Conversing with drawings and buildings: from abstract to actual in architecture

Ben Sweeting
School of Architecture and Design, University of Brighton, Brighton, UK

Abstract

Purpose – The purpose of this paper is to describe the various movements from abstraction to actuality in the context of design, with particular reference to architecture, first in terms of the design process and second in terms of the interpretation of architecture by observers.

Design/methodology/approach – The paper focuses on the designers’ use of forms of representation, such as drawings, with reference to the cybernetic understanding of conversation. This account is then used to discuss the representational properties of architecture itself and to relate this back to the design process.

Findings – It is argued that the forms of representation used by designers, such as drawings and physical models, have both abstract and actual properties and that this combination is important for their representational function. The ambiguity in the interpretation of drawings and models is not only useful in generating ideas but also appropriate given the ambiguity in the interpretation of the architecture they represent.

Originality/value – The division between the abstract (understood in terms of representation) and the actual is challenged. A connection is proposed between architecture itself as a form of representation and the representation used in its design.

Keywords Design, Conversation, Representation, Drawing, Architecture, Buildings

Paper type Conceptual paper

Introduction

The conference theme under which this paper was submitted states that “moving from actual to abstract is understood” and asks how we might move from abstract to actual. From the point of view of a designer, the need to ask this question is somewhat puzzling as it is possible to think of design as a movement from abstract to actual in several different ways. In this paper, I will describe the various movements from abstraction to actuality in the context of design, which, as has often been suggested, shares much in common with cybernetics (see for instance the special issue of Kybernetes on “Cybernetics and Design”; Glanville, 2007a).

The way in which “abstract” is used in the conference theme, and also in design, is in the sense of a model, i.e. a representation, rather than as the philosophical distinction between “abstract” and “concrete” objects. In terms of the representation used in design, it often makes sense to speak about abstraction as a continuum rather than as the either/or category of the philosophical distinction. In this sense, abstraction refers to how far removed (literally: drawn away) something is from that which it represents[1].

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Representation is an imprecise and confusing term. von Glasersfeld (1984) distinguishes four uses of representation given separate terms in German: depiction (darstellen), mental representation (vorstellen), acting for (vertreten) and signification (bedeuten) and yet further distinctions could be made. Designers use the first and the last of these as the medium in which they work but do not use them statically but instead to form models or simulations of future possibilities in a similar way that an abstract model can be created to simulate an existing system.

In the first half of this paper, I will describe the various uses of abstraction in the process of designing architecture (which is my discipline). Although this account will be familiar to designers, it is hoped that it will clarify, in response to the theme, the various ways in which designers can be said to move from abstract to actual. Further, it will be argued that forms of representation used by designers, such as drawings and physical models, have both abstract and actual properties and that this combination is important for their representational function. In the second half of the paper, I will move on to the possibilities of architecture itself as a form of representation, which is a difficult topic within architectural discourse.

1. Abstraction and actuality in the process of designing

1.1 Drawings and buildings

The practice of architecture can be thought of entirely as a movement from abstract to actual. Architects work towards something actual – the realisation of a building – but, as Evans (1995, 1997, p. 156) points out; they do not work on the building directly but via forms of representation such as drawings, models and specifications, which are necessarily abstractions. The process of construction can be understood as a translation from abstract to actual.

But the importance of drawings and models is more than as means of transferring information as part of the construction process. Representation is crucial to the very process of designing. First, though perhaps obvious, it is worth noting that drawings and models allow the designer to develop and revise a scheme without having to build it first. But the usefulness of drawings and models in developing a design is not merely that this is more practical than making decisions at full scale. Many characteristics of a building, for instance circulation patterns, can be difficult to discern in the building itself and these aspects are easier to understand and test through representation – even when dealing with an existing building. However, designing in the realm of representation does have limitations. Aspects that seem successful in a drawing or model may be disappointing in the actual scheme – a common criticism of a disappointing building is that it “probably looks good on plan”. One has to learn by experience how to use drawings – to read from them what actual spaces they imply.

1.2 The actuality of drawings and models

The relation of abstract and actual in the process of designing is however more intricate than a simple divide between drawings and models as abstract representations of a yet to be completed actual building. In a sense, a drawing or a model is both abstract and actual. It is abstract because it is a representation of certain aspects of something else but it also has an actual presence itself as an object (even a computer drawing viewed on a screen has actuality though this is only visual rather than physical presence).
Gedenryd (1998) describes the importance for designers of using sketches, drawings and models rather than trying to design only through internal mental processes. Because drawings and models share characteristics such as colour, space and texture with what they represent designers can observe these qualities in a similar fashion to the way that they will be observable in a building and so put themselves in the position of those they are designing for. This is true even of non-visual characteristics such as circulation – it is possible to “walk through” a plan drawing and in doing so discover both interesting and problematic moments which can then be worked on further.

