

INTRODUCTION

A Plain Man's Guide to the Theory of Signs
in Architecture
Geoffrey Broadbent

Geoffrey Broadbent's article from 1977 is a part of the postmodern critique published by the British journal *Architectural Design*. Broadbent, an architect and educator, presents the argument that buildings carry meaning and that architects should understand the processes by which such meaning is ascribed. Creating meaning intentionally, he claims, prevents accidental readings. He argues, for instance, that modern functionalism failed in its attempt at a "machine-like and meaning-free" architecture because of architecture's "inescapable semantic dimension."

The study of semiotics (the system of *signs*) is one way to approach the question of meaning. Charles Sanders Peirce identifies two dimensions of the system: *semantic* and *syntactic*, corresponding to Ferdinand de Saussure's *associative* and *syntagmatic*, which are roughly equivalent to meaning and structure. Broadbent finds the semantic aspect of the system more crucial for architecture, and offers as examples of semantically-oriented work the postmodern historicism of Robert Venturi, Michael Graves, Robert Stern, and Charles Moore.

Like Diana Agrest and Mario Gandelsonas, Broadbent recognizes the importance of the "social contract" in language; it is a set of conventions that allows the linguistic *sign* to function, and produces consensus about meaning. Nevertheless, Broadbent writes that the social contract is absent from architecture and that this absence is what differentiates architecture from language. Paradoxically, he maintains that buildings can "undoubtedly" be read as *signs* in the way de Saussure intended.

Broadbent provides an overview of the fields of linguistic and communication theory, as well as behavioral and environmental psychology. In addition to the semiotic approaches of Peirce and de Saussure, he presents numerous, dissimilar theoretical paradigms including those of Noam Chomsky, Louis Hjelmslev, and Charles Kay Ogden and Ivor Armstrong Richards. He endorses

the latter's addition of the *referent* to the signifier/signified pair. Broadbent rightly points out the appeal for architects of Chomsky's structuralist theory concerning the formation of expression using the generative and transformational rules of grammar. The potential of these syntactic ideas as a basis for a rational design method is clear, and their impact can be seen in Italian neorationalism (ch. 7) and in the syntactic work of Peter Eisenman. The syntactic influence lingers on in architecture school pedagogy today.

Despite his interest in the linguistic analogy, Broadbent notes that architecture should not just be read visually. Unlike Agrest and Gandelsonas's essay, he stresses that architecture affects all of the senses. The importance of the body in architecture is further investigated in chapters thirteen and fourteen.

Ekscerpt iz: Kate Nesbitt (ur.), *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*, Princeton Architectural Press, New York, 1996.

GEOFFREY BROADBENT

A PLAIN MAN'S GUIDE TO THE THEORY OF SIGNS IN ARCHITECTURE

Geoffrey Broadbent offers a considered discussion of architectural semiotic, in which he demystifies this jargon-ridden and complex discourse and presents a succinct argument for architects once again intentionally designing meaning into their buildings.

It is ten years now since George Baird wrote the first article in English on the Theory of Signs as applied to architecture.¹ He met with a fair amount of hostility from people like Reyner Banham,² who felt that in suggesting that buildings "carry" meaning, Baird was simply advocating a new, elitist monumentality. Like the rest of us, Baird's critics had been brought up to believe in a "functional" architecture, designed with machine-like precision around a particular brief, and realised three-dimensionally according to the latest available technology: in steel frame, concrete frame, or—Banham's preference at the time—some kind of inflatable. Both articles were later reprinted in the first book in English on the subject—*Meaning in Architecture*—edited by Baird and Charles Jencks.³ That too met with a fair amount of hostility when it was published in 1969. But times have changed. It is perfectly possible now for people like the Venturis,^{4,5} Charles Moore,⁶ Brent Brolin,⁷ Charles Jencks,⁸ and many others to suggest that architecture designed with deliberate meaning is taking over from functionalism and to be taken seriously in saying so. There are at least three new books coming out on the subject—by [Juan] Bonta,⁹ by Broadbent, Jencks and Bonta,¹⁰ and by Broadbent and [Thomas] Llorens¹¹ so obviously it is something of a growth industry. Of course, there had been conscious attempts to give meaning to buildings in the past. The clearest probably were the

great eighteenth-century picturesque landscape gardens such as *Stourhead in Wiltshire*, which, with its splendid arrangement of temples, grottoes, and bridges, peering through the trees around a lake, actually "tells" a story, or rather two separate stories simultaneously. The individual buildings symbolise certain incidents in the life of Henry Hoare—who made 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.¹²

