

# Part one

## Theoretical preliminaries

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*The visual impression, the image produced by differences of light and colour, is primary in our perception of a building. We empirically reinterpret this image into a conception of corporeality, and this defines the form of the space within...Once we have reinterpreted the optical image into a conception of space enclosed by mass, we read its purpose from its spatial form. We thus grasp...its content, its meaning.*

**Paul Frankl**

### Defining architecture

What is architecture? One thing is clear: if the word is to serve a useful purpose we must be able to distinguish architecture from building. Since building is the more basic term, it follows that we must say in what sense architecture is more than building. The essence of our definition must say what architecture adds to building.

The commonest 'additive' theory is that architecture adds art to building. In this analysis, building is an essentially practical and functional activity on to which architecture superimposes an artistic preoccupation which, while respecting the practical and functional, is restricted by neither. The extreme version of this view is that architecture is the addition to building of the practically useless and functionally unnecessary.<sup>1</sup> The more common is that builders make buildings while architects add style.

From the point of view of finding what people 'really mean' when they say 'architecture', there are serious problems with these views. The most obvious is that it defines architecture in terms of what is normally thought of as its degeneration, that is, that architecture is no more than the addition of a surface appearance to building. Even if we take the view that this is what architecture has become, it is surely unacceptable as a definition of what it should be. Architects believe, and clients on the whole buy, the idea that architecture is a way of being concerned with the whole building, and a means of engaging the deepest aspects of what a building is. If architecture is defined as an add-on which ignores the main substance of building, then architecture would be an addition to building, but would not be more than building. On the contrary, it would be considerably less. If we accuse architecture of being no more than this, we imply that architecture ought to be much more. We are therefore back to the beginning in our pursuit of a definition.

An equally difficult problem with this view is that it is very hard to find examples of building with a purely practical and functional aim. Wherever we find building, we tend to find a preoccupation with style and expression, however modest. Some of the most striking instances of this have come from our growing awareness of building by technologically simple societies, where we do not find that simplicity of technique is associated with simplicity of cultural intent or the elimination of the preoccupation with style. On the contrary, we find that through the idiosyncrasies of style, building and settlement form becomes one of the primary – though most puzzling and variable – expressions of culture.<sup>2</sup> The term that expresses this discovery. 'architecture without architects' confirms the existence of architecture as something over and above building, even though at the same time it affirms the absence of architects.<sup>3</sup>

It is the awareness of the cultural richness of everyday building that lead Roger Scruton, in his *The Aesthetics of Architecture* to try to solve the definition problem for architecture by arguing that since all building shares a preoccupation with the aesthetic and the meaningful, all building should be seen as architecture.<sup>4</sup> Scruton seeks to reintegrate architecture with the whole of building. In his view, all that we ever find in architecture is found, at least in embryonic form, in the everyday

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vernacular in which most of us participate through our everyday lives. Thus: 'Even when architects have a definite "aesthetic" purpose, it may not be more than the desire that their work should "look right" in just the way that tables and chairs, the lay of places at a table, the folds in a napkin, an arrangement of books, may "look right" to a casual observer.' This leads him to a definition: 'Architecture is primarily a vernacular art: it exists first and foremost as a process of arrangement in which every normal man [sic] may participate.'<sup>5</sup>

The difficulty with this definition is that it leads to exactly the wrong kind of distinction between, for example, the careful formal and spatial rules that governed the English suburban house as built endlessly and repetitiously between the wars by speculative builders, and the works of, say, Palladio or Le Corbusier. The work of both of these architects is characterised by radical innovation in exactly those areas of formal and spatial organisation where according to Scruton's definition, there should be a preoccupation with cultural continuity and reduplication. It would seem to follow that Scruton's definition of architecture would cover the familiar English spec builders' vernacular more easily than it would the works of major architectural innovators.

While it may be reasonable, then, to *prefer* the English inter-war vernacular to the works of Palladio and Le Corbusier, it does not seem likely that a *definition* of the ordinary use of the word architecture lies in this direction. On the contrary, Scruton's definition seems to lead us exactly the wrong way. Architecture seems to be exactly not this preoccupation with cultural continuity, but a preference for innovation. Far from using this as a basis for a definition then Scruton's preoccupation with the vernacular seems to accomplish the opposite. It tells us more how to distinguish everyday building from the more ambitious aspirations of what we call architecture.

## Is architecture a thing or an activity?

In what direction should we look then for a definition of architecture as more than building? Reflecting on the common meanings of the word, we find little help and more difficulties. The word 'architecture' seems to mean both a *thing* and an *activity*. On the one hand it seems to imply buildings with certain 'architectural' attributes imposed on them. On the other, it seems to describe what architects do, a certain way of going about the process of making buildings. This double meaning raises serious problems for a definition of architecture. If 'architecture' means both attributes of things and attributes of activities, then which 'really is' architecture? The definition surely cannot encompass both. Properties of things seem to exist regardless of the activity that creates them, and activities are what they are regardless of their product. Is architecture, then, 'essentially' a thing or an activity? It must, it seems, be one or the other.

However, when we try each definition in isolation we quickly run into paradoxes. Let us experiment first with the idea that architecture is essentially a thing; that is, certain attributes found in some, but not all, buildings. If that is what architecture 'essentially' is, then it would follow that a copy of a building which

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possesses the architectural attributes will also be architecture, to exactly the same degree and in the same way as the original building. But we baulk at this idea. Copies of architectural buildings seem not themselves to be architecture, but what we have named them as, that is, copies of architecture. Certainly we would not normally expect to win an architectural prize with a deliberate copy. On the contrary, we would expect to be disqualified, or at least ridiculed.

What then is missing in the copy? By definition, it cannot be properties of the building since these are identical in both cases. The disqualifying factor must lie in the act of copying. The act of copying somehow makes a building with architectural attributes no longer, in itself, architecture. This means that what is missing in the copy is not to do with the building but to do with the process that created the building. Copying is therefore in some crucial sense not 'architectural'. Even if we start from the proposition that architecture is attributes of building, and therefore in some sense, 'in the object', the problem of the copy shows that after all architecture implies a certain kind of activity, one which is missing in the act of copying.

What then is missing in the act of copying? It can only be that which copying denies, that is, the intention to *create*, rather than simply to reproduce, architecture. Without this intention, it seems, a building cannot be architecture. So let us call this the 'creative intention' and try to make it the focus of a definition of architecture. We may experiment with the idea as before. This time, let there be an ambitious but talentless architect who intends as hard as possible to make architecture. Is the product of this intention automatically architecture? Whether it is or not depends on whether it is possible to approve the intention as architectural but disqualify the result. In fact this is a very common form for architectural judgments to take. The products of aspiring architects are often judged by their peers to have failed in exactly this way. A jury may legitimately say: 'We understand your intention but do not think you have succeeded.' How are such judgments made? Clearly there is only one answer: by reference to the objective attributes of the proposed buildings that our would-be architect has designed.

It seems then the normal use of words and common practice has led us in a circle. Creative intention fails as a definition of architecture by reference to positive attributes of things, just as positive attributes of things previously failed by reference to intentions. Yet architecture seems at the same time to mean both. It seems it can only be that the idea of architecture is at once a thing and an activity, certain attributes of buildings and a certain way of arriving at them. Product and process are not, it seems, independent. In judging architecture we note both the attributes of the thing and the intellectual process by which the thing is arrived at.

This may seem at first sight rather odd. It violates the common conception that attributes of things are independent of the processes that put them there. But it does reflect how people talk about architecture. Architectural talk, whether by lay people or by critics, typically mixes comment on product with comment on process. For example, we hear: 'This is an ingenious solution to the problem of...', or 'This is a clever detail', or 'This spatial organisation is boldly conceived', 'I like the way the

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architect has...', and so on. Each of these is at one and the same time a comment on the objective attributes of the building and a comment on the creative intellectual process that gave rise to it. In spite of the unlikelihood of product and process somehow being interdependent in the idea of architecture, this does seem to be exactly the case. In describing our experience of architecture we describe not only the attributes of things, but also the intellectual processes of which the thing is a manifestation. Only with the simultaneous presence of both do we acknowledge architecture.

There is, it seems, some inconsistency between our normal way of reasoning about things and the way we talk, reasonably and reasoningly, about architecture. We might even say that the idea of architecture exhibits some confusion between subjects and objects, since the judgment that a building is architecture seems at one and the same time to depend on the attributes of the 'objective' thing and on attributes of the 'subjective' process that gives rise to the thing. It might be reasonable to expect, then, that further analysis would show that this strangeness in the idea of architecture was pathological and that, with a more careful definition, product and process, and object and subject, could and should be separated.

In fact, we will find the contrary. As we proceed with our exploration of what architecture is and what it adds to building we will find that the inseparability of products and processes and of subject and objects is the essence of what architecture is. It is our intellectual expectations that it should be otherwise which are at fault. Architecture is at once product and process, at once attribute of things and attribute of activity, so that we actually see, or think we see, both when we see and name architecture.

How does this apparent interdependence of product and process then arise as architecture from the act of making a building? To understand this we must first know what building, the allegedly lesser activity, is, and we must understand it both as product and as process. Only this will allow us to see what is distinctive about architecture, and how this distinctiveness involves both product and process. To allow this to become fully clear, the argument that follows will be taken in two stages. first we will look at building as a product, in order to ask what it is about the building as product that architecture takes hold of and adds something to. Then we will look at building as a process, in order to ask how the process of architecture, as adding something to building, is different.