Many of the situations which designers deal with are highly complex and do not have clear solutions. What enables designers to proceed in such circumstances is the implicit circularity of designing, which is enabled by the use of representation. This is clearest in what is perhaps the fundamental design activity – sketching. Sketching combines both proposing (drawing) and evaluating (looking at what one has drawn) creating a circular iterative process (Glanville, 2007b). In this way, a designer can start from anywhere – even from the most innocuous or ambiguous marks – and improve upon this starting point. Having drawn something, it is possible to discover aspects of the proposal that work poorly or which are promising and could be developed. Furthermore, sketching may often suggest entirely unexpected possibilities and so acts as a generator of new ideas. The circularity of this process is similar for other typical design procedures. Whole drawings or entire schemes go through a process of iteration: having completed a version of a detail, a drawing or a scheme it can then be evaluated and improvements made in a new revised proposal.

As Ranulph Glanville argues, it is possible to think of the circular process of sketching as a conversation that designers have with themselves through the medium of the drawing (Glanville, 2007b; referring to Pask’s (1976) “Conversation Theory”). It is the actuality of drawings and models that allows this conversation to occur. Because they share spatial and material properties with what they represent, as opposed to a totally abstract form of representation such as a numerical code, drawings and models allow ideas to be tested and explored in relevant terms. Furthermore, it is because drawings and models give the designer something actual to look at that it is possible to discover new unintended possibilities in them.

More abstract forms of representation (ones that are further removed from what they represent) such as textual descriptions (for instance a specification) or numerical codes (for instance a colour code) are not so easily manipulable or evaluable as their drawn equivalents. While they are much more precise in communicating specific information (for instance for cost estimates or during construction) this lack of ambiguity means they are not so useful for designing with.

1.3 Different degrees of abstraction in representation

Different sorts of representation have different degrees of abstraction – by which I mean that some share greater or fewer characteristics with what they represent. One of the most significant characteristics is dimensionality. A three-dimensional physical model has the same dimensional properties as a proposal for a building whereas a typical orthographic drawing such as a plan or section is a two-dimensional abstraction (although it still conveys three-dimensional information). Between physical models and two-dimensional sections and plans are drawings such as perspectives and axonometrics (which represent three dimensions on a two-dimensional plane) and computer generated models (which are three-dimensional drawings but which can only
be perceived two dimensionally via a screen or a print out). Another important characteristic is materiality and again there is a range of abstraction commonly used. Many drawings might ignore materials completely and represent only the geometry of a space. The other extreme would be the construction of a large-scale model using the proposed materials or with materials that replicate some of its properties at the chosen scale. Textures and materials can also be applied to drawings and more abstractly one can use collage or line work to show texture and material visually.

These different degrees of abstraction are extremely useful because they allow a drawing or model to focus specifically on one aspect. One does not need, and can actually be distracted by, excessive detail whereas too little detail can mean that a drawing does not have enough content for a particular design task. More abstract drawings are often more ambiguous allowing a variety of different interpretations. While this might not be suitable for conveying construction information it is very useful within the design process because this ambiguity can suggest new possibilities. Part of learning how to design is learning to select how abstractly to work at any moment and on what to concentrate effort.

2. The representational role of architecture
As well as the use of representation in designing architecture I also want to consider here how architecture can itself be representational although, as Vesely (2004, p. 356) points out:

[...] the present understanding of architectural representation is rather confused and ambiguous. There is no clear notion as to what architecture should represent or whether in fact it should represent anything other than itself.

This confusion is, in my view, partly due to confusion over how buildings can be said to communicate. I will try to articulate this with reference to the contrast between coded and conversational models of communication as discussed within cybernetics (Glanville, 1996).

2.1 Codes and conversations
Traditionally (i.e. before modernity) architecture had formed part of a representational system together with other arts. Vesely describes this communication as working at various degrees of articulation which together formed a whole (Vesely, 2004, pp. 64ff, 86). At the less explicit, this was through spatial arrangements and movement. At the more explicit, this was through forms of coded symbolism.

Second-order cybernetics and radical constructivism criticise understandings of communication thought of in terms of code (Glanville, 1996). The guiding principle of constructivism is that understanding is constructed by each person individually (von Glasersfeld, 1984, 1990). Therefore, communication cannot be explained in terms of directly transmitting coded information that need only be decoded by the listener. Instead, conversation is posited as the paradigmatic communication activity and used to explain how we can reach shared understandings while not being able to transfer meaning directly (Pask, 1976). This is achieved using feedback mechanisms that allow participants to compare their individually constructed meanings so that they align with those of the others. To assert conversation as the primary theory of communication is not to say that there is no such thing as coded communication but
that codes are not primary and will always require a conversational form of communication in order to establish them (Glanville, 2007b, p. 1202).

