

# UMBERTO ECO

Italian semiotician Umberto Eco (b. 1932) is a thinker of great versatility, whose interests span from the mediaeval world of aesthetic theory to contemporary debates about semiology, and whose publications address topics as diverse as the aesthetics of Thomas Aquinas and the sociology of jeans. He is also well known for his fictional writing which is informed by his academic work.

As a semiotician Eco adopts a middle ground with regard to language, and avoids an understanding of language as either univocal or deferring to infinite meaning. He therefore develops a model of an 'ideal' reader alert to the possibilities of language, if not to the infinite possibilities of language. Eco bases his semiotic theory on codes. He draws the distinction between specific and general codes, where specific codes refer to the language codes of particular languages, while general codes refer to the structure of language as a whole. At the same time he stresses that codes must be viewed within their cultural context. Thus he introduces a certain flexibility and a temporal dimension to an otherwise heavily structural understanding of language.

In his article 'Function and Sign: Semiotics of Architecture' Eco applies his general semiotic theory to the question of architecture and the built environment. Architecture, Eco notes, presents a special case as it is often intended to be primarily functional and not to be communicative. Nonetheless, architecture does function as a form of mass communication. Eco draws the distinction between the denotative and the connotative. He therefore distinguishes between the primary function—architecture as functional object—and the secondary function—architecture as symbolic object. He notes that in both categories there is potential for 'losses, recoveries and substitutions'. Eco concludes that architects must design structures for 'variable primary functions and open secondary functions'.

In the extract 'How an Exposition Exposes Itself' Eco applies this theory to the context of the 1967 Expo World Fair. Such expositions, Eco observes, present extreme examples, in that the primary function of the pavilions is minimized while their secondary function is exaggerated. The pavilions serve less as functional buildings than as symbols of the values of their national culture.

## FUNCTION AND SIGN: THE SEMIOTICS OF ARCHITECTURE

### SEMIOTICS AND ARCHITECTURE

If semiotics, beyond being the science of recognized systems of signs, is really to be a science studying *all* cultural phenomena *as if* they were systems of signs—on the hypothesis that all cultural phenomena *are*, in reality, systems of signs, or that culture can

be understood as *communication*—then one of the fields in which it will undoubtedly find itself most challenged is that of architecture.

It should be noted that the term *architecture* will be used in a broad sense here, indicating phenomena of industrial design and urban design as well as phenomena of architecture proper. (We will leave aside, however, the question of whether our notions on these phenomena would be applicable to *any type of design producing three-dimensional constructions destined to permit the fulfilment of some function connected with life in society*, a definition that would embrace the design of clothing, insofar as clothing is culturalized and a means of participating in society, and even the design of food, not as the production of something for the individual's nourishment, but insofar as it involves the construction of contexts that have social functions and symbolic connotations, such as particular menus, the accessories of a meal, etc.—a definition that would be understood to exclude, on the other hand, the production of three-dimensional objects destined primarily to be *contemplated* rather than utilized in society, such as works of art.)

Why is architecture a particular challenge to semiotics? First of all because apparently most architectural objects do not *communicate* (and are not designed to communicate), but *function*. No one can doubt that a roof fundamentally serves to cover, and a glass to hold liquids in such a way that one can then easily drink them. Indeed, this is so obviously and unquestionably the case as it might seem perverse to insist upon seeing as an act of communication something that is so well, and so easily, characterized as a *possibility of function*. One of the first questions for semiotics to face, then, if it aims to provide keys to the cultural phenomena in this field, is whether it is possible to interpret functions as having something to do with communication; and the point of it is that seeing functions from the semiotic point of view might permit one to understand and define them better, precisely as functions, and thereby to discover other types of functionality, which are just as essential but which a straight functionalist interpretation keeps one from perceiving.<sup>1</sup>

## ARCHITECTURE AS COMMUNICATION

A phenomenological consideration of our relationship with architectural objects tells us that we commonly do experience architecture as communication, even while recognizing its functionality.

Let us imagine the point of view of the man who started the history of architecture. Still 'all wonder and ferocity' (to use Vico's phrase), driven by cold and rain and following the example of some animal or obeying an impulse in which instinct and reasoning are mixed in a confused way, this hypothetical Stone Age man takes shelter in a recess, in some hole on the side of a mountain, in a cave. Sheltered from the wind and rain, he examines the cave that shelters him, by daylight or by the light of a fire (we will assume he has already discovered fire). He notes the amplitude of the vault, and understands this as the limit of an outside space, which is (with its wind and rain) *cut off*, and as the *beginning of an inside space*, which is likely to evoke in him some unclear nostalgia for the womb, imbue him with feelings of protection, and appear still imprecise, and ambiguous to him, seen under a play of shadow and light. Once the storm is over, he might leave the cave and reconsider it from the outside; there he would note the entryway

