2.1 A Componential Analysis of the Architectural Sign /Column/

Umberto Eco

0.1   One of the main tasks of semiotics consists in arriving at a study of all aspects of culture as communicative processes. This does not mean that all aspects of culture are only communicative processes but that (a) they can be regarded as communicative processes; (b) they have a cultural function precisely because they are ALSO communicative processes.

It is obvious that—in this sense—a semiotics of architecture represents one of the crucial points in semiotic research.

0.2   Architecture is composed of artifacts, which delimit spaces (outside or inside them) so as to permit functions: going up or down, coming in or out, sheltering from the weather; gathering together, sleeping, eating, praying, celebrating events, instilling reverence . . . .

0.3   In my book *La struttura assente* I tried to define architectural signs generically (and it remains to be seen what is meant by /sign/ as 'unit of an architectural code') as a system of manufactured objects and circumscribed spaces that communicate possible functions, on the basis of systems of conventions (CODES). I distinguish simple PROCESSES OF STIMULATION (a step that I stumble over in the dark, forcing me to raise my leg) from PROCESSES OF SIGNIFICATION: a /staircase/ consists of the articulation of a few morphological elements that are together recognized as a 'machine for ascending'. If the staircase is recognized as such, it is used. It can be recognized without being used. It can even communicate the possible function of 'ascent' without in fact allowing it (as in cases of *trompe-l'oeil*). This means that in architecture the communicative aspect predominates over the functional aspect, and precedes it.

0.4   So from this point of view the signified functions of architecture are not necessarily REFERENTS—they are not necessarily functions that may be carried out, and they are not functions that have been carried out. They are not TOKENS (*my* concrete act of climbing THESE stairs HERE AND NOW) but TYPES. They are classes of possible functions. They are thus CULTURAL UNITS, before being practical acts. An architectural object is therefore a sign-vehicle (*un signifiant*, according to Saussure's definition) that denotes a meaning (*un signifié*).

0.5   Still referring to *La struttura assente*, I had also distinguished two types of function: PRIMARY FUNCTIONS, those that the functionalist tradition recognizes as functions in the true sense of the word (going upstairs, standing at the window, taking the air, enjoying the sunlight, living together, etc.); and SECONDARY FUNCTIONS, those that art-historians and iconologists have preferred to classify as the 'symbolical values' of architecture: a Gothic cathedral makes possible several primary functions such as 'gathering together', but at the same time it communicates a number of 'ideological' values such as 'mystic atmosphere', 'diffusion of light as symbol of the divine presence', or else 'concentration', 'deference', and so on, I thus distinguished in the architectural sign a process of DENOTATION of primary functions and a process of CONNOTATION of secondary functions. Naturally, for many architectural objects communication of the secondary functions is more important (socially and ideologically) than communication of the primary functions. Therefore the term 'function' is not to be understood in the restricted sense assigned to it by classical functionalism.

0.6   But several problems were left unsolved in *La struttura assente*. One of the most important of these is: what are the levels of articulation of architectural signs and what is the significative unit in architecture?

1.1   The first problem is extensive and rather awkward, because one runs the risk of making out elements of secondary articulation in architecture (figurae according to Hjelmslev) that are not exclusively architectural. For example the elements of Euclidean geometry, which I have called 'stoicheia' differential, codified elements, undoubtedly without meaning but not belonging exclusively to the architectural language (they could be elements of secondary articulation in a painting by Mondrian or in the printed reproduction of an image seen through a raster).[1] At the mo-

ment this problem is being examined in several places, and perhaps the most interesting approach up to now is the one adopted in the course in architectural semiology in the Faculty of Architecture at Buenos Aires.[2]

1.2   The second problem, with which I shall be explicitly concerned from now on is: what are the *significative units* in architecture? If it were valid (which it is not) to transpose linguistic concepts into the terminology of architectural semiotics, one would have to ask: 'what is an architectural "word"'? But one can ask: 'what is an architectural SEMEME', and thus 'what sign-vehicles in architecture communicate a specifically architectural meaning?'

1.3   A further problem will be that once one has identified the sememes, one will have to try to carry out a componential analysis (or semic analysis) to show that the meaning of the architectural sign-vehicle is composed of other, smaller significative units, not necessarily architectural, which together form the sememe.

1.4   It should be clear that the sememe is a cultural unit, and that it is the object of a structural semantics of architecture. The architectural sign-vehicle will instead be called a 'morpheme'. The analogy with linguistic terminology is etymologically justified this time, since an architectural morpheme is a complex of formal qualities. It is the object of study of a morphology of architecture. The classic treatises on architecture that identified the architectural orders, for example, were morphological treatises and identified morphemes or complex syntagmatic chains composed of morphemes.

2.1   Before proceeding with such an analysis one must however eliminate a dangerous ambiguity that prevails in many current attempts to elaborate a semiotic of architecture (most of which, moreover, are being carried out by Italian schools of architecture).[3] This ambiguity derives from an aesthetic fallacy held in common by critics and historians of architecture, who almost always make a distinction between building and architecture. Building is thus the construction of manufactured objects that circumscribe spaces set aside to foster practical functions (a hen-house, a hangar, an 'unsightly' block of flats). On the other hand, architecture

[1]Cf. M. Krampen and P. Seitz ed., *Design and Planning* (New York, Hasting House Publishers, 1967); and my contribution to the proceedings of the conference on 'Stato e tendenze attuali della ricerca sulle communicazioni di massa con particolare riferimento di linguaggio iconico' (Milano, Istituto 'Gemelli', October 1970).

