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Sonit Bafna

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# How architectural drawings work — and what that implies for the role of representation in architecture

**Sonit Bafna**

*Georgia Institute of Technology, College  
of Architecture, Atlanta GA 30332, USA*

A distinction between imaginative and notational use of architectural drawings is introduced. The case of Mies's Brick Country House is used to suggest that drawings in the imaginative mode are often architectural works in their own right, and that they can function as works by invoking a special mode of visual attention. Such an attention is essentially an act of visual representation or depiction, in that it involves sustained perceptual parsing of the drawing in terms of objects or figures that are not literally present but are still responsive to propositional thought. It is further shown, with the help of some recent work in philosophy, cognitive science and art criticism, how such a representational mode of viewing drawings leads to an imaginative engagement that is the hallmark of an aesthetic experience. It is finally suggested that such a potency of depictive representation has been exploited through history, not just in making presentational drawings, but in the visual design of buildings as well. The purpose of representation, thus, is not so much to use an artefact — say a building — to state a proposition, but rather to help to give it a perceptual structure that can sustain imaginative engagement.

## Introduction

I intend, in this paper, to offer a discussion about the functioning of representation in architecture. I will begin with a discussion on the use of architectural drawings, focusing specifically on presentation drawings — drawings that are used by designers, clients or critics to discuss qualities of architectural projects. I will further argue that drawings of this kind function less as transparent descriptions of buildings to which the actual critical attention is directed, but rather call for a specific mode of attention to themselves as artefacts. Such an attention brings into play a reciprocal experience of seeing the drawing as marks on a surface and of seeing objects depicted within it, and can only be maintained if the drawings have certain structural properties. Under such a reading, architectural drawings

seem to function as works of architecture in their own right.

The issue whether drawings should be considered works in their own right comes from the recognition that architects, unlike any other artists, do all their work in media which are different from the one in which the final work is realised. Robin Evans, in his essay 'Translations from Drawing to Building', identified this to be a particular issue of concern for architecture:

... I was soon struck by what seemed to be a peculiar disadvantage under which architects labour, never working directly with the object of their thought, always working at it through some intervening medium, almost always the drawing, while painters and sculptors, who might spend some time on preliminary sketches

and maquettes, all ended up working on the thing itself, which, naturally, absorbed most of their attention and effort.<sup>1</sup>

The reason Evans thought this a disadvantage was that the drawings or models, which seem to absorb so much of a working architect's attention and effort, were artefacts that did not have the richness and engagement with the world that actual buildings provided. Evans argued that the more one thought of the drawings and models as works in their own right, thus giving the architects their due direct access to their actual work, the less claim architects had 'to the architecture that now flourishes within economic, social and political order'. Evans's response was to recognise that architectural drawings were at best incomplete records of the final forms that buildings usually take; architecture, he thought, compared well with works of the visual arts — installations, constructions, landscape art, tellingly mostly associated with the minimal art movement — which could not be defined completely through drawings. His subsequent aim, pursued through *The Projective Cast*, was to investigate those historical moments in which the complexity of the translation of visual ideas from the abstractions of drawings to the real world of buildings yielded useful insights about the role of geometry in architecture.

Underlying Evans's focus on the activity of translation between the drawing and building (as against investigation of the drawings themselves) was the conviction, entirely right, in my opinion, that drawings are not merely 'trucks for pushing ideas from place to place'. But my agreement does not extend to Evans's conclusion that therefore

drawings by themselves are necessarily bereft of conceptual architectural content; it simply means that the relationship between drawings and ideas is complex and more than a matter of arbitrary and circumstantial association between two discrete entities. Working on drawings, I want to argue, can be as much an architectural activity as their translation into built artefacts. It is specifically this issue that I will pursue in this paper, using as an example a project whose drawings were never seriously intended to be translated into buildings. But beyond yielding insights about how architectural drawings may produce and carry meaning, an account of how architectural drawings function also leads to an understanding of how buildings themselves may produce and carry meaning. That is, it should help us to understand, more generally, how a visual medium such as architecture may engage specific ideas at all.

### **Two varieties of reference in architectural drawings**

The most direct use of architectural drawings is to specify their subject matter. This is how most construction drawings are used, as are drawings submitted for approval of construction permits. We can call this use notational. The idea of a 'notation' in this sense derives from concepts first announced by Nelson Goodman in *Languages of Art*.<sup>2</sup> *Languages of Art* was Goodman's attempt to develop a general theory of symbolism, a theory that would be able to bring under a single analytical description all representational phenomena including pictures, descriptive texts, scientific theories, musical scores amongst others. An overarching

theory of this kind allowed Goodman to offer very persuasive explanations of the varied ways in which different representations worked, and, in doing so, answer questions like why paintings could be forged, while poems could not.

In this theory, all representational works are treated as instantiations of particular systems of mapping between two domains, such that individual characters that constitute the domain of the work or artefact are associated with specific aspects of the represented world. The critical point at which different representations distinguish themselves is in the specification of the system of characters. The individual characters constituting a representation can be discrete and countable or dense and uncountable, and similarly these characters can be mapped onto discrete and unambiguously distinct aspects of their referent domain or to referents which are not discrete.

Architectural drawings, in Goodman's view, are instances of notations, the paradigmatic example of which is the musical score.<sup>3</sup> Using Goodman's language, scores belong to a system of symbols which are not only completely discrete, but which have discrete referents as well. Under different conditions, however, Goodman did allow that plans could function as 'scripts'. Scripts, which, in Goodman's terms, can include anything from a film script to a poem, belong to a symbolic system which is syntactically discrete but without discrete referents. This happens when plans incorporate textual symbols, such as labels and measurements, along with the more typical graphical characters.

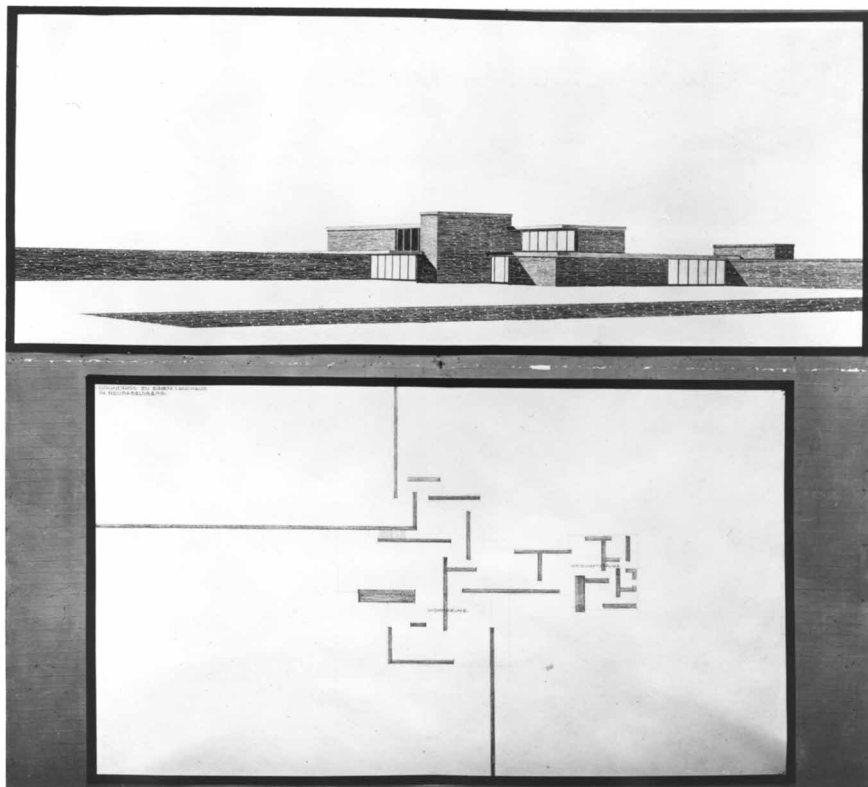
Goodman's theory of notations was developed to point out, and to explain, how a score or a script was

able unambiguously to pick out a particular work from amongst its near copies (and, by the same token, how a painting could not). This is exactly what architectural drawings in the roles mentioned above — roles such as specifying constructional details, preparing estimates of quantities, or ensuring that the projected building meets construction code requirements — have been designed to do. But Goodman's theory also makes clear that in these kinds of uses, architectural drawings only need to *specify* the building they project. They do not need to depict it, that is, to show its appearance. Whether they do so, actually, is incidental. The distinction is sharper in principle, rather than in practice; even in drawings that are strictly devoted to specification, it helps to be able to visualise the depicted entities.

However, such visual props are not necessary for the drawings to fulfil their specificatory role. In principle, for instance, it is possible to have a purely mechanical procedure to translate the specifications of the drawings directly into instructions for construction, without the agent of construction actually being required to be visually aware of the object being constructed. One only needs to think of the recent emergence of computer-driven machines in the wood-working and fabrication workshops — three-dimensional printers, laser cutters, and so on — to see the possibility of this. An additional reminder from practice of this point is the injunction accompanying construction drawings always to read, rather than to measure, a required dimension, however accurately to scale the drawing might have been produced.

There are times, however, when architectural drawings are used in ways which their characterisation as

Figure 1. Mies van der Rohe, *Landhaus* in Brick, 1924: exhibition panels showing perspective view (above) and schematic floor plan (below). The two words on the plan are 'Wohnräume' and 'Wirtschaftsräume'. (Print from a photographic negative, Stadt Kunsthalle, Mannheim.)



notations does not quite satisfy, and where theories such as Goodman's are brought up seemingly short. Consider the two well-known drawings of Ludwig Mies van der Rohe's Brick Country House project (Fig. 1). To recapitulate briefly the genesis of these drawings: the project was one of five that Mies produced in an inspired innovative phase in the early

1920s in Berlin. This was a period during which he was transforming his practice from one oriented towards producing conservative, competently executed and client-oriented residences, to one with an *avant garde* agenda aiming to develop a fundamentally new way of conceiving architecture. None of these five projects was built; in fact, they

were essentially produced as competition or exhibition entries. But they were widely publicised in a number of contemporary art journals and received much critical attention. The projects are all visionary and schematic in their conception. Their critical interest lies to a very large extent in Mies's exploration of the possibility of developing architectural styles based on the structural qualities and constructional techniques associated with specific building materials.