as 'hole that permits passage to the inside', and the entrance would recall to his mind the image of the inside: entrance hole, covering vault, walls (or continuous wall of rock) surrounding a space within. Thus an 'idea of the cave' takes shape, which is useful at least as a mnemonic device, enabling him to think of the cave later on as a possible objective in case of rain; but it also enables him to recognize in another cave the same *possibility of shelter* found in the first one. At the second cave he tries, the idea of that cave is soon replaced by the idea of cave *tout court*—*a model, a type*, something that does not exist concretely but on the basis of which he can recognize a certain context of phenomena as 'cave'.

The model (or concept) functions so well that he can now recognize from a distance someone else's cave or a cave he does not intend to make use of, independently of whether he wants to take shelter in it or not. The man has learned that the cave can assume various appearances. Now this would still be a matter of an *individual's* realization of an abstract model, but in a sense the model is *already codified*, not yet on a social level but on the level of this individual who proposes and communicates it to himself, within his own mind. And he would probably be able, at this point, to communicate the model of the cave to other men, by means of graphic signs. The *architectural code* would generate an *iconic code*, and the 'cave principle' would become an object of communicative intercourse.

At this point the drawing of a cave or the image of a cave in the distance becomes the communication of a possible function, and such it remains, even when there is neither fulfilment of the function nor a wish to fulfil it.

What has happened, then, is what Roland Barthes is speaking about when he says that 'as soon as there is a society, every usage is converted into a sign of itself'.<sup>2</sup> To use a spoon to get food to one's mouth is still, of course, the fulfilment of a function, through the use of an artifact that allows and promotes that function; yet to say that it 'promotes' the function indicates that the artifact serves a communicative function as well: it *communicates the function to be fulfilled*. Moreover, the fact that someone uses a spoon becomes, in the eyes of the society that observes it, the communication of a conformity by him to certain usages (as opposed to certain others, such as eating with one's hands or sipping food directly from a dish).

The spoon promotes a *certain way of eating*, and *signifies that way of eating*, just as the cave promotes the act of taking shelter and signifies the existence of the possible functions; and both objects *signify even when they are not being used*...

## THE ARCHITECTURAL SIGN

With this semiotic framework, one is not obliged to characterize a sign on the basis of either behaviour that it stimulates or actual objects that would verify its meaning: it is characterized only on the basis of *codified meaning that in a given cultural context is attributed to the sign vehicle*. (It is true that even the processes of codification belong to the realm of social behaviour; but the codes do not admit of empirical verification either, for although based on constancies inferred from observation of *communicative usages*, they would always be constructed as *structural models*, postulated as a *theoretical hypothesis*.)

That a stair has obliged me to go up does not concern a theory of signification; but that occurring with certain formal characteristics that determine its nature as a *sign vehicle* (just as the verbal sign vehicle *stairs* occurs as an articulation of certain 'distinctive units'), the object communicates to me its possible function—this is a datum of culture, and can be established *independently of apparent behaviour, and even of a presumed mental reaction, on my part*. In other words, in the cultural context in which we live (and this is a model of culture that holds for several millennia of history as far as certain rather stable codes are concerned) there exists an architectural form that might be defined as 'an inclined progression of rigid horizontal surfaces upward in which the distance between successive surfaces in elevation, *r*, is set somewhere between 5 and 9 inches, in which the surfaces have a dimension in the direction of the progression in plan, *t*, set somewhere between 16 and 8 inches, and in which there is little or no distance between, or overlapping of, successive surfaces when projected orthographically on a horizontal plane, the sum total (or parts) falling somewhere between 17 and 48 degrees from horizontal'. (To this definition could of course be added the formula relating *r* to *t*.) And such a form *denotes* the *meaning* 'stair as a possibility of going up' on the basis of a code that I can work out and recognize as operative even if, in fact, no one is going up that stair at present and even though, in theory, no one might ever go up it again (even if stairs are never used again by anyone, just as no one is ever going to use a truncated pyramid again in making astronomical observations).

Thus what our semiotic framework would recognize in the architectural sign is *the presence of a sign vehicle whose denoted meaning is the function it makes possible...*

The semiotic perspective that we have preferred with its distinction between sign vehicles and meanings—the former observable and describable apart from the meanings we attribute to them, at least at some stage of the semiotic investigation, and the latter variable but determined by the codes in the light of which we read the sign vehicles—permits us to recognize in architectural signs *sign vehicles capable of being described and catalogued*, which can denote precise functions provided one interprets them in the light of certain codes, and *successive meanings* with which these sign vehicles are capable of being filled, whose attribution can occur, as we will see, not only by way of denotation, but also by way of connotation, on the basis of further codes.

