DESIGN ACTS

BY ELLEN SASLAW

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Submitted to the Department of Architecture in partial fulfillment of the requirements of the degree of Master of Architecture at the Massachusetts Institute of Technology.

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ABSTRACT

What an architect does, designing, is a design act and not the making of an object, a design. A design act is an intentional act about built use. We give reasons for intentional acts and are responsible for knowing that the reasons we give for design acts are as relevant and correct as we can know them in terms of their built use. The reasons we give for design acts distinguish them from other acts, such as drawing, which is the making of objects. One of the reasons we may give for our design acts is that they are following a rule. For a design act to be following a rule, there must be a fit between the rule and what we do in practice. For a design act to be about construction, a form act, there must be a fit between the form act and what gets done in the field.

Thesis Supervisor: N. John Habraken
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Acknowledgments

to my parents and
to my friend Norman Dukes,
February 20,1942 – November 29,1984
poet, philosopher, programmer
and aviator.

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"Design is not an architectural event. It is human events set free by the use of architecture."

(*quote from the application of the author to graduate school, 16 January 1983.*)

Preface: The Position

As I think back on the material that's been written for this essay over the past year, it occurs to me that the most direct description of this writing about architectural design is that it is a moral essay. At first the idea that, as a philosopher, I have been concerned with a moral topic is a troubling one. Ethics, as a topic in philosophy, has always run the risk of becoming a kind of preaching about how other people than oneself should see the course of human events. My work and position as a philosopher, I thought, was a neutral one, directed at clarifying events as they fell into commonly understood human life forms, but not going so far as to say how these events should be regarded.

Yet throughout the past year the question kept arising, if this is an analysis of what it is to do design, what kind of analysis and whose view of what such an analysis is, is it? Am I saying that this is the only way to clearly understand what doing design is? Am I saying that if one does not understand doing design as I analyze it, one is not doing design, or, in the final analysis, one is not doing good design?

In the course of working, I have deliberately not wanted to confront these questions. I have wanted to do the analysis, to prove it is a possible, consistent, and even useful analysis, and leave it at that. The choice of whether it is the only analysis of architectural design, or good design, was left to the reader, the person who is perhaps concerned with those choices because it is their profession, though they need not just be architect, but could be historian, critic, politician or otherwise involved. I thought it most productive and also a natural limit to simply offer a neutral tool, which could be applied as it suits the understanding of the reader.

But from the moment that I describe doing design as an intentional act, I realize that I have entered into the area of moral philosophy in which people are now responsible for their actions. If one has got an intention in doing design, then what we mean by this is that one is able to say what the intention is and what the reason for the intention is. The reason falls into that zone where it is a form of justification, based on expectations about the consequences that doing a certain design will have on human events. This always hard to define relationship between the design moves and their consequences becomes a problematic proof, for which we give arguments from history, arguments from logic, and arguments from what we accept as physical fact.

To be true to this effort, I must accept some of the responsibility inherent in its attempt to give a clarification about doing design. The position I take is that design acts are intentional acts about built use, for which the designer has the responsibility of being answerable to his best knowledge of the consequences of those acts, based on his own experience, his knowledge of the historical consequences of those acts, and the logical extension of this knowledge to what he can imagine anew. As in all moral arguments, this leaves room for debate, and it leaves room for more than one consistent and reasonable resolution to the design question at hand. A moral position is not a conclusive position. We are responsible for what we know, and we are responsible to know the most we can, but none of us can know or foresee everything.

Introduction

This thesis makes two points. One is that design is an act. The second is that design is not an object.

This investigation comes from a perception about how we talk about doing architecture as it relates to what we do as architects. Underlying the vocabulary we experience in our education as architects and how we talk about our practice, and how critics talk about our practice seems to be a fundamental confusion about what design is. We refer to drawings as designs and critics refer to buildings as designs and yet we also talk about designing for use, designing for people. Largely unnoticed, there has become a division between these two kinds of talk, and it is the point of this thesis that this division has come about because of a conceptual misunderstanding of what architects do when they do design.

The thesis argues that what architects do is design acts. The argument for this is extensively given in the second part, and a discussion of what kind of act a design act is occurs in the third part. The beginning section presents how this basic confusion is manifest by what we do in practice. It is the sole offering of this thesis that looking at doing design as a design act may begin to give us a clear and productive way of understanding and talking about what we do as architects.

It is the nature of discussions like these to appear to be saying the obvious. If the reader prefers to think that treating (architectural) design* as the making of an object is just bad design, instead of not designing at all, that is a position which is the reader's option. However, the thesis offers a way of looking at designing in which making an object is never designing,

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*"Design", in this thesis is short for "architectural design", and "we" refers to us as architects, or is the editorial "we", according to context.

and only sometimes a by-product of designing. It is the claim of the thesis that looking at design in this way may help us avoid some mistakes in practice, but it is not a guarantee against making other mistakes. If offers a way to see our work and talk about it more clearly. If all this comes to appear obvious, then perhaps I have said something which is right in a way in which it needed to be said.

Part One

Design Acts in Architecture

In this section we will introduce the topic of the thesis in three ways. We will try to give a sense to what we mean by design acts by looking at what professionals do in practice. We will introduce the vocabulary used in this thesis in relation to this discussion, and we will give a general argument for the concept of design as an act. This argument will be explained in detail in Part Two.

Design Acts in Practice

Conceptual distinctions, unlike semantic distinctions, are reflections in our language of what we actually do. Our use of 'design' is not a semantic question, whether we're using the correct term, but is here a question about what we do in practice. The examples which follow are not imaginary cases; they are taken from actual practice. Whether they point to good design as opposed to bad design is not so important as the conceptual distinction they try to show about designing as an act compared to the confusion of producing "design" as an object.

Our first case is one in which the clients' stated needs were to make their existing house structurally sound before making changes to the house. Some structural repairs had already been done to the house and the clients wanted to know what else was needed. They called an engineering firm, which sent two engineers to inspect the house. The engineers told them

that the house was built incorrectly, and they drew up a set of framing plans for the entire house.

Concerned with whether the engineers' plans took their future needs into account, and confused about the framing plans, the clients asked two architects to review the situation. After going through the house with the clients, the architects sat down with them and reviewed the engineers' plans in relation to the house structure and future client needs. They showed the client that some of the structural plans by the engineers would be almost impossible to carry out and that others were expensive and would not substantially improve the structure. In the instance where the engineers' drawings showed a new carrying beam, for example, two new carrying beams already existed and there was no need to do it over differently.

The architects then proposed that they sketch specific solutions for particular problem areas in the house, but that other things which needed to be done just be documented as a written report of their conversations. They later reviewed the sketches and verbal agreements with the client and the carpenter who was to do the work, clarifying both what was to be done and how it was to be done by talking and pointing things out on the site. They proposed that some specific things which needed to be done, such as drainage around the kitchen sill, not be done until the client decided if they wanted design changes to be considered for the kitchen.

We would say that what the engineers did can be regarded as producing an object, a set of framing plans which ignored the existing conditions and needs of the client. The plans were drawings only, of marginal, if any, use to the client. They were just a legally stamped document of correct framing plans for a house the same size as the clients' house.

What the engineers did indicates that, from the start, they conceived their work as producing a specific kind of product. They did not consider the sorts of things it is part of a design act to consider, whether such a product was appropriate or necessary.

