

Systems of Thought and Relevance in Design

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What considerations are relevant to a particular design problem? How do designers arrive at these considerations? These perennial questions have been examined many times, generating many answers. One largely unexplored explanation is that designers use *systems of thought* to define *relevant systems* for which to design. Systems of thought give the designer a suggestion of where to draw the boundaries of a design solution's system, ensuring that thinking about the solution stays within the realm of relevance. Thinking of a design solution as part of a system allows the designer to see how each aspect of a solution depends on and affects every other aspect, leading to more internally cohesive designs.

But what exactly is meant by 'system?' A 'system' as it is used here means a set of related things (concepts, artifacts, *et cetera*) forming a whole. A 'system of thought,' is thus a set of related concepts that function together to give a designer a picture of the range of potential design solutions for a given problem. In practice, the systems of thought used by designers are often sets of three or four systemic terms (commonly represented in simple schemata), which the designer uses as a tool for understanding a given problem and situating their solution.¹ A designer may use one or many systems of thought in addressing a design problem, but each will define a different system of relevance.

A 'system of relevance' to a design solution is the interrelated set of concepts representing all possible relevant aspects of a potential solution, given the system of thought with which the designer approached the problem. The system of relevance is different from the system of thought because it is bounded. Whereas the system of thought can be applied to any design problem, the system of relevance that it engenders in a given case is specific to

¹ It can be argued, quite correctly, that these systems of thought are no more than sets of 'topoi' or 'placements' as defined by Richard Buchanan in *Wicked Problems in Design Thinking* in *The Idea of Design: A Design Issues Reader*, ed. Victor Margolin and Richard Buchanan, (Cambridge: The MIT Press, 1995), 6-11. However, by defining sets of placements as systems, we hope to gain greater understanding of the methods by which designers proceed.

the problem at hand; that is, the system of relevance is concerned with the particular. This is not to say that general ‘systems of relevance’ cannot be conceived of and provide insight into a designer’s methods, only that these general systems will have no true practical application.

To better explain how designers use systems of thought and relevance, it is helpful to examine some examples. Bruce Archer, in attempting to define a ‘Systematic Method for Designers,’ defined his system of thought as function, manufacture, and marketing (see Fig. 1 on page 7). By considering products as the nexus of these three concepts, Archer laid out a method for ‘systematically’ addressing all of the relevant issues in a design problem.²

Archer’s system of thought finds its practical application in laying out a bounded “field for manouvre” for the designer, generated by supplied constraints of function, manufacture, and marketing. This field, as it evolves in a particular case, is the design solution’s relevant system.³

Phillip Meggs, in his book *Type And Image: The Language of Graphic Design*, analyzes graphic design using a system of thought comprised of signs, objects, and thoughts (see Fig. 2). Meggs used his system to attempt the deconstruction of graphic design – detailing the various parts that make it up.⁴ While Meggs’ writings provide deep insight into the general considerations of graphic design, his approach inevitably failed, because it assumed that a system of thought could translate into a generalized system of relevance for all graphic design. This approach is specious because systems of relevance are, as previously noted, fundamentally concerned with particular design solutions.

² Bruce Archer, *Systematic Method for Designers*, in *Developments in Design Methodology*, ed. Nigel Cross (New York: John Wiley & Sons, 1984), 57-81.

³ Archer’s method was unsuccessful in part because it assumed that characterizing something as a system would allow for systematic analysis, which is not always the case. Most design problems are, in fact, too complex to allow for systematic analysis – hence the Wicked Problems theory of design (See Buchanan *Wicked Problems in Design Thinking*, 14).

⁴ Phillip B. Meggs, *Type and Image: The Language of Graphic Design* (New York: John Wiley and Sons, 1992).