[2]Cf. in particular Roberto Doberti's study, as yet unpublished, *Sistema de figuras* (Universidad de Buenos Aires).

[3]Cf. in particular the studies of R. De Fusco and M.L. Scalvini, 'Significanti e significati della rotonda palladiana', and of Gillo Dorfles, 'Valori iconologici e semiotici in architettura', both in *op. cit.*, 16 (September 1969); Urbano Cardarelli, 'Lettura storia-semiologica di Palmanova', in *op. cit.*, 17 (January, 1970).

consists of articulating spaces that, although they can also permit practical functions, are valued above all for their aesthetic auto-reflectiveness. According to this theory, architectural work primarily signifies its own structures. This means that one identifies the architectural language with its poetic function (as defined by Jakobson). To take the poetic functions of architecture as a starting-point for an architectural semiotics would be the equivalent of a study of the structure of the English language that started from Shakespeare's sonnets and didn't go any further. It would be the equivalent of studying only the ambiguous use (the deviation from the norm) of a code that is not yet known.

2.2 One of the aesthetic fallacies of architectural semiotics lies in the affirmation that architectural objects are sign-vehicles whose meanings are spaces. Space (or rather an abstract notion of space as 'spatiality') then becomes the object of architectural communication.

2.3 It is easy to understand that, from this point of view, it becomes irrelevant to establish what the significative units in architecture are. An architectural work, such as Palladio's Rotonda, communicates 'that particular space that is the space conceived by Palladio'.

To ask oneself what the steps or the columns that mark out that space mean becomes useless. They are intermediate elements[4] that serve to signify an aesthetic conception of space. It is not by chance that this type of architectural semiotic is based upon works explicitly constructed to provide aesthetic experiences above all else, rich in 'secondary functions' and poor in 'primary functions' (or rather, that entirely sacrifice primary functions to secondary functions).

2.4 To solve this problem one must turn to a useful distinction, made by Hjelmslev, between LEVEL OF EXPRESSION and LEVEL OF CONTENT, which are in turn divided into SUBSTANCE OF EXPRESSION and FORM OF EXPRESSION, SUBSTANCE OF CONTENT and FORM OF CONTENT, as in the following scheme:

$$ C \quad \frac{s}{f} $$
$$ \overline{\qquad} $$
$$ E \quad \frac{f}{s} $$

2.5 Studying architecture as the communication of a particular conception of space is the equivalent of studying language as a means of expressing syntactic relationships. But the syntactic relationships, in the arrangement that they

[4]De Fusco (cit.) would call 'symbols' those elements of architectural articulation that can have a semantic value (for example a column, or the Doric order) but are 'without that internal spatiality which I have proposed as the true meaning of architecture' (p. 11 – 12).

immediately assume, constitute an aspect of the form of expression signifying a content that is in turn subdivided into relevant units (organized in semantic systems). So that in architecture the fact of articulating a certain space in a certain way signifies the subdivision of all possible spatial articulations and dispositions (substance of expression) according to a system of oppositions (forms of expression) in order to communicate, among all the possible functions that man may perform within his cultural context (substance of content), a series of functions that are specified and defined by a system of cultural units (the system of sememes) that represents the form of the content.

2.6 A man thrusts a stick into the ground. He may do it to measure the position of the sun, to fix a point of no return, to indicate a point of reference. The stick is an object that does not enclose an internal space (another aesthetic fallacy is that by which it is believed that 'architectural = aesthetic' space is what is delimited WITHIN an architectural object), but gives a new meaning to the space around it (which becomes 'space around the stick, space near the stick, and space far away from the stick', etc.).

Now, the space thus marked out by the stick is not the meaning that the stick communicates—it is, along with the stick, one of the elements of the sign-vehicle that serves to communicate the several possible functions permitted by that point of reference.[5]

2.7 It must furthermore be added that space (or rather spatial relationships, distances, as elements of the indeterminate substance 'space' that are already formalized), represents a pre-architectural material, already charged with its meanings, as we are taught by proxemics.[6] This expressive material, with the meanings that it conveys, is re-utilized by

[5]This function of space as sign-vehicle has been very well covered by Giovanni Klaus Koenig, *Architettura e comunicazione* (Florence, Libreria editrice fiorentina, 1970), which takes up and develops several of my proposals from the first edition of *La struttura assente*, (which in turn is indebted to previous studies by Koenig for a number of ideas). But even Koenig tends to think that an architectural unit such as the column cannot be considered a *choreme* because (a) occupies a place without creating a space; (b) it does not denote anything and it takes no function 'other than a static function (and therefore syntactic rather than semantic) of supporting something' (p. 162). Apart from the fact that the column may also, for example, connote 'leaning against', apart from the fact that simply denoting support is no trifling communication, I have tried to demonstrate in the new edition of *La struttura assente* (sec. A), that even what are called syncategorematic terms in language denote something—that is, precisely, their syntactic function (which permits the articulation of contextual meanings). In this way Koenig makes the same mistake as the other Italian researchers I have mentioned, and only attributes the value of a significative unit to complex syntagms, which create an articulated spatiality.

[6]Cf. Edward T. Hall, *The Hidden Dimension* (New York, Doubleday, 1966).

architecture as a sign-vehicle to signify new meanings, new cultural units. the sememes.