What the architects did were design acts, a number of related activities to show how the clients could get what they wanted. These activities began with reviewing the house with the client and coming to an agreement about what the appropriate services were. They then used a combination of discussions with the client and the carpenter, sketches, pointing out and discussion things on the site, and records of these conversations to do what they agreed was most expedient to meet the clients' needs. In the course of their work they never produced one document which they claimed to be their renovative design, but instead considered all their activities together to be a means of understanding how to fulfill their clients' needs, structural soundness in the building related to future changes. These design acts, all together, are what they thought of as designing.

What we mean by this distinction between seeing design as an object or as an act, in practice, can be shown in what is more obviously an architectural design situation—the fitting of a bank into an existing retail space. In this case, the engineers' attitude which we have just discussed is manifest by the architect.

The bank program required a separate closed space for accounting and a safe, a counter to serve customers and a related work space for processing paper work. The architect drew up an attractive, visually stylized space with angled counters, a glassed-in work booth with the safe, and a large window open to the street.

After being built, working in the branch office was found to be difficult. Bank rules require that the door to the safe room must remain closed. The only place where the safe could be fit made it necessary to open the booth door into the counter area in order to get the safe door open. Every time the booth door opens, it forces the service counter person to work down at the small angled end of the counter. With two people working at the bank, the most commonly heard exchange is "excuse me".

In this case, we would say that the architect saw design as an object, such as a drawing labeled "bank", showing a bank layout. If this layout had also worked for the complex activity of banking, we would not say that the architect conceived designing as the making of an object, but would be able to talk about design acts which expressed how banking activities, and a banking environment, would be related to built changes. The architect could have talked to people who knew banking regulations and provided a convenient way to access the safe. This conversation would have been a design act and also the reason for drawing the safe location in a particular way, another design act. Acts of discovery relevant to the situation are design acts, and omitting them is omitting that part of designing.

One design act may be a reason for another design act. If the architect had talked to or observed people working at a bank service counter, he probably would have discovered that an angled counter in a limited space would make it difficult to work, wasting space needed behind the counter and giving space to the customers, where it was not needed. Designing according to such observations or conversations would be a design act, but drawing the counter at an angle for the sake of just having a visually interesting counter would not, by itself, in these circumstances be a design act. It is the job of the architect to spatially and visually enhance the built environment related to our activities in it. To do something for the single

purpose of visual excitement (partly a question of taste in itself) is treating designing like an object, the record of which is just drawing another object on paper.

This regard of designing as the making of an object rather than as a design act is perhaps epitomized by a case that a carpet manufacturer's representative told me. An architect had designed a large complex in China, including a temple. For the temple floor, he designed an elaborate hand woven rug covering the whole space. When he returned to see the finished work he found that the people in the temple had shaved large grooves in the rug to separate the spaces in which different people were allowed to sit. Apparently, the architect had designed a beautiful object without relating it to the context and activities of the place and people who would use it. Finally, the people themselves had done a vernacular design act and shaved the rug to make it right for the context of the temple.

Vocabulary in Architecture

In this thesis, we will think of the object oriented work with which designing may be confused as the documentation of a "project", often the set of plans describing how an object is to be laid out or built. We will use the word "proposal" for what the architects did for the house client, various means of setting forth possible built changes which relate to the clients' requests in a given situation. A "proposal" is a design act when it is done in one of the ways, or similar ways to how the architects went about meeting the needs of the house clients. All proposals, in designing, are design acts.

Not all design acts are proposals, for they may sometimes be a means of arriving at proposals, such as the diagramming that architects do to see the relation between spaces, or the amount of built space compared to unbuilt space. A proposal is not the drawing or the model or a set of plans, but is what is suggested by these things when they are the results of design acts. As a general term, a proposal is the relation of changes in the built environment as the result of coordinated design acts considering the uses of these changes.

In this thesis, when we talk about designing, we will not use the term "project", because it more easily connotes some kind of object to be made than the term "proposal", which suggests putting reasoned hypotheses up for consideration. (In the growing literature, the term "project" has already been give a bad name, and people are writing about "non-projects". But "non-project", to us, is just like talking about "non-bad", missing why we do not want to talk about designing projects.)

Throughout the thesis we will begin to make use of certain expressions in our talk about designing. We will use "projected work" or "design projection" to suggest that designing is proposals about future work. Design proposals are also predictions about the uses of future work, how it will meet client needs and how it may offer possibilities of use in an environment. The work we call a "built environment" rather than a "building" because we examine built uses and not isolated objects. We will not talk about designing a building because we are suggesting understanding designing as acts concerning the uses of possible future environments ("built uses"), not acts, like drawing, which represent a building as an object. This may happen in the course of designing, but as will be examined later, is not itself designing.

We call our whole mode of work "design acts" because what we are doing is projecting built uses and we can give reasons for thinking that these projections will work for an intended use. Design acts may include various dialogues pertinent to the work in question: talk with the client, talk with the people making the built work, talk with the people who use similar work, for the purpose of examining how people have used such work in the past and projecting these uses in similar or changing ways. Sketching, modeling, and writing, as part of an explanation of what is to be done, or how to understand what is to be done in a built environment, are design acts. Only in a particular context and accomplishing a communication about particular design questions in that context, are they design acts. As professionals making a sketch, for example, we may already see the sketch as a design in itself, forgetting for that moment all the conventions in the sketch which show how our design may be realized. These conventions become part of our explanation when we must read the sketch for someone who is inexperienced in the conventions. Then we describe the design acts in the sketch verbally. The sketch is just a different kind of communication of a design act than a verbal or a written conversation. There is not, however, such a thing as a "design act" and its communication; a design act is communicated by various means- talking, modeling, writing, or gesturing, which we refer to as a "mix of design acts" which an architect may use.

Intentions in Design Acts

The examples which we looked at in "Design Acts in Practice" show that conceiving doing design as making an object is much more common in

practice than one may want to think. The "projects" which get done because of it can be more or less subtle in their destructive impact on our use of the built environment. It raises the question of whether our standards of acceptable practice are so low, or whether this conceptual difficulty in how we perceive designing is not so obvious as it seems when we clarify design as an act. Sometimes it is just this apparent triviality of a distinction which is missed. "Design is an intentional act about the use of a projected built environment" is a position against projects like the bank branch, the engineers' plans, or the architect's temple carpet. It is not just that design is an act, which is where we *start* to perceive how difficulties have arisen. After all, sketching in itself is an act, and so is making an object. Just saying that design is an act does not distinguish it from either of these acts. It is essential to say that designing is never the making of an object, as is, for example, sketching, and it is also essential to say that design acts are about the uses of a projected built environment.

To look at it in another way, we can say that intentions in a design act are about what will happen to an environment and the people in that new environment if it is realized. There is a sliding scale going from:

$$\text{object} \longrightarrow \text{to built use} \longrightarrow \text{to use.}$$

The realm of design acts in architecture touches the edge of the object and the edge of use, and centers on built use, how the projected built environment may be used. If we confuse design for the making of an object (like the bank branch), we run the risk of making an uninhabitable space. On the other hand, to make the role of people the whole design is no longer designing, but group participation, without an organizing guide considering the uses of a particular environment.

The most subtly deceptive language in architecture is talk about uses, what people do in their environment, and talk about buildings as objects which are assumed to relate to these uses. Just naming the two in the same sentence will not do the job of a design act about the use of a projected built environment. I remember a well known architect showing a slide of an extra wide staircase landing and describing it as a place for people to sit or rest in their enjoyment of the view. There was nothing about the landing that would invite anyone to sit or even build a place for sitting. It was the major passage place in the house, there was no room to sit by the window (in the direct glare of the sun) and to sit opposite the window by the railing would have blocked the passage.