Significative forms, codes worked out on the strength of inferences from usages and proposed as structural models of given communicative relations, denotative and connotative meanings attached to the sign vehicles on the basis of the codes—this is the semiotic universe in which a reading of architecture as communication becomes viable, a universe in which verification through observable physical behaviour and actual objects (whether denotata or referents) would be simply irrelevant and in which the only concrete objects of any relevance are *the architectural objects as significative forms*. Within these bounds one can begin to see the various communicative possibilities of architecture.

## ARCHITECTURAL DENOTATION

The object of use is, in its communicative capacity, the sign vehicle of a precisely and conventionally denoted meaning—its function. More loosely, it has been said that the first meaning of a building is what one must do in order to inhabit it—the architectural object denotes a 'form of inhabitation'. And it is clear that this denotation occurs even

when one is not availing oneself of the denoted inhabitability (or, more generally, the denoted utility) of the architectural object. But we must remember from the outset that there is more to architectural communication than this.

When I look at the windows on the façade of a building, for instance, their denoted function may not be uppermost in my mind; my attention may be turned to a window-meaning that is based on the function but in which the function has receded to the extent that I may even forget it, for the moment, concentrating on relationships through which the windows become elements of an architectural rhythm—just as someone who is reading a poem may, without entirely disregarding the meanings of the words there, let them recede into the background and thereby enjoy a certain formal play in the sign vehicles' contextual juxtaposition. And thus an architect might present one with some false windows, whose denoted function would be illusory, and these windows could still function as windows in the architectural context in which they occur and be enjoyed (given the aesthetic function of the architectural message) as windows.<sup>3</sup>

Moreover windows—in their form, their number, their disposition on a façade (portholes, loopholes, curtain wall, etc.)—may, besides denoting a function, refer to a certain conception of inhabitation and use; they may *connote an overall ideology* that has informed the architect's operation. Round arches, pointed arches and ogee arches all function in the load-bearing sense and denote this function, but they connote diverse ways of conceiving the function: they begin to assume a symbolic function.

Let us return, however, to denotation and the primary, utilitarian function. We said that the object of use denotes the function conventionally, according to codes. Let us here consider some of the general conditions under which an object denotes its function conventionally.

According to an immemorial architectural codification, a stair or a ramp denotes the possibility of going up. But whether it is a simple set of steps in a garden or a grand staircase by Vanvitelli, the winding stairs of the Eiffel Tower or the spiralling ramp of Frank Lloyd Wright's Guggenheim Museum, one finds oneself before a form whose interpretation involves not only a codified connection between the form and the function but also a conventional conception of how one fulfils the function with the form. Recently, for example, one has been able to go up also by means of an elevator, and the interpretation of the elevator involves, besides the recognition of the possible function—and rather than being disposed to the motor activity of moving one's feet in a certain way—a conception of how to fulfil the function through the various accessory devices at one's disposal in the elevator. Now the 'legibility' of these features of the elevator might be taken for granted, and presumably their design is such that none of us would have any trouble interpreting them. But clearly a primitive man used to stairs or ramps would be at a loss in front of an elevator; the best intentions on the part of the designer would not result in making the thing clear to him. The designer may have had a conception of the push buttons, the graphic arrows indicating whether the elevator is about to go up or down, and the emphatic floor-level indicators, but the primitive, even if he can guess the function, does not know that these forms are the 'key' to the function. He simply has no real grasp of the code of the elevator. Likewise he might possess only fragments of the code of the revolving door and be determined to use one of these as if it were a matter of an ordinary door. We can see, then, that an architect's belief in form that 'follows

function' would be rather naive unless it really rested on an understanding of the processes of codification involved.

In other words, the principle that form follows function might be restated: *the form of the object must, besides making the function possible, denote that function clearly enough to make it practicable as well as desirable*, clearly enough to dispose one to the actions through which it would be fulfilled.

Then all the ingenuity of an architect or designer cannot make a new form functional (and cannot give form to a new function) *without the support of existing processes of codification...*

A work of art can certainly be something new and highly informative; it can present articulations of elements that correspond to an idiolect of its own and not to pre-existing codes, for it is essentially an object intended to be contemplated, and it can communicate this new code, implicit in its makeup, precisely by fashioning it on the basis of the pre-existing codes, evoked and negated. Now an architectural object could likewise be something new and informative; and if intended to promote a new function, it could contain in its form (or in its relation to comparable familiar forms) indications for the 'decoding' of this function. It too would be playing upon elements of preexisting codes, but rather than evoking and negating the codes, as the work of art might, and thus directing attention ultimately to itself, it would have to progressively transform them, progressively deforming already known forms and the functions conventionally referable to these forms. Otherwise the architectural object would become, not a functional object, but indeed a work of art: an ambiguous form, capable of being interpreted in the light of various different codes. Such is the case with 'kinetic' objects that simulate the outward appearance of objects of use; objects of use they are not, in effect, because of the underlying ambiguity that disposes them to any use imaginable and so to none in particular. (It should be noted that the situation of an object open to any use imaginable—and subject to none—is different from that of an object subject to a number of determinate uses, as we will see.)