One historical point to note about the Brick Country House project is the scarcity of information about it. Apart from a short statement by Mies, delivered as a part of a speech, only two drawings are known — the perspective view and the plan seen here — and even those were lost very early, surviving only in the form of two negative prints and as some reproductions in surviving copies of the period's publications.<sup>4</sup> Almost all of the critical acclaim that this project had acquired and since maintained is based on these two drawings.

These drawings are clearly not notational. They are not detailed enough provide adequate specifications uniquely to identify a building. There is no indication of scale and dimensions, or of orientation; several design details — such as the thicknesses of walls, or locations of doors, or of the extent of the floor — are fudged or ambiguous, or appear not to be precisely worked out. The plan of the entire upper floor is missing, the only indication of its shape given in the partial depiction in the perspective view. The specification of the actual built form is both ambiguous and incomplete.

But obviously, this is not the function of these drawings. As exhibition entries, they are better

seen as functioning like a proxy to the building that they represent, allowing observers to make judgements about the building in its absence. Their relationship to the built work is more like the relationship of a preparatory sketch of a painting to that of the actual painting, rather than that of a musical score to its performance. The distinctive feature of the mode in which these drawings are supposed to be read is that no mechanical procedure can be outlined to do the job. We can call this mode imaginative, as opposed to notational. The activity of reading in the imaginative mode is not simply a procedure of reproducing the elements (say all the walls depicted in the plan) of the drawings in another medium, but often involves the ability to instantiate elements or features of the represented building that were not pre-specified — such as the passages that are created between walls — and to read qualities that do not belong to any particular elements of the drawings at all, such as the perceived horizontality of the composition in the perspective view.

What underlies the distinction between notational and imaginative use of drawings, then, are two modes of visual reference. Using Goodman's framework, the first mode is a mechanical one, in which pre-specified elements are matched to their pre-specified referents. In the second mode, which underlies the imaginative use of drawings, the mapping from the drawing to what is represented is 'dense' — individual enumerable characters are not available in the drawing (syntactic density), and aspects of the depicted building to which any characters are mapped, are not unambiguously distinct either (semantic density). In addition to this

density such a mapping has another quality that Goodman calls 'repleteness'.

In replete mapping, every aspect of the way a character is actually constituted matters to its functioning; thus in a drawing like the Brick Country House plan, the thicknesses of lines, variations in their colour and in the degree of their smoothness, all — or at least very many — such features are significant and cannot be substituted without loss of key qualities of the entire drawing. Repleteness distinguishes such drawings from other diagrams, such as a line graph of a continuously varying quantity, which may also otherwise be based on a syntactically and semantically dense mapping. In Goodman's classification, these drawings would thus be neither scores nor scripts, but *sketches*.<sup>5</sup> And the mode of visual reference that underlies the sketch is what Goodman identifies as the distinguishing feature of 'visual representation' or 'depiction'.

In making this distinction between drawings that specify and those that depict, one need not be committed exclusively to a Goodmanian view of perception. Our main interest is not in the overall theory of symbolic forms that Goodman offers, but rather in clarifying the distinction between the two ways in which visual reference can be constructed. Other writers concerned with defining visual representation or depiction have found it necessary to draw this distinction as well. Richard Wollheim has argued that depictive seeing activates a special mechanism that he termed 'seeing-in'; faced with such pictures one cannot help but see figures within them despite knowing full well that they are just marks on the surface.

This reading of pictures differs from readings of maps, charts, logos or architectural working

drawings, which rely on pre-specified conventions rather than a 'natural perceptual capacity' on the part of the observer.<sup>6</sup> Kendall Walton's definition of depictive representations as graphical entities that can be used as 'props in perceptual games of make-believe' echoes this distinction as well. And while Walton, unlike Wollheim, does not hold conventionality to be a significant criterion, his distinction between depictive and non-depictive visuals lies in the requirement that the games of make-believe be rich and vivid.<sup>7</sup> Visuals like maps, graphs, diagrams, charts and architectural drawings, Walton argues, do not engage observers *perceptually* in games of appropriate richness and vivacity and so are different from pictures.

This distinction between notational and imaginative uses of drawings might seem to parallel the distinction between instrumental and symbolic representation, introduced by Dalibor Vesely.<sup>8</sup> But there is a fundamental difference between the two formulations. In Vesely's formulation, the motivating aim was to counter what was supposed to be a then-pervasive conception of technical drawings as being theory-neutral and objective means for describing buildings. The counter assumption was that mapping conventions (whether projective or not) underlying architectural drawings were actually associated with specific types of representational space, and that this space in turn was deeply associated with the imagination of a particular culture or period.<sup>9</sup>

But such a generalisation from a particular technique to the imagination of an entire culture or period is arguable. It may be true, as Vesely cautioned, that both the practice and discourse

around architectural drawings today often betray a sense of divided representation, but that conclusion cannot be founded in the argument that technical drawings based on conventions derived from projective geometry are exclusively artefacts of instrumental representation. Not just perspectival views, but even highly reductive orthographic views such as the existing plan of the Brick Country House, despite being constructed using what appear to be mechanical projective conventions, have often functioned entirely in the imaginative mode.

### **Drawings as architectural works**

In this essay our concern is with the imaginative mode. With notational drawings, the purpose is to reconstruct the drawing in some fashion, and the procedure of reading is a mechanical one of matching pre-specified characters to referents. In the imaginative mode, however, where the purpose is to make judgements about an object not actually existing, how are the drawings read?

There is a common assumption — we can call it the folk theory of how architectural drawings are read — that a viewer or commentator in generating statements such as those above, visualises the building using the drawings as an aid, and then, on the basis of aesthetic judgement of the imagined form, makes appropriate critical statements. The term ‘visualise’ is used to imply the ability ‘to make a mental image’ (as the 2007 online edition of Merriam-Webster’s dictionary defines it) of the building, given the geometric information provided by the drawings. Judgements are made of the

building depicted, not of the drawing, which is treated essentially as if transparent.

But if so, then the Brick Country House drawings do not really seem very well suited for the purpose. For one, there is the sketchiness of the plan, already noted, particularly the fact that it is obviously incomplete. There is no drawing of the upper floor. Key descriptions are missing, not just of constructional details, but of the actual spatial configuration. How, for instance, is the main staircase, which is schematically indicated, oriented? It is difficult to define unambiguously the extent of the main floor of the house. Even worse, it is impossible to reconcile the plan with the perspective view; they do not match completely even in the parts that are commonly visible.

As commentators have noticed, a tiny cast shadow on the edge of the concrete overhang near the chimney block in the service area indicates that the configuration of walls depicted in the view is different as compared to that indicated in the plan.<sup>10</sup> There is also some confusion regarding proportions; either the room at the bottom of the plan (and in the foreground of the view) is extraordinarily long, or its ceiling height is so low as to render it unusable. In short, any visualisation of the building as a whole would not only be necessarily incomplete, it would not be coherent. It is not possible to have a complete, unified, mental image of the building, using just the drawings provided, such that it could then act as the object of a critical judgement.

In fact, the folk theory of the visualisation of architectural drawings carries a seeming paradox. An implication of this theory is that the more attenuated, and therefore, the more unambiguous and



clear the drawings, the better suited they would be to the purpose of visualising the building, but at the same time, the lesser the amount of detail specified in the drawings, the more ambiguous the imaginative conception of the building they represent, and hence, the more difficult to form a critical judgement of it. However, most people with design experience will see that this is not how drawings work in practice; working drawings with their plethora of specifications are far less useful for formulating critical judgements about designs, than are the presentation renderings. The paradox, in other words, is that the less geometrically clear drawings are, the more expressive they somehow become.

This paradox is well illustrated by the Brick Country House case, for despite their incompleteness and inconsistencies, the Brick Country House drawings have come to occupy a significant place in the canon of modern architecture. Here is Colin Rowe commenting on what he perceives to be Mannerist tendencies in Mies:

In Capella Sforza, Michaelangelo, working in the tradition of the centralized building, establishes an apparently centralized space; but within its limits, every effort is made to destroy the focus which this space demands. ... And in the Brick Country House, there are analogous developments to be observed. This house is without either conclusion or focus; and, if here Mies is operating not within the tradition of the centralized building but, ultimately, in that of the irregular and freely disposed Romantic plan, the distintegration of prototype is as complete as with Michelangelo.<sup>11</sup>

Note how the Brick Country House is compared to the Sforza Chapel, a building very much in existence, without explicit recognition of this difference. Attention is drawn to perceived qualities of composition which are attributed to the building projected, not to the drawings ('This house is without either conclusion or focus ...'). And particularly, in doing this, Rowe seems to fudge the distinction between reading a drawing and experiencing a building. A statement from Wolf Tegethoff, not at all atypical of critical commentary on this project, further emphasises this in a reading apparently grounded in an aesthetic experience:

The interior has become the nucleus of a force-field which, by means of brick walls reaching out in all directions, fixes the co-ordinates of the environment and defines it with exclusive reference to the viewer inside.<sup>12</sup>

A defining quality of aesthetic experience is that it is inherently perceptual and immediate, so that it can only happen in the actual presence of the work.<sup>13</sup> One cannot have an aesthetic experience merely by thinking of a work, and by the same token, one can take pleasure in repeated aesthetic attention to a single work, if it is perceptually available. The experience of a work of art is deeply tied to the medium of the work of art — music is appreciated in hearing it, not by reading the notes, and one cannot adequately recreate an aesthetic experience of visually regarding a painting just by describing it, however poetic the description. In a similar way, it is not possible to have an aesthetic experience of the building simply by imagining a building, even in the presence of a visual representation of it, since the representation is by definition in a different

medium. But the Brick Country House drawings, in the history and manner of their critical reception, seem to contradict this very reasonable observation. They are talked about as a significant piece of architectural work, and uninhibitedly compared to other architectural works, built or not.