It is critical in our exposition of design acts that we will talk about them as intentional acts for which one must be able to give reasons, and that these reasons are to some extent, the extent of our knowledge, arguable and verifiable. Thus I must introduce, into our notion of "built use", that "how the projected built environment may be used" must include reasons for showing that how it may be used is arguably true. We must be able to show, for example, that the way in which a staircase landing is to be built is what invites sitting there, that there is a familiar and recognizable connection between how something is built and how it may be used. In "built use" we do not mean objects and their uses, we mean that the use occurs in part in the way something is made. "Built use" is not a synthesis of "object" and "use", but is a built expression of what we do in everyday life. If we cannot give reasons which show these possible uses in the work, then we are just giving lip service to the credo that we are making buildings for people, or that we are doing use-oriented architecture.

The Concept of 'Design'

In this last section of Part One, we will give a general argument for 'design' as an act. The selective history of the theory of meaning in philosophy, which begins Part Two is an explanation of the dilemma of seeing design as an act or as an object, and it is also a reinforcement of how we can understand 'design as an act'.

Our use of the word "design" is an exemplary case of the conceptual tricks that the grammar of ordinary language plays on us. It is natural to say that a drawing, or set of plans, or model, is the object of one's design. There is no denying the physical object in this case, and there is even a strong temptation to postulate a mental object: "I've got the design in my head". The physical object we will return to, but let us examine the mental object first.

We say things like, "I have the design in my head", and "I have an image of a room with rough walls and small openings for light". The problem is that we cannot understand these as designs without some further explanation. One cannot just say, "Look into my mind" and get the response, "Ah yes, I see it!". To have the design understood, one must go the further step of drawing it, modeling it, or even discussing it in detail. We can call designing a "mental activity", if we like, as long as what one means is that one can go the further step of conveying the design by one of these methods. We do not deny that we have images of our designs. But what we mean by having an image is that we could represent it or discuss it so someone else could recognize it.

Now we come to look into this representation, the physical object of design. If I say that the picture is my design, it is part of our ordinary

use of 'designing' that I can give an account of how I developed the relationships shown in the picture. If I couldn't give any account of the process by which I came to draw a building you might say, "That's interesting, did you copy it?" Perhaps I say, "It came to me all at once and I put it down completely finished. I had a complete image and I just drew it out." Here we might say that I never designed the building, it is not how we learned to use 'designing', I just drew it. But if I could add, "Look, this is carefully thought out" and then explained all sorts of relationships in a way that described careful control and reasons for the workings of the built environment, then we might say that I designed it because of the explanation I gave. The point is that how we learn to use 'designing' was not by simply presenting a full-blown object of design, but was by going through a process, which may have numerous descriptions, by which the proposal came about. We might describe the needs of the client and how they are reflected in the building, also giving reasons to support that these design moves will in fact accomplish what the client needs. Our descriptions are of a proposal for satisfying some person's or persons' requirements in an architectural way which is also understanding of a history of people's relations to similarly organized built environments.

If there is a physical object representing the building, it is not necessary for designing, since it is possible to design a building, as pointed out above, through extensive conversations in specific circumstances. These conversations may be with the client, with the people who make the building, and with other people who are considering how to make these built changes. This is possible because conventions about the organization of a building and the making of a building already exist, and can be conveyed by conversation as well as by a drawing or a model.

Thus the object which is called a design, which at first appears central in our language, can be regarded as an insufficient and not necessary condition for doing design. With this understanding, we naturally begin to talk about "doing design" and "designing" because now we are talking about a particular process of organizing the needs of the people who are variously engaged in the proposal. We shift from talking about the object to which a design refers, to a design proposal, which is a hypothesis about peoples' use of a built environment.

Part Two

Words, Objects and Design Games

The method of the general argument we have just given for design as an act and the conceptual viewpoint of the argument both have their roots in how some of twentieth century philosophy has come to understand the question of the theory of meaning. The selective history of the theory of meaning which follows serves as a further explanation of the argument for design as an act and not an object.

The theory of meaning is concerned with language and the meaning of words within language. 'Design' is considered a concept word, having a complex use within the professional practice, encompassing organizational and practical skills, taking many varied instances of its use. As we mentioned at the beginning, conceptual distinctions, as we now understand them in twentieth century philosophy, are not semantic distinctions which can be explored through the grammar of a language, but are reflections in our language of what we actually do, including what we say as part of what we do. This advance in the theory of meaning is an important point in understanding how such statements as "These plans are my design" is not referring to design as an object, namely the plans.

Besides the benefit of understanding the philosophic changes in the theory of meaning for the argument about design as an act, there is one further reason why I have chosen to be so explicit about the philosophic

sources for the position of this thesis. Architects and critics of architecture[†] have referred to philosophic positions as arguments for their particular views about architecture, especially in writings about Post Modernism or offerings of views opposed to Post Modernism. But almost without exception the reasons for the philosophic positions are not given. In philosophy one can find arguments supporting any point of view, and quoting from them should not help to prove a point. In giving the evolution of the theory of meaning, we can now examine the issues behind the position we take.

A Selective History of the Theory of Meaning

We begin with an account of how the problem of the theory of meaning may be generated, and proceed with how this problem was looked at by the medieval logicians, Frege, Wittgenstein and some of his contemporaries.

The Problem

Being middle sized planet Earth mobile entities, human beings have the habit of bumping into and observing most often other relatively middle-sized objects and creatures, of natural or of humanly arranged origin. Communication, as a customary response of human beings to their environment, has thus naturally focused on the middle sized objects of our surroundings. Yet, when we stop to understand or distinguish the subtleties of our environment and human activities, we find that the first natural impulses of our language easily lead us into confusion. Our language

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[†]See bibliography.

has grown up with us, around common objects and beings, the "chair", "desk", "table", "ball", "papa", "grocer" and Aunt "Mabel". But as our commands and demands become more sophisticated and exploratory, the simple match between word and object no longer serves our purpose. We can no longer point and say, "There's an electron jumping its shell" or "This band of wavelength is 'red'".

Our language, at this juncture, points not to objects, but instead presents complex concepts, the meaning of which is given in their use by variously sized groups of human customers. Yet the beginning picture of words designating objects, which so impressed us in our youth, has stuck not only through our adulthood, but through centuries of philosophers trying to define the relation between word and object, as the 'meaning' of the word. The history of philosophy shows meaning to have been taken as a 'relation', a 'property', an 'attribute', a 'perception', a 'sensation' or 'sense-datum', etc., all with their various treatises on how we are then to go about defining this 'relation', or distinguish these 'sense-data'. In architecture, for example, we can find discussions of the 'meaning' of a building as its 'form', or as its 'perception' (as a phenomenological construct).

In philosophy, even with the invention of these new objects of meaning —relations, properties, etc., no one has found a way to simply put the meaning of a word as an object and make it commonly intelligible. Admittedly, as we learn a language during our first few years, the simplest form of the meaning of a word as its object, or the object it names, seems to work alright. We say "bowl" and we get it, and both young and older avoid the cries of frustration. As long as we limit ourselves to this early type of exchange, our equally early and primitive concept of meaning does

not work out too badly. But it works, not because it is an extendable definition of meaning, but so far as our cries, gestures, and human behaviors are concerned, it does the job without offense, and that is all we ask of it.

In fact, the notion of meaning here is so inoffensive that a major deception has already slipped into our account. It went unnoticed that our description of how we learn and begin to use "bowl" does not need an account of 'meaning'. All it requires is a description of what we do and the circumstances in which we do it. Later on, a child may ask, "What does 'tureen' mean?", and we may point to one, saying "That's a 'tureen'" (ostensive definition), or if no tureen is at hand, say, "It's a large bowl used to serve soup from" (verbal definition).

