A Plain Man’s Guide to the Theory of Signs in Architecture

GEORGE BROADBENT offers a considered discussion of architectural semiotics, 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. He met with a fair amount of hostility from people like Reyner Banham, 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 realized 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. 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, Charles Moore, Brent Brolin, Charles Jencks 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 Bonta, by Broadbent, Jencks and Bonta and by Broadbent and Llorenz, 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 18th century picturesquely landscaped gardens such as Syon Head in Hertfordshire, (1), which, with its splendid arrangement of temples, groves 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 Howard — 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.

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, Gropius and Mies, not to mention historians such as Giedion, Pevsner and Richards, 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, (2). 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): 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; 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 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 superficiality'. There is no getting away from it; just as Chartres 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 symbolize 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, and Charles Sanders Peirce, an American surveyor whose voluminous collected papers (1850-1908) amount already to eight massive volumes.

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 contains over 1,800 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 contains 500 plus entries, most of which (around 90 per cent) will be familiar to anyone who has spent some time in architectural practice. I had never heard of words such as salut and commarone, dunter and dyker, fillister, jelling, kerk and peen. Nor did I know about combinations, tickers, not to mention Lesbian rule (OK); but I certainly would not, because of these unfamiliar words (and there were about 30 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; signer, signified and referent; icon, index and symbol). One can become positively fluent with another 20 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 icon of jargon. But this basic division of semiotic is into the

1a The 18th century landscape designers set out deliberately to design architecture with meaning. Henry Hoare developed Stourhead in Wiltshire between 1744 and 1772.
1b Individual buildings - mostly designed by Henry Flitcroft - were grouped to look like a Claude Lorrain painting and placed along a set route around the (artificial) lake. Each building represented an incident in Hoare's own life, for which he saw parallels in classical literature, and especially in Homer's Iliad. The buildings were therefore designed to 'carry' deliberate meanings.

1c Approach to Stourhead, representing Lake Nemi where Aeneas entered the underworld.
1d Plan showing the route one must follow to 'read' the story properly.
1e Temple of Flora marking the source of the river.
1f Grotto representing the cave near which Aeneas landed in north Africa on his flight from Troy.
1g Pantheon - similar in siting and in form to a temple in Claude Lorrain's 'Aeneas at Delos'.
1h Temple of Apollo the Sun God, derived from Robert Wood's 'Ruins of Balbec'.

2a, b The Fagus Factory office building designed by Gropius and Meyer in 1911, and selected by historians such as Giedion and Pevsner as the prototype of all steel and glass, 20th century, 'functional' building. Yet the columns are hefty brick piers, almost 1 metre wide, and this pioneering building presented problems of solar overheating - indicated by the sun-blinds, carefully positioned to shade (only) the owner's office.

3 Every building stimulates a wide range of senses simultaneously, and each of these channels 'carries' a part of its meaning. (John Wiley and Sons)
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 identification 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 senses 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 to present all this in diagrammatic form, (3). Some architectural semioticians tend to 'read' architecture as an entirely visual medium, ignoring all the other ways in which architecture 'carries' meaning for us, and thus, in my view, trivialise it. Even Ruskin admitted in The Seven Lamps of Architecture that he 'always found it impossible to work in the cold intellectual manner, ignoring all the other things on to ascribe certain deficiencies of his own (esthetic) 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 Chute Shannon 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, and I also developed for Design in Architecture, (4). 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 the half-suffocated or half-frozen in a typical 'Missian' 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.

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 physicians obviously can work through all the senses and plot the effects which things have on the human body. They have indeed done this, suggesting 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 even at others again. Already we could use this knowledge to generate a new kind of architecture, based on known requirements for environmental comfort, 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 attitudinal underling 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 some of the more accessible summaries probably are those by Proshansky, Itelson and Rivlin, Crick, Altman, Canter and Lee.

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 different concepts in a three-dimensional 'semantic space'. Hersheberger tried to establish a basic set of scales for such work in environmental research, whilst Acking and Honkman 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. Honkman also asked his subjects to project their own feelings and to rate them against scales: bad/good, dirty/clean, dark/light, and so on (5).