### **So what is a building?**

The question 'what is a building?' tends to provoke two kinds of simplification. The first is that because buildings are purposeful objects we can say what they are by saying what their purpose is. The second is that there must be some simple primordial purpose which was the original reason for buildings and therefore constitutes a kind of continuing essence of building. The first simplification is a logical error, the second a historical one. Both find their commonest, but not only, expression in such ideas as that buildings are essentially 'shelter'.

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Both simplifications arise because purposes are seen to be anterior to objects and therefore in some sense explanatory of them. But logically, functional definitions are absurd. In defining building in terms of a function, rather than an object, no distinction is made between buildings as objects and other entities which also can or do provide that function, as for example trees, tents, caves and parasols also provide shelter. Functional definitions are also dishonest. One who defines a building as a shelter has a picture of a building in mind, but one which is implicit rather than explicit, so that the imprecision of the definition is never revealed to the definer. If we say 'a building is a shelter' we mentally see a building and conceive of it functioning as a shelter, so that the function seems to 'explain' the object. Functional definitions only appear to work because they conceal an implicit idea of the object. This prevents the imprecision of the definition from being apparent to the definer. Even if the function were thought to be unique to the object, the definition of an object through its function would never be satisfactory since we could never be sure either that this function is necessarily unique to this object, or that this is the only 'essential' function of this object.

Historically in fact all the evidence is that neither is the case. If we consider the phenomenon of building even in the earliest and simplest societies, one of the most striking things that we find is that buildings are normally multifunctional: they provide shelter from the elements, they provide some kind of spatial scheme for ordering social relations and activities, they provide a framework for the arrangement of objects, they provide a diversity of internal and external opportunities for aesthetic and cultural expression, and so on. On the evidence we have, it is difficult to find historical or anthropological grounds for believing that buildings are not in their very nature multifunctional.

Nor is there any reason why we should expect them to be. In spite of the persistence of the absurd belief that humankind lived in caves until neolithic times (beginning about 10–12,000 years ago), and then used the cave as the model for the building,<sup>6</sup> there is evidence that human beings have created recognisable buildings for a very long time, perhaps as long as at least three hundred thousand years.<sup>7</sup> We do not know how the antiquity of building compares with that of language, but it is clear that the evolutionary history of each is very long, and that conjectural historical ontologies are equally irrelevant to both in trying to understand the complex nature of either as social and cultural phenomenon. The speculation that buildings are somehow 'explained' by being defined as shelters, because we imagine that there must have been a time when this was *all* that building was, is about as useful in understanding the social and cultural complexities of building as the idea that language began with pointing and grunting is to theories of the structure and functioning of language.

But it is not only time that has given buildings their variety of cultural expression. The nature of the building as an object itself has complexities which in themselves naturally tend to multifunctionality and diversity of cultural expression. It is only by understanding the complex nature of the building as object that we

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can begin to understand its natural tendency to multifunctionality. At the most elementary level, a building is a construction of physical elements or materials into a more or less stable form, as a result of which a space is created which is distinct from the ambient space. At the very least then, a building is both a physical and a spatial transformation of the situation that existed before the building was built. Each aspect of this transformation, the physical and the spatial, already has, as we shall see, a social value, and provides opportunity for the further elaboration of this value, in that the physical form of the building may be given further cultural significance by the shaping and decoration of elements, and the spatial form may be made more complex, by conceptual or physical distinctions, to provide a spatial patterning of activities and relationships.

However, even in the most primitive, unelaborated state, the effect of this elementary transformation of material and space on human beings – that is, its ‘functional’ effect – is complex. Part, but only part, of this complexity is the functional effect that the ‘shelter’ theorists have noted, namely the physical effect that bodies are protected from ambient elements that in the absence of the building might be experienced as hostile. These elements include inclement weather conditions, hostile species or unwelcome conspecifics. When we say that a building is a ‘shelter’, we mean that it is a kind of protection for the body. To be a protective shelter a building must create a protected space through a stable construction. What is protective is the physical form of the building. What is protected is the space. Buildings have a bodily function, broad and non-specific, but classifiable as bodily, as a result of which the building has space able to contain bodies, and certain physical properties through which bodies are protected.

However, even the simplest bodily act of making a shelter is more complex than might appear at first sight. To enclose a space by a construction creates not only a physical distinction on the surface of the earth, but also a logical, or categoric distinction. We acknowledge this through terms like ‘inside’ and ‘outside’. These are relational notions with an essentially logical nature, not simple physical facts. They arise as a kind of ‘logical emergence’ from the more elementary physical fact of making a boundary. The relationality of these ‘logical emergents’ can be demonstrated by simply pointing to the interdependence of ‘inside’ and ‘outside’. One implies the other, and we cannot create a space inside without also making a space outside. Logicality can be demonstrated by direct analogy. The physical process of drawing a boundary is analogous to naming a category, since when we do so we also by implication name all that is not that category, that is, we imply the complement of that category, in the same sense that when we name the space inside we also imply all the space that is outside. In that sense the space outside is the complement of the space inside. Logicians confirm this analogy by drawing Venn diagrams, that represent concepts as all that falls within the space of a circle, an exactly analogous logical gesture to the creation of a boundary in real space.

As Russell has pointed out,<sup>8</sup> relations, especially spatial relations, are very puzzling entities. They seem to exist ‘objectively’, in the sense (to use the example

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given by Russell) that 'Edinburgh is to the north of London', but we cannot point directly to the relation in the way that we can to other entities which seem to 'really exist'. We must accept, Russell argues, that 'the relation, like the terms it relates, is not dependent on thought, but belongs to the independent world which thought apprehends, but does not create'. We must then accept, he continues, that a relation 'is neither in space nor in time, neither material nor mental, yet it is something'.

The 'objectivity' of relations, and of the more complex relational schemes we call 'configurations', will be a continuing theme in this book. However, even at the simplest level of the creation of a boundary by the simplest act of building, matters are yet more complex. The logical distinctions made by drawing boundaries are also sociological distinctions, in that the distinction between inside and outside is made by a social being, whose power to make this distinction becomes recognised not only in the physical making of the boundary and the creation of the protected space but also in the logical consequences that arise from that distinction. This is best expressed as a right. The drawing of a boundary establishes not only a physical separateness, but also the social separateness of a domain – the protected space – identified with an individual or collectivity, which creates and claims special rights in that domain. The logical distinction and the sociological distinction in that sense emerge from the act of making a shelter even if they are not intended. The primary act of building, we might say, is already complex in that minds, and even social relations, are engaged by bodily transformations.

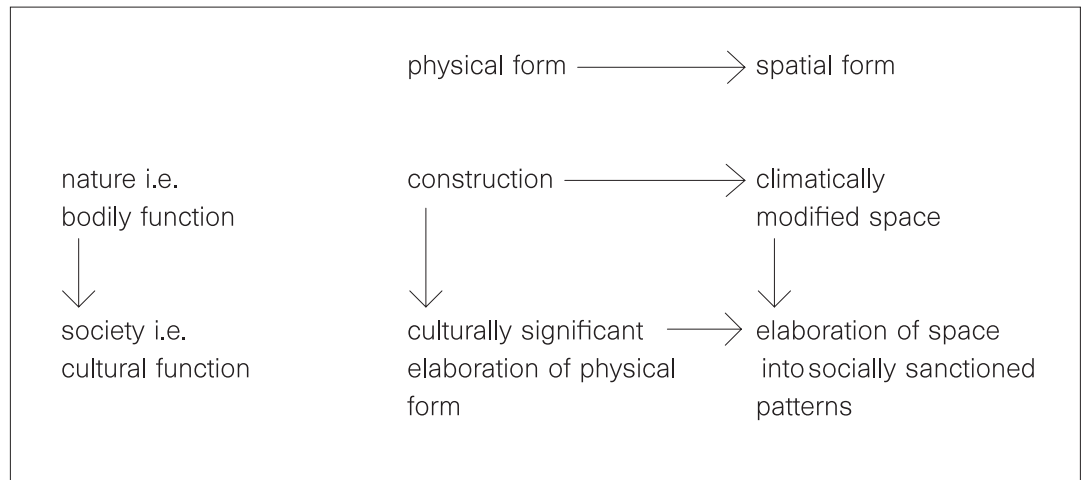
As is the case with the logical complexity, the sociological complexity implied by the boundary is in its very nature relational. Indeed, it is the logic of the relational complex that gives rise to the sociological distinctions through which building first begins to reflect and intervene in social relations. It is this essential relationality of form and of space which is appropriated in the processes by which buildings are transformed from bodily objects to social and cultural objects. The fundamental relational complex of form and space created by the act of making the simplest built object is the seed of all future relational properties of spaces through which buildings become fully social objects.

A building then becomes socially significant over and above its bodily functions in two ways: first by elaborating spaces into socially workable patterns to generate and constrain some socially sanctioned – and therefore normative – pattern of encounter and avoidance; and second by elaborating physical forms and surfaces into patterns through which culturally or aesthetically sanctioned identities are expressed. The fundamental duality of form and space that we noted in the most elementary forms of the building thus continues into its complex forms. By the elaboration of space, a social domain is constituted as a lived milieu. By the elaboration of form a social domain is represented as significant identities and encounters. In both senses, buildings create more complex patterns from the basic bodily stuff of form and space. It is through these patterns that buildings acquire their potential at once to constitute and represent – and thus in time to appear as the very foundation of – our social and cultural existence.