The puzzle is whether to think of these drawings as architectural works in their own right, as sketches of a painting often are, or as representational aids in visualising a building, the actually intended work. The conventional working assumption, both amongst philosophers who have commented on the issue (for instance, Goodman in *Languages of Art*), and implicitly amongst critics, is the latter. The drawings are representations of the actual artwork. As we have seen earlier, even perceptive architectural critics such as Evans, familiar with the intricate uses to which drawings are put, seem rather reticent to give a full-blown status of an architectural work to the drawings. But, if so, how does one explain the kind of critical writing that we have seen above, in which the experiential qualities of the building are invoked through the drawings.

Perhaps the drawings, as has been mentioned earlier, are best seen as working sketches, comparable in their symbolic functioning to preparatory drawings and working studies that artists prepare in the course of developing a painting. Symbolically, this seems appropriate; such preparatory or exploratory drawings have aesthetic value in their own right, but they also stand in a particular relationship to the final artefact, presenting in a perceptual format some alternatives to its conception. But the role of the Brick Country House drawings is not quite like this. Studies of paintings are autonomous.

One does not think of them as representations or depictions of the work, particularly, in that one does not go to them for even a partial aesthetic experience of the final work. But, as the quotations above show, the Brick Country House drawings are used precisely in this way; they provide a means to understanding qualities not available in the built work, not just variations to it.

We may do better, perhaps, to think of the drawings as being analogous to the photographs of paintings that appear so ubiquitously in art books; like the drawings, photographs involve some degree of abstraction as compared to the actual works of art — not only do they invariably suppress the physical qualities of the painting itself (the thickness of applied paint, for instance, or the texture of the painted surface, and most often its actual dimensions), they often reduce the single most important component of most paintings — their colours — to tones of greys. The point of such reproductions of paintings is to show only the features pertinent to the discussion, and so may be the case with the Brick Country House drawings. But, once again, the analogy fails beyond a certain level. The use of photographic reproductions in discussions of painting is a matter of practical expediency, but this is not so in the case of architectural drawings. There are *perceptual* aspects of the Brick Country House (for instance, the de-centralising quality that Rowe notices) that are only available through the drawings, not in the actual experience of the building.

This puzzle challenges the assumption that the aesthetics of architecture are fundamentally and exclusively grounded in the experience of buildings. At the very least, one is confronted with a work that

exists in a very different medium — marks on a paper — and still generates an aesthetic experience that is architectural. One may, of course, disagree that the aesthetic experience of these drawings is architectural. It is certainly nothing like the kind of experience derived from actually visiting a building. But then, it is not the kind of experience normally associated with paintings either; these drawings have not acquired their critical acclaim as significant works of painting or instances of artistic draughtsmanship. Any critical attention directed to them refers actually to the building depicted, and not to the drawings themselves as works of graphic arts.

Conversely, thinking of these drawings as architectural works raises questions about the status of architectural experience itself — can two different media produce aesthetic experiences that are architectural? And, if drawings are also good media for generating architectural experiences, what then is the nature of the architectural experience as embodied in these drawings? All this leads us back to the first question identified; if we can understand with more detail how these drawings are read — what information do they provide, and how they are parsed — we may be in a position to sort out their status as architectural works.

### **Architectural experience as a mode of attention**

It is helpful to seek such an understanding by looking in detail at an instance of critical writing about the Brick Country House drawings. The following selection is from Franz Schulze's 1986 biography of Mies and is a particularly good example

of a balanced and generally universally accepted view of the project.

The plan of the Brick Country House is its most arresting feature. . . . In the Brick Country House Mies radically advanced the Wrightian notion of an open plan. By erecting freestanding walls that neither enclosed rooms nor suggested room-like areas but only directed movement among spaces that melted into each other, he transformed the interior into a dynamic spatial unity. He did more with the walls than use them to organize interior space. He extended three of them into the space surrounding the house, each in a long line that went fully off the page of the drawing, as if to imply that the architectural entity was carried to infinity. So doing, he advanced the emulsification of interior and exterior space that he had begun in the Concrete Country House. The two now interpenetrated so markedly that, if we study the plan, the house ceases to function as a traditional enclosure of space.

Much has been alleged about its kinship with one work in particular, by [Theo] van Doesburg, *Rhythm of a Russian Dance*, executed in about 1918. In the painting, lean, straight bars of color, all the same width, rectilinearly disposed and asymmetrically organized, activate movement not only among themselves but in spaces that flow restlessly through and around them in labyrinthine fashion.

We get a different notion of it from the perspective drawing. Seen from outside, the house does not look like the delicate series of membranous planes the plan makes it seem. It is

a grouping of cubic masses, and even where the brick walls are interrupted by glass walls of floor-to-ceiling height, the latter appear as opaque as the former. Seen from inside, of course, those same glass walls against bright daylight disappear, and a distinction between the interior and exterior seems to dissolve. Mies thus appears to have relied on extended walls to slide from under the roof into the landscape, and on the roof slabs to extend outward to become visible through the glass walls, thus to achieve a mediation in the interior between a sense of enclosure and a feeling of freedom.<sup>14</sup>

As noted earlier, the reference in the writing is not to the drawings but to an imagined entity — the building that is depicted here. All the descriptive attributes belong to it: for instance, ‘The house looks like...’, or, ‘It is a grouping of cubic masses...’ This point is further underscored by the fact that the two drawings are supposed to be read together, each complementing the other. Yet, for all that, the attempt in the passage above is *not* to arrive ultimately at a description of the phenomenal or experiential qualities of the portrayed building. In fact, there is only one statement in which such a description occurs, which is at the end of this passage (beginning with the line, ‘Seen from inside...’). And there, the experiential quality that is discussed is so general and simultaneously so attenuated (‘the glass walls disappear’), that it hardly begins to give us a sense of what it would feel like to inhabit the building. The weight of the description is directed at what such an experience might conceptually imply (‘... a mediation between enclosure and freedom...’),

rather than to a direct description of its perceptual richness.

For a comparable instance of the latter, one need not look far, just to the paragraph within the passage itself which describes the Doesburg painting. By the same token, where there *is* such writing describing the qualities of the building, the description refers to the visual aspects of the building directly *seen* in the drawing:

In the Brick Country House the oversized chimney blocks are focal points of mass, but they have been deliberately placed off-center, compressing the house between them, so as to lend structural stability to the fluid and dynamic configuration of the interior. Sculptural solids that they are, they contribute an element of repose that serves to counterbalance the horizontal spread of the extending walls.<sup>15</sup>

The qualities of the building described in this passage are directly available for visual inspection in the drawing — ‘oversized chimney blocks’, ‘compressing the house between them’, or ‘element of repose that counterbalance[s] the horizontal spread of extending walls’. Not just that, several of these judgements make sense only from the points of view in the drawings; illustrate the building from a different point of view and the sense that the blocks compress the building between them disappears, as may the sense that the blocks are deliberately off-centre.

And finally, note that such descriptive statements are scarce. The more predominant critical procedure is to develop the reading through statements (or a related sequence of them) in a typical cause and effect format. The format (as in the first sentence

in the passage quoted directly above) is to note a visual effect or condition, describe it using action terms, then to seek a plausible reason or cause for the action: it is essentially inferential.<sup>16</sup> And the underlying structure of the inferential argument is interpretive rather than explanatory — if an effect is observed, something must have been done with the intention of bringing that about.<sup>17</sup> There is therefore a sense of intentionality embedded within this writing.

Returning to the question of the nature of architectural experience embodied within these drawings, we can see that within critical readings of the sort discussed above, the point seems to be not so much to use these experiences as ends-in-themselves, but rather as means. Rather than thinking of the critical reading of such drawings in the imaginative mode as an exercise aimed at producing an experience, and specifically an experience of the actual building, it is better to see it as invoking a particular mode of attention.<sup>18</sup> The form of this mode of attention is that of a causal inquiry into the making of the artefact, where either experiential effects or comparative solutions are noted, and appropriate causes surmised, and if successful, the result is a sustained engagement with the work — an engagement that is both imaginative and perceptual.<sup>19</sup>

It follows then that we need to revise the folk theory of architectural reading. When reading a drawing in the imaginative mode, we do not construct a mental image of the building, whose experience then is judged; rather we perceptually engage with the actual artefact by adopting a specific mode of attention, the general tenor of which is to seek

specific clues about the particular presentation of the depicted building. But how are we able to do that in what are essentially marks on a surface and more to the point, how are some of these drawings, such as the Brick Country House drawings, able to engage our imagination, given that we have discarded the idea that they reproduce the experience of being in a building?

### An account of depictive viewing

These questions are best answered from a survey of literature on depictive seeing. In doing this, it is best to distinguish two levels of perceptual activity: one which is more general and characteristic of any artefact of visual representation; and the other available in only those artefacts that are able to engage us imaginatively over and above producing a representation.

1. At the first level of depictive seeing are our natural or innate perceptual abilities. To see something depicted, whether describing it in Goodmanian terms of dense and replete mapping, or as Wollheim's 'seeing-in', or as perceptual games of make-believe as described by Walton, is imaginatively to *experience* seeing it.<sup>20</sup> The characterisation of depictive viewing as an 'experience' of the depicted material is particularly notable in that it helps to highlight three distinctive characteristics of this mode of seeing. *First*, depictive seeing is involuntary, in that we cannot help but see the objects or figures depicted.<sup>21</sup> *Second*, depictive seeing is propositional in nature, that is, it allows the observer to posit questions of the depicted objects to which true or false answers can be given; a corollary is that depictive seeing shows inter-subjective assent,

so that even though the depicted figures do not exist, two viewers will have to agree on what they see. *Third*, depictive seeing results in the creation of implied space — this is what others have called the pictorial space. It follows that even though the pictorial space is an implied or notional space, it is an experienced space, and relations described within it are subject to involuntariness of perception and inter-subjective assent in the same way that depicted objects are.