One might well wish to go further into the nature of architectural denotation (here described only roughly, and with nothing in the way of detailed analysis). But we also mentioned possibilities of architectural connotation, which should be clarified.

## ARCHITECTURAL CONNOTATION

We said that besides denoting its function the architectural object could connote a certain ideology of the function. But undoubtedly it can connote other things. The cave, in our hypothetical model of the beginning of architecture, came to denote a shelter function, but no doubt in time it would have begun to connote 'family' or 'group', 'security', 'familiar surroundings', etc. Then would its connotative nature, this symbolic 'function' of the object, be less *functional* than its first function? In other words, given that the cave denotes a certain basic *utilitas* (to borrow a term from Koenig), there is the question whether, with respect to life in society, the object would be any less *useful* in terms of its ability, as a symbol, to connote such things as closeness and familiarity. (From the semiotic point of view, the connotations would be founded on the denotation of the primary *utilitas*, but that would not diminish their importance.)

A seat tells me first of all that I can sit down on it. But if the seat is a throne, it must do more than seat one: it serves to seat one with a certain dignity, to corroborate its user's 'sitting in dignity'—perhaps through various accessory signs connoting 'regalness' (eagles on the arms, a high, crowned back, etc.). Indeed the connotation of dignity and regalness can become so functionally important that the basic function, to seat one, may even be slighted, or distorted: a throne, to connote regalness, often demands that the person sitting on it sit rigidly and uncomfortably (along with a sceptre in his right hand, a globe in the left, and a crown on his head), and therefore seats one 'poorly' with respect to the primary *utilitas*. Thus to seat one is only one of the functions of the throne—and only one of its meanings, the first but not the most important.

So the title *function* should be extended to all the uses of objects of use (in our perspective, to the various communicative, as well as to the denoted, functions), for with respect to life in society the 'symbolic' capacities of these objects are no less 'useful' than their 'functional' capacities. And it should be clear that we are not being metaphorical in calling the symbolic connotations functional, because although they may not be immediately identified with the 'functions' narrowly defined, they do represent (and indeed communicate) in each case a real social utility of the object. It is clear that the most important function of the throne is the 'symbolic' one, and clearly evening dress (which, instead of serving to cover one like most everyday clothing, often 'uncovers' for women, and for men covers poorly, lengthening to tails behind while leaving the chest practically bare) is functional because, thanks to the complex of conventions it connotes, it permits certain social relations, confirms them, shows their acceptance on the part of those who are communicating, with it, their social status, their decision to abide by certain rules, and so forth.<sup>4</sup>

## ARCHITECTURAL COMMUNICATION AND HISTORY

### PRIMARY FUNCTIONS AND SECONDARY FUNCTIONS

Since it would be awkward from here on to speak of 'functions' on the one hand, when referring to the denoted *utilitas* and of 'symbolic' connotations on the other, as if the latter did not likewise represent real functions, we will speak of a '*primary*' function (which is denoted) and of a complex of *secondary functions* (which are connotative). It should be remembered, and is implied in what has already been said, that the terms *primary* and *secondary* will be used here to convey, not an axiological discrimination (as if the one function were more important than the others), but rather a semiotic mechanism, in the sense that the secondary functions rest on the denotation of the primary function (just as when one has the connotation of 'bad tenor' from the word for 'dog' in Italian, *cane*, it rests on the process of denotation).