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Figure 1.1



We may summarise what we have said about the nature of buildings as objects in a diagram which we will use from now on as a kind of fundamental diagram of the building as object, (see fig. 1.1). The essence of the diagram is that a building even at the most basic level embodies two dualities, one between physical form and spatial form and the other between bodily function and socio-cultural function. The link between the two is that the socio-cultural function arises from the ways in which forms and spaces are elaborated into patterns, or, as we will in due course describe them, into configurations. We must now look more carefully at what we mean by the elaboration of form and space into configuration, since this will be the key to our argument not only about the nature of buildings, but also, in due course, to how architecture arises from building.

Let us begin with a simple and familiar case of the elaboration of the physical form of the building: the doric column. When we look at a doric column, we see a plinth, a pedestal, a shaft, a capital, and so on, that is, we see a construction. The elements rest one upon the other, and their relation to each other takes advantage of and depends on the natural law of gravity. But this is not all that we see. The relations of the elements of a column governed by the law of gravity would hold regardless of the 'doricness' of the elements. If, for example, we were to replace the doric capital with an ionian capital, the effect on the construction would be negligible, but the effect on the 'doricness' of the ensemble would be devastating.

So what is doricness? Clearly it is not a type of construction, since we may substitute non-doric elements in the ensemble without constructional penalty. We must acknowledge that doricness is not then in itself a set of physical relations, although it depends on them. Doricness is a scheme in which elements with certain kinds of elaboration are 'above' and 'below' others in a certain relational sequence which emerges from construction but is not given by construction. On the contrary, the notion of 'above' and 'below' as we find them in doricness seem to be 'logical emergents' from the act of construction in exactly the same sense that 'inside' and 'outside' were logical emergents from the physical construction of a boundary. Doricness is then a logical construction, one built on the back of a physical construction but a logical construction nonetheless. Through the logical

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doricness of the ensemble, we may say that we move from the simple visibility of the physically interdependent system, to enter the realm of the intelligible. Doricness is a configuration of properties that we understand, over and above what we see as physical interdependencies, a form of relational elaboration to something which exists in physical form, but which through this elaboration stands clear of its physicality. This process of moving from the visible to the intelligible is, we will see in due course, very basic to our experience both of building and of architecture, and, even more so, to the difference between one and the other.

Spatial patterns in buildings also arise as elaborations on primitive logical emergents from the physical act of building. As with doricness, they depend on but cannot be explained by natural law (as many have tried to do by appeal to biological 'imperatives' such as 'territoriality'). The origins of relational schemes of space lie somewhere between the ordering capacities of the mind and the spatial ordering inherent in the ways in which social relationships are realised in space. With space, as with form, we therefore find a split in building between a bodily nature, albeit with a rudimentary relational nature, and a more elaborated configurational nature which relates to minds and social experience rather than to bodies and individual experience. The passage from the simple space to a configuration of space is also the passage from the visible to the intelligible.

Space is, however, a more inherently difficult topic than physical form, for two reasons. First, space is vacancy rather than thing, so even its bodily nature is not obvious, and cannot be taken for granted in the way that we think we can take objects for granted. (See Chapter 10 for a further discussion of this assumption.) Second, related spaces, almost by definition, cannot be seen all at once, but require movement from one to other to experience the whole. This is to say that relationality in space is rarely accessible to us as a single experience. We must therefore digress for a moment to talk about space as a phenomenon, and how we can overcome the difficulties that exist in talking about it. We will take this in two stages. First, we will talk about the problem of how far space can be seen as an objective, independent 'thing-in-itself'. We must do this because there is great confusion about the status of space and how far it can be regarded as an independent entity rather than simply as a by-product of, say, the arrangement of physical things. Second, we will talk about space as configuration, since it is as configuration that it has its most powerful and independent effects on the way buildings and built environments are formed and how they function for their purposes.

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## About space

It is far from obvious that space is, in some important sense, an objective property of buildings, describable independently of the building as a physical thing. Most of our common notions of space do not deal with space as an entity in itself but tie it in some way to entities that are not space. For example, even amongst those with an interest in the field, the idea of 'space' will usually be transcribed as the 'use of space', the 'perception of space', the 'production of space' or as 'concepts of space'. In all these common expressions, the idea of space is given significance by linking it directly to human behaviour or intentionality. Common spatial concepts from the social sciences such as 'personal space' and 'human territoriality' also tie space to the human agent, and do not acknowledge its existence independently of the human agent. In architecture, where concepts of space are sometimes unlinked from direct human agency, through notions such as 'spatial hierarchy' and 'spatial scale' we still find that space is rarely described in a fully independent way. The concept of 'spatial enclosure' for example, which describes space by reference to the physical forms that define it rather than as a thing in itself, is the commonest architectural way of describing space.

All these concepts confirm the difficulty of conceptualising space as a thing in itself. On occasion, this difficulty finds an extreme expression. For example, Roger Scruton believes that the idea of space is a category mistake made by pretentious architects, who have failed to understand that space is not a thing in itself, but merely the obverse side of the physical object, the vacancy left over by the building. For Scruton, it is self-evident that space in a field and in a cathedral are the same thing except insofar as the interior built surfaces of the cathedral make it appear that the interior space has distinctive properties of its own. All talk about space is error, he argues, because it can be reduced to talk about buildings as physical things.<sup>9</sup>

In fact, even at a practical level, this is a bizarre view. Space is, quite simply, what we use in buildings. It is also what we sell. No developer offers to rent walls. Walls make the space, and cost the money, but space is the rentable commodity. Why then is Scruton embarrassed by the concept of space? Let me suggest that Scruton is making an educated error, one that he would not have made if he had not been so deeply imbued with the western philosophical tradition in which he has earned his living – and to which, incidentally, he has written an outstanding introduction.<sup>10</sup>

The dominant view of space in western culture has been one we might loosely call the 'Galilean-Cartesian'. This view arises from a scheme of reasoning first set out in full clarity by Descartes.<sup>11</sup> The primary properties of physical objects are, he argued, their 'extension', that is, their measurable properties like length, breadth and width. Because extension can be quantified by measuring devices which do not depend on human agency, extensions can be seen as the indubitably objective properties of things, unlike 'secondary' properties like 'green' or 'nice' which seem to depend in some way on interaction with observers.

Now if extension is the primary property of objects, then it is a short step

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to see it also as the primary property of the space within which objects sit. As Descartes says: 'After examination we shall find that there is nothing remaining in the idea of body excepting that it is extended in length, breadth and depth; and this is comprised in our idea of space, not only of that which is full of body, but also that which is called a vacuum.'<sup>12</sup> In other words, when we take the object away from its space its extension is still present as an attribute of space. Space is therefore generalised extension, or extension without objects. Descartes again: 'In space... we attribute to extension a generic unity, so that after having removed from a certain space the body which occupied it, we do not suppose we have also removed the extension of that space.'<sup>13</sup>