From the form of the question and our ever-present orientation to middle sized objects, we may get the impression that we have given the 'meaning' of "tureen" by showing or describing the object. Although we haven't given any 'meaning', we've just shown the use of the word "tureen", so oriented are we to connecting a word to a middle sized object, that we take the object to be the meaning of the word. The immediacy of human orientation to middle sized objects, and to the way we begin to learn a language, then misleads us one step further: people first thinking about the problem of what words in a language mean rapidly get to the point that they realize not all words in language are words for objects. Following their early experience of learning language, they then try to invent an object to which each word in a language refers, and call this object the meaning of a word. Meaning thus gets conceived as an object in itself, and that is how the notions of meaning as a 'property', composite 'perception' and 'sense-datum' may be generated. But for centuries, when we have asked questions about 'meanings' which we ask of ordinary objects, philosophers have been faced with an astounding shrinkage as our

language gives back less and less that makes sense in terms of the usual questions we can ask about a common object. Is meaning big, black or blue, and in how many pieces can it be taken apart?

Looking for a way to relate every word to an object, nineteenth and twentieth century philosophers thought they would get out of this dilemma via the developments in mathematics. Mathematics seemed such a precise language for scientists that it was thought that by translating ordinary language into mathematical representations, we could get all the precision needed for meaning by matching words to mathematical objects. Thus the meaning of a word would be its mathematical representation. This could not be done with simple arithmetic, but going back to Aristotle's syllogisms, (like All brutes are pigs, Blackbottom is a brute, therefore, Blackbottom is a pig) we developed a language called "logic" which could be used to represent such syllogisms and order their manipulation.

Medieval logic distinguished between singular and universal propositions, such as "Piglet says 'oink'" and "All pigs say 'oink'", but left unresolved to what (we may now call) the class of all pigs referred. Not knowing to what 'all pigs' referred made it problematic to determine the truth or falsity of the proposition "All pigs say 'oink'". This made the very nature of Aristotle's syllogistic arguments problematic, and led to such exhausting assertions as "if every pig we find says 'oink'", then "all pigs say 'oink'' is true. Of course, on some days, Piglet does not say "oink", he says "unk", and we are back in the basket of philosophical objections: How often and consistently must P say "oink"? Is this little pig, who looks extremely like Piglet, but has never said "oink" still a pig?

Frege's Contribution

The pivotal person, whose work snapped the theory of meaning, via Aristotle and Kant, into the twentieth century was Friedrich Ludwig Gottleb Frege (1848-1925). In the process of revising and presenting a new symbolism for mathematical expressions, he evolved a philosophy of logic which became the hinge between the old, mentalistic picture of meaning, seeing a word or symbol as representing an object (of varying sorts) and the twentieth century picture of logical expressions in which their meaning is seen in their use, not in the object(s) named by these expressions.

Frege (forgive us) put the pig back in the pen by understanding "Piglet" as a proper name and 'pigs' as a 'concept-word'. Secondly, the proposition in question is not: say "'oink'". It is : "all———say 'oink'". Hence, the logical subject of this proposition is a concept, which operates like a function in mathematics, taking different arguments, such as "Piglet". The search for the meaning of "all pigs" in every little pig poked to elicit "oink" is put to rest. Frege was the first to suggest that a concept can be used like a function in mathematics, and eliminate the need to find a meaning for 'all X's' as the subject of a proposition.

Some of Frege's famous contemporaries still retained the view that every expression stands for some kind of object. Russell held this position in *The Principles of Mathematics.* He developed a doctrine of 'sense-data' to make up these objects, but they had nothing to do with Frege's use of a 'concept-word'. Frege held that the logical sense of a proposition is determined by giving its necessary and sufficient truth-conditions (those propositions, which when shown to be true or false, show the truth or falsity of the proposition in question.) This truth-conditional way of viewing the sense of a proposition is found in varying forms in Medieval

logic, Frege's work, and the early work of Ludwig Wittgenstein (*Tractatus Logico-Philosophicus*), keeping in mind that the conception of the object of a proposition changed as we've discussed.

Wittgenstein's view

Wittgenstein's view went through a transition, and it is the result of this transition that is the basis for the conceptual viewpoint of this thesis, namely that doing design may primarily be understood as an intentional act. Frege showed us the jump away from the object as meaning. Contemporary with Frege's view, Wittgenstein (1889–1951) gave a picture of logic in the *Tractatus* which was a demonstration of the limits of language. Wittgenstein later came to see the *Tractatus* not as a picture of the limits of language, as he may have at first thought, but as a picture of the limits of viewing language as logic.

In the *Tractatus* he says such things as:

> 5.4711 To give the essence of a proposition means to give the essence of all description, and thus the essence of the world.

and

> 5.526 We can describe the world completely by means of fully generalized propositions, i.e., without first correlating any name with a particular object.

I think, and this is probably a controversial point, that Wittgenstein never broke with the logical picture of language he developed in the *Tractatus*. Rather, he broke with the view that this picture described the world completely. There are descriptions which cannot be put as propositions, because their occurrence is part of human life and circumstance, which can be given various descriptions, none of them complete at any one time. This later view of Wittgenstein, as it has come to be called, is most fully expressed in his *Philosophical Investigations*.

In his work after the *Tractatus*, Wittgenstein demonstrates a way of analyzing concepts that uses ordinary language, independent of positing either neurological or psychological objects for the understanding of these concepts. The way in which he wrote, or thought, or talked, was the methodology to be learned: an approach to conceptual clarity which left the rough stone as the rough stone, showed it for what it could be, but no longer had to demonstrate an argument in logic to get the picture clear.

In moving through the body of work that leads into and through the *Investigations*, Wittgenstein took some of the results of the *Tractatus* along. Naming, in the *Investigations*, is part of a preparatory process for learning an elementary form of a language: following an order, giving a command, counting. In the *Tractatus*, names were the parts of elementary propositions:

> 4.22 An elementary proposition consists of names. It is a nexus, a concatenation, of names.

> 4.23 It is only in the nexus of an elementary proposition that a name occurs in a proposition.

> 4.24 Names are the simple symbols: I indicate them by single letters ('x', 'y', 'z').

In his continuous account, naming is a preliminary for using a language, be it the language of logic or a spoken language. The difference with the *Tractatus* comes in his next move, when he says,

> Here the term "language-game" is meant to bring into prominence the fact that the speaking of language is part of an activity, or a form of life. (23. *Investigations*)

The limits of logic, as shown in the *Tractatus*, is that speaking logic is not part of an activity, or form of life, in the same way speaking a language is. In speaking a language, human gesture, expression and tone of voice are part of the import of the activity of speaking a language. One's expression, tone of voice, and actions are irrelevant to the outcome of a logical argument.

Wittgenstein's introduction of 'language-game' was not just a more expansive way of looking at language than representing language by logic. His emphasis on speaking a language as part of a human activity was intended as a way of understanding what people mean by examining what they say. This includes how people learn to talk, giving examples of what people say in certain circumstances, and examining what we would say about the examples. An excerpt from Peter Geach's notes during the last year of Wittgenstein's professorship in Cambridge University may serve to show how a language game is not something specific, but is a way of showing how people mean an expression:

Witt: Is pain a sensation? There are similarities and differences—but what is true of the various sensations. What is closest to seeing? A blind man learns by touch most of what we learn by sight. But there is a fundamental difference.

