thoughts. According to Ogden and Richards the referent is a thing which can be real or imaginary. Eco's definition of the referent being a whole class of things rather than one particular example, deliberately confuses two ordinary terms in semiotics and linguistics related to meaning: connotation and denotation.

Eco says,

> 'The difference between connotation and denotation is not (as many authors maintain) the difference between 'univocal' and 'vague'…signification…What constitutes connotation as such is the connotative code which establishes it,' (Eco 1968:55)

Mario Pei (1966) offers much simpler definitions:

Denotation—the meaning which a form has for all who use it. E.g. the intrinsic meaning of 'water'.

Connotation—the special shades of meaning that a form has for the individual user. E.g. profits—good connotations for the management, and bad connotations for the labour leaders.

Although Eco's theory is 'interesting and stimulating' it tends to complexify what is straight forward and he dismisses many useful concepts.

Pierce's semiotic is much more complex than Saussure's semiology. Pierce, at one stage identified 59,049 (3^{10}) different classes of signs, which he later reduced (Peirce 1965). There are innumerable references to them in various collected papers of his but are difficult to extract as the papers are confused, ambiguous and at times self-contradictory. Pierce presented us with two other difficulties: He was a 'trichotomiser'---grouping everything taxonomically into sets of threes and he constantly flouted Saussure's social contract, coining new words or term for every concept which occurred to him—e.g. firstness, secondness, and thirdness; abstractives, concretives, and collectives; Phemes, Semes, and Delemes; Potisigns, Actisigns and Famisigns; qualisigns, sinsigns and legisigns.

Amongst his entire panoply of trichotomies, the classification of the sign into Icons, Indices, and Symbols has proved to be the most useful. The Piercian definitions are as follows:

> 'An icon is a sign which refers to the Object that it denotes by virtue of certain characters of its own and which it possesses just the same, whether any such object actually exists or not.' (Peirce 1965:295)

A symbol is a

> 'sign which refers to the object that it denotes by virtue of law, usually any associations of general ideas, which operates to cause that symbol to be interpreted as referring to that object.' (Peirce 1965:298)

An index is a sign, or representation

> 'which refers to its object not so because of any similarity of, or analogy with it, nor because it is associated with general characters which that object happens to possess, but because it is in dynamical (including spatial) connection, both with the individual object on the one hand and with the senses on the or memory of the person for whom it acts as a sign.' (Peirce 1965:299)

Pierce's icon is an object which exists on its own right but which has certain properties in common with some other objects, and so can be used to represent that object. Maps photos and algebraic signs are icons in this sense, and even architects' drawings or blueprints. Unfortunately, Pierce's definitions of icons are so ambiguous that semioticians have attempted to decipher what he actually meant by an iconic sign. Many experts such as Eco (1968, 1976), Broadbent (1977) and others have expressed themselves in this particular debate.

Thus in terms of exploring these concepts in the realm of architecture we begin with the most unambiguous: Pierce's idea of an index as a sign, which indicates some individual object or circumstance in terms of a physical relationship, e.g. - a pointing finger shows which way to go; the weather-vane indicates the direction the wind is blowing.

Therefore, in terms of buildings as indices, these can be art galleries, museums, exhibition pavilions and even houses which are planned about a set route. Such buildings show us which way we should go in moving round them—as such they are indices. The functional building was also meant to be an index, showing by its form the functions which it houses e.g. oil refinery, or nuclear power station, but most 'functional' buildings are just symbols of modernity.

Pierce's symbol is straight forward i.e. a badge that signifies someone as belonging to an organization. According to Pierce ordinary words are symbols in this sense. A church, for instance, symbolizes Christianity. Pierce's symbol has the special facet that whatever relationship exists between the symbol and the thing it symbolizes has to be learned, both by the user of symbols and those to whom the meaning is important. Buildings can easily be symbols in Pierce's way—the Gothic cathedral is a symbol of the Christian

faith. Most of the people of the western cultures share a social contract as to the conventional form of the church.

Pierce feels that any drawing, model, or photograph of a building is an icon, the building itself too may be an icon—if it 'reminds' us of something else. Certain buildings were designed by visual analogy with forms from nature—e.g. Le Corbusier's crab-shell roof at Ronchamp; or the hands in prayer analogy which suggested the roof-form of Wright's Chapel at Madison, Wisconsin. Such buildings can very obviously be iconic signs of the forms from which they are derived. One of the clearest iconic signs is the duck-shaped poultry stand at Long Island (Broadbent 1977, Nesbitt 1996).