3.1   Let us therefore imagine a significative process of the type:

$$s \rule{3cm}{0.4pt} K$$

$$x^1 \rule{3cm}{0.4pt} Y$$
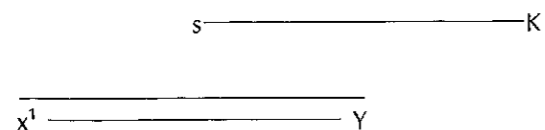
in which x^1 is the relevant unit of a system of pre-architectural spatial configurations (for example the linear distance of 12 feet). In *La struttura assente* these spatial units are called 'choremes'—from the Greek *chora*, 'space'.

Y is the unit of an anthropological (rather than spatial) system of physical functions: as Hall explains, at 12 feet it is possible to perceive skin texture, hair, the condition of clothes, but not the finest details of the face;

K is the unit of a system of socio-anthropological functions, in this case, for example, 'social distance—far phase'.

3.2   The process of signification presumes a spatial sign-vehicle that denotes a physical function. Choreme x_1 and function Y (insofar as together they constitute a sign) in turn become the sign-vehicle of a connotated, socio-anthropological function K. As one can see, architecture is not involved at this stage; a relationship of this type could be established between two human beings in a desert.

3.3   Architecture becomes involved when a physical object (for example a table-top) incorporates (realizes) as the form of its own expressive substance the distance of 6 feet. Space in this sense is not a meaning of the architectural object—it is one of its morphological characteristics, one of its mor-phological markers (thus in lexicology the lexeme /desk/ possesses the grammatical marker 'singular'). It is at this point that a significative process of the type is realized:

$$s \rule{3cm}{0.4pt} K$$

$$m_1 \rule{3cm}{0.4pt} Y$$
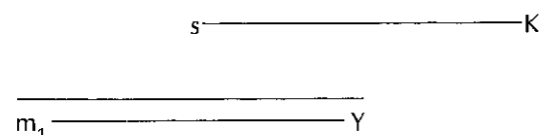
in which m_1 is the relevant unit of a morphological system and Y is the unit of a system of physical functions, already examined in proxemics, but not signified this time by a spatial distance, but by an object that imposes (as a stimulus) a spatial distance and that does not communicate the spatial distance but the physical function Y. K is the unit of a socio-anthropological system (e.g., 'social distance—far phase').

3.4   Yet one cannot assert that m_1, as a morphological ele-ment, is the sign-vehicle of a possible sememe 'desk in the office of important person' (cf. Hall, p.115). In order to realize the meaning 'desk', the presence of the morpho-logical feature m_1 is not enough. There must be other morphological features, for instance four vertical supports (the legs of the table), which in turn communicate physical functions of the category Y (such as 'support'). m_1 is therefore an element (with morphological marker x_1) of a more complex architectural morpheme M to which cor-responds, as a semantic unit, a sememe A, which is 'desk in the office of important person'.

3.5   So that, given a morpheme M possessing mor-phological features m with spatial features x:

$$M [m_1 (x_1), m_2 (x_2, x_3), \ldots m_n (x_n)]$$

the morpheme M expresses an architectural sememe A with semic features $a_1, a_2, \ldots a_n$.

3.6   Each of these semantic markers may directly belong to the Y category (denoted physical functions) or to the K category (connotated socio-anthropological functions). Each of the features of the K group will in turn connote, with reference to precise architectural conventions, other socio-anthropological functions (and thus secondary functions) such as 'power', 'respect', 'manager', etc. Each of the con-notated secondary functions must base itself upon a mor-phological feature of the M group (for example 'luxury' will be a semic feature a_n expressed by a morphological feature x_n that could be the use of a valuable wood).

3.7   These theoretical hypotheses, which, as may be seen, imply the possibility of a componential analysis of architec-tural objects, were tested out in the course of an experiment conducted during a seminar that I directed for the Instituto Interuniversitario de Especialisacion en Historia de la Ar-quitectura, held at La Plata (Argentina) in July – August 1970, in which students interested in the semiotic approach to architecture, critics and historians of architecture, and archi-tects took part.[7]

4.1   As will be seen, in order to attempt a componential analysis of an architectural morpheme, a method of stem-

ming was used which brings to mind the one put forward by Katz and Fodor and by Katz and Postal.[8] I criticized this method on several points in *La struttura assente* because I thought it excessively schematic. However, in the absence of more elaborate systems of notation and representation it may, I think, prove didactically effective as a first approach to the problems of componential analysis.

4.2   But it should be made clear that in the stems that follow some nodes are introduced that are excluded from the hypothesis of Katz — Fodor — Postal. They in fact consider that it is not possible to elaborate a THEORY OF SETTINGS, and thus that it is not possible to include among the semantic components of an item the possible contextual events that will assign to the sememe one path (reading) rather than another. The argument asserts that a theory of settings would imply the consideration of all possible contexts and therefore of every event in the universe. I, on the other hand, would maintain that in the semantic representation of an element, privileged events, which is to say the contextual connections among which it habitually recurs, may be taken into consideration. In this sense it is valid to consider that these contextual connections are codified and recognized as 'canonical', and that they may therefore find a place in a componential analysis.

4.3   Neither does the Katz — Fodor — Postal hypothesis consider as semantic components of a lexical item its possible connotations, for the same reason it rejects a settings theory. In fact the possible connotations of a semantic unit are, in theory, infinite. But if one may take into account contextual circumstances (privileged in relation to the others, because more likely to recur) it will then also be possible to include in the componential description of a unit the connotations it is most likely to generate — and which therefore appear to be already codified.