Let us take a historical example where we can begin to see the intricacies of these primary and secondary functions, comparing the records of interpretation history has left us. Architectural historians have long debated the code of the Gothic, and particularly the structural value of the ogive. Three major hypotheses have been advanced:

- 1 the ogive has a structural function, and the entire lofty and elegant structure of a cathedral stands upon it, by virtue of the miracle of equilibrium it allows;

- 2 the ogive has no structural value, even if it gives the opposite impression; rather, it is the webs of the ogival vault that have the structural value;
- 3 the ogive had a structural value in the course of construction, functioning as a sort of provisional framework; later, the interplay of thrusts and counterthrusts was picked up by the webs and by the other elements of the structure, and in theory the ogives of the cross vaulting could have been eliminated.<sup>5</sup>

No matter which interpretation one might adhere to, no one has ever doubted that the ogives of the cross vaulting *denoted* a structural function—support reduced to the pure interplay of thrusts and counterthrusts along slender, nervous elements; the controversy turns rather on the referent of that denotation: is the denoted function an illusion? Even if it is illusory, then, the communicative value of the ogival ribbing remains unquestionable; indeed if the ribbing had been articulated only to *communicate* the function, and not to *permit* it, that value would, while perhaps appearing more valid, simply be more intentional. (Likewise, it cannot be denied that the word unicorn is a sign, even though the unicorn does not exist, and even though its non-existence might have been no surprise to those using the term.)

While they were debating the functional value of ogival ribbing, however, historians and interpreters of all periods realized that the code of the Gothic had also a 'symbolic' dimension (in other words, that the elements of the Gothic cathedral had some complexes of secondary functions to them); one knew that the ogival vault and the wall pierced with great windows had something connotative to communicate. Now what that something might be has been defined time and again, on the basis of elaborate connotative subcodes founded on the cultural conventions and intellectual patrimony of given groups and given periods and determined by particular ideological perspectives, with which they are congruent.

There is, for example, the standard romantic and proto-romantic interpretation, whereby the structure of the Gothic cathedral was intended to reproduce the vault of Celtic forests, and thus the pre-Roman world, barbaric and primitive, of druidical religiosity. And in the medieval period, legions of commentators and allegorists put themselves to defining, according to codes of formidable precision and subtlety, the individual meanings of every single architectural element; it will suffice to refer the reader to the catalogue drawn up, centuries later, by Joris Karl Juysmans in his *La cathédrale*.

But there is, after all, a singular document we could mention—a code's very constitution—and that is the justification Suger gives of the cathedral in his *De rebus in administratione sua gestis*, in the twelfth century.<sup>6</sup> There he lets it be understood, in prose and in verse, that the light that penetrates in streams from the windows into the dark naves (or the structure of the walls that permits the light to be offered such ample access) must represent the very effusiveness of the divine creative energy, a notion quite in keeping with certain Neoplatonic texts and based on a codified equivalence between light and participation in the divine essence.<sup>7</sup>

We could say with some assurance, then, that for men of the twelfth century the Gothic windows and glazing (and in general the space of the naves traversed by streams of light) connoted 'participation' (in the technical sense given the term in medieval Neoplatonism); but the history of the interpretation of the Gothic teaches us that over the



centuries the same sign vehicle, in the light of different subcodes, has been able to connote diverse things.

Indeed, in the nineteenth century one witnessed a phenomenon typical of the history of art—when in a given period a code in its entirety (all artistic style, a manner, a ‘mode of forming’, independently of the connotations of its individual manifestations in messages) comes to connote an ideology (with which it was intimately united either at the moment of its birth or at the time of its most characteristic affirmation). One had at that time the identification ‘Gothic style = religiosity’, an identification that undoubtedly rested on the other, preceding connotative identifications, such as ‘vertical emphasis = elevation of the soul Godward’ or contrast of light streaming through great windows and naves in ‘shadows = mysticism’. Now these are connotations so deeply rooted that even today some effort is required to remember that the Greek temple too, balanced and harmonious in its proportions, could connote, according to another lexicon, the elevation of the spirit to the Gods, and that something like the altar of Abraham on the top of a mountain could evoke mystical feelings; thus one connotative lexicon may impose itself over others in the course of time and, for example, the contrast of light and shadow becomes what one most deeply associates with mystic states of mind.

A metropolis like New York is studded with neo-Gothic churches, whose style (whose ‘language’) was chosen to express the presence of the divine. And the curious fact is that, by convention, these churches still have (for the faithful) the same value today, in spite of the fact that skyscrapers—by which they are now hemmed in on every side, and made to appear very small, almost miniaturized—have rendered the verticality emphasized in this architecture all but indistinguishable. An example like this should be enough to remind us that there are no mysterious ‘expressive’ values deriving simply from the nature of the forms themselves, and that expressiveness arises instead from a dialectic between significative forms and codes of interpretations; for otherwise the Gothic churches of New York, which are no longer as distinctively attenuated and vertical as they used to be, would no longer express what they used to, while in fact they still do in some respects, and precisely because they are ‘read’ on the basis of codes that permit one to recognize them as distinctively vertical in spite of the new formal context (and new code of reading), the advent of the skyscraper has now brought about.