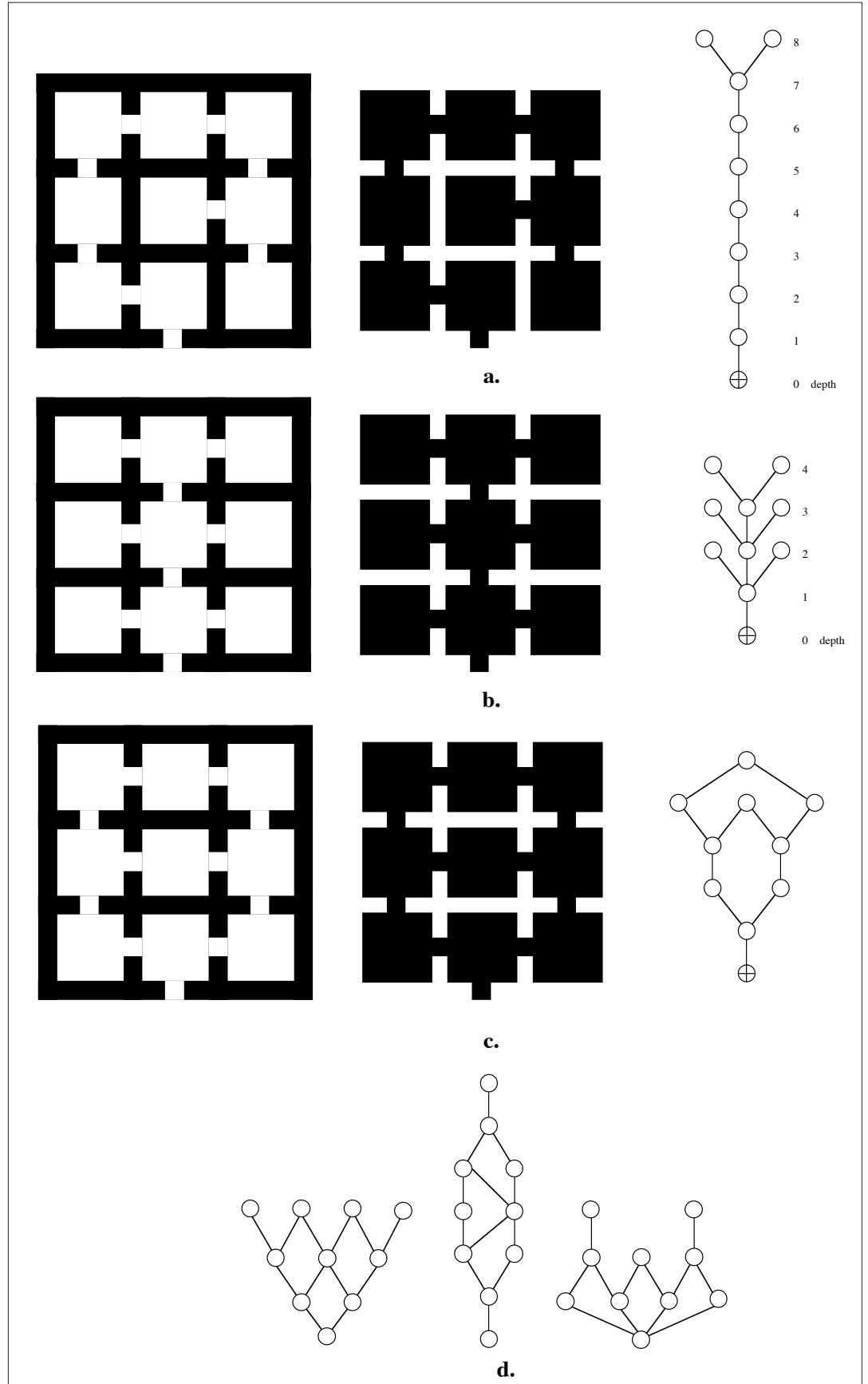
Following this reasoning, space comes to be seen as the general abstract framework of extension against which the properties of objects are defined, a metric background to the material objects that occupy space. This view of space seems to most of us quite natural, no more than an extrapolation of commonsense. Unfortunately, once we see space in this way, we are doomed not to understand how it plays a role in human affairs. Culturally and socially, space is never simply the inert background of our material existence. It is a key aspect of how societies and cultures are constituted in the real world, and, through this constitution, structured for us as 'objective' realities. Space is more than a neutral framework for social and cultural forms. It is built into those very forms. Human behaviour does not simply happen in space. It has its own spatial forms. Encountering, congregating, avoiding, interacting, dwelling, teaching, eating, conferring are not just activities that happen in space. In themselves they constitute spatial patterns.

It is because this is so that spatial organisation through buildings and built environments becomes one of the principle ways in which culture is made real for us in the material world, and it is because this is so that buildings can, and normally do, carry social ideas within their spatial forms. To say this does not imply determinism between space to society, simply that space is always likely to be structured in the spatial image of a social process of some kind. The question is: how exactly does this happen, and what are these structures like?

## Space as configuration

One thing is clear. Encountering, congregating, avoiding, interacting, dwelling, conferring are not attributes of individuals, but patterns, or configurations, formed by groups or collections of people. They depend on an engineered pattern of co-presence, and indeed co-absence. Very few of the purposes for which we build buildings and environments are not 'people configurations' in this sense. We should therefore in principle expect that the relation between people and space, if there is one, will be found at the level of the configuration of space rather than the individual space. This is confirmed by commonsense. Individual spaces place little limit on human activity, except for those of size and perhaps shape. In most reasonable spaces, most human activities can be carried out. But the relation between space and social existence does not lie at the level of the individual space, or individual activity.

Figure 1.2



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It lies in the relations between configurations of people and configurations of space.

To take the first steps towards understanding how this happens, we must understand how, in principle, a configuration of space can be influenced by, or influence, a configuration of people. Let us therefore consider some simple hypothetical examples. The two notional 'courtyard' buildings of figure 1.2a and b show in the first column in black, in the normal way, the pattern of physical elements of the buildings. The corresponding figures in the second column then show in black the corresponding pattern of spatial elements. The basic physical structures and cell divisions of the two 'buildings' are the same, and each has the same pattern of adjacencies between cells and the same number of internal and external openings. All that differs is the location of cell entrances. But this is enough to ensure that from the point of view of how a collection of individuals could use the space, the spatial patterns, or 'configurations', are about as different as they could be. The pattern of permeability created by the disposition of entrances is the critical thing. Seen this way, one layout is a near perfect single sequence, with a minimal branch at the end. The other is branched everywhere about the strong central spaces.

Now the pattern of permeability would make relatively little difference to the building structurally or climatically, that is, to the bodily aspect of buildings, especially if we assume similar patterns of external fenestration, and insert windows wherever the other had entrances onto the courtyard. But it would make a dramatic difference to how the layout would work as, say, a domestic interior. For example, it is very difficult for more than one person to use a single sequence of spaces. It offers little in the way of community or privacy, but much in the way of potential intrusion. The branched pattern, on the other hand, offers a definite set of potential relations between community and privacy, and many more resources against intrusion.

These differences are inherent in the space patterns, and would apply to whole classes of human activity patterns. In themselves the spatial layouts offer a range of limitations and potentialities. They suggest the possibility that architectural space might be subject to limiting laws, not of a deterministic kind, but such as to set morphological bounds within which the relations between form and function in buildings are worked out.

We will see from Chapter 3 onwards that it is by expressing these pattern properties in a numerical way that we can find clear relations between space patterns and how collections of people use them. However, before we embark on numbers, there is a visually useful way of capturing some of the key differences between the two spatial patterns. This is a device we call a justified graph, or j-graph. In this we imagine that we are in a space which we call the root or base of the graph, and represent this as a circle with a cross inscribed. Then, representing spaces as circles, and relations of access as lines connecting them, we align immediately above the root all spaces which are directly connected to the root, and draw in the connections. These are the spaces at 'depth one' from the root. Then an equal distance above the 'depth one' row we align the spaces that connect directly to first row spaces, forming the line of 'depth two' spaces, and

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connect these to the depth one spaces, and so on. Sometimes we will have to draw rather long and circuitous lines to link spaces at different levels, but this does not matter. It is the fact of connection that matters. The laws of graphs guarantee that if the layout is all at one level then we can make all the required connections by drawing lines connecting the spaces without crossing other lines.<sup>14</sup>

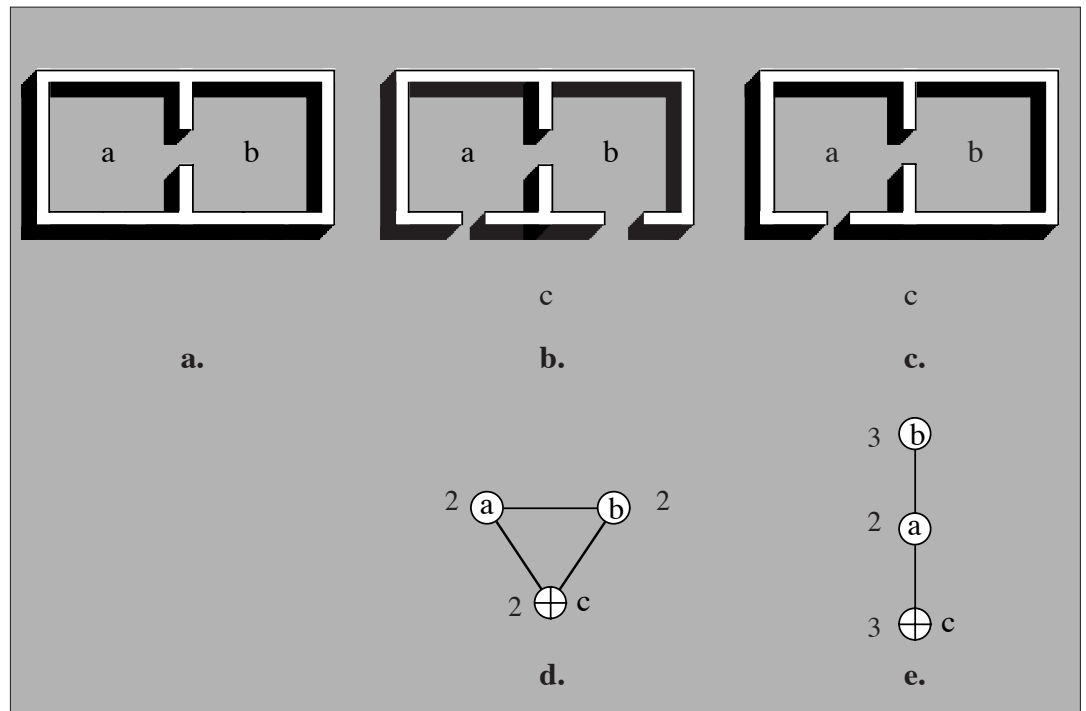
The resulting j-graph is a picture of the 'depth' of all spaces in a pattern from a particular point in it. The third column in figure 1.2a and b shows j-graphs for the corresponding spatial structures, drawn using the exterior space as root. We can immediately see that the first is a 'deep tree' form, and the second a 'shallow tree' form. By 'tree' we mean that there is one link less than the number of cells linked, and that there are therefore no rings of circulation in the graph. All trees, even two as different as in the two in the figures, share the characteristic that there is only one route from each space to each other space – a property that is highly relevant to how building layouts function. However, where 'rings' are found, the justified graph makes them as clear as the 'depth' properties, showing them in a very simple and clear way as what they are, that is, alternative route choices from one part of the pattern to another. The series of figures in figure 1.2c shows a hypothetical case, based on the same basic 'building' as the previous figures.