4.4   These particulars only serve to explain (a) why a system of componential description that resembles Katz — Fodor — Postal's in several respects is adopted, (b) why the present system diverges from it, and (c) why, all things considered, I would regard this system of description as entirely provisory and simplistic.

5.1   The Argentinian experiment was the fruit of a series of

[8]Cf. J.J. Katz and J.A. Fodor, 'The Structure of a Semantic Theory', in Katz and Fodor eds., *The Structure of Language* (Englewood Cliffs, Prentice-Hall, 1964); J.J. Katz and P.M. Postal, *An Integrated Theory of Linguistic Description* (Research Monograph, n. 26) (Cambridge, M.I.T., 1964). As for a general sense of 'semic analysis', I am greatly indebted to A.J. Greimas, *Semantique Structurale* (Paris, Larousse, 1966).

discussions in which several architects—who held views similar to those of Italian sociologists of architecture — tended to fall into the trap of an aesthetic fallacy, maintaining that the meaning of an architectural unit was its over-all aesthetic signification in terms of Space. The fact that they tended to analyze works of art (those of Frank Lloyd Wright for example) rather than ordinary constructions, revealed the architectural critics' aversion to 'building'. In these cases, potential elementary significative units lost their powers of signification because they had to be viewed as elements of a more extensive syntagm. To check this temptation, it was even decided to conduct an enquiry among children (free from aesthetic-cultural prejudices), asking them what a door or a window was. It was in fact a question of finding out whether, for an 'uncultured' recipient — lacking an academic degree — there existed minimum units endowed with sense, such as a step, an architrave, or a stair.

5.2   At times, the project took the form of a paradoxical proposition: what instructions ought I to give a Martian in order to get him to construct a door? Would I necessarily have to make him construct the whole building, or city, or could I provide him with inputs such that in output (considering the Martian as a black box) they would supply a 'door' or 'window' object that the Martian could recognize as such semantically? The most frequent objection was: 'one thing that is not clear is the meaning of a column; in itself a column doesn't mean anything; it is the complex of columns called the Parthenon that acquires architectural meaning; a column does not communicate possible functions, it is a neutral element that combines to form more complex morphological chains which do have an architectural meaning'.

5.3   During the discussions I happened to come across an article, 'Eternidad de la columna', by Dora Isella Russell, in the daily paper *La Prensa*, 26 July 1970. I translate it in full, emphasizing the phrases whose semantic units are then to be subjected to analysis:

The Eternal Column
Around it blow the winds of time. The winds embrace the *uplifted, time-defying shaft.* Centuries have passed without touching its *slim body,* and *towering among the ruins,* the column *affirms its timeless destiny.*

A glance back through the ages reveals to us the vast panorama, studded with *venerable ruins,* from which emerge *solitary* columns, the *last remaining witnesses of vanished greatness.* Amongst them *wanders the shadow of melancholy.* The mighty civilisations that lighted the awakening of human consciousness were ground into the dust, and other men and other ways of

life raised above their exhausted cultures the hope of resurrection. Phantoms of India, shadows of Babylon, Chaldean shepherds consulting the stars, priests of Heliopolis filing invisibly past, wandering Phoenicians hoisting the first sails in our seas, grave pharaohs submerged in death, luminous memories of Hellas as the sun of the Peloponnese sinks, soldiers of Gaul extending the frontiers, all were consigned to oblivion before the uncontainable onrush of new ages. And the flood swept down upon men as upon things, blotting out peoples, burying buildings, shattering temples, destroying statues, wiping out all trace of the work of individual men. And yet here and there in remote corners of the Orient, and along the roads of Europe, menhirs and dolmens remained standing, hinting at reconstruction, and in Egypt as in Greece, at Rome as at Palmyra or among the remotest oceanic islands, something was able to escape from the inexorable massacre—the *aristocratic upthrust* of the column, an object of wonder, a *sacred relic*, an *unscathed document*.

The first *tree-trunk*, the first lopped branch that some distant inhabitant of this planet hammered into the ground in front of his cave, were its most distant forerunners. From the tree was born the column. The imagination arrives at such an idea *without effort*, and so simply, so logically that there is no race that has not concerned itself with the column, as *support* and as *ornament. It sustains, yet nothing sustains it*, and it may possess the *patina of millennia*. It *allegorizes the miracle of survival*, belying the *apparent fragility* of a *single point of contact* with the earth.

Rare were the Egyptian monuments that lacked imposing internal colonnades. Generally, a *stiff plume of palm, lotus*, or *papyrus* fronds *twined around the capital*, taking over its place, which in itself constituted no mean *imaginative audacity* for a people of such grave and hieratic formulae. India, on the other hand, was to allow leaves, flowers, allegories, and legendary figures to climb around her columns; the imaginative exuberance of her mythology found intricate expression in decorations that *reached to the roofs* of her colossal sanctuaries.

But at the height of Greece's glory the artists of Hellas trimmed away *all foliage*, leaving naked the *smooth, scarcely tapered body* of the *Doric* column, or else, later, adding the *nimble volutes* that embellish the *Ionic* order. The column became *channelled with grooves*, with *flutings* that enhanced its weightlessness in a crystalline, open-air exaltation that *lent harmony to*

their constructions. When the *Corinthian* column became burdened with *acanthus and olive leaves*; when *griffons, pegasi and sphinxes* were added; when the *capital blossomed into a profusion of interwoven forms*, the end was near. These baroque mannerisms, for all their beauty, heralded the sunset—a glorious but finally inescapable twilight that brought to an end the *'Grecian miracle'*.