In fact, the creation of this space and recognition of depicted objects are two aspects of the same phenomenon, since the only way to recognise a figure or object is to recognise it as being embedded in space. The creation of space, then, hinges on our capacity to organise our visual environment into a set of primitive entities, the kind of phenomenon that theorists of the Gestalt school had begun systematically to study in the early twentieth century. More recent work has shown how we systematically and constructively parse our visual environment following a set of universal 'rules'.<sup>22</sup>

A result of this involuntary constructive activity on the part of our visual system is a reciprocal construction of space, particularly by activating a sense of depth. Our sense of depth is activated by various kinds of cues ranging from accommodation of the eye, which works at very small distances, to aerial perspective, which comes into play at very large distances.<sup>23</sup> The construction of pictorial space is a variant of this broader capacity and the difference between pictorial space and real space is fundamentally a difference between the range and variety of such cues that artists, sometimes deliberately, make available to us.<sup>24</sup>

In short, then, successful depiction results from painters and other artists using our inherent capacity of seeing to create two-dimensional visual objects that we naturally parse into specific objects or figures in a way in which there is inter-subjective assent on their spatial relationships.

Such a description works for most works of visual representation, but it also seems to suggest that the most successful works of depiction are where the artists would be able to overcome the natural conditions so completely that our experience of seeing a depicted object would not differ from that of seeing the object itself. The odd thing is that there is a wide-spread agreement amongst writers on the topic that such *trompe-l'oeil* paintings specifically do not qualify as depictive or representational.<sup>25</sup> Indeed, the most interesting fact about depiction in two-dimensional media seems to be that, along with the experience of the depicted object, it involves a simultaneous awareness of a flat surface.

Wollheim calls this the 'two-fold sense of perception', and Walton describes it somewhat differently: 'Looking at a picture (in games of the sort in which it is its function to serve) is part of the content of the imaginings it occasions.'<sup>26</sup> In other words, we simultaneously see not just objects depicted within a picture, we also see the picture itself as an object. Again, irrespective of our agreement with whether definitions of visual depiction should admit of *trompe-l'oeil* paintings as well, the more crucial point to note is that even in painterly traditions driven by realism, *trompe-l'oeil* paintings have hardly been the norm. In fact, it is precisely those paintings that have eschewed such effects that

have attained the greatest success, even within the very realist European classical tradition.

2. The point here is that in most artistic traditions, painters and artists have not been satisfied with merely constraining the conditions under which their spectators see the depicted object, but rather have been interested in actively using this distinctive aspect of depiction — the simultaneous perception of surface and depicted material — as a means to ensure a more prolonged imaginative engagement with the painted work. And this is where a *second* level of perceptual activity comes into play, a level at which our perceptual engagement is with aspects of making, in addition to the depicted subject matter in it, and involves our perception of the depicting entity as much as what is depicted within it.

This point has been most forcefully argued by Michael Podro.<sup>27</sup> In his essay *Representation and the Golden Calf*, Podro draws attention to the way in which painters, even in realist traditions, eschew moves that enhance the representational qualities of paintings. He points out that the golden bull in Poussin's *The Worship of the Golden Calf* is not depicted in actual gold pigment, but by an off-white pigment, and the brightest white pigment is used to represent the most highly lit area of the painting, leaving a duller white to represent garments that are actually supposed to be pure white. Such choices, although seemingly restrictive, actually enhance the representational quality in that they make the viewer aware of the specific representational strategy underlying the painting. Viewers who engage with the painting are then brought to attend to not just the depicted subject

matter, but also to the aspects of the making of the painting, to what Podro calls 'the feat of depiction'.

In contrast to the cognitive scientists' passive viewer parsing his visual world in a rule-based manner, Podro's account gives the observers an active constructive agency, which involves an interaction between the two perceptual experiences that depictive viewing requires. Viewers, he says, actively *seek*, in those aspects of formulation that can be visually discerned in the marks on a surface — in what he calls 'the look of the drawing procedure' — appropriate clues which inform their construction of the depicted subject.<sup>28</sup> This is what he calls his *disegno* thesis, which is that as critical observers of painting 'we follow the formulating as a way of perceiving what is represented.'<sup>29</sup>

The value of Podro's observations is that it helps us distinguish, from amongst all depictions, those that are able to attract and sustain a close imaginative attention. The account above — that depictive seeing involves using our natural cognitive abilities reciprocally to interpret both formulative procedures and aspects of the depicted subject from given marks on paper — defines what Podro calls the 'conditions' of the painter's enterprise.

In certain paintings, particularly of the kind that Podro discusses, artists are able to utilise these conditions to raise our involvement to a level where suitable engaged viewers are able to construct specific propositions about the depicted matter (that is, they are able to take specific positions vis-à-vis the subject matter that have a force of truth statements). Invariably, I want further to propose, this happens when the look of the drawing procedure

(or of the formulative procedure more generally) has a consistency and focus that creates specific associations in the viewer's mind. In such cases, the result of the depiction is not simply to lead the viewer to recognise the depicted subject in marks on the paper, but to recognise it in a comparative sense as something else. In other words, the structure of the artefact assumes the structure of a metaphor.<sup>30</sup>

### **Imaginative engagement with the Brick Country House drawings**

It is this account of depictive seeing that we want to bring to our understanding of the way the Brick Country House drawings function in response to sustained critical scrutiny. At first glance, it seems like a plausible approach in the case of the perspectival view, but does not seem quite so obvious in the case of the plan. Surely reading the plan, even imaginatively, is not a case of depictive viewing. Further consideration of the plan, however, begins to betray some complexities.

Consider again how Rowe and Schulze, discussed in the previous sections, read the Brick Country House plan. Rowe is fascinated, given his essay's focus on Mannerism, by the way the plan lacks a focus and centre. The configuration of linear bars representing the walls has a remarkable quality of being decentred, non-repetitive and yet composed so precisely that no line really looks out of place or extraneous. Schulze's description, similarly, draws attention to the way some bars strike out on their own from within a clutch of similar elements, anchoring the entire composition to the frame. This leads us to note that there are only three anchoring elements there, not four as required for

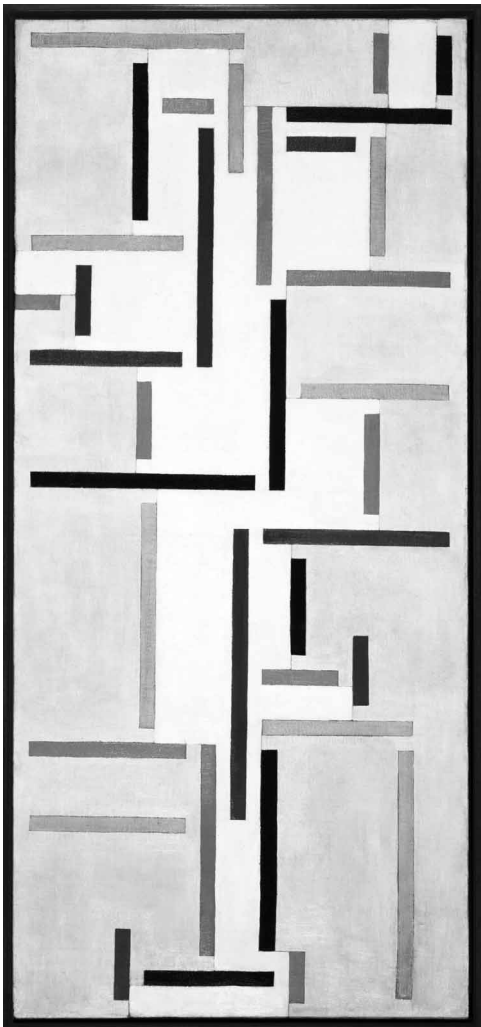
compositional balance, so that it is the cluster of small bars which makes up the right wing of the plan that actually provides the visual balance — a move that simultaneously asserts the centrality of the eccentrically placed larger wing of the plan, and gives the overall composition its inimitable dynamism by not actually defining a centre.

The point in both these readings is that these compositional qualities, which are actually qualities of the two-dimensional pictorial composition, are then read into the actual building projected. It is the space of the house that lacks focus, according to Rowe, and it is the space of the house which is put into a complex relationship with the outside, according to Schulze. All this means that the reading of the plan meets the conditions for depictive reading that has been described in the previous section — a fictional space is created within the drawing on the perceptual qualities of which there is inter-subjective agreement.

So far so good, but the question that is immediately begged is, what drives Rowe, Schulze and other commentators to read the plan in this particular way? To see what this is, it is worth revisiting a long-standing debate amongst critics and art historians, about whether the Brick Country House plan was influenced by a surprisingly similar 1918 Theo Van Doesburg painting, *Rhythms of A Russian Dance*, currently in the Museum of Modern Art, New York (Fig. 2) — a claim that Mies himself, indirectly, and his collaborators always denied.<sup>31</sup> Our reasoning about how architectural drawings are used suggests that the debate somewhat misses the point; even if Mies drew up his plan in full awareness of this, or similar paintings, it is not particularly useful to talk of influence here. 'Influence'



Figure 2. Theo van Doesburg, *Rhythms of a Russian Dance*, 1918: oil on canvas, 53 1/2" x 24 1/4"; Museum of Modern Art, New York, Lillie P. Bliss Bequest. (Credit: SCALA/Art Resource, NY.)



suggests that the painting brought about some or other effect on Mies, inverting the actual agent-patient relationship as Michael Baxandall has so insightfully noted.<sup>32</sup> The more pertinent question, given that Mies was very likely to have been aware of this painting, or at least of similar ones, is what he did with this knowledge?