Moholy-Nagy used a broader system of thought, and appears to have recognized that design produces forms from systems, stating “If they [components of skill] are to produce coherence, a purposeful synthesis, they must become the construction elements of complex relationships. Such relationships produce a new quality which is ‘design.’”⁵ In discussing how components of skill work together to create design, Moholy-Nagy suggests that it is a system (the complex of objects and relationships) that shapes design, rather than a simple sum of parts. Moholy-Nagy’s system of thought has been visualized as in Fig. 3, but this is incomplete. He apparently used a system of thought that went beyond the immediate questions of the product and considered social impact as well, stating “quality of design is dependent not alone on function, science, and technological processes, but also upon social consciousness.”⁶ Moholy-Nagy’s system of thought thus included form, manner, function, materials, and society generally (see Fig. 4).

Perhaps the broadest systems of thought found in the modern practice of design are those utilized by designers such as George Nelson. Richard Buchanan, describing Nelson’s approach, states “he regards the designer as ... an enlightened practitioner seeking unity and harmony among the disparate elements of every product. Indeed, he argues that products which internally achieve harmony and balance serve the ethical life of human beings, who are actively seeking their own place in a unity of social experience and nature[.]”⁷ The system of thought utilized by Nelson therefore encompasses all of the elements used by Moholy-Nagy, but also includes the environment and spirituality (see Fig. 5). The relevant system for any product designed with this approach thus includes the product, its users, human society at large, and the earth itself (see Fig. 6).

⁵ L. Moholy-Nagy, *Vision and Motion*, 42.

⁶ *Ibid.*, 55.

⁷ Richard Buchanan, *Rhetoric, Humanism, and Design*, in *Discovering Design: Explorations in Design Studies*, ed. Richard Buchanan and Victor Margolin (Chicago: The University of Chicago Press, 1995), 54.

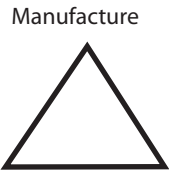
So we have seen how designers use systems of thought, and that these suggest systems of relevance for a design solution, but how does this suggestion occur? To investigate this question, we shall provide an illustration from outside the normal realm of design. In macroeconomics, for example, one might ask “what happens if we increase the money supply?” The economist’s answer might be that interest rates drop, spurring investment while increasing consumption (because saving is less attractive). The drop in savings combined with an increase in investment pushes interest rates back up while increasing gross domestic product, leaving society better off. A drop in savings, however, results in a lower long-term standard of living, so society is worse off. Economics would look at this as a dichotomy, where one can only try to find the best of a set of less-than-great solutions.

A designer, however, might approach the problem with a system of thought that includes society, happiness, and economic standard of living. In examining the relationships within this system of thought, the designer might point out that in the long run, society will not have any level of happiness if it destroys its natural environment, and so begin looking at how an increase in the money supply affects the earth’s climate; a question that an economist would never ask. In this example, the designer, by using a system of thought that includes both standard of living *and* happiness, greatly broadens the relevant system in which to look for a solution. The economist’s relevant system fails to include considerations that are highly relevant to societies long-term well being, whereas the designer, who starts with a broad system of thought, quickly identifies considerations that the economist would have ignored. Thus we see how the use of a system of thought begins to define a system of relevance.

But what is to be learned from this short survey of designers’ systems of thought and their associated systems of relevance to design solutions? One thing worth noting is that

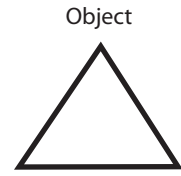
systems of thought can be enumerated and taught. While there may well be as many systems of thought as there are talented designers, these systems can be derived by examining the writings and designs of a given designer. Once a designer's system of thought is derived, we gain a greater understanding of how he/she formulates design solutions. Design students could be provided with simple exercises based upon others' systems of thought in order gain experience with the art of design as well as practice personalizing its methods. Students in an industrial design course might be asked to design two chairs utilizing two different systems of thought (such as those represented in Figs. 1 and 2), and then to design a third by combining the two systems into one of their own. Finally, by defining the method of design as the use of systems of thought to delineate relevant systems, we are provided with a simple and communicable way to describe design in general. One could say, for instance, that design is the act of using systems of thought to invent things that complete and/or compliment existing systems of human behavior.

In future research, it would be interesting to study the way in which particular systems of thought translate into particular systems of relevance, or whether this translation occurs in any consistent way at all. It would also be informative to know whether teaching the art of design as the use of systems (both of thought and of relevance), does indeed help students who are struggling to adopt the unique methods of design. Finally, it would be intriguing to study the relationship between systems of thought and the aesthetic choices of designers (aesthetics being something that has never lent itself readily to formal characterizations of any type).