But the functionalist ethic has been with us for so long that most people still have a sneaking feeling that it was morally "right." Architects such as Le Corbusier,¹³ [Walter] Gropius,¹⁴ and Mies,¹⁵ not to mention historians such as [Sigfried] Giedion,¹⁶ [Nikolaus] Pevsner,¹⁷ and [J. M.] Richards,¹⁸ had told us most forcibly that architecture shouldn't be a matter of mere superficial styling, applied cosmetically to the outside of buildings. Actually the word "functional" became attached specifically to steel and concrete frame buildings, simple and rectangular in form and clad in white stucco, grey concrete, or glass. The curious thing is that when one analyses them according to any sensible concept of "function" (the best one I know is still Bill Hillier's:¹⁹ that buildings enclose space in ways which may facilitate or inhibit a particular range of activities, filter out the external environment, consume resources and act as cultural symbols, whether one likes it or not. See my article in Dennis Sharp's new book on *The Rationalists*²⁰) they prove to be some of the worst buildings in history in terms of fitness for purpose, solar overheating, heat loss, noise penetration, costs in use, and so on. It so happens that hardly any of the pioneering "functionalist" buildings of the 20s actually remain in their original state. Those which do remain have mostly been altered to fit them for continued habitation, and whilst Le Corbusier's *Maison la Roche* and his *Villa Savoye* at Poissy have been restored to approximately their original states, it is so they could be used as museums!

Yet whatever they lack in terms of practical functioning, these buildings certainly are magnificent symbols of the 1920s. In other words, they *are* the very thing they were not supposed to be, which is hardly surprising because, like it or not, *all* buildings symbolise, or at least "carry" meaning. Even Pevsner admits this now—on the last page of his *A History of Building Types*²¹ he writes: "every building creates associations in the mind of the beholder, whether the architect wanted it or not." He calls this "evocation" whilst insisting still that the International Modern "conveys clarity, precision, technological daring and a total denial of superfluity." There is no getting away from it; just as *Charles Cathedral* carries meanings, so does the meanest garden shed. That is why the functionalists' dream of a machine-like and meaning-free architecture *never was anything more* than a dream.

If all buildings inevitably carry meaning, then we should do well to see how they do it. At the very least, that will help us to understand all buildings better. And if our buildings are going to symbolise anyway—despite our best (or worst) intentions—then an understanding of how they do so *may* help us design them to do it better. The most promising way of looking at these things seems to be the Theory of Signs which has been developing from the work of Ferdinand de Saussure, a Swiss philosopher whose lectures at the University of Geneva in 1906–1911 were later collated by his students and published as the *Course in General Linguistics*,²² and Charles Sanders Peirce, an American surveyor whose voluminous collected papers (1860–1908)²³ amount already to eight massive volumes.

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Starred notes contain captions for illustrations not reprinted herein.

Peirce and Saussure both wanted to set up a general theory of signification: how one thing, anything—a word, a picture, a diagram, rain clouds, smoke, or a building—“stands for,” “reminds us of” another, a theory which they called respectively, *Semiotic* (Peirce), and *Semiology* (Saussure). (Most people these days seem to prefer Peirce’s term.) Unfortunately, the profusion and conflict of terminology within this field has probably proved the greatest stumbling block, certainly in the Anglo-Saxon world, to the acceptance of the whole field itself as being worthy of study. Many people indeed have made the point that the word “semiotic” reminds them of—is itself a *sign* for—“idiotic.”

And so they have been put off, which is a pity now that the basic quarrying has been done, from Peirce as well as from Saussure. And the range of terms one uses need not be all that formidable. Mario Pei’s *Glossary of Linguistic Terminology*²⁴ contains some 1800 entries, most of which are concerned specifically with the mechanisms of language—they are largely irrelevant to semiotic as a whole. Indeed, Peirce’s most important terms are missing, largely because until recently—due to lack of translations—they had made little impact in Continental linguistic circles. But even if the whole of Pei were relevant—which it is not—that would still form a favourable contrast, say, with building. *The Penguin Dictionary of Building*²⁵ contains 5400 plus entries, most of which (around ninety percent) will be familiar to *anyone* who has spent some time in architectural practice. I had never heard of words such as *caul* and *commarone*, *dunter* and *dyker*, *fillister*, *jedding*, *kerk*, and *peen*. Nor did I know about *combinations*, *nicker*, not to mention *Lesbian rule* (OK); but I certainly would not, because of these unfamiliar words (and there were about thirty more) dismiss the whole field of building as being irrelevant because I could not be bothered to learn its significant terms. What a philistine profession ours has become if it dismisses fields like semiotic because at first sight its terminology seems difficult. But whereas one could not survive on a building site without, say, at least half of the *Penguin Dictionary’s* vocabulary (not to mention a little of the more robust vernacular) one can work in semiotic with some nine basic terms (*pragmatic*, *syntactic*, *semantic*, *signifier*, *signified*, and *referent*; *icon*, *index*, and *symbol*). One can become positively fluent with another twenty or so, whilst one could venture into the most sophisticated realms of rhetoric with perhaps a dozen more.