Traditionally architecture could take advantage of various existing conventions and codes, because their meaning was already established by the cultural context. This was possible because, as Jencks (1984, p. 6) notes, in traditional societies “the language of architecture and the values of the inhabitants are relatively shared”. In modernity, the context is much more diverse and stable coded meanings are not pre-established in the same fashion. Although some meanings are still configured by social agreement, these tend to be only straightforward one-to-one correspondences, such as brands or typologies, rather than deeper or more complex meanings.

2.2 Conversing with buildings

Given the lack of culturally established codes, the conversational model of communication is much more explicitly present in how we communicate in modernity. Thinking of the interpretation of a building in terms of a conversation, what is striking is that the conversation is between the observer and the building itself rather than with the designer. As the building cannot speak back – it cannot compare the observer’s construction of its meaning with itself – the conversation is one sided and therefore only very limited feedback can occur. This explains somewhat why the interpretation of buildings is highly changeable and arbitrary. This ambiguity can be seen either as a difficulty to be overcome or alternatively, as for instance by Pask (1971), in a positive light with the variety of interpretations creating a more stimulating environment.

The feedback that does occur in an observer’s interpretation of a building is still significant. Like sketching, which as discussed above can be thought of as a conversation one has with oneself via the medium of drawing, interpreting a building can also be thought of as a conversation one has with oneself via the medium of the building. Unlike sketching, the observers of a building cannot change the building itself to configure new meanings but can change their viewpoint. In trying to understand a building, I will observe and explore it. As I do this, I will construct my understanding of it. As I continue to explore, I will revise this understanding to suit my expanded experience of the building (perhaps radically changing my mind as I go). This understanding might be about how the building was constructed, how I use the building, what the architect was trying to do, how this building relates to culture or history and so on.

The understandings constructed by the observers of a building will not necessarily be the same or even similar to those the designer intended – the meaning is not directly given and it is therefore extremely difficult to communicate precisely through architecture. But part of architecture’s communicative power is its very lack of representational accuracy and its resulting openness to a variety of interpretations. If I wanted to just convey a specific point, I could choose a different form of representation (perhaps a text). In the absence of pre-established coded meanings, buildings communicate at a much less articulated and therefore necessarily more ambiguous level. Whereas we often associate communication with intellectual understanding, architecture operates at a different (deeper) level.

2.3 Designing through representation

I argued above that part of the significance of drawings and models is their actuality – that they have characteristics such as dimension, texture and geometry which can be observed by the designer in a similar fashion to the way that the
corresponding characteristics will be observed in the completed building. This allows designers to put themselves in the position of the observer – to view the project separately to its own internal reasoning and to simulate the situation of uninitiated observers who must determine what the project will mean for themselves. When ideas can be seen in the representation, then there is a chance that similar ideas will be seen in the building. Thus, in trying to move from an idea to a building which represents that idea (from abstract to actual) a designer uses representation to predict whether that idea could be constructed from the building (from actual to abstract). The very ambiguity of the drawings and models used in designing is appropriate to the ambiguity of interpreting the architecture itself.

Developing ideas through representation also allows designers to generate new possible meanings for their project as these can be read into a drawing even when not intended. Ideas developed in this fashion are likely to be immediately spatial and therefore much more feasibly communicated through architecture itself (e.g. what Vesely (2004, 2010) refers to as the “latent world”). This contrasts with what is perhaps the conventional understanding (although I would argue not the conventional practice) which is that for a building to embody the meaning of an abstract idea it must in some way have been derived from that idea.

3. Conclusion
I have described some of the uses of abstraction, understood as representation, in designing architecture and its importance in supporting the design process as understood in terms of the cybernetic idea of conversation. Representation as used by designers can be seen to derive its power from a mixture of abstract and actual properties which allow it to be both emancipated from and related to what it is taken as representing. Drawings and models assist the conversational circularity of designing to progress by giving the designer something to observe and interact with. Different forms and degrees of abstraction seem important at different moments of the design process as they allow different things to be focused on.

The representational qualities of architecture (and thus the movement from actual to abstract) can similarly be understood in terms of conversation – as the result of a design process undertaken by the observer rather than the designer. That architects work through representation means that they can put themselves in the place of the observer to try to predict the understandings that will be constructed and use this to develop their design as desired. In addition, the use of representation to generate ideas means that those ideas will be appropriate to this form of communication.

Note
1. Representation is sometimes thought of as repeating a presentation of something although representation and re-presentation are often defined separately; I think it is more helpful to think of representation as making something (seem) present again in a new situation.

References


About the author
Ben Sweeting studied architecture at Magdalene College, Cambridge and then at UCL. He is currently a Lecturer in Architecture at the University of Brighton and a PhD student at UCL. Ben Sweeting can be contacted at: R.B.Sweeting@brighton.ac.uk

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