The answer I suggest is that he made a metaphor of it. In the Brick Country House plan, the spatial organisation of the house is presented as a De Stijl painting, and this is done by depicting the look of the painting in the plan. It does not matter whether we can show if that was deliberately done; the more significant point is that looking at the plan as a painting is profitable in judging its critical properties. For critics familiar with such paintings — as Rowe certainly was, and more importantly, as the audience to which Mies's project was directed would definitely have been — the evocation of the painting in the plan would lead very directly to focusing attention on these innovative compositional qualities. Not only that, the depiction of the painting in the plan allowed the critics to map the compositional concerns underlying contemporary painting — concerns such as the effort to maintain a visual unity without creating either a focal point, or definite frame, and the tension between keeping the reading of the depicted space flat but not materially as a surface — into the space of the building.

The implication of this metaphor is that the actual quality of construction of the plan, particularly its rather unexpected incompleteness and overall sketchy quality, becomes a part of the content of the plan. Notice that, paradoxically, despite its

unresolved stage, the plan is compositionally far tighter than the plan of any *Landhaus* from a comparable period (see Figure 4(b) below). Almost none of the walls — internal, or external — can be moved without disturbing the compositional quality of the entire plan. In other words, the incompleteness is not just a sign of Mies's problems in resolving complex planning issues (which although true, then raises the question of defining the stage at which Mies decided that it was worth exhibiting). Rather it is a way of clarifying what was essential to conveying the look of the design procedure — the idea of composing a complex spatial environment by using variations in size and inflections of a single type of element, the wall.

The lack of graphic elements in the plan referring to other features of the design, such as the plinth, the roof-line and the changes of level, focuses our attention directly on the variety of spatial relationships displayed between the linear bars — bars which are parallel to each other, bars which stop just short of meeting perpendicularly, and bars which form repeated compositional figures, such as the pinwheel. The drawing of the plan makes manifest, in a very concrete and experiential way, the implications of the central conceit of the project, which is to generate a completely new style for architecture on the basis of the constructional properties of brick. The problem of developing a new style on the basis of constructional logic dictated by specific building materials was one that Mies shared with his older contemporaries of the early twentieth century in the German architectural scene; its invocation in this project grounds the Miesian project very profoundly within its cultural

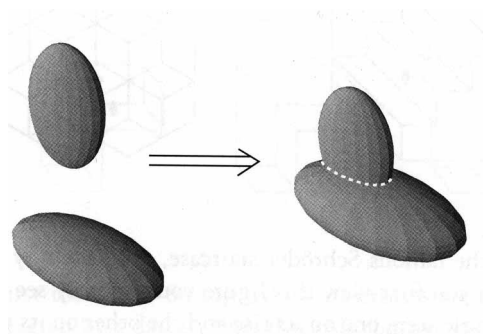


Figure 3. Diagram illustrating Hoffman's Rule 14: 'Rule of concave crease: Divide shapes into parts along concave creases.' Our visual system follows such rules in constructing our visual world on the basis of available cues. From D. D. Hoffman, *Visual Intelligence* (New York, W.W. Norton and Co., 1998).

context, and provides its design with a conceptual content.

The mechanics of reading the perspective view are similar, but not quite the same. The point to note, again, is how the look of the drawing procedure is brought to bear upon aspects of formulation of the building presented, by utilising our natural habits of perception. Amongst the most relevant of these, here, is our tendency systematically to parse any three-dimensional object in our visual environment into simpler objects, following a set of rules that are both unconscious and innate, but require computational activity on the part of our visual system.<sup>33</sup> We invariably treat internal corners on non-convex shapes as junctions of two intersecting shapes, and infolded edges on complex objects as edges at which two objects inter-penetrate (Fig. 3).

Given this, we tend to see the massing of the building, if actually in front of us, not as a complex three-dimensional object, but rather as an asymmetrical assembly of simple intersecting boxes. That the look of the drawing procedure emphasises this

reading is very obvious: having two tones in the depiction of brick-walled volumes clearly highlights the vertical edges, and, a bit more subtly, the strategic deployment of continuous concrete slab and a distinctive coping on uncovered brick walls — both rendered with sharp tonal difference as compared to the wall surfaces — separates the volumes of the upper storey from those of the bottom.

The look of the drawing procedure of the perspective produces a metaphor — the *Landhaus* as a complex composition of boxes — that resonates very strongly with the dominant theme of the plan. Note that the horizontal planes — courtyard floors, ground, garden — are completely un-delineated in the drawing. It is only with respect to the walls that more information is added. One sees — in what can retrospectively be understood as a depictive exercise of remarkable virtuosity in the use of shadows and tones — not just that their proportions are dominated by a sheer horizontality, but also that they are constructed with deep reveals in their horizontal pointing, as well as a precise coping on top. These choices of what to depict, and what to leave out, intensify the sense that the villa is essentially a landscape of horizontal slabs placed on edge. And note, finally, the choice of a long-distance and low-point-of-view exterior perspective for the single visual image of the house. All these choices are not just arbitrary stylistic moves, but would have held a much more strongly meaningful value for Mies's contemporaries.

The Brick Country House was constructed in a period in which the exterior aspect of a suburban villa — the way it was set into the landscape and

the way it revealed itself to selected views — was a major criterion of critical judgement about the villa. The choice of the perspective view, in this context, was aimed at viewers who were primed to judge architecture using certain set criteria, and with whom, therefore, the immediately apparent contrast between the visual character of the villa in the perspective view and the completely, almost unrecognisably, alien qualities of the plan, would have registered quite sharply (Fig. 4). In other words, much of the visual success of the Brick Country House perspective lay in its successful evocation of the conventions of presenting a *Landhaus* project through the look of its drawing procedure.

The particular poignancy with which the Brick Country House drawings have been viewed has a great deal to do with their ability to make these visual metaphors — and the medium of these visual metaphors is depiction or visual representation: the look of a painting captured in the plan and the look of a traditional villa perspective captured in a drawing, seemingly of blocks of brick masonry. It is the metaphors instantiated by both these representations that lead viewers (suitably educated, of course) to the appropriate interplay between signs of formulation and the depiction of the subject matter that produces the necessary imaginative engagement with the architecture presented.

### **Architecture and representation**

This way of looking at drawings in the imaginative mode leads us to some surprising conclusions regarding our understanding of architecture as an aesthetic medium. First, an interesting symmetry

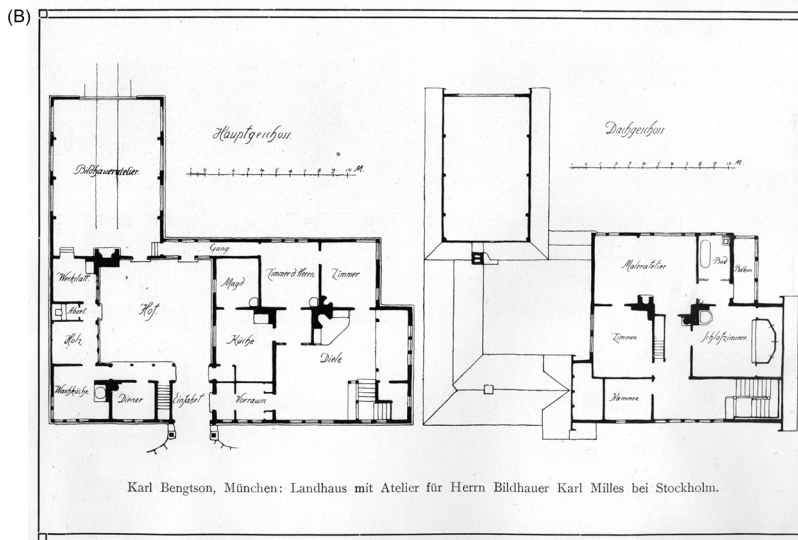


Figure 4(a), (b). Karl Bengtson: Landhaus and Atelier for Karl Milles, Stockholm, built 1906–07; 4(a), view; 4(b), plan. Illustrative of the typical early twentieth-century *Landhaus*, these drawings give us a sense of the conventional expectations against which the stunning radicality of the Brick Country House drawings would have been judged: published in Erich Haenel and Heinrich Tscharmann, *Das Einzelwohnhaus der Neuzeit* (Leipzig, J. J. Weber, 1909).

comes into play here. If the project is designed to give certain visual cues, the designer must be working with the visual cues directly. The presentation format of the drawings — the sketchy plan and perspective view — is not simply a mode of presentation; it is also a working medium. What this alerts us to, is the idea that there is a fundamentally visual quality to architectural thought.

We see the building as a form that makes possible a rich imaginative engagement if visually resolved in a particular way. Conversely, the architect designs — taking advantage of some of our natural perceptual tendencies — in order to ensure that this way of resolving is available visually in a perceptually direct way. Architecture, in this sense, appears to be not so much an allographic art as an autographic one, at least in the sense that designers work directly in the visual medium in which the ideas are presented.<sup>34</sup> Hence, also, the significance of drawings in architecture; they are the actual work, not just a representation of it.

But now we return to the reverse problem, in that we seem to have put the entire weight of imaginative engagement with architecture on the depictive drawings, making such drawings the exclusive claimants for recognition as architectural work. Recall Evans's discomfort with this idea, grounded in the sense that this would remove architectural work from social or cultural concerns that actual buildings participate in. The idea of drawings inviting and sustaining imaginative engagement through culturally relevant metaphors allows us partially to ameliorate that concern, but another problem remains. Despite the fact that the use of drawings for imaginative purposes has been a central fact of architectural

production at least within the European classical tradition, there are other architectural traditions, each with buildings or complexes that invite undeniable imaginative engagement, in which a systematic depictive use of drawings was never the norm.

In such traditions — Indian mediaeval religious architecture, or Gothic architecture, to name a couple — technical or working drawings of a sort do exist, but these drawings are never a source of independent visual interest created by depictive viewing (Fig. 5). Is it possible to extend our account of the depictive mode of reading architectural drawings to such traditions, or better still to architecture as a whole? To do that would require transferring this account of depictive viewing from drawing to buildings.