BASIC DIVISIONS OF THE FIELD

The first set of terms comes not from Peirce or Saussure, but from one of the former’s disciples, Charles Morris who, like his master, was the most flagrant coiner of jargon. But this basic division of semiotic²⁶ into the three levels, *pragmatic*, *semantic*, and *syntactic*, is most useful for our purposes. He says:

Pragmatic “deals with the origins, uses (by those who actually make them) and the effects of signs (on those who interpret them) within the (total range of) behaviour in which they occur.”

Semantic “deals with the signification of signs in all modes of signifying” that is, with the ways in which they actually “carry” meanings.

Syntactic “deals with the combination of signs (such as the ways in which words are put together to form sentences) without regard to their specific significations (meanings) or their relations to the behaviour in which they occur” thus ignoring the effects those meanings have on those who interpret them.

Morris envisages these three levels as “nesting” within each other. Thus the basic study of signs will be a *pragmatic* matter, the study of meaning (*semantics*) will be part of this, and the study of *syntax* (the actual “structure” of sign-systems) will in turn be part of semantics. So let us look at each of these in turn with particular reference to architecture.

PRAGMATICS

Architectural pragmatics obviously consist of looking at all the ways in which architecture, as a sign system, actually affects those who use buildings. At this pragmatic level, architecture probably is the most interesting and complex sign-system of all. Words act on one sense at a time—either we listen to them being spoken *or* we read them off the printed page. Music obviously affects the sense of hearing more than any of the others; but architecture, inevitably, affects a wide range of senses simultaneously: seeing, hearing, smell, heat, and cold (through the skin), not to mention such esoteric senses as equilibrium and those of position and movement in our muscles and joints (*kinaesthetic*). I tried in *Design in Architecture*²⁷ to present all this in diagrammatic form. Some architectural semioticians tend to “read” architecture as an entirely visual matter, ignoring all the other ways in which architecture “carries” meaning for us, and thus, in my view, they trivialise it. Even [John] Ruskin admitted in *The Seven Lamps of Architecture*²⁸ that he “always found it impossible to work in the cold interiors of our cathedrals” and went on to ascribe certain deficiencies of his own (aesthetic) judgment to that “state of weakened health” to which the chill of Salisbury had reduced him.

So, if architecture “means” something to each of the senses, how do the messages get through? One of the most useful devices for explaining this was developed by Claude Shannon²⁹ for analysing the ways in which messages are transmitted along telephone lines. He called it the information channel, for which G. K. Koenig considered the implications in an essay,³⁰ and I also developed for *Design in Architecture*. Anything which conveys information physically—a telephone line, a book, a drawing, or a building—is an information channel. Any building is constantly sending out “messages”—visual, acoustic, thermal and so on—which can be received by one of the senses and “decoded” according to the observer’s personal experience. It’s a perceptual matter, which is why we all attach different levels of importance to the levels at which the different senses are stimulated in people—those half suffocated or half frozen in a typical “Miesian” building can still find it *visually* beautiful, whilst others may find its appearance too redolent of filing cabinets, matchboxes, or whatever to offer them *any visual* delight.

If that is what happens generally, how can we actually analyse architecture pragmatically—that is, in terms of the *effects* it will have on people? Physiologists, psychologists, and physicists obviously can work through all the senses and plot the *effects* which things have on them. They have indeed done this, suggesting certain norms for human comfort in terms of lighting, temperature, noise, and other levels. They have shown that

* The concept of information channel was developed by telephone engineers for the analysis of efficiency in telephone systems, but the principles apply to any medium—radio, television, film, books, drawings. Buildings convey meanings to their users through many such channels, acting simultaneously on one’s personal experience, tastes, predilections, etc. (John Wiley and Sons)

most of us will be satisfied at certain levels, comfortable at others, and delighted even at others again. Already we could use this knowledge to generate a new kind of architecture, based on known requirements for environmental control, by designing buildings specifically as environmental filters. The psychologists also have moved towards a more conventional analysis of what things “mean” to people—moving in fact, towards semantics. This work has taken a number of forms:

- 1) Attempts to measure directly what people say about cities, individual buildings, or rooms—that is, their verbal responses.
- 2) Attempts to measure the attitudes underlying what people actually say. A great deal of work in these areas has been published in various journals and conference proceedings, and there is a vast literature in the subject by now, of which the most accessible summaries probably are those by [Harold] Proshansky, [William] Ittelson and [G. R.] Rivlin,³¹ [Fergus I.M.] Craik,³² [Irwin] Altman,³³ [David V.] Canter,^{34,35} and [Terence] Lee.³⁶