Geach: One doesn't point to the eye when asked where one sees a thing in the way one points to the finger when asked where one feels a thing.

Witt: But more fundamental—you learn shapes by handling objects. There is nothing analogous for vision. The analogy of sight and touch isn't what one would expect. Suppose a man feels a thing is a square, sees it is a square. What are the analogies and differences? People would say we feel it is square by tactile and kinaesthetic sensations. But what is the difference?

Geach: You couldn't teach "square" by a square rubber stamp pressed on the skin.

Witt: Or if you could it wouldn't matter; because it would be different from the way I have been discussing, of feeling a thing is square. It would be an extra, third way of recognizing square objects.

Would one be tempted so much to talk of a square tactile sense-datum? "Sense-data" always chiefly mean visual and auditory data. "Tactile? We'll see after them later" is the attitude of the sense-data philosopher.

One might be inclined to say hearing is closest to sight. Why? "Articulateness" is what comes into my head to describe the similarity.

What is tactile sensation? In learning the shape of an object with eyes closed, sensations of hardness, etc. play very little part. People would say it is sensation of motion and position that play the most important part.

With regard to sight and hearing it is natural to speak of appearance and so of sense-data. It's much less natural to talk about the sense of touch. Why?

A child doesn't learn to talk about sense-data. People say "sense-data are given—the physical object is a logical construction". Now suppose we taught a man words for sense-data, e.g., "A" is going to mean a sense-datum of the table. The danger now is to think I can give a name privately- look at a table and say "I shall call this look A". For this doesn't tell me how even I can call any later appearance by the name A. But I could draw a picture and say: "What looks like this is A".

Suppose we had two children. One child learns "table" first and the other learns first words like "A". Now if a child learnt both it could no doubt say "the table is A"; but if it learnt only words like "A" it could never reach the concept of "table".

Thus Wittgenstein brings out the difference between our recognizing a tactile sensation and our being in pain by looking at what people would say in particular situations and by looking at how people learn related expressions. Behind Wittgenstein's remark that learning a language is learning a technique is the sense that, by examining what we say and how we learn a concept, we can get information about the use of that concept. In general, we can begin to understand a concept by looking at its accepted use, the language activities which are examples of its commonly understood practice. If someone does not grasp the sense of a concept, but insists on using it in a way that is at odds with its usual use, we can take their odd use of it and show incompatible consequences. This is

what Wittgenstein is doing in the previous dialogue when he shows that one cannot learn "table" by getting taught "A", the sensation for table.

Wittgenstein spent much of his time looking at concepts which our language misleads us into thinking stand for objects, showing them to be unnecessary counterparts to the use of the concept in question. In the dialogue above, he shows that "sensation" is not a separate entity which is the 'object' of the word "pain". He does this by bringing out that one way we ordinarily use "sensation" is our tactile sense, holding or touching an object, and this use does not apply to 'pain'.

This point about our use of "pain" not representing an object to which "pain" refers can be made more general than its comparison to sensation. We can point out numerous cases in which we say of ourselves, "I'm in pain", or we say of someone else, "He's in pain", when no such object is in question, yet we use the expression and understand each other. We understand when to say it of ourselves because of the circumstances under which we learned the expression (someone saw us fall, and asked if we were hurt or in pain). We understand when to say it of someone else through the different circumstances under which we learned to say it of another person. Perhaps we see them grimace, or have an accident and make a particular gesture. In examining our use of "pain", we find there is no definite object to which it is attached, only our use of the expression in certain circumstances. This leads us out of thinking we must come up with some object of pain in our "mind", or some special physiological stuff in our bodies, in order to understand our use of the expression. No such object was in question when we learned "pain" or when we use it.

Examinations like this (which can become far more detailed and com- prehensive) are used to show that there are familiar "games", activities of which speaking is a part, that we play with certain concepts, such as

'pain'. When we mix 'pain' games up with language games that describe a visible object, for example, we are misled by the structure of our language into looking for a superfluous and indefinable object. Analysis of a concept investigates the language games in which that concept is used, and shows also how its use does or does not cross-over to other language games using other concepts. Thus we reach what clarity we have about our concepts by coming to understand more specifically what use and abuse their expression has in our language, the use they have in our activity of expressing ourselves to each other.

The sort of discussion that Wittgenstein had about 'pain' is the same kind of discussion we have been having about 'design'. In the first section, we looked at examples of doing 'design', and at the end of that section we examined how we talk about 'design' to show that, like with 'pain', there was no specific object to which "design" refers. In the examples from practice, we tried to show that when "design" was treated as the making of an object, people were not doing design, they were making things which represented objects for which people had little use. In the general argument trying to show that our concept of design is the concept of a family of acts in particular circumstances, we examined how we learn 'design' and how we use 'design' in our conversation. In the following section, we will examine this method of analysis, using what people say to understand what they do, in more detail.

'Designing' and Language Games

Thus far in Part Two, we have described the evolution of a general theory of meaning which can be used to explain why we see 'design' as an act.

In the process of designing we may produce objects which we also call our design, although this sense of "design" already has been shown inessential. But someone could take the history we have developed and say, "Alright, we have shown two distinct senses of 'design', the one which concerns acts and the one which refers to objects." Since we do not want to say that now we're using 'design' as an object, and now we're using 'design' as an act, we need to carry this history further and show how we can account for both uses with the single concept of a 'language game'.

We will begin by giving a more specific explanation of Wittgenstein's notion of a 'language game'. We can then discuss how 'designing' may be analyzed as a 'language game', showing how 'designing' covers certain acts and also the things we sometimes produce in the course of these acts. This picture will become more complete in Part Three, which follows, on acts and design acts.

'Language Games'

When we begin to learn a language as children, we are taught a primitive form of association between a word and an object. Someone points to an object and says, "Book!", gestures perhaps, repeats the word in a certain tone, and continues until our response resembles "book". There has been no explanation of what a book is, so we could say we have been in a kind of training. We have been trained, when we get it right, in what we call the "naming" of an object.

This training process is preliminary to using a language. It is a process which resembles language. Perhaps the teacher wants to pile a number of things on a shelf, and for this purpose has taught his helpers just five

words: "book", "pen", "paper", "jar" and "vase". When he calls these words out, his pupils bring these objects in the order he calls them. We could say that he has taught his pupils a primitive language. This is also a kind of training in which the communication functions clearly without any explanation. The words of this primitive language may have been taught ostensively, by pointing to the object, making certain gestures and using a firm tone of voice.

Wittgenstein would call this whole process of using this five word language a "language game", one of the ways in which children learn their native language. The process of naming these objects and repeating the names after someone is also a language game, like the children's game of "Giant Steps" ("You may now take two giant steps" or "two baby steps" until a line drawn on the ground is reached).

Thus far this is a primitive language in which the words refer to objects. But now the teacher says, "Put the book there" and points to the shelf. Here there is no explanation of the word "there" other than the use of the word when he points to the shelf. The use of the word occurs in the action of pointing as it is said. This second language game has gone beyond the primitive language game in that the words no longer just refer to objects and the teaching of "there" includes pointing in the use of the word. Although it may all look alike on paper, the teaching of a language rapidly gets to the point of many diverse language games in which the uses of words are fundamentally different.