We do not have to justify the graph using the outside space as root. This is only one way – though a singularly useful way – of looking at a building. We can of course justify the graph from any space within it, and this will tell us what layout is like from the point of view of that space, taking into account both depth and ring properties. When we do this we discover a fact about the spatial layouts of buildings and settlements that is so fundamental that it is probably in itself the key to most aspects of human spatial organisation. This is the simple fact that a pattern of space not only looks different but actually is different when justified from the point of view of its different constituent elements. The three notional j-graphs shown in figure 1.2d appear very different from each other, but all three are in fact the same graph justified from the point of view of different constituent spaces. The depth and ring properties could hardly appear more different if they were different configurations. It is through the creation and distribution of such differences that space becomes such a powerful raw material for the transmission of culture through buildings and settlement forms, and also a potent means of architectural discovery and creation. Let us see how.

### Formally defining configuration

First we need to bring a little more formality into the definition of 'configuration'. Like the word 'pattern' (which we do not use because it implies more regularity than we will find in most spatial arrangements), configuration seems to be a concept addressed to the whole of a complex rather than to its parts. Intuitively, it seems to mean a set of relationships among things all of which interdepend in an overall structure of some kind. There is a way of formalising this idea that is as simple as it is necessary. If we define spatial relations as existing when there is any type of link – say adjacency or permeability – between two spaces, then

Figure 1.3



configuration exists when relations between two spaces are changed according to how we relate one or other, or both, to at least one other space.

This rather odd sounding definition can be explained through a simple graphic example. Figure 1.3a shows a cell divided by a partition into two, sub-cell *a* and sub-cell *b*, with a door creating a relation of permeability between the two. It is clear that the relation is formally 'symmetrical' in the sense that cell *a* is to cell *b* as *b* is to *a*. The same would be true of two cells which were adjacent and therefore in the relation of neighbour to each other. If *a* is *b*'s neighbour, then *b* must also be *a*'s neighbour. This 'symmetry', which follows the algebraic rather than the geometrical definition, is clearly an objective property of the relation of *a* and *b* and does not depend on how we choose to see the relation.

Now consider figures 1.3b and c in which we have added relations to a third space, *c* (which is in fact the outside space), but in a different way so that in 1.3b both *a* and *b* are directly permeable to *c*, whereas in 1.3c, only *a* is directly permeable to *c*. This means that in 1.3c we must pass through *a* to get to *b* from *c*, whereas in 1.3b we can go either way. In 1.3c therefore, *a* and *b* are different with respect to *c*. We must pass through *a* to get to *b* from *c*, but we do not need to pass through *b* to get to *a* from *c*. With respect to *c*, the relation has become asymmetrical. In other words, the relation between *a* and *b* has been redefined by the relation each has to a third space. This is a configurational difference. Configuration is a set of interdependent relations in which each is determined by its relation to all the others.

We can show such configurational differences rather neatly, and clarify their nature, by using the j-graph, as in figure 1.3d and e, corresponding to 1.3b and 1.3c respectively. Compared to 1.3a, spaces *b* and *c* in 1.3e have acquired 'depth' with



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respect to each other, in that their relation is now indirect and only exists by virtue of *a*. The numbers adjacent to each space in the j-graph index this by showing the total depth of each space from the other two. In contrast, 1.3d has acquired a 'ring' that links all three spaces, meaning that each has a choice of route to each of the others. The graph of 1.3d is identical when seen from each of its spaces, while in 1.3e, *b* and *c* are identical, but *a* is different.

### Society in the form of the object

Now let us use this concept of configuration, and its key spatial dimensions of depth and rings, to try to detect the presence of cultural and social ideas in the spatial forms of buildings. Figures 1.4a, b and c show, on the left, the ground-floor plans of three French houses, and to their immediate right, their j-graphs drawn initially from the outside, treating it as a single space, then to the right again three further j-graphs justified from three different internal spaces.<sup>15</sup> Looking at the j-graphs drawn from the outside, we can see that in spite of the geometrical differences in the houses there are strong similarities in the configurations. This can be seen most easily by concentrating on the space marked *sc*, or *salle commune*, which is the main everyday living space, in which cooking also occurs and everyday visitors are received. In each case, we can see that the *salle commune* lies on all non-trivial rings (a trivial ring is one which links the same pair of spaces twice), links directly to an exterior space – that is, it is at depth one in the complex – and acts as a link between the living spaces and various spaces associated with domestic work carried out by women.

The *salle commune* also has a more fundamental property, one which arises from its relation to the spatial configuration of the house as a whole. If we count the number of spaces we must pass through to go from the *salle commune* to all other spaces, we find that it comes to a total which is less than for any other space – that is, it has less depth than any other space in the complex. The general form of this measure<sup>16</sup> is called *integration*, and can be applied to any space in any configuration: the less depth from the complex as a whole, the more integrating the space, and vice versa. This means that every space in the three complexes can be assigned an 'integration value'.<sup>17</sup>

Now once we have done this we can ask questions about how the different functions in the house are 'spatialised', that is, how they are embedded in the overall spatial configuration. When we do this, we find that it is very common that different functions are spatialised in different ways, and that this can often be expressed clearly through 'integration' analysis. In the three French houses, for example, we find that there is a certain order of integration among the spaces where different functions are carried out, always with the *salle commune* as the most integrated, as can be seen in the j-graphs beside each plan. If all the functions of the three houses are set out in order of the integration values of the spaces in which they occur, beginning with the most integrated space, we can read this, from left to right, as: the *salle commune* is more integrated (i.e. has less depth to all other spaces) than



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the corridor, which is more integrated than the exterior, and so on. To the extent that there are commonalities in the sequence of inequalities, then we can say that there is a common pattern to the way in which different functions are spatialised in the house. We call such common patterns 'inequality genotypes', because they refer not to the surface appearances of forms but to deep structures underlying spatial configurations and their relation to living patterns.<sup>18</sup>

These results flow from an analysis of space-to-space permeability. But what about the relation of visibility, which passes through spaces? The three rows of figures on the right in figure 1.4 (lower panel) show all the space that can be seen with the doors open from a diamond-shaped space within each *salle commune* and one other space, drawn by joining the centre points of each wall of a room, and thus covering half of the space in the room. The idea of the diamond shape is that space use (in most western cultures) is normally concentrated within this diamond shape, the corners commonly being reserved for objects. The diagrams show that in each case the *salle commune* has a far more powerful visual field than the *salle*. In other words, the spatial and functional differences between spaces that we find through the analysis of permeability in the houses also appear in the analysis of visibility. These visibility differences can also form the basis for quantitative and statistical analysis.

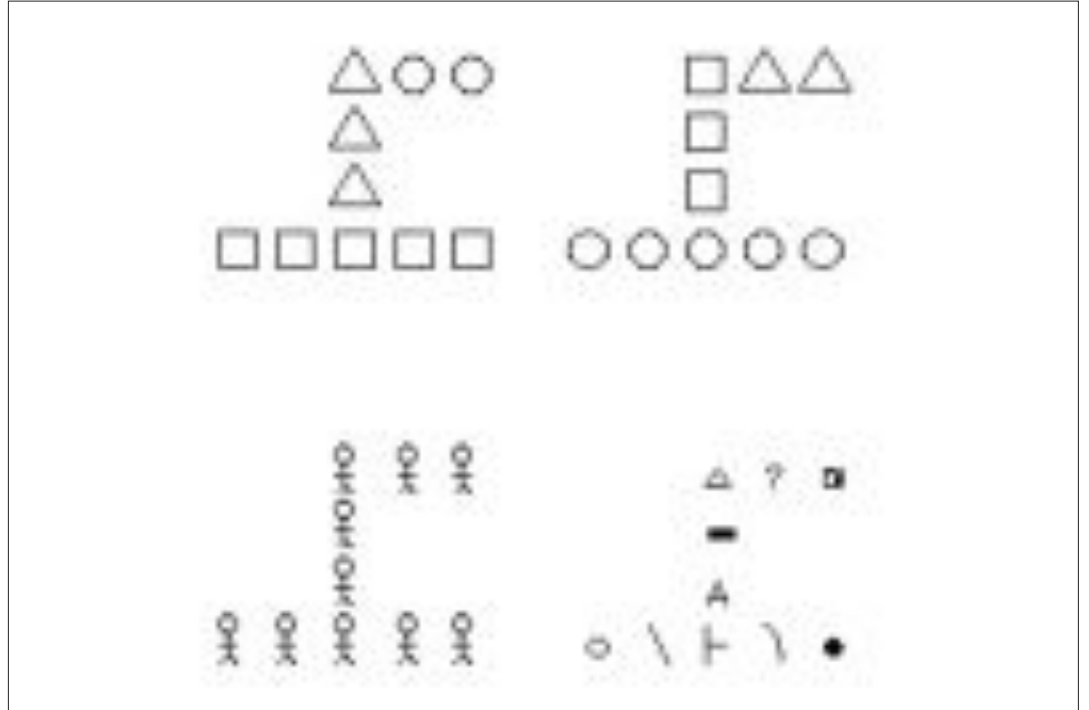
This type of method allows us to retrieve from house plans configurational properties that relate directly to the social and cultural functioning of the house. In other words, through spatial configuration culturally determined patterns are embedded in the material and spatial 'objectivity' of buildings. By the analysis of spaces and functions in terms of their configurational relations within the house, and the search for common patterns across samples, we can see how buildings can transmit common cultural tendencies through spatial form. We must now ask how and why this is the case, and what follows from it?