Such work covers the whole range of people’s physiological, psychological and social reactions to buildings; some of it naturally is concerned with what buildings *mean* to people—or, at least, with what they say they mean. A range of techniques has been used in this research, such as Osgood’s Semantic Differential, which enables one to plot with some accuracy the meanings which people attach to certain concepts in a three-dimensional “semantic space.” [R. G.] Hersberger³⁷ tried to establish a basic set of scales for such work for use in environmental research, whilst [Carl Axel] Acking³⁸ and [Basil] Honikman³⁹ devised such scales and put them to different uses. Acking projected photographic slides of interiors to his subjects and asked them to mark each room against his concept scales. He then analysed these scales and measured feelings of comfort and security, estimations of social status, physical appearance, degree of originality, and so on. Honikman also asked his subjects to look at pictures of rooms and to rate them against scales: bad/good, dirty/clean, dark/light, and so on.

One problem with Semantic Differential, as many experimenters see it, is that the scales in use are set up by the experimenter. This raises the obvious problems of any social survey: that the scales themselves may *suggest* things to people which otherwise they might never have thought of. At the same time, they may ask people to think of things (including buildings) in ways which they find quite impossible. It was to answer such objections that George Kelley developed his Repertory Grid technique⁴⁰—originally for the investigation of what people thought about other people. He asked each subject to write onto cards the names of certain very familiar people: father, mother, sister, brother, favourite teacher, most hated teacher, etc. Then he worked systematically through the cards, grouping them into threes and asking his subject to name any quality shared by two of the people which the third one did not share. They thought of “constructs” such as friendly, helpful, intelligent, and so on. Having thus listed the “constructs” by which his subject thought about people, Kelley then asked further questions by which the subject ranked the constructs in order of importance for him—is it more important to be “friendly” than “intelligent,” and so on. Honikman⁴¹ and others have adapted this technique to establish the constructs against which people “construe” the built environment or, in this case, photographs of rooms.

But there is a fundamental problem in applying the results of such research. Suppose we could establish—for a particular population—that a particular room type, house form, or whatever actually *was* overwhelmingly more popular than another, should we then build only that type? Of course not, if we did that it would become so boring that people no longer preferred it. Yet Semantic Differential and repertory grid techniques may be useful for quite 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. Chris Abel^{42,43} has done a certain amount of work in this area already with architectural students and teachers, attempting to relate students’ architectural constructs to the designs they actually produce and the tutor’s constructs to the ways in which they criticise those designs.

SYNTAX

Syntax, of course, is concerned with the *structure* of sign-systems, such as the ways in which words are grouped together to form sentences. Saussure actually draws an architectural analogy to show how the syntactic (he uses the adjective “syntagmatic”) and the semantic (he calls it “associative”) dimensions interrelate:

From the associative and syntagmatic point of view a linguistic unit is like a fixed part of a building, eg: 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.

Most of us sat through tedious lessons at school, parsing irrelevant sentences into their various parts—nouns, adjectives, verbs—and some linguists such as [Jerzy] Pele⁴⁴ have developed such studies of syntax into the most tortuous kinds of exercise in symbolic logic. But the whole subject received a tremendous boost in the 1950s, after Noam Chomsky had first published his *Syntactic Structures*.⁴⁵ Chomsky 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.⁴⁶ 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:

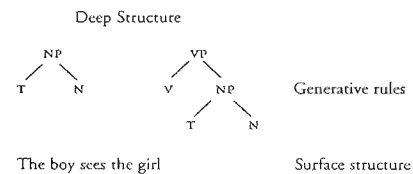
The boy sees the girl

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)
transformation into the negative:
(The boy did not see the girl)
interrogative: (Did the boy see the girl?)
affirmative: (The boy did see the girl!)
predictive: (The boy will see the girl)

and so on.