The main issue here is that buildings seem to be obviously not depictive; they are not constructed visually to represent something else, as for instance a picture is, except in some very marginal and decidedly non-conventional cases such as buildings shaped like shoes or ducks or hot dogs. In fact, there is a considerable body of literature within aesthetics in which architecture, much like music, is considered to be a non-representational art since it consists of works that are inherently not depictive in the sense that a painting, or a novel is.<sup>35</sup>

However, for all their abstractness, buildings are particularly suited to depicting at least one kind of an artefact, and that is other buildings, or building-like objects or artefacts. In fact, once this is recognised, it becomes clear that representation of other buildings or parts of them is not a rare and marginal

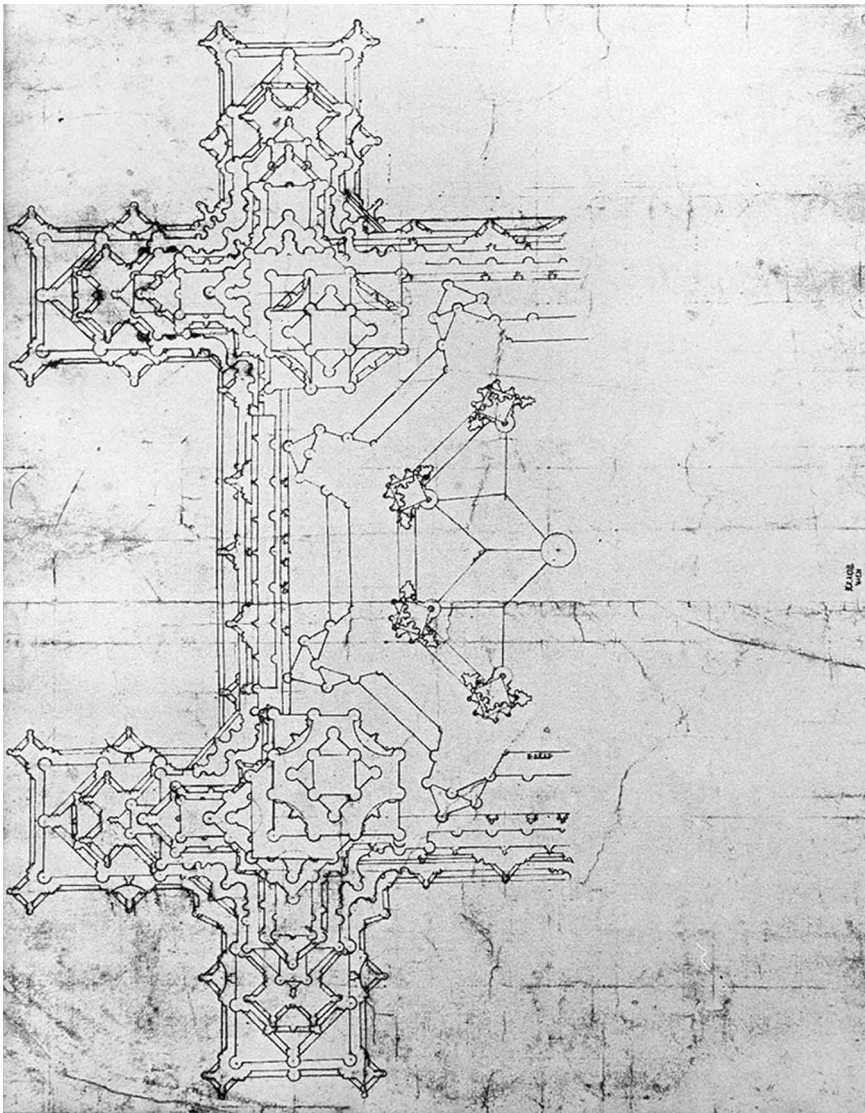
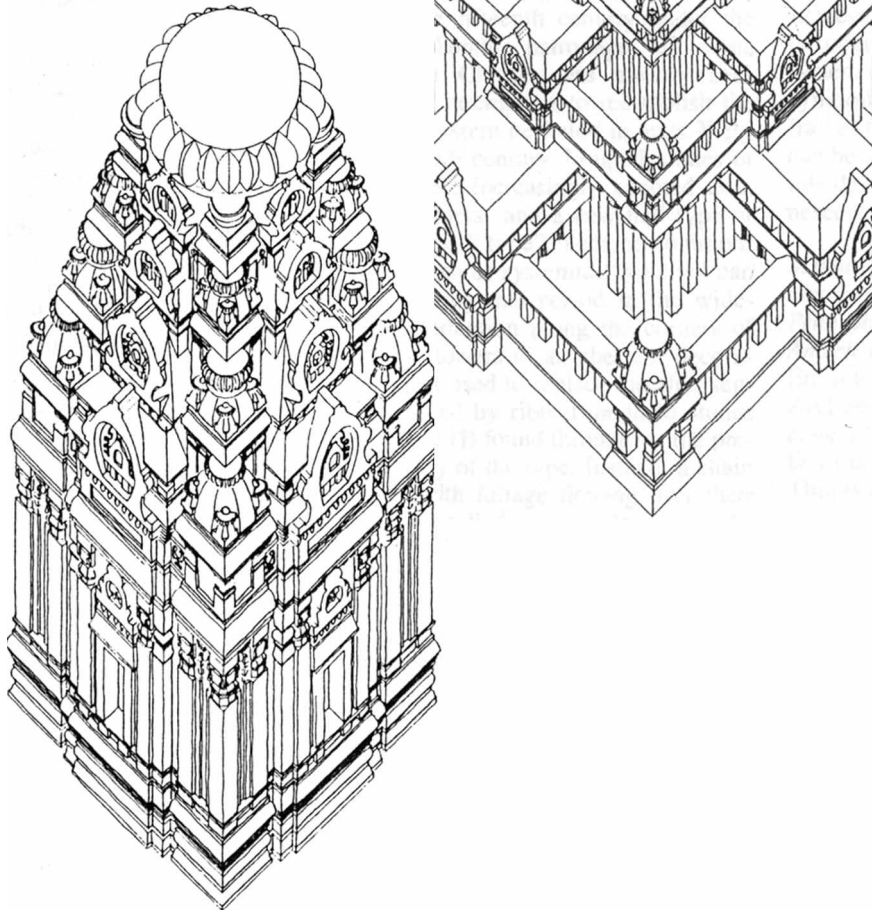


Figure 5. St Stephen's Cathedral, Vienna: plan with collapsed cross-sectional views of one of the east façade towers, c. sixteenth century. Such drawings were intended to be used strictly notationally, as more complex variants of stone-cutting templates, to work out appropriate sizes for elements at different levels. Drawing published in Hans Koepf, *Die gotischen Planrisse der Wiener Sammlungen* (Vienna, Böhlau, 1969).

Figure 6. Michael Meister's descriptive drawings of the Rajivalochana Temple, c. 600 AD, Rajim, India: on the left is a drawing of the actual shrine, and on the right, a re-construction showing the buildings depicted within its superstructure. From Meister, 'De- and Re-constructing the Hindu Temple', *Art Journal*, 49(1990), pp. 395–400.



aspect of architecture but a central feature on which particular types, styles as a whole or even entire traditions are based. To pick three more or less random examples from the numerous ones available:

1. The design of the superstructure in mediaeval Indian temples (Fig. 6). The superstructure of the Indian temple (in all its stylistic variations) is a recursive formation of tiers of depiction of actual

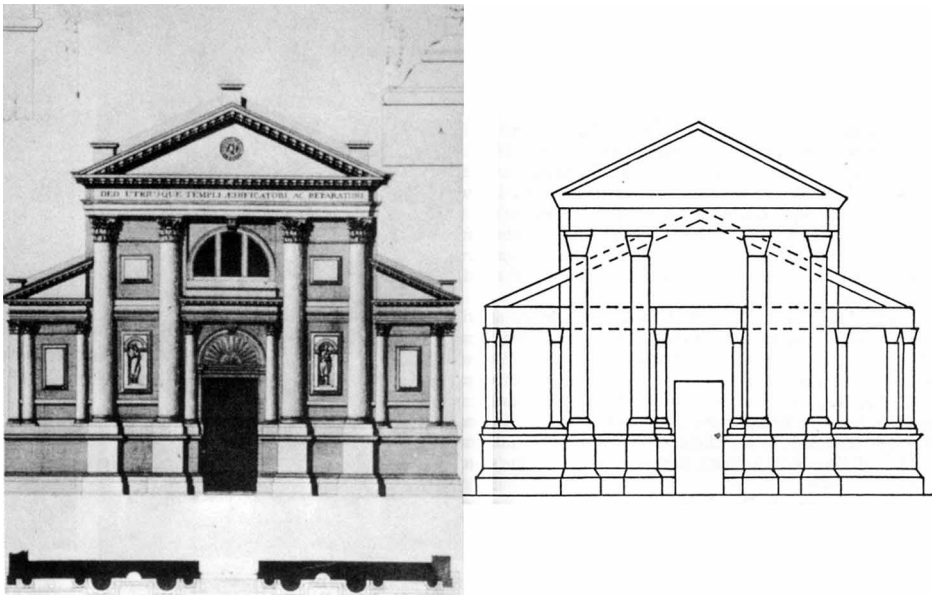


Figure 7. Rudolf Wittkower's analytical study of Palladio's design for the façade of S. Francesco dell'Vigna, Venice: on the left, Scamozzi's illustration of Palladio's design of the façade, and on the right, Wittkower's drawing showing the overlapped temple fronts on the façade. From Wittkower, *Architectural Principles in the Age of Humanism* (London, Alec Tiranti, 1952).

buildings or recognisable parts of them. Amongst the various symbolic references of the temple superstructure is that of a heavenly city, specifically Mount Meru, the abode of the *devas*. Reading the composition of the superstructure necessarily requires a reading of its component elements as depictions of actual buildings.<sup>36</sup>

2. Palladio's deployment of the classical temple fronts in the design of façades for his Venetian churches — a strategy continued in several later buildings as well (Fig. 7). Once again, the depiction of interest here is not so much the use of classical motifs as elements of a design vocabulary, but rather the use of the ancient

temple front as a whole to solve a compositional problem. As Rudolf Wittkower had pointed out, Palladio, when faced with the problem of matching the classical temple front to the very different proportions and partitioning of a Renaissance church, resorted to the brilliant strategy of two overlapped fronts of differing sizes and proportions. We achieve a coherent and understandable reading of the façade only if we read it in a depictive mode, and see both the juxtaposed temple fronts in the façade.<sup>37</sup>

3. Le Corbusier's evocation of what Colin Rowe has called 'phenomenal transparency' to give his 1920s' townhouses and villas a visual



appearance of buildings organised as notional layered planes.<sup>38</sup> Through a judicious use of cut-outs, openings, and glass in the taut planar façades of these houses, Corbusier provides glimpses (at times only an indirect sense of) other planes seemingly continuing behind the plane of the façade. The compositional effect is analogous to our reading of overlapped planes in abstract paintings. In other words, the subject of depiction here is a set of abstract compositional elements such as planes and volumes.