## ARCHITECTURAL MEANINGS AND HISTORY

It would be a mistake, however, to imagine that by their very nature architectural sign vehicles would denote stable primary functions, with only the secondary functions varying in the course of history. The example of ogival ribbing has already shown us a denoted function undergoing curious fluctuations—it was considered by some effective and essential, but by others provisional or illusory—and there is every reason to believe that in the course of time certain primary functions, no longer effective, would no longer even be denoted, the ‘addresses’ no longer possessing the requisite codes.

So, in the course of history, both primary and secondary functions might be found undergoing losses, recoveries and substitutions of various kinds. These losses, recoveries and substitutions are common to the life of forms in general, and constitute the norm in the course of the reading of works of art proper. If they seem more striking (and paradoxical) in the field of architectural forms, that is only because according to the

common view one is dealing there with functional objects of an unequivocally indicated, and thus *univocally* communicative, nature; to give the lie to such a view, there is the story—its very currency puts its authenticity in doubt, but if untrue it is in any case credible—about the native wearing an alarm clock on his chest, an alarm clock interpreted as a pendant (as a kind of ‘kinetic jewelry’, one might say) rather than as a timepiece: the clock’s measurement of time, and indeed the very notion of ‘clock time’, is the fruit of a codification and comprehensible only on the basis of it.

One type of fluctuation in the life of objects of use can therefore be seen in the variety of readings to which they are subject, regarding both primary and secondary functions...<sup>8</sup>

## ARCHITECTURAL CODES

### WHAT IS A CODE IN ARCHITECTURE?

Architectural signs as denotative and connotative according to codes, the codes and subcodes as making different readings possible in the course of history, the architect’s operation as possibly a matter of ‘facing’ the likelihood of his work being subject to a variety of readings, to the vicissitudes of communication, by designing for variable primary functions and open secondary functions (open in the sense that they may be determined by unforeseeable future codes)—everything that has been said so far might suggest that there is little question about what is meant by *code*.

As long as one confines oneself to verbal communication, the notion is fairly clear: there is a code-language, and there are certain connotative subcodes. But when, in another section of this study, we went on to consider visual codes, for example, we found we had to list a number of levels of codification (including, but not limited to, iconic and iconographic codes), and in the process to introduce various ‘clarifications’ of the concept of code, and on the different types of articulation a code may provide for.<sup>9</sup> We also saw the importance of the principle that the elements of articulation under a given code can be syntagms of another, more ‘analytic’ code, or that the syntagms of one code can turn out to be elements of articulation of another, more ‘synthetic’ code. This should be kept in mind when considering codes in architecture, for one might be tempted to attribute to an architectural code articulations that belong really to some code, either more analytic or more synthetic, lying outside architecture.

We can expect some problems, then, in the definition of the codes of architecture. First of all, from the attempts there have been to date to spell out aspects of architectural communication, we can see that there is the problem of neglecting to consider whether what one is looking at is referable to a syntactic code rather than a semantic code—that is, to rules concerning, rather than the meanings conventionally attributed to, individual sign vehicles, the articulation of certain significative structures separable from these sign vehicles and their meanings—or for that matter to some underlying technical convention.

Catchwords like ‘semantics of architecture’ have led some to look for the equivalent of the ‘word’ of verbal language in architectural signs, for units endowed with definite meaning, indeed for symbols referring to referents. But since we know there can be conventions concerning only the syntactic articulation of signs, it would be appropriate to look also for purely syntactic codifications in architecture (finding such codifications and

defining them with precision, we might be in a better position to understand and classify, at least from the point of view of semiotics, objects whose once denoted functions can no longer be ascertained, such as the menhir, the dolmen, the Stonehenge construction).

Then, too, in the case of architecture, codes of reading (and of construction) of the object would have to be distinguished from codes of reading (and of construction) of the *design* for the object (admittedly we are considering here only a semiotics of architectural objects, and not a semiotics of architectural designs). Of course the notational codes of the design, while conventionalized independently, are to some extent derivatives of the codes of the object: they provide ways in which to 'transcribe' the object, just as to transcribe spoken language there are conventions for representing such elements as sounds, syllables or words. But that does not mean a semiotic investigation of the architectural design would be without some interesting problems of its own—there are in a design, for example, various systems of notation (the codes operative in a plan are not quite the same as those operative in a section or in a wiring diagram for a building),<sup>10</sup> and in these systems of notation there can be found iconic signs, diagrams, indices, symbols, qualisigns, sinsigns, etc., perhaps enough to fill the entire gamut of signs proposed by Peirce.

Much of the discussion of architecture as communication has centred on *typological* codes, especially semantic typological codes, those concerning functional and sociological types; it has been pointed out that there are in architecture configurations clearly indicating 'church', 'railroad station', 'palace', etc. We will return to typological codes later, but it is clear that they constitute only one, if perhaps the most conspicuous, of the level of codification in architecture.