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

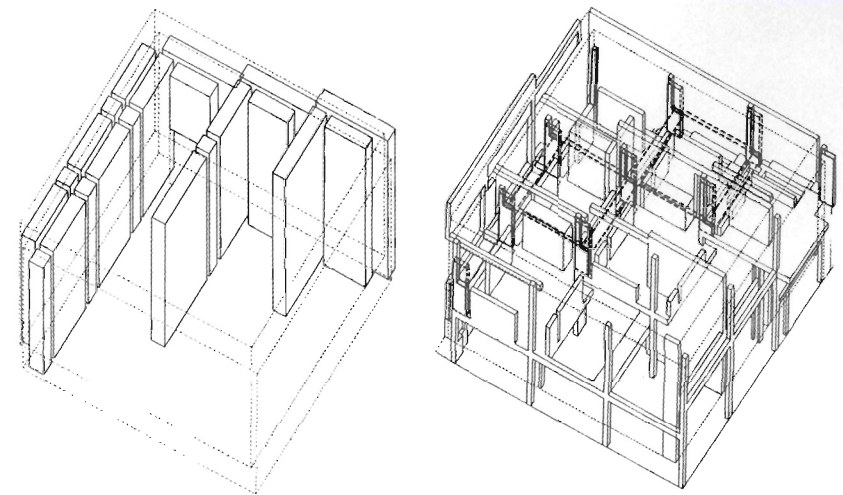


He never quite describes what he means by “deep structure,” which is unfortunate because one really needs to know just how deep these structures might be. Others have made their own versions, and a simple, but perfectly adequate one was presented by the English linguist C. T. Onions as long ago as 1904.⁴⁷ He suggested that *all* our relationships 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).

But if he fails in this particular respect, Chomsky cannot be accused of neglecting to describe the workings of his generative and transformation rules. He describes them in the form of algorithms—that is fixed sets of rules of a kind familiar to computer scientists, such that, provided they are “fed” with the correct data, they will generate automatically a “correct” solution.

Some architects, naturally, have tried to work in this way. Peter Eisenman, 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.⁴⁸ In a typical case (House II) Eisenman started with a cube of space. He then subdivided it with a 3 x 3 grid to give a total of nine “compartments” on each floor. This notional grid could then be realised physically by rows of columns, a system of parallel walls, or both. Eisenman therefore decided on a further, diagonal division of his cube with a wall “system” running towards it from one side and a column “system” from the other. He then looked at the “negative” spaces left between his walls and gradually developed an extraordinarily complex system of interlocking spaces each of which *then* could be dedicated to a certain living activity. Eisenman’s primary concern, in other words, was with the abstract perfection of his system. Once the form had been determined, then the



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 the “negative” spaces thus formed and allocated them to various functions of living. But the result looks like a Le Corbusier villa.

functions might (hopefully) follow. He has continued this ruthless pursuit of abstraction to such an extent that in House VI, for instance, the “system” demanded an oblong slot along the centre of the master bedroom. The (single) beds, of course, have to be arranged on either side, suggesting that those who use them are expected to lead such disciplined lives that they never will risk life (and limb) by trying, impulsively, to cross the gap.

Curiously enough, Eisenman is by no means the first architect to deal in such complex syntax. No less an architect than Sir Edwin Lutyens was working towards the end of his life on an *Armature of Planes*⁴⁹ which his son Robert describes as follows,

a building is made up of solids and voids...which...are geometrically related...to state this relationship it is first of all necessary to visualise 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 visualisation 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 sets of lines...but as almost invisible “lines of cleavage,” the whole being like a glass cube made up of smaller glass cubes.

And a Venezuelan architect, Domingo Alvarez, demonstrated this quite independently: what it would be like to be in Lutyen's "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. Once these had proved successful, he built a series of three-metre internally mirrored, walk-in cubes. In one case, the "lines of cleavage" are made by etching narrow strips of translucent glass over the surface of three of the mirrors—one horizontal (the ceiling) and two vertical—at right angles to one another. These strips are then illuminated from behind with coloured light: red, green, and blue. The experience of being inside Alvarez's cube certainly brings one nearer to inhabiting a pure spatial syntax than any other kind of built reality ever could.

Yet even this by no means exhausts the fascination which spatial syntax seems to exercise for some people. [Lionel] March and [Philip] Steadman for instance, demonstrate a whole range of possibilities for *describing* architecture in such syntactic terms, in their *Geometry of Environment*,⁵⁰ and most of those concerned with computer-aided design find themselves, sooner or later, dealing in grids, lattices, and with systems of coordinates for locating points in space. Some, such as [William] Hillier and [Arthur] Leaman,⁵¹ believe that the whole of architecture can be explained in terms of the rules by which individual spaces can be clustered together, whilst others, such as Steadman and [William J.] Mitchell and [Robin S.] Liggett⁵² have examined—with equivalent conviction—the rules by which whole spaces can be divided up. Such work with its severe mathematical basis does throw light on what kinds of planning are *possible*.

But whilst syntactic rules obviously are important for the analysis of underlying "structures" in architecture, it seems to me that those who pursue syntax for its own sake, at the expense of the semantic dimensions, finally are doomed to the same kind of failure as the "functionalists" themselves. Eisenman, not to mention the Italian Rationalists such as Aldo Rossi,⁵³ have made it their declared aim to *make* an architecture of pure syntax with no semantic content whatever. Yet with the notable exception of Alvarez—whose mirrored boxes "remind us" only of themselves—everyone else who has tried to build a "syntactic" architecture has stumbled against the reality of three-dimensional expression. Thus Lutyens clad his "armature of planes" with a pared-down Classicism; Eisenman clad his "surface structures" with unmistakable evocations of white-walled 1920s International Style. Chomsky himself seems to have hung back from defining his deep structures *because* they had semantic implications. But finally we cannot ignore these implications, which is why so many semioticians have concentrated their attentions on the semantic dimension.