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 the things in building language in ways which they find quite impossible. It was to answer such objections that George Kelly developed his Repertory Grid technique — 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, the groups, 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. Honkman 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 method, 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 Ahlberg has shown that 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 signs - such as the ways in which words are grouped together to create sentences. Saussure actually draws an architectural analogy to show how the syntactic (he uses the adjective 'syntactic') and the semantic (he calls it 'associative') dimensions interrelate:

From the associative and syntactic point of view a linguistic unit is like a fixed part of a building: a column. On the one hand the column has a certain relation to the architecture that it supports; the arrangement of the two units in space suggests the syntactic relation. On the other hand, if the column is Doric, it suggests a mental connection 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, using irrelevant sentences into their various parts — nouns, adjectives, verbs — and some linguists such as Fele have developed such studies of syntax into most tortuous kinds of exercise in symbolic logic. But the whole subject received a tremendous boost in the 1950s, after Naum Chomsky had first published his Syntactic Structures. Chomsky suggested that each of us possesses an innate capacity for generating sentences. We possess certain underlying principles of the world, which he calls 'deep structures,' which underlie every sentence it is possible to utter. They are raised to form the 'surface structure' by which we express our ideas by means of certain generative rules. These give us basic 'form' or to use a technical term, "transformational..."
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(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 analyzes 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 structure can be analyzed 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 CT Onions as long ago as 1904. 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 croissants (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 aspect, Chomsky cannot be accused of neglecting to describe the workings of his generative and transformational 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.

The concept of information channel was developed by telephone engineers in 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 existence, tastes, predilections, etc.

In Semantic Differential one’s ideas about concepts— including buildings—are plotted against carefully chosen seven-point scales: averaged out in groups of three, five or more, one’s evaluation of these concepts is plotted on a scale which measures, say, good – bad; one’s attitude to their Potency is checked against scales which measure, say, strong–weak; and their Activity is gauged on scales of, say, active–passive. Various buildings mentioned in the text have been measured against a (simplified) version of Semantic Differential and plotted into a three-dimensional semantic space. The following shows how the (Athens) Parthenon was placed, and you can find where you locate the various buildings in semantic space by plotting them all against the same scales:

It will be noted that many of these scales can only be applied metaphorically, architecture, and that is their strength. They help us get past the opinions we thought we had. In each case, of course, the average assessment for each group of scales is plotted into the appropriate dimension of the semantic space.

6 Repertory Grid — Honking’s plotting of personal constructs concerning living rooms.

John Wiley and Sons

7a, b Eisenman developed his House 11 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. (‘Five Architects’)

8 Dutch visualized space in terms of a glass cube, made up of smaller cubes formed by dividing it by ‘lines of clearance’ in a three-dimensional ‘armature of planes’. But having designed basic forms in this way, Dutch then applied rudimentary classical detailing. (Seven Victorian Architects)
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. In a typical case (House of the Three Mirrors), an 18-cube system of columns is moved in 11,919 steps of 1.5 cm, with 9936 elements. This procedure could then be realized 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 to 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 could be dedicated to a certain living activity. Eisenman's main concern, in other words, was with the abstract perfection of his system. Once the form had been determined, then the functions might (hopefully) follow. He has continued this ruthless pursuit of abstraction to such an extent that in House IX, for instance, the 'system' demanded an oblong slot along the centre of the master bedroom. The (single) bed, 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 on a villa, the Casa del Sol, and a book on the Aram of Planes* which his son Robert describes as follows, (8):

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 others 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 as a grid or frame of 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 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. Once these had proved successful, he built a series of 3-metre internally mirrored, walk-in cubes, (9). In one case, a 30-foot-long 'surface of cleanliness' 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. March and Steadman for instance, demonstrate a whole range of possibilities for describing architecture in such syntactic terms (10), in their Geometry of Environment, and most of those concerned with computer-aided design find themselves, sooner or later, dealing in grids, lattices, and with systems of co-ordinates for locating points in space. Some, such as Hillier and Lean, 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 Mitchell and Ligeret have examined with equivalent conviction - the rules by which whole spaces can be divided up. (11). 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, 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 struggled 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 unintakable evocations of white-walled 1920s Modern 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.

Semantics

It happens however, that one of Saussure's first 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.