A language game consists of "language and the actions into which it is woven" (7. *Investigations*). At the level of a primitive language these actions are not part of the use of a word, but are a simplified training showing the use of a word in naming an object. This gives us a philosophic tool for understanding a concept. We take the concept in question and

imagine its use in a primitive language. Sometimes what this shows us is that the concept has no such primitive use, such as the concept of 'pain' in the dialogue given earlier. The dialogue shows that "pain" is not a word for an object as we learn such referents in our training in a primitive language. The grammar of our language misleads us into thinking "pain" stands for an object.

As Wittgenstein uses the term "philosophical grammar", it is totally unlike the sense of linguistic grammar in which "pain" is a noun and nouns in general refer to objects. A philosophical grammar is a conceptual grammar and its work is to clear up the differences in the use of a word or concept which are obscured by the ordinary grammar of a language.

Problems in understanding concepts arise because our everyday language is not a primitive language. Actions are a part of our language and enter into the use of language in many diverse ways. Distinguishing the various ways actions occur in our language gives us a better understanding of our language. Thus, when we clarify a concept, we examine not language per se, but the language games in which the concept is used.

Designing and Language Games

There is a primitive language game that occurs in our use of 'design'. In the profession, there is a primitive use of signs which stand for various objects in the built environment. On paper, we call some of these graphic standards, consisting of conventional signs for windows, bricks, concrete block, gravel, ground, electric outlets, etc. We can learn the names for these signs by looking them up in a table or by having someone name them in a drawing. A similar conventional naming takes place in model making,

where certain physical elements consistently represent steel, asphalt, brick, screening, etc. We can also learn some of these preliminary terms in conversation, when someone points to a brick and says, "that's a 'paver'".

In our design training it is true that we learn primitive language. But the use of this primitive language, while it is preliminary to doing design, does not occur as a primitive language in the actual practice of doing design. Locating a column in a building is a complex act of considering a variety of implications: where the column comes out in a room, and how that column can influence the possibilities of what may happen in the room; how the column relates to the foundation, what it supports, what will be exposed of the column and what kinds of connections are involved with other materials; how all this will affect the look of the building, placement of windows, and the rest of the support system. Locating the column, as a design act, is not a primitive sign for an object, but is an action, the reasons for which consider any number of details related to the whole. The drawing of the sign for a column on paper is deceptively simple, until we understand the design game as a whole, and see the drawing of the column not as a mark for an object, an expression in a primitive language, but as one of many considered and related acts, coordinating the implications of where and what the column is.

Using Wittgenstein's concept of 'language game', we get a way to understand how in fact we may make objects when we are designing, but making these objects is not designing, it is part of the primitive language game we learn when we start to learn the language designers use. If we look at the drawing of a floor plan for a building, for example, we may read it, at the primitive level, as a number of signs for objects. But if we read the plan as a design, we are no longer reading it as symbols for objects. We understand it as a complex design game, one possible picture

of a myriad of design acts which are part of the understanding of the drawing in front of us. The symbols for objects on the drawing are not a design. The drawing is only part of a more complex design game which involves many acts, such as drawing a column to come out in a particular place in the entry of a building, in its expression.

Thus we have a concept of 'designing' which allows for the representation of objects, but does not call this representation "designing". We do not end up with two senses of 'design', one standing for an object such as a set of plans, and one standing for design acts, the means by which we arrive at those plans. There is one sense of 'design', which is a complex activity organizing built human life forms.

This activity can be in conversation, talking with a contractor, with a craftsperson, with a client, with another architect. It can be arranging three-dimensional materials, making various types of drawings, sitting back and contemplating various possibilities, and analyzing existing built works in reference to the concerns at hand. Designing may be any combination of these different activities or design games, and as technology advances we invent new ones: working on a computer in a given environment.

When we analyze what architects say when they are engaged in these activities, we analyze design language games, and can get clearer about our concept of 'design'. What we do is design acts, and the whole situation in which these acts take place in relation to one group of concerns, we can call a design game. An act in a design game we will then sometimes talk about as a move in a design game. The notion of a 'language game' frees us from talking about 'design' as an object, because we can now understand how such objects are preliminary to designing, but not part of designing,

which is a different kind of act than making an object. We must now examine more closely what we mean by design act.

Part Three

Acts, Design Acts, Form Acts and Rules

Acts

What all design games have in common, on our view, is that moves in these games are acts. The relevant question, then, is "What makes these acts design acts?". To answer this, we must first discuss the more general question, "What kinds of acts are design acts?".

In action theory, there is a broad distinction between voluntary and involuntary acts. Involuntary acts are the beating of your heart, the jerking of your knee when the doctor hits it with a hammer in the right place, or the raising of your arms after you have pressed them hard for a while against a wall. These are cases in which you don't say, "The doctor made my leg jerk". If, however, I see you kick the doctor when the hammer has not touched you, I say, "You kicked the doctor", and you might say, "Yes, I wanted him to think my reflex was alright (with a vengeance)". We call this a voluntary act.

We may describe a voluntary act as either intentional or unintentional. For example, you might say, "I didn't think I would kick him, he turned around just then", and we would say that you kicked him unintentionally. If it were your intention to kick the doctor, you would give a reason for thinking that raising your foot would reach him, e.g., "He hit me so hard I wanted to get him back."

There is a distinction between motives and intentions. You might have said that you kicked the doctor for revenge, and this would be the motive for (but not the intention behind) your action. It is not this kind of motivated acts we are interested in, regarding design acts. We are not concerned with an architect who specifies blue ceilings because "A or C has a love of blue ceilings". We might be interested if the reason A gave for a blue ceiling was that only a particular shade of blue would give the sense of height to the room that would enhance its purpose.

The sense of intentional acts which concerns us as design acts are those for which we can ask the question, "Why (did you do it)?" and get predictions justified by a reason for acting. These are reasons for thinking that the statement of the prediction has the relevant application, or, is true.

Design Acts

Since in design we are dealing with intentional acts, we must distinguish between all the descriptions we can give of a design act, and A's reasons for doing it. The relevant description is the one which is given in reply to the question, "Why?". For example, there is a plan drawn with three foot six inch high counters. We could give the following replies to why the counters are 3'-6" high:

    i) to be out of reach of young children
    ii) to make it difficult for people in wheelchairs
    iii) to be in proportion to a high space
    iv) to make it easy for the carpenter who has a 3'-6" rule.

The reason A gives for doing Y (drawing 3'−6" counters) is that A's clients are six feet tall, and A wants to keep them from bending too much. This is different from saying that 'A intends to do Y' implies 'A intends to do i)−iv)'. What A intends, in the relevant sense of a design act, is the reason A gives in reply to the question "Why?" such that it is a reason for thinking that the statement, 'Six foot tall people will not have to bend over a 3'−6" counter too much', is true, or will have the desired results. A may never have thought of i)−iv), or even if A had, none of these may have been A's reasons.

Consider the opposed case, in which A cannot give a reason for a design act. We are looking at a plan, for example, showing some steps leading from a deck to the ground. We point and ask, "Why are the steps there?" and A cannot give us an answer. We might say, "Did you just draw them there?" and if we got a positive reply, we would no longer be talking about a design act, we would just be talking about making a drawing.

We might push to find the design act by asking such questions as "Does the circulation lead through here?" or "Does this bring one out to a certain view of the landscape?". If we never get an affirmative answer from A, we say that A has not designed the steps, A's just drawn them, arbitrarily as far as we know. If A were to say, "Yes, that's it, this leads you to a place between two rocks and connects you to a path beyond them", then we begin to see the reasons for the design act of drawing the steps from that part of the deck. We can question the veracity of A's reasons ("But the rocks are actually here on the site"), which is to question the truth of A's reasons on a factual level. We may also question the design judgment of A's intention, "Wouldn't a less direct entrance to the path be a more interesting walk?".