In Asia Minor the *bodies of fantastic animals* replaced the traditional column on many occasions. In Persia there were kneeling camels; in India the *pachyderms* of Ellora, carved in the stone of the mountain, served as the base for prodigious temples, while at the palace of Susa *bull-heads* crowned the columns. The Egyptians, even earlier than the Greeks, had revealed the sumptuous majesty of hypostyles such as those at the temple of Karnak, and had arrived at the stage of sculpting *human forms on the capitals* of Denderah that reproduced the masks of Isis. Yet it was the Greeks of Pericles' time that dared to entirely *replace the column by making the human body* assume its functions, supporting the architecture of their temples now upon the *male statues* (talamoni), now upon *female bodies* that graciously and effortlessly carry the building's weight without losing their feminine delicacy. The caryatids raise their graceful forms and fluttering robes, and have for centuries borne their *heavy task* with that diaphanous limpidity with which the Grecian sky lends nobility to the sacred relics of its history.

In every latitude and in every age the column has *enriched monuments, giving to façades solidity and sumptuousness*, to *interiors grandeur*, and above it *have risen towers and cupolas* that re-echo its *upward-aspiring intentions with that verticality* so characteristic of Gothic art. The Gothic column *has no modulus*, is not independent of the building—*it inter-reacts with other columns* to form groups which *mount vertiginously upwards*, pointing towards heaven, as if by their means the faith of men rose towards mystic regions inhabited by saints and angels, that have been metamorphosed into finely-wrought stained-glass. The mediaeval cathedral absorbs the column in its obsession with upward-climbing masonry that *sprouts architraves*, branching forms, spears of stone, dominated by the *impulse to rise*. Ogives, arches and columns do not belong to Gothic art alone—while mediaeval Europe was constructing her cities, with their prodigious, steepled bell-towers, Muslim art gave birth to the Mosque of Omar at Jerusalem, the Mosques of Amru and of Touloun at Cairo, and in Spain the famous

Mosque of Cordova and the Palace of Zara, built upon four thousand, three hundred columns.

A lyrical raptus renders it poetical. Its *suggestive power* renders it subtle. The anonymous Arab poets celebrate it, identifying it with the *palm-tree,* 'the column of the desert'. 'Slender as a column and with eyes like stars', they say of *their beloved.* Her *neck* is an 'alabaster column'; the litany of beauty employs it as a likeness for the delicate *throat,* the smoothly shaped *arm,* the perfectly formed *leg.* 'Her legs are columns of marble upon bases of fine gold', one reads in the Song of Songs. Nations raise columns *in commemoration* of their great feasts, events, and heroes—the Trajan column, the column of Place Vendôme, the column of Trafalgar Square, recalling Nelson . . .

Since they *are not easily thrown down,* men erect them *as memorials.* An aesthetic mission, a historical mission, both devolve upon these *obstinate, airy, arrogant* columns raised above the passing hours.

For time is a sharp-keeled ship that leaves in its wake all that is transient. And the column that spans the centuries appears as *the mast* of this mighty vessel.

5.4   At first sight, the article would appear to be a collection of exceedingly obvious reflections upon the rhetorical theme of the column, an inventory of banalities with pseudo-poetical intentions. Any cultivated reader would be tempted to dismiss it as a sample of critical kitsch.

But rereading the article, one realizes that these 'obvious reflections' correspond precisely to an inventory of the current tradition of thought about the column. It represents the astonishing record of an imaginary survey that collects from a sample of everyday users of architecture all the meanings that they associate with the unit 'column'.

5.5   These meanings may be viewed as 'endoxa' in the Aristotelian sense of the term (that is: general opinions or socially codified acquired habits). Society, that is, recognizes several obvious morphological features in the column, such as presence of shaft, base, the capital, and so forth. One may also extrapolate from a number of 'pseudo-poetic' statements several semantic features such as 'verticality', 'support', etc.

5.6   In the second place, it is possible to compile an inventory of connotations of the unit column that sets out in three columns an analysis of the article's connotative content (see Table I). All these connotations could be summarised in more precise formulae, but at present it seems more convenient to keep to the ones employed in the article.

To explain points (I) and (J) better I should add that the first case refers to colonnades in which identical columns follow one another, the second to colonnades of the Gothic type in which rhythms such as AB − AB, or ABC − ABC may be established.

Table I

architectural connotations	historical connotations	aesthetic connotations
A. tree-trunk	1. the winds of time blow around it	a. affirms its timeless destiny
B. apparent fragility	2. venerable	b. amongst them wanders the shadow of melancholy
C. supports without being supported	3. last relic left standing of vanished grandeur	c. it rises aristocratically
D. effortless	4. unscathed document	d. universal
E. enriches monuments	5. commemoration of events, great deeds, heroes	e. pure
F. gives solidity to façade	6. mast of ship of time	f. legendary
G. gives sumptuousness to façade	7. has the patina of millennia	g. audacity of imagination
H. gives grandeur to interior	8. allegory of the miracle of survival	h. mounts vertiginously upwards, pointing towards heaven
I. unity in repetitive variety	9. time-defying	i. poeticized by lyrical raptus
J. unity in modulating variety		j. neck of beloved
K. irremovable		k. slender body
L. mast of ship		l. shapely arm
M. airy		m. perfectly formed leg
N. gives harmony to building		n. obstinate
		o. arrogant
		p. solitary
		q. sacred remains
		r. Greek miracle
		s. prodigious

6.1   At this point 3 problems arise:

(a) the provision of a morphological description of the column; this must be composed of morphological markers and constructive operations similar to those that one would supply a Martian (or a robot) with if one had to make him construct a column; the possibility of such an operation will demonstrate the possibility of construction of (and therefore of defining) an isolated architectural object furnished with autonomous meaning.