In other words, these buildings are visually organised as representations or depictions: the temple superstructure in mediaeval India was intended to be a representation of a cluster of buildings; the Palladian church was supposed to be a representation of intersecting temples; and, the early Parisian villas of Le Corbusier were representations of planes in ambiguous spatial positions.

In all these cases, the buildings function in the way the Brick Country House drawings function; they present the building as a visual artefact to be resolved in a way that attention is drawn to their formulative procedure. The depiction, in short, creates perceptually focused readings of their own formulation.<sup>39</sup> The only difference with the drawings is in the medium in which the formulative procedure is constructed. In the drawings, the medium was marks on the paper, and related to that was the artist's ability to take advantage of our natural propensity to see figures in certain arrangements of marks.

We saw, particularly, in the case of the Brick Country House perspective view how the depictive strategy

built upon our natural tendency systematically to parse complex three-dimensional forms as assemblies of simpler forms (see Figure 3 above). In the examples described earlier, the actual constructional and detailing moves — the juxtaposition of larger masses, the deployment of articulating elements such as grooves, cornices and beadings, the varying use of projections to control shadows, the arrangement of building elements in juxtaposed layers — form a visual organisational strategy, analogous to the look of the drawing procedure in the Brick Country House perspective view.

Again, note that in all these three cases, the point of the architecture is not simply to present the depicted subject matter; clearly it does not make sense to claim that these buildings are really *about* other buildings or about abstract planes in space. Rather, the claim is that even in the actual buildings themselves, it is depiction that makes it possible for observers to orient their attention to the appropriate visual organisational strategy of the buildings and through this perceptual attention on the building to engage imaginatively with the building as something else.

The argument about depiction is not meant to imply that a successfully engaging work of architecture can only be visual — clearly we do react to buildings in a multi-modal format, responding to sounds, haptic perceptual clues, temperature gradients, amongst other things. But where there is a significant visual component to our imaginative engagement, I do think that a depictive format of presentation will have a critical role to play.

This way of thinking connects to a larger issue about representation in general. Representation is

of interest to aestheticians because it is considered one fundamental mechanism for creating meaning in works of art. Of the few who have tried systematically to develop a theory of aesthetics for architecture, Roger Scruton has argued that meaning in representational works of art results from the fact that a specific subject matter is presented, and that aesthetic experience of the artefact is fused with the thought of the subject matter.<sup>40</sup> This is true in so far as it describes the phenomenology of the experience of depiction, but, in addition, it carries the implication that if artworks have a subject matter — such as the depicted matter in a figural painting — then meaning has to really do with what is said or thought about the subject matter.

The point of representation, in this account, is to make certain propositions about the subject matter. But following our understanding of how depiction works in architecture, we can perhaps posit a different role for representation. The function of representation in works of art is not to make propositions about subject matter, but rather that in its capacity to create reference — to be about something — it acts as a means to structure an appropriate reading of the artefact.<sup>41</sup>

The advantage of this way of looking at representation is that the meaning of an architectural work is then not reduced to a reference, but rather appears as a conceptual content which is perceptually created by an attentive reader. This conceptual content, or meaning, is not then a characteristic of the building, but rather a property of a particular reading. Multiple 'meanings' of a building are possible in this account, but not in a way that

leads to fully fledged relativism, since the meanings are still guided by a perceptual engagement with the artefact — one has to see a depiction in the building, not just imagine it freely. This account does need some amount of fleshing out, but I think we can safely stake a claim to its first step: representation is not an *end* in the making of an art work, it is the *means* by which the art is transfigured into an imaginatively engaging meaningful entity.

### Acknowledgements

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### Notes and references

1. Robin Evans, 'Translations from Drawing to Building', in *Translations from Drawing to Building and other Essays* (Cambridge MA, The MIT Press, 1997), p.156. The two part-sentences quoted from Evans further below in this section are from pages 157

- and 186 respectively. See also Robin Evans, *The Projective Cast* (Cambridge, MA, The MIT Press, 1995).
2. Nelson Goodman, *Languages of Art* (Indianapolis, Hackett, 1976), p. 219. Goodman distinguishes types of symbolic systems associated with different arts on pages 177–221.
  3. 'Thus although a drawing often counts as a sketch, and a measurement in numerals as a script, the particular selection of drawings and numerals in an architectural plan counts as a digital diagram and as a score.' Goodman, *Languages of Art*, *op. cit.*, p. 218. Goodman's discussion seems to focus entirely on working drawings used during the construction process, although it must be admitted that he does not make that qualification explicitly.
  4. The pair of prints shown here (in Figure 1) is from a negative at the Kunsthalle, Mannheim, dating possibly from 1925. Another copy of photographs of these drawings, with signs of being touched up, is at the Museum of Modern Art, New York. In the mid-1960s, students at IIT Chicago prepared revised versions of these plans. These were first published in Werner Blaser, *Mies van der Rohe: die Kunst der Struktur* (Zurich, Artemis Verlag, 1965), but these are variations that add a substantial amount of detail not found in the originals. A full listing of the publications of these drawings can be found in Wolf Tegethoff's *Mies van der Rohe: Villas and country houses* (New York, MOMA, 1985), p. 37; originally published as *Mies van der Rohe: die Villen und Landhausprojekte*, (Essen, R. Bacht, 1981). The standard Mies biography, Franz Schulze's *Mies van der Rohe: A critical biography* (Chicago, The University of Chicago Press, 1985) sets this project very informatively within the overall context of Mies's work.
  5. Goodman, *Languages of Art*, *op. cit.*; for discussion of density, see pp. 130–141; for repleteness, pp. 228–230; and for definition of symbolic functioning of a sketch, p.198.
  6. 'This fact about maps and what they map is confirmed by the way we extract information from such information as they contain. To do so we do not rely on a *natural perceptual capacity*, such as I hold seeing-in to be. We rely on a skill we learn.' Wollheim, 'What the spectator sees', in *Visual Theory: Painting and interpretation*, eds, Norman Bryson, Michael Ann Holly, Keith Moxey (New York, HarperCollins, 1991), p. 119; emphasis mine.
  7. See Walton, *Mimesis as Make Believe* (Cambridge MA, The Harvard University Press, 1990), pp. 293–296. His dismissal of the issue of conventionality is on page 301.
  8. Dalibor Vesely, 'Architecture and the Conflict of Representation', *AA Files*, 8 (1985), pp. 21–39.
  9. Vesely's argument was made in the context of a lively discussion in the 1980s on representational paradigms believed to be embedded within different projective conventions: the seminal essay in this set is by Yves Alain Bois, 'Metamorphosis of Axonometry', *Daidalos*, 1 (1981), pp. 40–58; and a notable response, Massimo Scolari, 'Elements for a History of Axonometry', *Architectural Design*, 55, no. 5/6 (1985), pp. 73–78. This line of inquiry was further developed by Alberto Perez-Gomez in several essays following his *Architecture and the Crisis of Modern Science* (Cambridge, MA, The MIT Press, 1983). For a more recent recounting of these ideas, see Perez-Gomez and Louise Peltier, *Architectural Representation and the Perspectival Hinge* (Cambridge, MA, The MIT Press, 1997). The issues raised by Evans in 'Translations from Drawings to Buildings' (see Note 1 above), originally published in *AA Files*, 12 (1986), pp. 3–18, are also best understood in the context of these writings.
  10. The point is made in Tegethoff, *Mies van der Rohe*, *op. cit.*, pp. 38–39, but has not attracted much attention despite the amount of writing devoted to the Brick

Country House. Sonit Bafna, *A Morphology of Intentions* (Unpublished Doctoral Dissertation, Georgia Institute of Technology, 2002), pp. 205–210, discusses this point in the context of a larger discussion establishing Mies's intentionality regarding the project.