In attempting to move progressively back from a level at which the codes are so complex and temporal—for it is clear that 'church' has found different articulations at different moments in history—one might be tempted to hypothesize for architecture something like the 'double articulation' found in verbal languages, and assume that the most basic level of articulation (that is, the units constituting the 'second' articulation) would be a matter of geometry.

If architecture is the art of the articulation of spaces,<sup>11</sup> then perhaps we already have, in Euclid's geometry, a good definition of the rudimentary code of architecture. Let us say that the second articulation is based on the Euclidean *stoicheia* (the 'elements' of classical geometry); then the 'first' articulation would involve certain higher-level spatial units, which could be called *choremes*, with these combining into spatial syntagms of one kind or another.<sup>12</sup> In other words, the angle, the straight line, the various curves, the point, etc., might be elements of a second articulation, a level at which the units are not yet *significant* (endowed with meaning) but are *distinctive* (having differential value); the square, the triangle, the parallelogram, the ellipse—even rather complicated irregular figures, as long as they could be defined with geometric equations of some kind—might be elements of a first articulation, a level at which the units begin to be significant; and one rectangle within another might be an elementary syntagmatic combination (as in some window-wall relationship), with more complex syntagms to be found in such things as space-enclosing combinations of rectangles or articulations based on the Greek-cross plan. Of course solid geometry suggests the possibility of a third level of articulation, and it could be assumed that further articulative possibilities would come to light with the recognition of non-Euclidean geometries.

The trouble is that this geometric code *would not pertain specifically to architecture*. Besides lying behind some artistic phenomena—and not just those of abstract, geometric art (Mondrian), because it has long been held that the configurations in representational art can be reduced to an articulation, if perhaps a quite complex one, of primordial geometric elements—the code clearly underlies the formulations of geometry in the etymological sense of the word (surveying) and other types of ‘transcription’ of terrain (topographic, geodetic, etc.). It might even be identified with a ‘gestaltic’ code presiding over our perception of all such forms. What we have here, then, is an example of one sort of code one can arrive at when attempting to analyse the elements of articulation of a certain ‘language’: a code capable of serving as a *metalanguage* for it, and for a number of other more synthetic codes as well.

So it would be better to pass over a code of this kind, just as in linguistics one passes over the possibility of going beyond ‘distinctive features’ in analysing phonemes. Admittedly such analytic possibilities might have to be explored if one had to compare architectural phenomena with phenomena belonging to some other ‘language’, and thus had to find a metalanguage capable of describing them in the same terms—for instance, one might wish to ‘code’ a certain landscape in such a way as to be able to compare it with certain proposed architectural solutions, to determine what architectural artifacts to insert in the context of that landscape, and if one resorted to elements of the code of solid geometry (pyramid, cone, etc.) in defining the structure of the landscape, then it would make sense to describe the architecture in the light of that geometric code, taken as a metalanguage.<sup>13</sup> *But the fact that architecture can be described in terms of geometry does not indicate that architecture as such is founded on a geometric code.*

After all, that both Chinese and words articulated in the phonemes of the Italian language can be seen as a matter of amplitudes, frequencies, wave forms, etc., in radio-acoustics or when converted into grooves on a disk does not indicate that Chinese and Italian rest on one and the same code; it simply shows that the languages admit of that type of analysis, that for certain purposes they can be *reduced* to a common system of transcription. In fact there are few physical phenomena that would not permit analysis in terms of chemistry or physics at the molecular level, and in turn an atomic code, but that does not lead us to believe that the *Mona Lisa* should be analysed with the same instruments used in analysing a mineral specimen.

Then what more properly architectural codes have emerged in various analyses or, recently, ‘semiotic’ readings of architecture?

## VARIETIES OF ARCHITECTURAL CODE

It would appear, from those that have come to light, that architectural codes could be broken down roughly as follows:

### 1 Technical codes

To this category would belong, to take a ready example, articulations of the kind dealt with in the science of architectural engineering. The architectural form resolves into beams, flooring systems, columns, plates, reinforced-concrete elements, insulation, wiring, etc. There is at this level of codification no communicative ‘content’, except of course in cases where a structural (or technical) function or technique itself becomes

such; there is only a structural logic, or structural conditions behind architecture and architectural signification conditions that might therefore be seen as somewhat analogous to a second articulation in verbal languages, where though one is still short of meanings there are certain formal conditions of signification.<sup>14</sup>

## 2 Syntactic codes

These are exemplified by typological codes concerning articulation into spatial types (circular plan, Greek-cross plan, 'open' plan, labyrinth, high-rise, etc.), but there are certainly other syntactic conventions to be considered (a stairway does not as a rule go through a window, a bedroom is generally adjacent to a bathroom, etc.).