(b) the provision of a semantic description of this isolated column; seeing whether the various semantic markers are based upon precise morphological markers, and thus which morphological markers are necessary in order to single out a semantic marker.
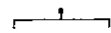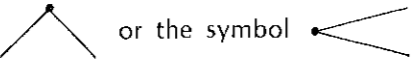
(c) the insertion of the isolated column within a context, so

as to see whether this insertion will charge the object with new meanings. This operation poses a series of problems of description, granted that the contexts in which the architectural object may be included are various. The context may be seen (i) in ELEVATION, as the façade (or one side) of the building in both vertical and horizontal relation; (ii) in a VERTICAL SECTION of the building; (iii) in OTHER SECTIONS, which give account of the depth of the building; (iv) in GROUND-PLAN. For analytical convenience, and for reasons of didactic clarity, I have decided to limit myself to a laboratory situation, and to examine possibility (i) alone.

In the diagrams that follow, the following graphic rules must be kept in mind:

(A) The sign in isolation is represented by a horizontal stem, the sign in context by vertical stems.

(B) The terms in brackets represent morphological markers; those in inverted commas represent semantic markers; Arabic numerals, Roman numerals and letters of the alphabet refer to the inventory of connotations listed in 5.6. It seems to me, that is, that the primary function denoted in a particular morphological node becomes the sign-vehicle of a connotated secondary function only in that particular node.

(C) The symbol ⌐──¹──⌐ and the symbol ⌐ are used when a given node generates a series of possibilities that are not mutually exclusive but can co-exist (the shaft can possess height, diameter, and weight just as a lexical item can simultaneously possess morphological and semantic markers such as masculine, singular, animate, etc.). The symbol ⟋⟍ or the symbol ●⟨ is only used when the markers are exclusive and in mutual opposition, implying a binary selection between different paths or readings. These binary exclusions could be similar to those that in Katz — Fodor — Postal's lexical models are defined as 'distinguishers'.

(D) The representation by means of stems possesses an analogical aspect in that the vertical and horizontal succession of elements also suggests the order of their succession. In other words, the fact that in the first scheme the shaft is BELOW the capital and ABOVE the base, furnishes the robot with instructions as to how to combine the pieces. It is obvious that with a robot that functions digitally, such instructions could be given in another way, and for this reason, once again, the scheme has been simplified for didactic purposes.

7.1   For the componential analysis model of the sign /column/ out of context see Table II.

7.2   The semantic marker is placed in a particular node if

TABLE II

K.L. XIII
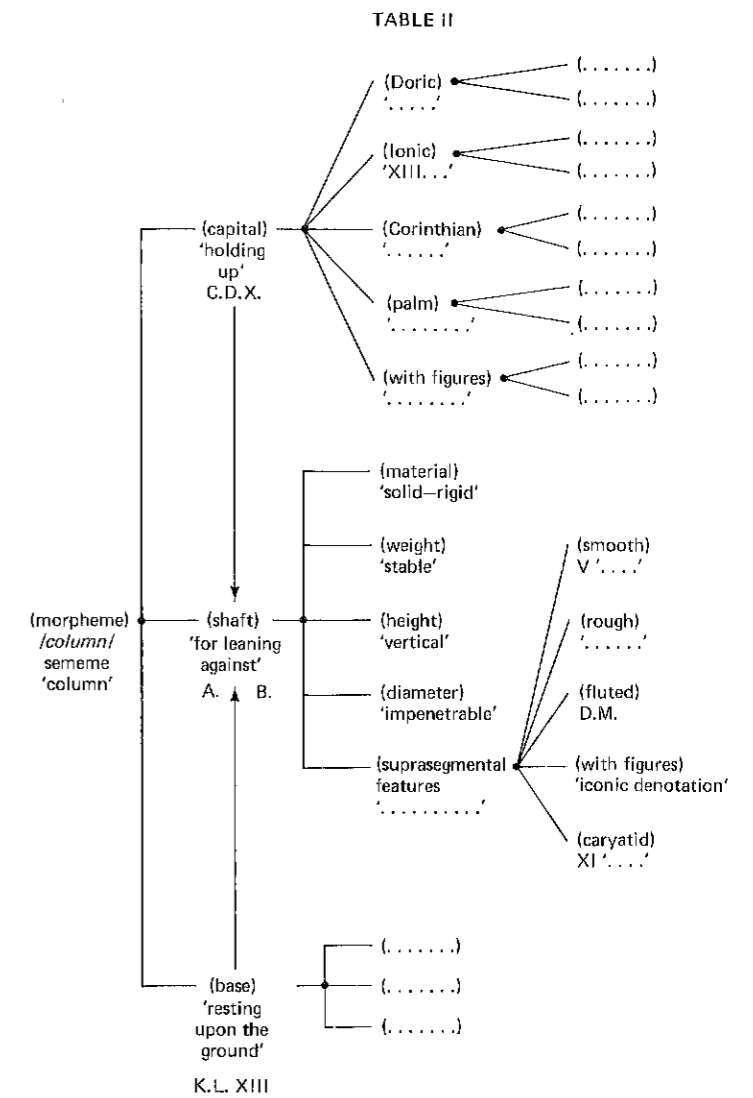
and when the connected meaning is only recognized in the presence of the corresponding morphological marker. Thus the semantic marker 'holding up' is only assigned to a column when the shaft supports a capital. A column without a capital does not give the impression of holding up anything. The same may be said of the shaft — base relationship with regard to the marker 'resting upon'.