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, (12). 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' or the German call it 'oXen'. 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, not even the poets. So there 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, we 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. Ogden and Richards 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 semiotic triangle:

This has gained a certain currency in recent years, but Hjelmslev and his followers have 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 Saussurian and the Ogden/Richard's schemes):

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 Ragghianti, although the floodgates opened up after Pane's book of 1948. Their successors, however, have spent a considerable amount of time rethinking with each other as the levels at which concepts from the analysis of language should be drawn into the analysis of architecture. De Fusco and Scalvini, for instance, equated the exterior of a building (Falladino's Rotunda at Vicenza) with Saussure's signifier and the interior of the building with his signified, a simple scheme which they develop with some subtlety. Eco, however, took a different view. The signifier for him might be a staircase signifying the act of walking up, which thus becomes the signified. Both of these interpretations add something of value to architectural debate, and I have suggested a third, 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 graphs, 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, c.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, (13)? Not that architecture need be there physically, even to symbolise perfection. As John Bony points out, the Barcelona Pavilion no longer exists as a physical thing, a complex of steel, glass, marble, (14). But it certainly exists as a referent of another kind of architectural perfection, and as a signified in the 20 or so photographs which survive from 1929.

It should be pointed out that certain theorists, including Eco, 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 Pe'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 systeme' — it is much too interesting.

9 Albers actually makes an architecture of pure syntax: 'habitable' cubes in which the three dimensions are defined by lines of coloured light etched into the internally mirrored surfaces. They give one the unique sense of being suspended in an intangible space, reflected infinitely in all directions.

10 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)

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

12 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.

13a, b The Parthenon signifies a great many things: a kind of architectural perfection, the spirit of Greek democracy, Greece as a place to go on vacation. It is signified by this and other photographs, by the millions of words written about it. But what is the Parthenon as referent? One can still walk onto the Acropolis and kick the physical remains of the original, but are they any more 'real' than the Parthenon in Nashville, Tennessee, which is complete to the extent of being coloured as the original once was?

14 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.
and stimulating for that—one cannot accept his dismissal of such patentely useful concepts, nor his attempt to resolve them in terms of the functional or organic. Peirce’s semiotic is much more complex than Saussure’s semiotics. At one point in his course, Peirce identified 59 049 (31) different classes of sign, of which he later reduced to 11, considering them to be number. There are scattered references to them in various of his collected papers, but they are difficult to extract. The thoughts 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 three; and secondly, he constantly flouted Saussure’s sociocentric contract, coining a new word or term for every concept which occurred to him. He wrote, for instance, of ‘firstness, secondness and thirdness; of abstractions, concrete and collective; of Phanes, Senses and Denotes; of Otisigns, etc., or ‘anti-grammars; of qualsigns, signisigns and legisigns. Of all his trichotomies, however, that which classifies signs into Icons, Indexes 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 association of general ideas, which operate 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, and 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 cannot 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 have been trying to unravel which he actually meant by an iconic sign: Eco,Voillé, Maldonado,60, 61 Broadbent,62 and others have contributed to this particular debate.

When 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 the way to go, (15), 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 any 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. (16) The ‘functional’ building also was intended to be an index, indicating by its form the functions it houses. This may be possible in the case, say, of an oil refinery, a gas cracking plant or nuclear power stations: 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 the person has 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 is not recognised by the spectator without Saussure’s sign, a signifier and a signified with a learned relationship between them.

Buildings certainly can be symbols in Peirce’s sense, (17-19). 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. In whatever sense the building itself is itself, 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 of Francis Kley’s St. Elizabeth’s Hospital in Madison, Wisconsin, (20); or the analogy with modern painting, as in the case of de Stijl architecture, and so on. Such buildings obviously are iconc 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.

Ch. Jencks suggests that icons of this kind (he insists on calling them metaphors) are too simple, too bald, 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 strict, visual analogies. I have previously tried to distinguish between these subtle terms63 so let me use one of Jencks’s examples to point this distinction further. Jencks chooses the Casa Battlo of Antoni Gaudi (21) 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 tilled roof actually ‘looks like’ a dragon’s head. 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 any illusionistic meanings also can change. When 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.