## 3 Semantic codes

These concern the significant units of architecture, or the relations established between individual architectural sign vehicles (even some architectural syntagms) and their denotative and connotative meanings. They might be subdivided as to whether, through them, the units

- (a) denote *primary functions* (roof, stairway, window);
- (b) have connotative *secondary functions* (tympanum, triumphal arch, neo-Gothic arch);
- (c) connote *ideologies of inhabitation* (common room, dining room, parlour); or
- (d) at a larger scale have typological meaning under certain *functional and sociological types* (hospital, villa, school, palace, railroad station).<sup>15</sup>

The inventory could of course become quite elaborate—there should, for instance, be a special place for types like 'garden city' and 'new town', and for the codifications emerging from certain recent *modi operandi* (derived from avant-garde aesthetics) that have already created something of a tradition, a manner, of their own.

But what stands out about these codes is that on the whole they would appear to be, as communicative systems go, rather limited in operational possibilities. They are, that is, codifications of *already worked-out solutions*, codifications yielding *standardized messages*—this instead of constituting, as would codes truly on the model of those of verbal languages, a system of possible relationships from which countless significantly different messages could be generated.

A verbal language serves the formulation of messages of all kinds, messages connoting the most diverse ideologies (and is inherently neither a class instrument nor the superstructure of a particular economic base).<sup>16</sup> Indeed the diversity of the messages produced under the codes of a verbal language makes it all but impossible to identify any overall ideological connotations in considering broad samplings of them. Of course this characterization might be challenged, for there is some evidence to support the theory that the very way in which a language is articulated obliges one speaking it to see the world in a particular way (there might be, then, ideological bias and connotation of some kind inherent in the language).<sup>17</sup> But even given that, on the most profound, ultimate level, one could take a verbal language as a *field of (nearly absolute) freedom*, in which the speaker is free to improvise novel messages to suit unexpected situations. And in architecture, if the codes are really those indicated above, that does not seem to be the case.

The point is not that in articulating a church, for example, the architect is in the first place obeying a socio-architectural prescription that churches be made and used (about this sort of determinant we will have more to say later). And in the end he would be free to try to find and exploit some way in which to make a church that while conforming to its type would be somewhat different from any that had yet appeared, a church that would thereby provide a somewhat unaccustomed, 'refreshing' context in which to worship and imagine the relationship with God. But if at the same time, in order for it to be a church, he must unfailingly articulate the building in manifold conformity to a type ('down to the hardware', one might say), if the codes operative in architecture allow only slight differences from a standardized message, however appealing, then architecture is not the field of creative freedom some have imagined it to be, but a system of rules for giving society what it expects in the way of architecture.

In that case architecture might be considered not the service some have imagined it to be—a mission for men of unusual culture and vision, continually readying new propositions to put before the social body—but a service in the sense in which waste disposal, water supply and mass transit are services: an operation that is, even with changes and technical refinements from time to time, the routine satisfaction of some preconstituted demand.

It would appear to be rather impoverished as an art, then, also, if it is characteristic of art, as we have suggested elsewhere, to put before the public things they have not yet come to expect (Eco, 1968, op. cit., ch. A.3).

So the codes that have been mentioned would amount to little more than lexicons on the model of those of iconographic, stylistic and other specialized systems, or limited repertoires of set constructions. They establish not generative possibilities but ready-made solutions, not open forms for extemporaneous 'speech' but fossilized forms—at best, 'figures of speech', or schemes providing for formulaic presentation of the unexpected (as a complement to the system of established, identified and never really disturbed expectations), rather than relationships from which communication varying in information content as determined by the 'speaker' could be improvised. The codes of architecture would then constitute a rhetoric in the narrow sense of the word: a store of *tried and true discursive formulas*. (That is, they would constitute a rhetoric in the sense of the term discussed in Eco, 1968, op. cit., par. A.4.2.2.)

And this could be said not only of the semantic codes, but also of the syntactic codifications, which clearly confine us to a certain quite specialized 'grammar' of building, and the technical codes, for it is obvious that even this body of 'empty' forms underlying architecture (column, beam, etc.) is too specialized to permit every conceivable architectural message: it permits a kind of architecture to which civilization in its evolving technologies has accustomed us, a kind relating to certain principles of statics and dynamics, certain geometric concepts, many of them from Euclid's geometry, certain elements and systems of construction—the principles, concepts, elements and systems that, proving relatively stable and resistant to wear and tear, are found codified under the science of architectural engineering.

## ARCHITECTURE AS MASS COMMUNICATION?