* Hillier and Leaman believe that all possible architectural forms can be developed by the clustering of forms according to a set of syntactic rules which determine how spaces can be placed together. (After Hillier and Leaman)

** Steadman, Mitchell and Liggett demonstrate that architectural forms can also be developed by subdividing spaces according to a set of syntactic rules.

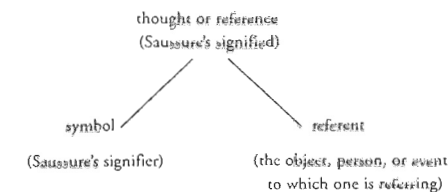
SEMANTICS

It happens however, that one of Saussure's most basic concepts was anticipated by none other than Vitruvius himself, 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.⁵⁴

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 social contract. The signifier in this case consists of some material representation—the speech sounds, marks on paper, and so on—from which, maybe, a word is formed; whilst the signified consists of the concept to which that word refers. Initially, the relationship between word and concept was quite arbitrary. There was no particular reason why the English should call a certain animal "bull" the French call it "boeuf" whilst the German call it "ochs." A particular animal which happened to be grazing on the Franco-German border might well be called by both names, simultaneously. But *because* the relationship between signifier and signified initially was arbitrary it must be respected by everyone. No one can change it unilaterally; a social contract now exists between all English speaking people that we shall use the word "bull" whenever we want to refer to that particular animal. If one of us used some other word, or coined a new word for the purpose, no one could understand him; he would have broken the social contract. Let us note in passing that with a few exceptions, no such social contract exists to the meaning of architecture, this is a fundamental difference between architecture and language.

Others since Saussure have developed his concept of sign in various ways. [Charles Kay] Ogden and [Ivor Armstrong] Richards⁵⁵ for instance felt his two-part entity to be by no means adequate. They took his signifier (they called 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:



* Magritte demonstrates Saussure's fundamental point that the relationship between a signifier and a signified is quite arbitrary. There was no reason, initially, why the words he used should not have been attached to the objects he painted. But they were not. Magritte broke the social contract and what he says, literally, is nonsense. He communicates nothing to us therefore, except for the fact that he is playing semantic games. (René Magritte, "The Key of Dreams," 1936.)

This has gained a certain currency in linguistic circles, but [Louis] Hjelmslev⁶⁶ felt that it also was inadequate. He postulated the sign as four-part structure which takes the following form (I have plotted equivalents in the Saussurean and the Ogden/Richards schemes):

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

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 thought about the object and the way one chooses to refer to it by means of words or other signifiers.

Buildings undoubtedly can be read as signs in the way that Saussure intended. The possibilities for a semiology of architecture were first explored by Italian theorists such as [Carlo Ludovico] Ragghianti,⁵⁷ although the floodgates opened up after [Roberto] Pane's book of 1948.⁵⁸ Their successors, however, have spent a considerable amount of time disagreeing with each other 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, for instance,⁵⁹ equated the exterior of a building (Palladio's Rotunda at Vicenza) with Saussure's *signifier* and the interior with his *signified*, a simple scheme which they develop with some subtlety. [Umberto] Eco, however,⁶⁰ took quite a different view. The *signifier* for him might be a staircase signifying the act of walking up—which thus becomes the signified. Both of those interpretations add something of value to architectural debate, and I have suggested a third,⁶¹ following Ogden and Richards: that any building, at any time, can be signifier, signified or *referent*—or all three simultaneously—in their three-part scheme. The Parthenon exists obviously, as a referent, an object, still standing on the Acropolis in Athens, but it also exists as a *signified*—by photographs, diagrams, and words—in any book which describes such buildings. And for many people still it is also a *signifier* of all that was best in ancient Greek democracy. We ought to make sure in discussing it whether the Parthenon as a *signified* actually *is* that arrangement of stones—the partial reconstruction which exists currently on the Acropolis; or the building in its former, more ruined state—familiar from photographs of the 1930s; or the Parthenon as built by Ictinus and Callicrates in its pristine form, circa 450 BC, with garishly coloured sculpture, gilding, and the rest. Or is it—for many people—a “symbol” of perfection in architecture which never actually existed? Not that architecture

* The Barcelona Pavilion no longer exists as a referent. It was demolished at the end of the Exhibition in 1929, but it is still an extremely potent signifier of another kind of perfection, which is signified as the Parthenon also is in countless words, and reproductions of photographs. [The Barcelona Pavilion has since been reconstructed.—Ed.]

need be “there” physically, even to symbolise perfection. As Bonta points out⁶² the Barcelona Pavilion no longer exists as a physical thing, a complex of steel, glass, marble. But it certainly exists as signifier of another kind of architectural perfection, and as a signified in the twenty or so photographs which survive from 1929.