### **The non-discursivity of configuration: ideas we think of and ideas we think with**

The answer will take us to the centre of our argument: the non-discursivity of configuration. Non-discursivity means that we do not know how to talk about it. The difficulty of talking about spatial or formal configurations in architecture has always seemed a rather peripheral problem to architectural theory. I suggest it is the central problem, and part of a much more general problem in human affairs.

Let us begin to explore the intuitive aspects of the idea of configuration a little further. Consider the four groups of elements in figure 1.5. Each group is a different set of 'things', but placed in more or less the same overall 'configuration'. The human mind has no difficulty in seeing that the configurations are the same, in spite of the differences in the constituent 'things', and this shows that we easily recognise a configuration, even where we have no way of giving it a name and thus assigning it to a category – although we might try to do so by making analogies with configurations for which names are already at hand, such as 'L-shaped', or 'star-shaped'. However, the fact that our minds recognised configurations as being the same even when there is no name at hand to link them shows that our ability

Figure 1.5



to recognise and understand configuration is prior to the assignment of names.

Configuration seems in fact to be what the human mind is good at intuitively, but bad at analytically. We easily recognise configuration without conscious thought, and just as easily use configurations in everyday life without thinking of them, but we do not know what it is we recognise and we are not conscious of what it is we use and how we use it. We have no language for describing configurations, that is, we have no means of saying what it is we know. This problem is particularly salient in buildings and architecture, because both have the effect of imposing spatial and formal configuration on the world in which we live. But the problem is not confined to architecture. On the contrary it appears to be present to some degree in most cultural and social behaviours. In using language, for example, we are aware of words and believe that in speaking and hearing we are handling words. However, language only works because we are able to use the configurational aspects of language, that is, the syntactic and semantic rules which govern how words are to be assembled into meaningful complexes, in a way which makes their operation automatic and unconscious. In language we can therefore distinguish ideas we think *of*, that is, the words and what they represent, and ideas we think *with*, that is, syntactic and semantic rules which govern how we deploy words to create meaning. The words we think *of* seem to us like things, and are at the level of conscious thought. The hidden structures we think *with* have the nature of configurational rules, in that they tell us how things are to be assembled, and work below the level of consciousness. This 'unconscious configurationality' seems to prevail in all areas where we use rule systems to behave in ways which are recognisable as social. Behaviour at table, or the playing of games, appear to us as spatio-temporal events, but they are given order and purpose by the underlying

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configurational 'ideas-to-think-with' through which these events are generated. We acknowledge the importance of this unseen configurationality labelling it as a form of knowledge. We talk about 'knowing how to behave', or 'knowing a language'.

We can call this kind of knowledge 'social knowledge', and note that its purpose is to create, order and make intelligible the spatio-temporal events through which we recognise the presence of culture in everyday life. We must of course take care to distinguish social knowledge from forms of knowledge which we learn in schools and universities whose purpose is to understand the world rather than to behave in it, and which we might therefore call analytic, or scientific knowledge. In itself (though not necessarily in its consequences) analytic knowledge leaves the world as it is, since its purpose is to understand. Analytic knowledge is knowledge where we learn the abstract principles through which spatio-temporal phenomena are related – we might say the 'configurationality' – consciously. We are aware of the principles both when we acquire and when we use the knowledge. As a result, through the intermediary of the abstract, we grasp the concrete. In social knowledge, in contrast, knowledge of abstract configurationality is acquired through the process of creating and experiencing spatio-temporal events. Social knowledge works precisely because the abstract principles through which spatio-temporal phenomena are brought together into meaningful patterns are buried beneath habits of doing, and never need be brought to conscious attention.<sup>19</sup>

In spite of these functional differences, social knowledge and analytic knowledge are made up of the same elements: on the one hand, there is knowledge of spatio-temporal phenomena, on the other, there are abstract 'configurational' structures that link them together. But whereas in social knowledge the abstract ideas are held steady as ideas to think with in order to create spatio-temporal events in the real world, so that the abstract ideas become the normative bases of behaviour, in scientific knowledge, an attempt is made to hold spatio-temporal phenomena steady in order to bring the abstract structures through which we interpret them to the surface in order to examine them critically and, if necessary, to reconstitute them.

This can be usefully clarified by a diagram, see figure 1.6. The difference between the two forms of knowledge lies essentially in the degree to which abstract ideas are at the level of conscious thought and therefore at risk. The whole purpose of science is to put the abstract 'ideas we think with' in making sense of spatio-temporal events at risk. In social knowledge, the whole purpose of the 'knowledge' would be put at risk by bringing them to conscious thought since their function is to be used normatively to create society. However, it is clearly a possibility that the abstract structures of social knowledge could, as with science, themselves become the object of conscious thought. This, in a nutshell, is the programme of 'structuralism'. The essence of the structuralist method is to ask: can we build a model of the abstract principles of a system (e.g. language) that 'generates' all and only the spatio-temporal events that can legitimately happen? Such a model would be a theory of the system. It would, for example, 'explain' our intuitive sense

Figure 1.6

	abstract principles	spacial-temporal events
social knowledge	codes, rules ideas to think	speech, social behaviour, spaces, ideas to think
analytic knowledge	theories, hypotheses paradigms	'facts', phenomena

that some strings of words are meaningful sentences and others – most – are not. Structuralism is rather like taking the output of a computer as the phenomena to be explained, and trying to find out what programme could generate all and only these phenomena. Structuralism is an enquiry into the unconscious configurational bases of social knowledge, that is, it is an inquiry into the non-discursive dimensions of social and cultural behaviour.

### Building as the transmission of culture through artefacts

The spatial and formal patterns that are created through buildings and settlements are classic instances of the problem of non-discursivity, both in the sense of the configurational nature of ideas we think with in creating and using space, and in the sense of the role these play in social knowledge. As has already been indicated, one of the most pervasive examples of this is the dwelling. Domestic space varies in the degree to which it is subject to social knowledge, but it is not uncommon for it to be patterned according to codes of considerable intricacy which govern what spaces there are, how they are labelled, how bounded they are, how they are connected and sequenced, which activities go together in them and which are separated, what individuals or categories of persons have what kinds of rights in them, how they are decorated, what kinds of objects should be displayed in them and how, and so on. These patterns vary from one cultural group to another, but invariably we handle domestic space patterns without thinking of them and even without being aware of them until they are challenged. In general, we only become aware of the degree of patterning in our own culture when we encounter another form of patterning in another culture.

But domestic space is only the most intensive and complex instance of a more generalised phenomenon. Buildings and settlements of all kinds, and at all levels, are significantly underpinned by configurational non-discursivity. It is through this that buildings – and indeed built environments of all kinds – become part of what Margaret Mead called 'the transmission of culture through artefacts'.<sup>20</sup> This transmission occurs largely through the configurational aspects of space and form in those environments. For example, we think consciously of buildings as physical or spatial objects and we think of their parts as physical or spatial parts, like columns or rooms. But we think of 'buildings' as whole entities through the unconscious intermediary of configuration, in that when we think of a particular

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kind of building, we are conscious not only of an image of an object, but at the same time of the complex of spatial relations that such a building entails. As space – and also as meaningful forms – buildings are configurational, and because they are configurational their most important social and cultural properties are non-discursive. It is through non-discursivity that the social nature of buildings is transmitted, because it is through configuration that the raw materials of space and form are given social meaning. The social stuff of buildings, we may say, is the configurational stuff, both in the sense that buildings are configurations of space designed to order in space at least some aspects of social relationships, and in the sense that it is through the creation of some kind of configuration in the form of the building that something like a cultural ‘meaning’ is transmitted.

### Building as process

How then can this help us make the distinction between architecture and building? We note of course that we now begin not from the notion that buildings prior to architecture are only practical and functional objects, but from the proposition that prior to architecture buildings are already complex instances of the transmission of culture through artefacts. This does not mean of course that buildings of the same type and culture will be identical with each other. On the contrary, it is common for vernacular architectures to exhibit prodigious variety at the level of individual cases, so much so that the grounds for believing that the cases constitute instances of a common vernacular style, either in form or space, can be quite hard to pin down.

The crucial step in arriving at our definition of architecture is to understand first how the vernacular builder succeeds in making a building as a complex relational structure through which culture is transmitted, while at the same time creating what will often be a unique individual building. We do not have to look far for the answer. This combination of common structure and surface variety is exactly what we find where social knowledge is in operation in the form in which we have just described it: complex configurational ideas at the non-discursive level guide the ways in which we handle spatio-temporal things at the surface level, and as a result configurational ideas are realised in the real world. In building terms, the manipulation of the spatial and formal elements which make up the building will, if carried out within the scope of non-discursive configurational ideas to think with, which govern key aspects of their formal and spatial arrangement, lead to exactly the combination of underlying common structure and surface variety that characterises vernacular architectures in general.