It is thus possible that our conversation with A, our going to the site with A and walking through the place for the steps and observing its connection to the site, can all become part of the reasons for A's design act in specifying the steps. These reasons will show up in A's reply to the original question, "Why are the steps there?". Possibly, A may now reply, "The steps lead to these rocks on the site, which will become steps to a rock garden which appears beyond the trees". Then we know that A's intention in putting the steps on that part of the deck is to connect the deck to a rock garden, using the stones as part of the connection.

In this example, we are trying to bring out how the intentional acts of designing differ from the intentional acts of drawing. We notice that what we say and do when we are professionally designing is relevant to whether we say A is designing or not. (In doing an analysis of what gets said or cannot get said, we examine the language games of designing and drawing to distinguish and understand these concepts.) We see that reasons for designing are distinct from reasons from drawing. Reasons can be given which apply just to drawing, "I drew them there to balance out the composition on paper" and reasons like connecting the steps to the entry to the rock garden apply just to designing.

We cannot give a list of reasons and say, this is a list of design reasons, or this is a list of drawing reasons. There may even be cases in which the reasons for the one overlap with the reasons for the other, depending on the circumstances. But we can investigate these reasons as we have above, and begin to see differences between design acts and drawing acts, even when a design act may involve drawing.

Thus we can see in another way how design acts are not the making of an object (a drawing or a model) but are the projection of how built works will affect our lives. We have not created an intented object, a drawing,

but have made hypotheses about a built environment, for which we can give specific reasons showing our intentions. It is possible that we can be designing and drawing at the same time, but that does not make them the same. We can hit a ball with a bat and study the velocity of the ball at the same time, but our descriptions of what we are doing and our reasons for what we do will differ. How what we say and do differs is the reason why we have the two different concepts in the first place.

Because architecture is such a competitive field now, it has become the emphasis of some architecture schools to make slick, graphically strong presentation drawings. These drawings have come to have less to do with design than with seeing, to the point that the drawings of well known architects sell separately from the work to be built. This has led to the judgment of an architect by his/her peers, critics and the public according to the drawings to the the point that the design is obscured and secondary. Even buildings have come to be read as graphic assemblages, so that work by well known architects has been talked about in terms of its visual package, when its internal space is quite ordinary, or even disfunctional.

The conceptual distinction between designing and drawing is important to see not only at the conceptual level, where we distinguish the act from the object, but also at the level of practice. It is here that works like the branch bank we discussed earlier get built, and it is here that work like the engineers' plans get made as solutions to built human needs, when they are only graphic presentations.

We persist in looking at 'designing' in contrast to 'drawing' because this is a primary place where the confusion about 'design' as an object arises, and it is a source of confusing drawing for designing in practice. We cannot give one simple argument for all cases of distinguishing drawing

from designing. We can continue to point out, however, general ways in which the two differ.

Making a mistake in designing is different from making a mistake in drawing. Earlier we suggested an example where the designer may have thought he or she was projecting a set of steps in relation to a site, but it could be shown that the stones on the site were different from the designer's assumption. In a drawing, this accuracy in correspondence to reality is not a criteria. One may put the rocks wherever one pleases in a drawing.

There are also different practical criteria for saying that a design is alright than for saying a drawing is alright. We can look at a design on paper and say, "These steps are not right because they cannot be built the way you have drawn them." We might then discuss in sketches various ways the steps could be built, and choosing one, modify the drawing. If what we had done was just drawing, it would be possible to reply, "Yes, they cannot be built that way, but that is how I see them (or want others to see them)". How the steps can be built need not enter into the drawing, but must, at some point, enter into doing design.

Thus the use of 'design' turns out to be significantly different from the use of 'drawing'. We give different reasons for drawing than for designing, we have different criteria for saying a drawing is alright than for a design, and mistakes in designing are different than mistakes in drawing. Integration in designing has different standards and a different liability than integration in drawing. In drawing there is an object to discuss. In designing, the objects we make use of are not the design, for we can design without them. Designing is a process of making projections about built work. These projections are intentional acts for which we give particular reasons. The object we may be tricked into searching for, "the design",

vanishes when we analyze the complicated game of designing, and distinguish it from those language games in which words refer to objects.

Form Acts

In Part One on Design Acts in Practice, we argued that design acts were about built uses for which we could give reasons. In Part Three we have been discussing what kind of acts design acts are, and how they are distinct from other acts, such as drawing. We continue to add to our understanding of 'design acts' by distinguishing, among design acts, those design acts we call form acts in which we emphasize the built part of built use, the connection between design and construction. We will then end our exposition on design acts by looking at rules as reasons for design acts. Following a rule is itself an act and is therefore also a way of emphasizing how designing may be an act of following a rule.

A form act is a design act which directs built use in terms of its construction. Each form act must have an intelligible translation into a material and spatial construction and also have possibilities of social interpretation as its use.

Lines in a drawing showing a brick wall or a wall in a model showing brick material or written instructions for a wall to be made of brick have connections throughout a particular design to such things as the size of the footing, the height of the space, types of window openings, acoustic effects, hardness, warmth, durability, locations of building systems, cost, maintenance, flexibility for future use, relations with the inside and outside, physical connection and perceptual movement at adjoining surfaces. When a brick wall is part of the vocabulary of a form act, it has these

and other possible interpretations and implications, the whole field and context of the design projection making them more specific.

When we have said that a form act is an intentional act of directing our built environment, we could still be talking about the placement of a fire hydrant in relation to the sidewalk, for example, and we have not said whether such a form act is architecture. Our method of deciding whether a form act is part of an architecture depends on a common acceptance of the description of a design game, within which such a move is seen as a component in an architectual proposal.

An architect, designing a city block, might indicate in plan where the hydrants should be located and give a description of why the hydrants should be there. Alternatively, there could have been no indication of where to put the hydrants and the architect might describe the plan indicating that the location of hydrants is irrelevant to the proposal. In the first case, we can say that their location was intentional and part of the architecture; in the second case we say the opposite. We can argue about the second case that their location should have been part of the proposal. We do this by giving a description of the proposal which makes their location part of the design game. This is just architectural criticism, until the architect accepts the new description in the context of the design game. Then we can say that not giving the location of the hydrants was a designing mistake. We have made the rules of the design game explicit, but we must be playing the same game to say whether or not a move is part of the game, and therefore arguable within the context of the game.

Form acts are intentional acts, the reasons for which can be given by an architect's description of the design game. We cannot say whether only one description of the design game is correct. We must agree on a description to decide whether a move is right or not, and within the

same game description we may further have to agree on priorities. These agreements, in architecture, are highly complex, and may change from game instance to game instance. They may change in the same game over a period of time, so five years from now, we move the hydrants. Descriptions of design games, in architecture, are not fixed. We give a description of the game to moderate our choices and to make it possible for us to coordinate our decisions.