It should be pointed out that certain theorists, including Eco,⁶³ are by no means happy with this extension of Saussure's sign to include the referent. They point out, rightly, that there is no necessary relationship between a signifier, a signified, and a referent. A particular sign vehicle (signifier) may signify a fictitious object (such as a unicorn), or merely a set of abstract thoughts (signifiers) for which no object exists. Eco's problem can be solved quite simply by taking his referent as a “thing”—provided one uses, say the Oxford Dictionary definition of “thing”: What is *or may be* an object of perception, knowledge, or *thought*—(my italics).

Of course there is more to it than that, but even the most extreme of metaphysical philosophers these days now seem to admit that a real, physical world actually exists. Whatever else sign systems may or may not do, they aren't of much interest if they don't refer to it.

In terms of the way the brain works, it hardly matters whether the “thing” is a “real” object in the physical world or something we dreamed about. We shall subject it to processes of thinking in just the same way. However, our ideas of it somehow arose in the brain, so let us agree with Ogden and Richards that the referent *is* a thing, (but) whilst realising that a “thing” can be real or imaginary.

As for Eco's insistence that the referent should be a whole class of things, rather than one particular example, this merely confuses two perfectly ordinary terms in linguistics: connotation and denotation. Eco does this quite wilfully. He says “The difference between denotation and connotation 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...” Those “many authors” whom Eco dismisses probably would accept Pei's much simpler definitions:

Denotation The meaning which a form has for all who use it (the intrinsic meaning of water).

Connotation The special shades of meaning (based on emotional or other factors) that a form has for its individual user (the evil connotation of profits for labour leaders as against its favourable connotations for management...).

So whilst one need not necessarily dismiss Eco's *Theory* as does his *Times Literary Supplement* reviewer (1977), as “a more or less gratuitous expression of an Italian *esprit de système*—it is much too interesting and stimulating for that—one cannot accept his dismissal of such patently useful concepts, nor his attempt to complexify what can be fairly straightforward.

Peirce's semiotic is much more complex than Saussure's semiology. At one time, Peirce identified 59,049 (3¹⁰) different classes of sign, which he later reduced considerably in number. There are scattered references to them in various of his collected papers, but they are difficult to extract. The papers themselves are often confused, ambiguous, and self-contradictory; in addition to these, Peirce presents us with two other difficulties. Firstly he was an inveterate “trichotomiser,” grouping everything taxonomically into sets of threes; and secondly, he constantly flouted Saussure's social contract, coining a new

word or term for every concept which occurred to him. He wrote, for instance, of firstness, secondness, and thirdness; of abstractives, concretives, and collectives; of Phemes, Semes, and Delemes; of Potisigns, Actisigns, and Famisigns; of qualisigns, sinsigns, and legisigns. Of all his trichotomies, however, that which classifies signs into Icons, Indices, and Symbols has proved to be the most fruitful. He defines them 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.'

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,' and

An *index* is a sign, or representation 'which refers to its object not so much 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 or memory of the person for whom it acts as a sign.'

Peirce's *icon* is an object which exists in its own right but which has certain elements in common with some other object, and can therefore be used to represent that object. Maps, photographs, and algebraic signs are icons in this sense, so are architects' drawings. Unfortunately though, Peirce's definitions of icons are so ambiguous that a generation of semioticians is still concerned with trying to unravel which he actually meant by an iconic sign: Eco,⁶⁴ Volli,⁶⁵ [Tomás] Maldonado,⁶⁶ Broadbent,⁶⁷ and others have contributed to this particular debate.

So in considering the architectural implications we ought to start with Peirce's rather more straightforward index, a sign which indicates some particular object or circumstance in terms of a physical relationship. A pointing finger indicates which way to go, the pole star indicates north, a weather vane indicates which direction the wind is blowing from.

As for buildings as indices, one can think of many art galleries, museums, exhibition pavilions and even houses—such as Le Corbusier's *Maison la Roche* of 1923—which are planned about a set route. Such buildings *indicate* to us which way we should go in moving around them, so certainly they are indices. The "functional" building also was intended to be an index, indicating by its form the functions which it houses. This may be possible in the case, say, of an oil refinery, a gas cracking plant, or a nuclear power station; but most so-called "functional" buildings are merely symbols of modernity. Peirce's symbol is even more straightforward: it is a sign which "carried" some general meaning; thus a badge symbolises the fact that someone belongs to an organisation, a railway ticket symbolises the fact that they have paid to travel. Ordinary words, in Peirce's terms, are symbols in this sense. A church obviously symbolises Christianity. Peirce's *symbol* has the specific quality that whatever relationship exists between the symbol itself and the entity which it symbolises has to be *learned*, both by the user of symbols and those to whom its meaning is important. In this sense it closely resembles Saussure's *sign*, a signifier and a signified with a learned relationship between them.