To understand how this happens in particular cases, we can draw on the remarkable work of Henry Glassie.<sup>21</sup> Glassie proposes that we adapt from Noam Chomsky’s studies of language a concept which he calls ‘architectural competence.’ ‘Architectural competence’ is a set of technological, geometrical and manipulative skills relating form to use, which constitute ‘an account not of how a house is made, but of how a house is thought...set out like a programme...a scheme analogous to a grammar, that will consist of an outline of rule sets interrupted by prosy exegesis’.

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The analogy with language is apposite. It suggests that the rule sets the vernacular designer uses are tacit and taken for granted in the same way as the rule sets that govern the use of language. They are ideas the designer thinks with rather than of. They therefore have a certain degree of abstraction from the material reality they help to create. They specify not the specific but the generic, so that the vernacular designer may use the rules as the basis of a certain restrained creativity in interpreting the rules in novel ways.

Now the implication of Glassie's idea is that 'architectural competence' provides a set of normative rules about how building should be done, so that a vernacular building reproduces a known and socially accepted pattern. The house built by a builder sharing the culture of a community comes out right because it draws on the normative rules that define the architectural competence of the community. In this way buildings become a natural part of 'the transmission of culture by artefacts'. Through distinctive ways of building, aspects of the social knowledge distinctive of a community are reproduced. Thus the physical act of building, through a system of well defined instrumentalities, becomes the means by which the non-discursive patterns we call culture are transmitted into and through the material and spatial forms of buildings. The non-discursive aspects of building are transmitted exactly as we would expect them to be: as unconscious pattern implications of the manipulation of things.

### So what is architecture?

To understand building, then, we must understand it both as a product and as a process. Having done this, we can return to our original question: what is it that architecture adds to building? By unpacking the cultural and cognitive complexity of building, it will turn out that we are at last in sight of an answer. Whatever architecture is, it must in some sense go beyond the process by which the culturally sanctioned non-discursivities are embedded in the spatial and physical forms of buildings. In what sense, then, is it possible to 'go beyond' such a process?

The answer is now virtually implied in the form of the question. Architecture begins when the configurational aspects of form and space, through which buildings become cultural and social objects, are treated not as unconscious rules to be followed, but are raised to the level of conscious, comparative thought, and in this way made part of the object of creative attention. Architecture comes into existence, we may say, as a result of a kind of intellectual *prise de conscience*: we build, but not as cultural automata, reproducing the spatial and physical forms of our culture, but as conscious human beings critically aware of the cultural relativity of built forms and spatial forms. We build, that is, aware of intellectual choice, and we therefore build with reason, giving reasons for these choices. Whereas in the vernacular the non-discursive aspects of architecture are normative and handled autonomically, in architecture these contents become the object of reflective and creative thought. The designer is in effect a configurational thinker. The object of architectural attention is precisely the configurational ideas to think with that in the vernacular govern



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configurational outcomes. This does not mean that the designer does not think of objects. It means that at the same time the designer thinks of configuration.

The essence of architecture lies therefore in building not by reference to culturally bound competences, and the way in which they guide the non-discursive contents of buildings through programmes of social knowledge specific to one culture, but by reference to a would-be universalistic competence arrived at through the general comparative study of forms aimed at principle rather than cultural idiosyncrasy, and, through this, at innovation rather than cultural reduplication. It is when we see in the non-discursive contents of buildings evidence of this concern for the abstract comparability of forms and functions that building is transcended and architecture is named. This is why the notion of architecture seems to contain within itself aspects of both the product which is created and of the intellectual process through which this creation occurs.

Architecture exists, we might say, where we note as a property of things evidence not only of a certain kind of systematic intent – to borrow an excellent phrase proposed by a colleague in reviewing the archaeological record for the beginning of architecture<sup>22</sup> – in the domain of non-discursivity, but of something like theoretical intent in that domain. In a key sense architecture transcends building in the same way that science transcends the practical crafts of making and doing. It introduces into the creation of buildings an abstract concern for architectural possibility through the principled understanding of form and function. The innovative imperative in architecture is therefore in the nature of the subject. We should no more criticise architects for their penchant towards innovation than we should scientists. In both cases it follows from the social legitimations which give each its name and identity. Both architecture and science use the ground of theoretical understanding to move from past solutions to future possibility, the latter in the direction of new theoretical constructs, the former in the direction of new realities. The judgment we make that a building is architecture arises when the evidence of systematic intent is evidence of intellectual choice and decision exercised in a field of knowledge of possibility that goes beyond culture into principle. In this sense, architecture is a form of practice recognisable in its product. The judgment we make that a building is architecture comes when we see evidence in the building both of systematic intent which requires the abstract and comparative manipulation of form within the general realm of architectural possibility, and that this exploration and this exercise of intellectual choice has been successfully accomplished.

Architecture is thus both a thing and an activity. In the form of the thing we detect evidence of a systematic intent of the architectural kind. From the built evidence we can judge both that a building is intended to be architecture and, if we are so inclined, that it is architecture. We see now why the definition of architecture is so difficult. Because it is the taking hold of the non-discursive contents of building by abstract, universalistic thought, it is at once an intentional mental act and a property we see in things. It is because we see in things the objectivised record of such thought that we name the result architecture.

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It is clear from this analysis that architecture does not depend on architects, but can exist within the context of what we would normally call the vernacular. To the extent that the vernacular shows evidence of reflective thought and innovation at the level of the genotype, then that is evidence of the kind of thought we call architectural within the vernacular. This does not mean that the innovative production of buildings which are phenotypically individual within a vernacular should be thought of as architecture. Such phenotypical variety is normal as the product of culturally constrained non-discursive codes. It is only when the innovation, and therefore the reflective thought, changes the code that underlies the production of phenotypes that we detect the presence of abstract and comparative – and therefore architectural – thought within the confines of vernacular tradition. It is therefore perhaps at times of the greatest change that we become aware of this type of thought in vernacular traditions, that is, when a new vernacular is coming into existence. This is why the demarcation between the vernacular and architecture constantly shifts. The reproduction of existing forms, vernacular or otherwise, is not architecture because that requires no exercise of abstract comparative thought, but the exploitation of vernacular forms in the creation of new forms can be architecture.

Architecture exists then to the degree that there is genotypical invention in the non-discursive, that is, invention with the rules that govern the variability that is possible within a style. The precondition for such invention is an awareness of possibilities which are not contained in contemporary cultural knowing but which are at the same time within the laws of what is architecturally possible. Architecture is characterised therefore by a preoccupation with non-discursive means rather than non-discursive ends. This is not the outcome of a perverse refusal to understand the cultural nature of building, but a taking hold of this very fact as a potentiality to explore the interface between human life and its spatial and physical milieu. In the act of architectural creation, the configurational potentialities of space and form are the raw materials with which the creator works.

Like any creative artist, therefore, the architect must seek to learn, through intellectual inquiry, the limits and potentialities of these raw materials. In the absence of such inquiry, there are manifest and immediate dangers. In the vernacular the pattern of form and the pattern of space which give the building its social character are recreated through the manipulation and assembling of objects. We can say then that the form, the spatial pattern and the functional pattern – the form-function relation, in short – are known in advance and need only be recreated. Because architecture of its nature unlinks the pattern aspects of the building from their dependence on social knowledge, these aspects of the building – and above all their relation to social outcomes – become uncertain.

In architecture then, because these crucial relations between non-discursive forms and outcomes are not known in advance, architecture has to recreate in a new, more generalised form, the knowledge conditions that prevail in the vernacular. Because architecture is a creative act, there must be something in the place of the social knowledge structure as ideas to think with. Since architecture is based

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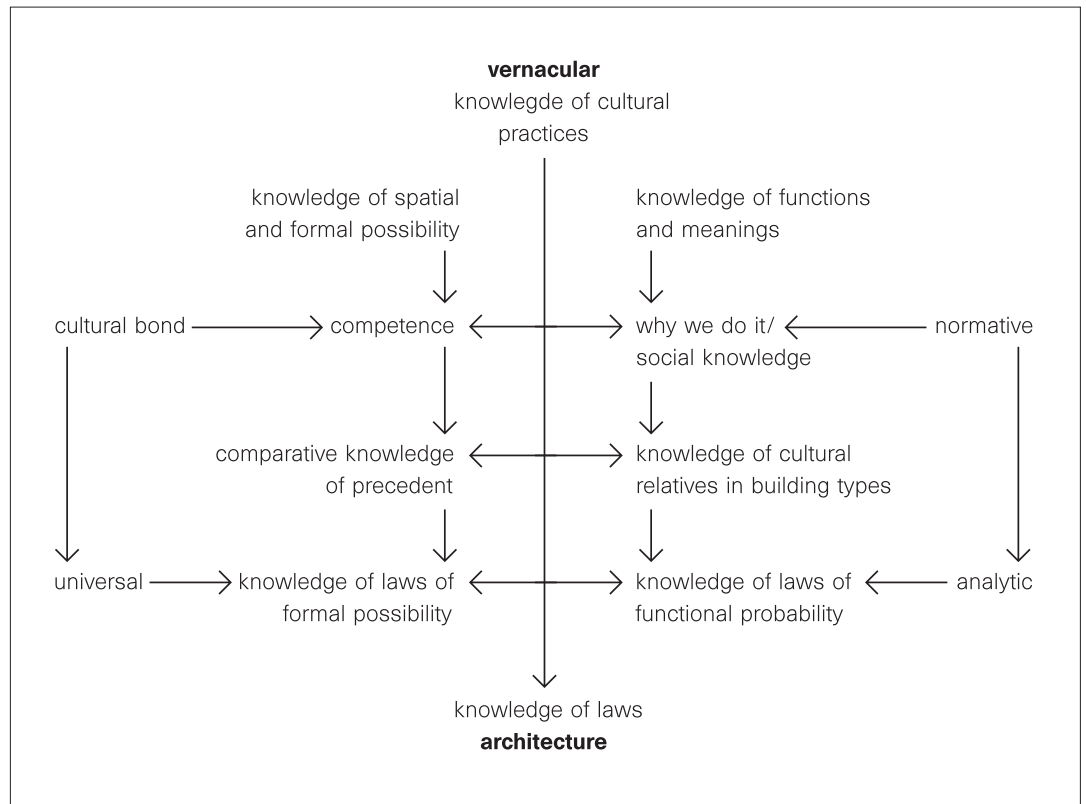
on the general comparability of possible forms, this knowledge cannot simply encompass particular cases. It must encompass the range of possible cases and if possible cases in general. There is only one term for such knowledge. It is theoretical knowledge. We will see in the next chapter that all architectural theories are attempts to supply principled knowledge of the non-discursive, that is, to render the non-discursive discursive in a way that makes it accessible to reason. In the absence of such knowledge, architecture can be, as the twentieth century has seen, a dangerous art.