11. Colin Rowe, 'Mannerism and Modern Architecture', in *The Mathematics of the Ideal Villa and other Essays* (Cambridge, MA, The MIT Press, 1976), pp. 47–49.
12. Wolf Tegethoff, 'From Obscurity to Maturity: Mies van der Rohe's breakthrough to modernism', in *Mies van der Rohe: Critical Essays*, ed., Franz Schulze (Cambridge MA, The MIT Press, 1989), p. 56.
13. In asserting this, I am not claiming that aesthetic experience is only perceptual, requiring no capacity of the observer other than passively to absorb the given work; critical engagement with the work that aesthetic experience requires is characterised by an active, seeking, behavioural component as well. In short, perception is a necessary, but not sufficient, component of aesthetic experience. Also, see below, Note 18.
14. Franz Schulze, *Mies van der Rohe*, *op. cit.*, pp. 113–116.
15. Tegethoff, 'From Obscurity to Maturity', *op. cit.*, p. 55.
16. Baxandall, 'The Language of Art History', *New Literary History*, 10 (1979), pp. 453–465, offers a more nuanced description of art historical language along these lines, dividing the lexicon used into three classes — comparative, causal and those registering effects. My particular interest is how these act in concert to produce an overall inferential context.
17. The terms interpretive and explanatory are used here in the sense discussed by Georg Henrik von Wright, *Explanation and Understanding* (Ithaca, Cornell University Press, 1971), pp. 4–7, clarifying a distinction originating in the writings of the nineteenth-century German philosophers of history, Johann Gustav Droysen and Wilhelm Dilthey. An explanatory paradigm, in contrast with the interpretive one, would frame the description of an event not from effect to cause but rather from cause to effect; the cause in this latter case would be a general law, and thus would leave no room for intentionality.
18. In asserting the role of attention over experience here, I am motivated by philosophers such as Arthur Danto and Goodman, who have both independently argued for art ultimately producing cognitive rather than experiential effects. Others, such as Richard Shusterman, have counter-argued for the role of experience as the ultimate end of art: see Shusterman, 'The ends of aesthetic experience', *Journal of Aesthetics and Art Criticism*, 55, no.1 (1997), pp. 29–41. Despite my sympathies with what Danto and Goodman write, however, my argument here does not entail a necessary acceptance of their position. My argument is made in the narrow context of the uses to which architectural drawings can be put, and so need not preclude a full-blooded aesthetic experience that Shusterman holds important as an end itself.
19. The direct source of my usage of the term 'imaginative engagement' and of the thesis that a definitional task of artists is to create works sustaining imaginative engagement, is Michael Podro, *Depiction* (New Haven, CT, Yale University Press, 1998), pp. 7–9, although in his use of the term, imagination is integral to depiction, whereas I prefer to use imagination when what he calls the 'fictive' element appears in the viewer's engagement with a painting.
20. This distinction is most explicitly clarified in Christopher Peacock, 'Depiction', *The Philosophical Review*, 96, no.3 (1987), pp. 383–410. See p. 386: 'Suppose you see hanging on a wall, a silhouette of the Salisbury Cathedral . . . If the silhouette is successful, the following is true of the observer's experience: the silhouette is presented in an area of the perceiver's visual field

which is experienced as similar in shape to the region of the visual field in which Salisbury Cathedral itself is presented when seen from a certain angle. The point is not that the area of visual field is thus similar in shape, *but that it is experienced as being so...*' (emphasis mine).

21. 'But a more sweeping ... point is that seeing-in appears to be biologically grounded. It is an innate capacity, though, as with all innate capacities, it requires an environment sufficiently congenial and sufficiently stimulating, in which to mature.' Wollheim, 'What the spectator sees', *op. cit.*, p. 114.
22. For a very accessible presentation of a theory of our visual system as a rule-governed entity, see D. D. Hoffman, *Visual Intelligence* (New York, W.W. Norton and Co., 1998): see, in particular, pp. 79–105.
23. For an assessment of various cues that we use to construct a sense of depth in visual layout, and an accompanying theory of their relative role at different distances, see James E. Cutting and Peter M. Vishton, 'Perceiving layout and knowing distances: The integration, relative potency, and contextual use of different information about depth', in *Perception of Space and Motion*, eds, W. Epstein and S. Rogers (New York, Academic Press, 1995), pp. 71–118.
24. On the view that our visual perception of pictures uses the same mechanism as our actual perception, see J. J. Gibson, *An Ecological Approach to Visual Perception* (Boston, Houghton-Mifflin, 1979); for Gibson's arguments on pictures in particular, see Gibson, 'Pictures, perspective and perception', in *Reasons for Realism*, eds, E. Reed and R. Jones (Hillsdale, NJ, Erlbaum, 1982), pp. 231–240. The point about artists deliberately creating constraints on depth-giving cues and other viewing conditions in order to prevent ambiguous readings of spatial relationships in pictorial space is made in Sheena Rogers, 'Perceiving Pictorial Space', in *Perception of Space and Motion*, eds, W. Epstein and S. Rogers (New York, Academic Press, 1995), pp. 119–163.
25. For one clear statement of this position, see Wollheim, 'What the spectator sees', *op. cit.*, pp. 122–123.
26. *Ibid.*, p.105; Walton, *Mimesis and Make Believe*, *op. cit.*, p.294.
27. Podro, 'Representation and the Golden Calf', in *Visual Theory: Painting and interpretation*, eds, Norman Bryson, Michael Ann Holly and Keith Moxey (New York, HarperCollins, 1991), pp.163–189.
28. It is worth noting here that Podro discusses not just traditional representational drawings but abstract drawings as well; he compares Auerbach's and Poussin's studies after Titian's *Bacchus and Ariadne* in order to bring out the similarity of depicted space in some of their paintings. It seems to me not too much of a stretch to extend these ideas to non-representational art. Even in the works of artists such as Kandinsky, Rothko, Pollock or Marden, successful engagement on the part of the viewer demands exploration of relative depths amongst the graphic elements that constitute the paintings. Compare also Podro's discussion of Kandinsky and Mondrian (*Depiction*, *op. cit.*, pp. 23–26), where he shows that even the non-representational programmes of such painters were ultimately grounded in concerns about the depictive functioning of pictures in general.
29. Podro, 'Representation and the Golden Calf', *op. cit.*, p.185; the term *disegno* is a reference to Vasari, used, he states (p.163), in the sense of 'the mind's grasp of things in the fluent delineation of them.'
30. This account is in essential agreement with the conditions that the philosopher Arthur Danto proposed as marking the distinctive difference between a representation and a work of art. Thus, '... metaphors embody some of the structures that I have supposed artworks to have: they do not merely present subjects, but properties of the mode of presentation itself must

- be constituent in understanding them,...' Danto, *Transfiguration of the Commonplace* (Cambridge, MA, Harvard University Press, 1981), p. 189.
31. For a comprehensive discussion of the history of this debate, see Wolf Tegethoff, *Mies van der Rohe: Villas and country houses*, *op. cit.*, pp. 49–51.
  32. Michael Baxandall, *Patterns of Intention* (Yale, Yale University Press, 1985), pp. 58–60.
  33. D. D. Hoffman and W. A. Richards, 'Parts of Recognition', *Cognition*, 18 (1984), pp. 65–96. For a wider contextual presentation of this finding and related work, see Hoffman, *Visual Intelligence*, *op. cit.*, pp. 82–83.
  34. The allographic versus autographic distinction is due to Goodman: first introduced in *Languages of Art*, *op. cit.*, pp. 112–114. Allographic arts are those in which the actual work can be completely and uniquely specified by a notational scheme; a poem or a musical symphony are obvious examples. For a work of autographic art, like a painting, such a specification is not possible. Goodman used these distinctions to develop arguments about why some art forms such as paintings can be forged, while others such as poems cannot. This distinction gives some trouble in the case of architecture, as he himself acknowledged (p. 221), although for generic buildings, his inclination was to think of architecture as an allographic art.
  35. For instance, 'Architectural and musical works, unlike paintings or plays or novels, are seldom descriptive or representational. With some interesting exceptions, architectural works do not denote — that is they do not describe, recount, depict, or portray. They mean, if at all, in other ways.' Goodman, 'How Buildings Mean', in *Reconceptions in Philosophy and Other Arts and Sciences*, eds, Goodman and Catherine Elgin (Indianapolis, Hackett Publishers, 1988), p. 31. Roger Scruton, *The Aesthetics of Architecture* (Princeton, Princeton University Press, 1979), also maintains a similar position.
  36. Our understanding of the traditional conception of the Indian temple as a mountain is due to Stella Kramrisch, *The Hindu Temple* (Calcutta, University of Calcutta Press, 1946). The idea that the temple form contains depictions of elements of contemporary palatial architecture has been discussed by Michael Meister in a number of writings. See, for instance: Meister, 'De- and Re-constructing the Indian Temple', *Art Journal*, 49 (1990), pp. 395–400, and, Meister, 'Prāsāda as Palace: Kūṭina Origins of the Nāgara Temple', *Artibus Asiae*, 49 (1989), pp. 254–280.
  37. Rudolf Wittkower, *Architectural Principles in the Age of Humanism* (London, Alec Tiranti, 1952), pp. 80–84.
  38. Colin Rowe, 'Transparency: Literal and Phenomenal', in *The Mathematics of the Ideal Villa and Other Essays* (Cambridge, MA, The MIT Press, 1976), pp. 159–183; originally published in *Perspecta*, 8 (1963), pp. 45–54.
  39. The idea that design involves an active reformulation of design goals through manipulation of systematic procedures is much discussed in several fields investigating the nature of the design process. M Gorman and B. Carlson, 'Interpreting Invention as a Cognitive Process', *Science, Technology, and Human Values*, 15 (1990), pp. 131–164, and C. Keller and J. Keller, *Cognition and Tool Use* (Cambridge, Cambridge University Press, 1996), pp. 108–129, both focus on the cognitive aspects of the design process. John Peponis, 'Formulation', *The Journal of Architecture*, 10, no. 2 (2005), pp. 119–134, argues that the design process in architecture is essentially aimed at the reformulation of an embodied conceptual thesis.
  40. 'The subject of a representational work of art is also the subject of the thoughts of a man who sees it or reads it with understanding; to enjoy the work is therefore to reflect upon its subject.' Roger Scruton, *The*

*Aesthetics of Architecture*, *op. cit.*, p. 186. It should be noted that Scruton's criterion allows textual works to be representational as well, that is, Scruton's sense of representation is similar to Goodman's sense of denotation. In any case, the examples discussed in the text

below qualify under either of these terms, as well as the stricter definition of representation as depiction.

41. For very persuasive arguments in favour of the idea of representation as a reference, see Danto, *Transfiguration of the Commonplace*, *op. cit.*, pp. 71–74.