Our description of a design game is not actually what happens. It is a way of freezing a slice of designing time so we can experiment with it. Wittgenstein says of language:

> When we study language we envisage it as a game with fixed
> rules. We compare it with, and measure it against a game of
> that kind. (*Investigations*, p. 77)

We are trying to give a conceptual picture of architecture which shares in this way of looking at language. If I gave twenty characteristics of a cat, a creature might walk through the doorway which only had a few of those characteristics and had many others, but which we could still call a cat. In architecture, an intentional form act is like the cat in that we cannot give a limited definite description of it. Whether we call something a form act or not will depend on our agreements about the design game. These agreements are like what Wittgenstein here refers to as the "stationary picture":

> If we look at the actual use of a word, what we see is some-
> thing constantly fluctuating. *In our investigations* we set over
> against this fluctuation something more fixed, just as one paints

a stationary picture of the constantly altering landscape. (*In-vestigations*, p. 77, my italics)

For the purpose of investigating a design situation, we freeze the landscape of our proposal, making agreements which will guide our design moves. Under a description of these agreements, form acts are intentional design acts which show the construction of a built use. Thus an architect, who is responsible for his/her intentional design acts, is responsible for the accuracy of a form act as it fits the built use and as it instructs someone in the field. We will examine how a form act fits what someone does in the field further, in the following section on rules.

Rules

Design acts are intentional acts about built use for which we can give reasons. One of these reasons may be that we are following a rule in our design acts. In this section we will look at what it means to do a design act according to a rule.

Suppose there are two cases of the use of structural layouts, one using a certain size bay on a grid system and the other using a free-formed structure which does not follow a pattern. Both layouts have spatial freedom in relation to the structure and both may have structural economy. However, each system will probably have different spatial possibilities, which we would expect to show up in the architects' descriptions of their form acts. Differences in their descriptions of structural space would show that they were implicitly following different design rules, and we would expect their buildings to show this.

Suppose, however, that two buildings with totally different structural layouts looked identical, or had the same materials and sizes of enclosure for walls, ceilings, floors and openings. We would then be inclined to say that the design rules these architects were following were the same (perhaps a code book for the same number of spaces of specific size and materials). We would not expect them to give structural-spatial reasons for their form acts, but instead to refer to the code book as the rules for their proposals. If they did mention the structural systems, we might say, "Yes, but you went by the code book for what you did, for here's another building with a different structure, which uses the same code and looks alike".

There must be a fit between the rules some one gives and what someone does. In the different structural cases where we get the same building, we would say that the fit between the structure and the buildings was co-incidental. What the buildings both fit is the code book. If the buildings were different and the architects could describe these differences in terms of their structures (as one way of describing their differences) then we could say the structural choices were part of the rules by which they were designing.

These cases are of course a simplified example. We do not want to imply that architects using the same rules (if they ever do) get identical buildings. Nor is it the case that architects using different rules cannot get identical buildings. The reason we say that using the same rules would not lead to identical buildings is that the rules are not complete descriptions of the buildings. When the rules become complete descriptions, and we get fifty replicas of Howard Johnson's, we no longer say that we are designing (we're replicating, if you like). On the other hand, it is a logical possibility that architects using different rules could generate identical

buildings. This is such an unlikely possibility that we would doubt what they say about the rules they were following.

Thus far, we have said that a reason for a form act may be a rule, the limits of rules are such that they do not completely describe a built/unbuilt environment, and something can be a rule only if there is a fit between the rule as a description of what someone does and what they actually do. What we mean by this fit between a rule and a form act may be brought out further by a more abstract example (we invent a primitive language game to further show what 'following a rule' is).

Imagine a design game like a board game, in which the board is divided into squares, with an empty bank of squares in the middle and various pieces with specific starting positions (analogous to the existing conditions, or accepted terms of a proposal). There are two players, who, instead of competing, have the common goal of moving their pieces so that the center bank contains only the largest pieces, and smaller pieces branch out from them. There is the limitation, like in chess, that the pieces can only be moved in a certain pattern in relation to the board. The two players are called a D-team, and they must be careful in moving their pieces not to cancel out pieces that they may need for their common solution. This cancellation happens in that they must take turns moving, and they must not get their pieces in such a position that the only next move will cancel out another piece. They can, however, cancel out each other's pieces deliberately.

Suppose that they have each made six or so moves, when D-1 takes D-2's "pillar" piece. D-1 looks surprised, stops for a while and studies the pieces, then moves a "panel" piece forward. Now D-2, we could say, either looks pleased and quickly moves another "panel" piece into position, or promptly takes the "panel" piece from the board and replaces it with a

"beam" piece. Observing the play, we could say that in the first instance, when D-1 plays the "panel" piece, D-1 grasped D-2's intention and could continue the series of moves. In the second instance, when the displeased D-2 replaces the "panel" with a "beam", we would say that D-1 misunderstood D-2's intention. We would say D-1 misunderstood until, perhaps D-1 added another "beam", D-2 played a "girder", D-1 added another "beam", D-2 added another "beam", and so on, without any hesitation or puzzled looks or impatient gestures.

We stop the game now and ask D-1 and D-2 to give us the rule for placing "beams" and "girders". Perhaps D-2 produces a sketch and says, "For this many beams, you need this many girders, as this gives a framework which will fit onto the board like this". But D-1 says, "Well, I know when you don't play the 'pillars', you have to use the 'beams' and then the 'girders', so I just continued the game by playing a 'beam'." Would we want to say that D-1 and D-2 both knew how to continue the same series of plays, but only D-2 could describe the rule? Or would we want to say that they both knew the rule, but D-1's description of the rule was different?

Assume that we have had these conversations with D-1 and D-2 separately, in private, and as they continue to play the game the moves come out to look like D-2's sketch. Then we could say that they both knew the rule, only D-1 gave a different description, or could have been following the same rule as D-2, but was following it implicitly. But if they continued to play and the moves came out quite dissimilar to D-2's sketch, we could say that they had changed the rule, used another rule, or didn't understand or follow a rule at all. We would finally have to look at what they did and the circumstances in which they did it to decide whether they were following a rule. Their descriptions could be different and we could

say they were following the same rule, according to the circumstances in which they continued to play and the moves they made. A rule, for these purposes, need not have the same description by every player, but must give a similar reading of the results in similar circumstances.

Our friends D-1 and D-2 go about designing, as it were, by working out a series of moves which are consistent with the given and evolving circumstances of the game. The descriptions of these series could vary, but the descriptions would have to fit the circumstances in such a way that they show us how the players arrived at the outcome. In the earlier case of the identical looking buildings, it was the code book that provided these descriptions. If we ask, "How do we know when a rule for a design act is a rule for that particular design act?", our answer is that it is the rule for that design act when it shows us how the designer moved from A to B. A rule, like a design, is not an object with a singular description, but is known through the act of following the rule. The act of following the rule is expressed as a rule, and expressions of the rule may vary. Thus design acts may be rule-following acts, which show another way in which designing is an act.

Summary

The practice of architecture, designing, is the practice of design acts. Design acts are intentional acts concerning projected built uses for which we are accountable to give reasons supporting these projections. Responsibility for our intentional design acts is thus a kind of moral responsibility for not only having reasons for our proposals but also for the nature of these proposals to concern built use. When our proposals are disguised

as pictures of proposed objects, we are not doing design, but are making representations of objects which may be more or less arbitrarily devoid of any built use resulting from their making. Designing is not the creation of an object, but is the creation of a built use. We cannot and should not be able to predict all of these uses, as the environment is open to interpretation and change. We are accountable for the specific built uses for which we are employed and the ones for which we are not specifically asked, but which our knowledge of built/unbuilt human events specially equips us to consider in the course of doing our work.

If we accept doing design as this kind of intentional act we cannot avoid this responsibility and our training and everyday work must be examined anew in light of design acts. From here on out, all of the interesting work begins. It is a harder and continual and more exciting challenge to recognize the reach of architecture more directly in our lives, even as we do it. Just as we are what we eat, we are what we draw, it is our own acts, as architects, our design acts, which make us what we are. Built environments are artifacts of our human history, the responsibility for which we can now understand in 'design acts'.

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