The passage from building to architecture is summarised in figure 1.7. The implication of this is that, although we know the difference between architecture and building, there is no hard and fast line to be drawn. Either can become the other at any moment. Taking a broader view which encompasses both, we can say that in the evolution of building we note two ways in which things are done: in obedience to a tradition, or in pursuit of innovation. Building contains architecture to the degree that there is non-discursive invention, and architecture becomes building to the degree that there is not. Vernacular innovation is therefore included within architecture, but the reduplication of vernacular forms is not. Architecture is therefore not simply what is done but how it is done.

The bringing of the non-discursive, configuration dimension of built form from cultural reproduction to reflective awareness and abstract exploration of possibility is at once a passage from the normative to the analytic and from the culture-bound to the universal, the latter meaning that all possibilities are open rather than simply the permutations and phenotypical innovations that are sanctioned by the vernacular. The passage is also one which transforms the idea of knowledge from cultural principle to theoretical abstraction.

In a strong sense, then, architecture requires theory. If it does not have theoretical knowledge, then it will continue to depend on social knowledge. Worse, there is every possibility that architecture can come to be based on social knowledge masquerading as theoretical knowledge, which will be all the more dangerous because architecture operates in the realms of the non-discursive through which society is transmitted through building.<sup>23</sup> Architecture is therefore permanently enjoined to theoretical debate. It is in its nature that it should be so. In that it is the application of reflective abstract thought to the non-discursive dimensions of building, and in that it is through these dimensions that our social and cultural natures are inevitably engaged, architecture is theory applied to building. In the next chapter we will therefore consider what we mean by theory in architecture.

Figure 1.7



## Notes

- 1 J. Ruskin: *Seven Lamps of Architecture*, London 1849, chap. 1.
- 2 The literature on vernacular architecture as culture is now extensive, and growing rapidly. Among the seminal texts offering wide coverage are Rudovsky's *Architecture Without Architects*, 1964; Paul Oliver's *Shelter and Society*, Barrie & Rockliff, The Cresset Press, 1969 and its follow-up *Shelter in Africa*, Barrie & Jenkins, London, 1971; Amos Rapoport's *House Form and Culture*, Prentice Hall, 1969; Labelle Prussin's classic review of the contrasting vernaculars within a region, *Architecture in Northern Ghana*, University of California Press, 1969; Susan Denyer's *African Traditional Architecture*, Heineman, 1978; and Kaj Andersen's *African Traditional Architecture*, Oxford University Press, 1977; in addition to earlier anthropological classics such as C. Daryll Forde's *Habitat, Economy and Society*, Methuen, 1934. Studies of specific cultures are now too numerous to mention, as are the much large-number of texts which have now dealt with the architecture of particular cultures and regions, but which are not yet available in English. Among recent studies of the vernacular, the most important to my mind – and by far the most influential in this text – has been the work of Henry Glassie, and in particular his *Folk Housing in Middle Virginia*, University of Tennessee Press, 1975, references to which, explicit and implicit, recur throughout this text.
- 3 The same has often been said of 'industrial' architecture. J. M. Richards, for example, in his *An Introduction to Modern Architecture*, Penguin, 1940, describes

## What architecture adds to building

Thomas Telford's St Katharine's Dock as 'Typical of the simple but noble engineer's architecture of his time'.

- 4 Roger Scruton, *The Aesthetics of Architecture*, Methuen, 1977.
- 5 Ibid., p. 16.
- 6 For a recent restatement of this belief see S. Gardiner, *The Evolution of the House*, Paladin, 1976.
- 7 See for example prehistorical sections of the most recent (nineteenth) edition of Sir Banister Fletcher's *A History of Architecture* (edited by Professor John Musgrove) written by my colleague Dr Julienne Hanson. It is a comment on architectural history that it is only very recently that the true antiquity of building has been reflected in the histories of world architecture. Some of Dr Hanson's sources are in themselves remarkable texts which if better known would entirely change popular conception of the history not only of building but also of human society. The key texts are given in Dr Hanson's bibliography, but I would suggest the remarkable R. G. Klein, *Ice Age Hunters of the Ukraine*, Chicago and London, 1973 as a good starting point.
- 8 B. Russell, *The Problems of Philosophy*, Home University Library, 1912, Oxford University Press paperback, 1959; Chapter 9 'The world of universals'.
- 9 R. A. Scruton, *The Aesthetics of Architecture*, p. 43 et seq.
- 10 R. A. Scruton, *A Short History of Modern Philosophy: from Descartes to Wittgenstein*, ARK Paperbacks, 1984.
- 11 R. Descartes, *The Principles of Philosophy*, Part 2, Principle X in *The Philosophical Works of Descartes*, Cambridge University Press, vol. 1, p. 259.
- 12 Descartes, Principle XI, p. 259.
- 13 Descartes, Principle X, p. 259.
- 14 Graphs which have this property are called 'planar' graphs. Any spatial layout on one level, considered as a graph of the permeability relations, is bound to be planar.
- 15 These examples are taken from a study of seventeen houses in Normandy carried out for the Centre Nationale de Recherche Scientifique, and published as 'Ideas are in things' in *Environment and Planning B, Planning and Design* 1987, vol. 14, pp. 363-85. This article then formed one of the basic sources for a much more extended treatment in J. Cuisenier, *La Maison Rustique: logique sociale et composition architecturale*, Presses Universitaires de France, 1991.
- 16 The 'normalisation' formula for taking the effect of the number elements in the graph out of the total depth calculation from an element is  $2(md-1)/k-2$ , where  $md$  is the mean depth of other elements from the root element, and  $k$  is the number of elements. There is a discussion of this measure in P. Steadman, *Architectural Morphology*, Pion, 1983, p. 217. The measure was first published in Hillier et al., 'Space Syntax: a new urban perspective' in the *Architect's Journal*, no 48, vol. 178, 30.11.83. There is an extensive discussion of its theoretical foundations and why it is so important in space in Hillier and Hanson, *The Social Logic of Space*, Cambridge University Press, 1984. The measure theoretically eliminates the effect of the numbers of elements in the system. However, in architectural and urban reality there is an additional problem: both buildings and settlements, for practical and empirical

reasons (as will be fully discussed in Chapter 9) tend to become relatively less deep as they grow. A second, 'empirical' normalisation formula is therefore required to take account of this. Such a formula is set out in *The Social Logic of Space*, which has proved robust in use, but has been extensively discussed, for example in J. Teklenberg, H. Timmermans & A. van Wagenberg, 'Space syntax: standardised integration measures and some simulations', *Environment & Planning B: Planning & Design*, vol. 20, 1993, pp. 347-57. See also M. Kruger, 'On node and axial grid maps: distance measures and related topics', paper for the European Conference on the Representation and Management of Urban Change, Cambridge, September 1989, Unit for Architectural Studies, University College London.

- 17 There is a further measure called 'difference factor', which expresses how strong these differences are, set out in 'Ideas are in things', cited in note 15 above.
- 18 It should be noted that the argument in the paper from which these examples are taken, 'Ideas are in things' is a great deal more complex than that presented here to illustrate the technique. In fact, it was proposed that two fundamental typological tendencies would be identified within the sample, which were more to do with differences in the relations of the sexes than anything else. A new version of this paper will be published in J. Hanson, *The Social Logic of Houses*, forthcoming from Cambridge University Press.
- 19 These issues are dealt with at greater length and for a slightly different purpose in Chapter 7.
- 20 Margaret Mead, *Continuities in Cultural Evolution*, Yale University Press, 1964, Chapter 5.
- 21 For example, Henry Glassie, *Folk Housing in Middle Virginia*.
- 22 J. Hanson, written for the intended *Encyclopaedia of Architecture*, McGraw-Hill, New York, but not yet published.
- 23 We will see in later chapters, and particularly in Chapters 6 and 11, exactly how this can occur and what its consequences are.