Buildings certainly can be symbols in Peirce's senses.* The Gothic cathedral obviously is a *symbol* of the Christian faith; most of us in the Western cultures have learned the essential relationship between a building of that form and the religion which it symbolises. We even share a social contract as to *conventional* church form.

As for building as *icon*: any drawing, model, or photograph of a building is an icon in Peirce's sense, but the building itself also may be an icon—if it "reminds" us of something else. I have described elsewhere⁶⁸ certain buildings which were designed by visual analogy with forms from nature—as in the case of Le Corbusier's crab-shell roof at Ronchamp; or the hands in prayer analogy which suggested the roof-form of [Frank Lloyd] Wright's Chapel at Madison Wisconsin; or the analogy with modern painting, as in the case of de Stijl architecture, and so on. Such buildings obviously can be iconic signs of the forms from which they were derived. One of the clearest is the duck-shaped poultry stand on Long Island to which Peter Blake and Robert Venturi have drawn our attention.

Charles Jencks⁶⁹ suggests that icons of this kind (he insists on calling them metaphors) are too simple, banal, and direct; that their use can lead to an architecture—he calls it "univalent"—which is just as boring as anything by Mies. I agree with him, whilst objecting to his use of metaphor to describe straight, simple, visual analogies. I have previously tried to distinguish between these subtle terms⁷⁰ so let me use one of Jencks's examples to point this distinction further. Jencks chooses the Casa Batlló of Antoni Gaudí 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 visual analogy with human bones. The main facade, with its undulating forms in brown, green, and blue ceramics, obviously is an icon for the sea, whilst Jencks points out the boldly tiled roof actually "looks like" a dragon. It is dominated by a pinnacle bearing a Christian cross. Bones, sea, and dragon are all icons at the level of simple visual analogy, but as Jencks also points out the whole thing is an expression of Catalan nationalism in which the dragon of Castille has been slain by St. George—the patron Saint of Barcelona. The bones of course represent those of the martyrs who have died in the cause. Now obviously this represents a "higher" level of meaning—shading towards say illusionism—which certainly is not revealed by a direct reading of the simple, visual analogies. *This* is metaphor, and we should do well to reserve the word for such deep and subtle meanings, rather than applying it, indiscriminately, to simple, visual analogy.

But there is also another kind of architectural icon—the kind of likeness between buildings which depends on some underlying structure, rather than on simple, observable, visual likeness. Probably the clearest example of this is that suggested by March and Steadman, who took three Frank Lloyd Wright plans—the Life House, the Ralph Jester House, and the Vigo Sundt House—and showed that despite the obvious differences in the appearances of their plans (the first is based on rectangular geometry, the second on

* The trouble with symbolism is that because it is culture-based and has to be learned, its meanings also can change. When Karl Friedrich Schinkel chose a neo-classical form with Greek Ionic columns for his Altes Museum in Berlin (1822), it symbolised ideas of enlightenment and liberal democracy. But when Paul Troost chose a similar form for Hitler's Museum of German Art in Munich (1936), it symbolised something quite different.

circular, and the third on triangular), there was nevertheless a pattern of relationships between living rooms and terrace, terraces and pools, bedrooms and bathrooms, etc, which underlay them all. In this sense each was an icon for the other.

So what does all this tell us? Well, first of all the pragmatics of meaning can have and have had, effects on how buildings were designed. Any attempt to design buildings consciously for the effects they now have on their users in this sense was a pragmatic affair. Certainly that was true of eighteenth-century picturesque; it is also true of more recent architecture in which sensory effects on people have been taken into account. Secondly, and obviously, there is, and has been, a considerable traffic in architectural syntactics. Any attempt to generate architecture according to some geometric system obviously is syntactic in this sense. And thirdly, all buildings "carry" meaning in the semantic sense. Now that we accept this as inevitable, we might as well make sure that they do it properly. A number of architects—such as the Venturis, Charles Moore, Bob Stern, the Taller de Arquitectura—have been trying to do just that.

It is hardly surprising, given the way in which architectural meaning has been suppressed so severely over the past fifty years or so, that some of their attempts, to say the least, are rather halting. They still do not seem sure just how buildings "carry" meaning. That is why the various concepts from Saussure, from Peirce, and from others promise to be so helpful in suggesting with greater precision just how the meaning can be carried.

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