Charles Jencks (1977) suggests that icons such as these are too simple, banal, and direct, and their use can lead to a 'univalent' architecture which would be boring. Jencks chooses the Casa Battlo of Antoni Gaudi as an example of architecture which carries a rich variety of meanings on a number of levels. The first two floors have a curious colonnade formed by a visual analogy with human bones. The main façade, with undulating forms in brown, green, and blue ceramics is obviously an icon for the sea, and the boldly tiled roof Jencks shows 'looks like' a dragon. It is dominated by a pinnacle with a Christian cross. Bones, sea and dragon are all icons at the level of simple visual analogy but the whole thing Jencks points out is an expression of Catalan nationalism in which the dragon of Castille has been slain by St. George. The bones represent the martyrs. This obviously is a higher level of meaning crossing into illusionism, which is not directly understood from the simple visual analogies. This is metaphor. Metaphors are used for deep subtle meanings rather than for simple visual analogy.

There is yet another kind of architectural icon – the kind of similarity between buildings which depend on some underlying structure, rather than on simple observable visual likeness. Probably the clearest example of this is shown by March and Steadman who took three structures by Frank Lloyd Wright – the Life House, the Ralph Jester House and the Vigo Sundt House and showed that despite obvious differences in appearance—the first is based on rectangular geometry, the second on circular and the third on triangular—there was a clear pattern of relationship between living

rooms and terrace, terraces and pools, bedrooms and bathrooms etc. which underlay them all. Thus each was an icon for the other.

This concludes our exploration of these three levels in the realm of architecture whereby we can infer:

1) Pragmatics of meaning can and have had effects on how buildings were designed. Any attempt to design buildings consciously for the effects they have on their users is in a sense a pragmatic affair. This was true of eighteenth century picturesque; it is also true of recent architecture in which sensory effects on people have been taken into account.

2) There has been a considerable traffic in architectural syntactics. Any attempt to create architecture according to geometric system obviously is syntactic in this sense.

3) *All* buildings *carry* meaning in the semantic sense. Acceptance of this fact can lead to better built forms.(Broadbent 1977)

The various concepts from Saussure, from Pierce and from others are helpful in finding how meanings can be conveyed with greater precision in built forms. Suppression of meaning in the built forms in the functionalist era led to a phenomenon akin to the implosive linguistic models, forcing architects to explore the semantic dimension of the language of architecture.

5. Future Work

In the previous sections of this paper, we have set up the theoretical premise of various linguistic levels in the language of architecture. Within these levels the multimodal spatial signs of architecture convey enculturated meaning akin to the multilayered meaning of natural languages. Analysing the signs of architecture according to linguistic levels allows us to take a multilevel approach in exploring the visual sign system and transpose linguistic modeling in order to undertake a formal linguistic analysis. We can then propose an analysis of the language of architecture by transposing formal tools of linguistics-- a superlinguistic analysis of a medium of communication that is beyond mere linguistics elements. Superlinguistics is an emerging sub-field of linguistics that applies formal linguistic tools of analysis to study objects beyond language.

Such an analysis can enrich our understanding of how meaning is constructed and expressed in human meaning systems involving non-verbal elements. Conversely, for the field of architecture such an analysis can provide a unique perspective in understanding the meaning embedded in the structure, and can take the analysis beyond conducting a mere structural autopsy of built form.

6. Conclusion

In this paper, we have explored how a 'linguistic analogy' can be transposed onto the language of architecture via concepts of semiotics, thereby establishing a theoretical premise, based on which we can proceed to commence semiotic analysis of any chosen text from the realm of architecture. In order to conduct a semiotic analysis of an architectural piece, we can then refer to the various linguistic levels and explore the meanings created by the text in a multidimensional way, instead of resorting to a bare structural autopsy. Such an analysis will enrich the field of architecture and also serve as feedback on analytical methods for semiotics and linguistics, extending the field of analysis from verbal to non-verbal languages and sign systems beyond that of natural languages.

Note

[1]This paper is based in part on the research conducted by the author under the supervision of Professor Dr. Hakim Arif, in the Master of Arts thesis as submitted to the Department of Linguistics, University of Dhaka.

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