This scheme is full of analogical elements that have been used for the sake of speed. In fact, distinguishing (Doric) between the morphological features of the capital simply means that in place of this verbal category there ought to be other instructions. Probably these instructions would also be of the analogical type (an iconic representation to be reproduced on the pantograph), but there is nothing to prevent one from arriving at a system of digital notation

capable of making the robot construct a standard Doric capital. The same is true of morphological instructions such as (smooth) or (rough) or (with figures) or (caryatid). The last two are indeed cases of an iconic code superposing upon the architectural one. Naturally the componential spectrum could be more complex here as well.

7.3 It may be objected that many of the semantic markers denotated by the morphological markers are not amongst those that would be called 'functions' in architecture. 'Resting upon' and 'holding up' are certainly functions, but are 'vertical' or 'impenetrable' functions in the same sense? Here one has to establish whether the functions communicated by architecture are only bio-physiological (leaning against, going out) or also constructive (holding up, rising vertically, etc.). One would be tempted to call the second ones syntactic functions and the first, roughly, semantic functions. But, apart from the fact that the so-called semantic functions are instead bio-physical functions, the so-called syntactic functions, while undoubtedly playing a part in the way the building, or single object (cf. column) supports itself, are also perceived by the observer as semantic communication of cultural units. The column communicates (as Miss Russell's article demonstrates) semantic markers such as 'verticality' and 'impenetrability'. One therefore has to consider as irrelevant the distinction between bio-physiological and constructive functions at the present, preliminary stage of analysis. But a more accurate description ought to be able to distinguish between these two aspects.

7.4 One also notices that, of the connotations or secondary functions singled out in Miss Russell's article, very few would appear to associate themselves with the morphemes and sememes of this scheme. As will be seen, the greater part of these connotations are instead associated with the column placed in its spatial and temporal context. Associated with the single column are the connotations C ('supports without being supported'; a typical poetico-kitsch connotation, which is applied to the shaft — capital relationship without taking into account the shaft — base relationship). D ('effortless'), and consequently X ('neck of beloved', for clear analogical reasons). The shaft — base relationship generates the analogical connotation XIII ('leg'). D and M ('effortless' and 'airy') seem to me to apply to the morphological feature (fluting), as indeed the context of Miss Russell's article would give one to understand. And it is obvious that the presence of a caryatid will arouse associations of XI ('slender body'), which may however be associated with the whole column. In any case, the association of connotations has been undertaken on the basis of common sense. One would have to carry out an examination of this field by means of interviews

TABLE III

A Componential Analysis of the Sign /column/ in a Vertical and Horizontal Content

/column/

- (horizontal relation) 'horizontality'
  - (with others) 'plural'
    - (simple) 'equality'
    - (complex) 'rhythm'
    - [new]
      - (filled in behind) 'no way'
        - (filled in) 'reinforcement' E, F, K
        - (limited space) 'pen. of light' VIII, M, H
      - (nothing behind) 'way through'
  - (alone) 'singular'
    - [ancient, in intact archeological context] 1, 2
      - (filled in behind) 'no way through'
        - (filled in) 'reinforcement' E, F, K
        - (limited space) 'penetration of light' VIII, M. H.
      - (nothing behind) 'way through'
    - [new] 'commemoration' 5, III, XIV, XVI
    - [ancient, amongst ruins] 1, 2, 3, 4, 5, 6, 7, 8, I, II, III, XIV, XV, XVI, XVII, K.
- (vertical relation) 'verticality', VII
  - (downward relation) 'resting'
    - (indirect) 'contact with the base'
      - (on the lower part of façade) G.N.
      - (above steps)
    - (direct) 'contact with the earth'
  - (upward relation) 'holding up'
    - (finds a limit) 'fulfilment of function'
    - (extends) 'extension of function'
      - (in depth) 'product of efforts'
      - (vertically) 'sum of efforts' VII

c.f. plan

to be able to establish with precision the average psycho-semantic response.

8.1   For the componential analyis model of the sign /column/ in context see Table III.

8.2   In this second scheme, which is undoubtedly more complex than the first, certain details require further defini-tion, which will be given by reference to individual mor-phological relations:
—(Vertical relation): the column considered in connection with what is above and what is below.
—(Horizontal relation): the column considered in connection with lateral architectural signs.
—(Upward relation): the column may support a tympanum or other columns; in such cases the function (extends), that is, the 'holding up' is transmitted to other columns placed above which in turn hold up something else, or else the func-tion (finds a limit) in the tympanum or in some other archi-tectural element which, as it were, finishes the process off. The function may be extended (vertically) when the column is supporting other columns, as in a façade with colonnades at several levels, or else (in depth)—this latter expression has been used to indicate the typical extension of function that one finds in the Gothic column of an ogival vault, which curves back to join with other columns in the clef-de-voûte, adding its own sustaining power to that of others. It is for this reason that one is referred to the plan, since a representation in elevation cannot give an account of this morphological feature.
—(Downward relation) places the column in direct contact either with the earth, or with other elements of the base (steps) or else with other columns standing beneath it on the façade.
—(Horizontal relation): the column may be at a horizontal relation of zero, and therefore (alone), or else (with others). In the first case this single column may be an ancient one, stan-ding alone [amongst ruins], or a [new] one erected for com-memorative ends. It should be noted that in this group of nodes the morphological features have been put in square brackets. These are in fact morpho-HISTORICAL features, and are thus SYNCHRO—DIACHRONIC at one and the same time. That a new column seems ancient and appears amongst ruins is un-doubtedly one of its morphological characteristics; but to define this one has to make reference to time. These morpho-historical features are typical of architecture, and probably also of other forms of visual communication in which the sign-vehicles are not consumed in the moment of emission, as with the flatus vocis of verbal language, but per-sist in time. These observations are equally valid for markers such as [ancient, in intact archaeological context].