Function Marketing

Figure 1



Sign Thought

Figure 2

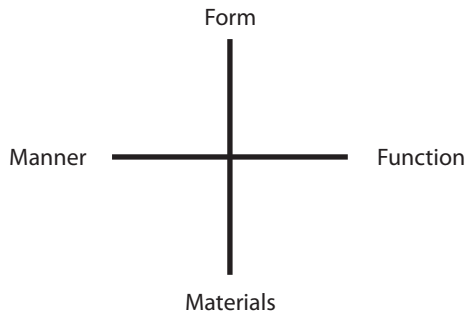


Figure 3

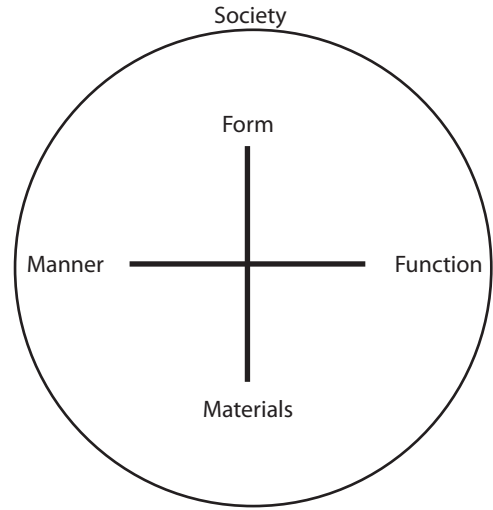


Figure 4

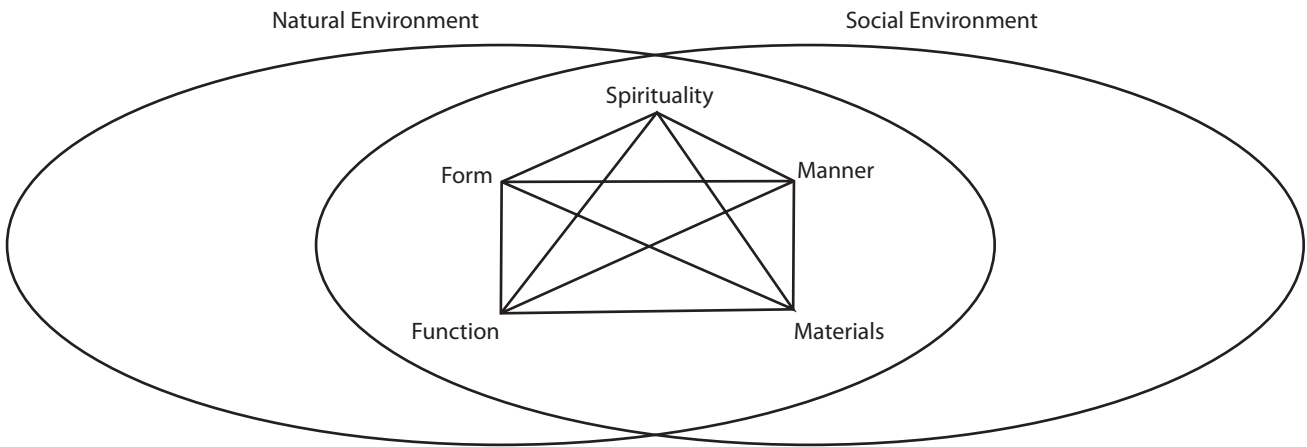


Figure 5

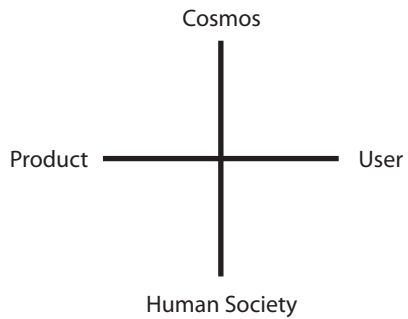


Figure 6