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15 Peirce’s index signifies by means of some direct, physical relationship such as a pointing [Index] finger. All human beings, irrespective of the culture in which they were brought up, understand such a pointing gesture. This Xema-tari Indian indicates a dramatic incident—perhaps an uninvited threat—during the ritual battle with which inter-tribal feasts usually end.

16 A plan such as this one (British Pavilion at the Brussels Exhibition of 1958) indicates which way one should go. Anyone, even a Xema-tari Indian, facing into the building at the entrance would know which way to go because of the way it is planned.

17 Pugin’s ‘True Christian’ church is a symbol of certain attitudes to religion. Such symbolism has to be learned, just as the meanings of words have to be learned. Most people brought up in western Europe or America will have learned the symbolism of such buildings, but that would not be true of the Xema-tari.

18 Pugin spelled out some 20 attributes which a building must possess to be recognised as a ‘true’ Christian church: a tower with battlements, pinnacles and steeples; a pointed roof, pointed windows, a nave and chancel, altar, chancel, altar, baptistry,... Ronchamp possesses very few of these but it still has enough—altar, pews, cross—to be recognisable as a church by those who have learned the symbolism.

19a, b The trouble with symbolism is that it is culture-based and can change. When 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.

20 a, b An Icon is ‘like’ its object, and of course the most direct form of ‘likeness in architecture is simple visual resemblance. Wright’s Chapel at Madison, Wisconsin is an icon for his hands at prayer which inspired it by visual (analogical) resemblance.

21 Gaudi’s Casa Batlló demonstrates the difference between simple visual analogy (the bones and wave forms of its facade, the ‘dragon’ forming its roof) and a higher level of meaning (concerned with Catalan nationalism—see text). We should reserve the term ‘metaphor’ for such higher levels of meaning.
22 Peirce's iconic is also a matter of deep-seated structures. As March and Steedman demonstrate, these three Frank Lloyd Wright plans share the same underlying structure. Each is an icon for the other, even though the geometrical forms in which they are expressed make them all look quite different.

23-30 Theoretical studies of meaning in architecture and deliberate attempts to again build architecture with meaning are coming together in the work of architects such as the Venturis, the Taller de Arquitectura, Robert Stern, and Charles Moore. The most complete demonstration so far is Moore and Turnbull's Faculty Club at the University of California in Santa Barbara. In their Faculty Club design, Moore and Turnbull have attempted to extract out of the environment from which the members come a number of architectural references which will be meaningful to them. Santa Barbara is a historic colonial town and contains real Spanish Colonial courtyard houses, reproduction Colonial houses, buildings from the 1930s, white-walled International Style and Art Deco buildings from the 30s. It is close to Los Angeles (Hollywood), Las Vegas, and to San Simeon -- the Citizen Kane-like castle which William Randolph Hearst built for himself and filled with paintings, sculpture, tapestries, and whole rooms and courtyards from Europe.

23 As one approaches the Faculty Club, the colonial courtyard arrangement with mono-pitched and pantiled roofs becomes immediately apparent.

24 One enters past a movie-house paybox-like lodge, and creates a deck surrounded by obvious references to white-walled International Style and Art Deco.

25 This entrance proper is lined with stuffed animal heads to remind one that this is a gentlemen's club.

26 The central circulation core consists of an arrangement of bridges and staircases open to the various levels in an angular, art-deco arrangement.

27 The finest dining room in the area is Hearst's Baroni Hall at San Simeon, with its massive table, chairs and banner-lined walls.

28 The Faculty Club dining room also has banners -- made of neon signs in Las Vegas manner -- and smaller ones of white cordonary.

29 The buffet, off the dining room, is made from 'real' Spanish Renaissance panelling, taken by Hearst to San Simeon, and from thence to Santa Barbara by Charles Moore.

30 The most emotive place in any American men's club, of course, is the locker room. Crucial to the idea of lockers of course, is some coding system by which one can find when one has left one's things. Moore makes play on this fact by arranging his lockers -- like a massive exercise in packaging.
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 18th century picturesqueness; 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 symbols. 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, (23-30).

It is hardly surprising, given the way in which architectural meaning has been suppressed so severely over the past 50 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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