—(Nothing behind) means that a column, associated with at least one other column, circumscribes an empty space, thus permitting and communicating the function 'way through'. (Filled in behind) means that the column functions as a rein-forcement to the wall. In such a case it communicates 'no way through', but it can accompany a (limited space), and thus frame a window, communicating a possible or actual 'penetration of light', or else circumscribe a filled-in space, in which case it will communicate the function of 'reinforcing' the wall itself, even if structurally this is not the case.

The two markers (simple) and (complex) which laterally distinguish two possible ways of linking (with others) several columns, refer to the fact, already mentioned in 5.6., that the columns may succeed one another identically, or according to a rhythmic modulus of alternation, of the type AB — AB or ABC — ABC, etc.

This stem summarizes practically all possible uses of a column in context, or at least those that have been codified by tradition. Every use of the column not mentioned above must be considered as deviating from the norm and therefore as giving out an ambiguous message with the aim of using architecture poetically.

8.3   As for the connotations, I shall dispense with an ex-tended commentary on the reasons for their being arranged in the morphological nodes indicated. They should be clear to the reader. It is worth noting that the connotations of an aesthetic type are concentrated around the relation [ancient, among ruins], further evidence that the aesthetic apprecia-tion of architecture and of art in general is due to what Walter Benjamin called aura, that is, the halo of fetishistic respect that is connected to the past, time, and the price that venerable age confers upon an object.

8.4   One last note. The morphological features are express-ed in verbal terms for the sake of convenience, but they could be expressed in iconic terms by means of some other symbolical notation. As for the semantic features, they are expressed in verbal language, but they refer not to linguistic entities, but to cultural units that may be translated into linguistic sign-vehicles of various types. In this way a new function, and a very useful one, may be found for semantic analysis in architecture. While at the level of verbal language both the definition of sign-vehicles and the defini-tion of meanings as cultural units must be carried out by means of verbal language, in architecture both architectural sign-vehicles and meanings are expressed by linguistic and other types of notation that are not architectural. One is thus faced with a system of communication that needs to be represented by extremely complex diagrams (of which the

ones given above are merely minor and imperfect examples), but that does all the same permit an analysis of the gap between sign-vehicles and meanings without falling a victim to the particular semantic illusion of verbal language, where both entities must be indicated by means of other linguistic sign-vehicles. For this reason, a semiotics of architecture may also turn out to be useful for semiotic studies in general.

8.5   In *La struttura assente* I adopt Peirce's notion of 'interpretant' in order to underline the fact that every semantic marker of a sememe is itself a sememe that in turn calls for its own componential analysis. A componential analysis of architecture proves that every semantic marker of a sign is a verbal interpretant (or an interpretant of some other type) and demonstrates that semic analysis never comes to an end, but must continually return to the problem of semantically defining its own instruments, thus realizing an UNLIMITED SEMIOSIS.

This does not prevent the unlimited process of semiosis from being provisionally halted, in certain experimental situations. It has been done in this instance in order to demonstrate that certain architectural objects, either out of context or in context, but always as single objects, can be the bearers of meaning, and are thus considered as the pertinent units of an architectural semantics—the sememes that culture recognizes and organizes in a structured system. But if and how the system is structured has yet to be demonstrated.

2.2 A Semantic Analysis of Stirling's Olivetti Centre Wing

Charles Jencks

We experience and classify architecture roughly in terms of metaphors. At least laymen tend to do this before they go on to any deeper perception or use of a building. They say, perhaps without verbalizing it, 'this building looks like an X', 'it feels like Y', and 'reminds me of Z'; 'I like it, it makes me feel good', 'I never noticed it'. These crude metaphors and affective judgements are, as I have argued elsewhere, the primary average classifiers and the modern architect disregards them at his peril (Jencks, 1972).

But one can sympathize with him: they seem literary and vague, idiosyncratic and superficial — nothing he can control or take responsibility for. As Umberto Eco has suggested, architecture is often experienced inattentively, the way one listens to background music, and is used in aberrant ways (Eco, 1973), so why should the architect care about this most general and malleable level of meaning? It seems to me because this level is actually quite coherent and influential in the way people use buildings. These metaphors and connotations of form are socially shared subcodes which have a fair amount of stabiliy in any one time or place. They guide a deeper reading of the architecture: its actual use, denotation and overall signification.

In terms of malleability and change, the architectural code is located roughly between that of painting and language. Like spoken language, architecture makes use of slow-changing subcodes where the relations between signifiers and signifieds is stable (door = passage etc., Gothic style = Age of Faith etc.), but like abstract art it can also reinvent these relations with each building (new technologies, borrowing from other fields such as painting