Emilio Ambasz

The Formulation of a Design Discourse

A native of Argentina where he attended the Escuela Nacional No. 2 high school in Buenos Aires, Mr. Ambasz completed both undergraduate and graduate programs at Princeton University in three years. Appointed to the School of Architecture as an Assistant Professor there in 1966, he additionally served as Visiting Professor to the Hochschule fur Gestaltung at Ulm. Having received Princeton's Phillip Freneau Bicontennial Preceptorship, Mr. Ambasz will be on leave of absence to act as Associate Curator of Design for the Museum of Modern Art, New York. This article was the first in a series of 4 lectures given at Ulm.

This paper discusses the arguments that support the attempts at developing a *discourse of environmental design,* and proposes a *structure of the design process* upon which to formulate such discourse.

Before going into the arguments that support the need for the enunciation of an environmental design discourse, let us first examine what is there in the present situation of environmental design that makes the formulation of such discourse relevant.

1. Commentary on the Present State of Affairs in Environmental Design

It is my belief that the architect, who is the professional supposed to provide design solutions to environmental problems, has little knowledge on how to deal in abstract with the structure of problems as such, and, moreover, in spite of the fact that his solutions will ultimately adopt physical form, he has little understanding of many of the meanings of the forms which he manipulates. How can the circumstances that have led us to such a situation be critically described, and to what general and specific factors could they be ascribed?

1.1 General factors: Environmental design as a profession; a discipline; and an educational undertaking

If, in order to establish the general factors that determined the present state of affairs, we turn to examining environmental design as a profession, and as a discipline, as well as an educational undertaking, we would then observe that:

As a profession: environmental design lacks systematic approach to contemporary problems, and lags behind other professions such as medicine, sociology, etc., in the fact that it has failed, so far, to organize its accumulated body of experiences into a structured and transmittable body of theory.

As a discipline: environmental design lacks a basic discourse of its own, and is therefore, only infrequently brought into effective correspondence with what are fundamentally related scientific and social disciplines. In addition, the absence of an environmental design discourse proscribes the coordination of disparate terminologies and theories of design methodology which are now being developed in isolation one from the other.

As a consequence of these conditions, environmental design education has yet neither fully defined its aim, nor developed any comprehensive pedagogical theory, and has, in my opinion, failed so far in the exercise of one of its responsibilites: the transmission of an accumulated body of theory and practice structured by the profession into a discipline. Student designers are still trained in pretentious "ateliers" as configuration makers, rather than as problem "solvers" preparing to provide a physical synthesis to the complex processes that affect man, the actor of the built environment.

At this point, it is fair to mention that some schools are exploring more systematic approaches to design. However, such approaches have so far, with some distinguished, though rare, exceptions given rise only to unsophisticatedly rigid "method-idolatry," or to an opportunistic embracement of methodology as design panacea. Such a superficial understanding of the possibilities and limitations of the scientific method as a design instrument amounts to simple-minded neglect for the multifaceted problems of Form, which is, after all, a matter of ultimate importance to the designer of the physical environment.

1.2. Specific factors:
The search for systematic approaches to design

On a detailed level of analysis, it might be possible to ascribe the depicted state of uneasiness in design education to two related circumstances.

1.2.a. Insufficiency of currently available tools for the objectivization of design problems (proportional models)

The first one is a growing tendency to think of design not only in terms of configurations, but also in terms of processes. And the second circumstance is the consequence of a tendency to move away from metaphorical approaches in design methodology in a search for more systematic design methods. Let us now proceed to explore these two intertwined points step by step.

It is to be acknowledged that processes – this so-called "new dimension of the time-space architectural equation," if I may paraprase S. Giedion – have always been, under many other denominations, an implicit concern of environmental design.

In spite of this long-standing concern, the operational implications of processes have not yet been fully comprehended and brought under the control of the designer. This incomprehension, I think, is principally attributable to the inherent limitations and insufficiencies of the traditional tools for objectivizing design problems which have, until now, been at the disposal of the designer – namely *proportional models*.

By proportional models, we understand any two or three dimensional constructions that preserve the relative *proportions* of the original. Their media, therefore, are any two and/or three dimensional construction media that permit a representation of the proportions of the original. For example — plans, sections, three dimensional scale models, etc.

As it becomes evident from the given definitions, proportional models are means used for dealing with notions of two and three dimensional forms.

Proportional models, therefore, do not have the capacity for dealing directly, but only through inference and interpretation, with the more abstract notions of processes (behaviors, operations, tendencies, relations, changes, etc.), and the structures of relationships that processes may assume, because proportional models can only represent relations of (formal) proportions.

Let us suppose that we are requested to analyze the processes of a certain building, and we are given, for that purpose, its plans and sections, i.e., a proportional model. All interpretations that could be deduced from these plans in terms of sociological, economical, political, and even operational processes would usually be inferences of a rather vague sort, to the extent of being unverifiable and unreliable even for speculative purposes.

All I have said does not mean, however, that a regularly trained designer cannot solve tacitly the simple processes which are unsolved in the design of a familiar building type by manipulating its configurations, provided he is acquainted from experience with the processes which are embodied in those known and experienced configurations. However, the shortcomings of this approach to design, which we can call "the metaphorical way" are evident. In a metaphor, a word or phrase denoting one kind of familiar idea or object is used as a mode for understanding another. Similarly, the designer who resorts to this approach as a design technique, is restricted as well as prejudiced, if he wants to gain understanding of the processes occurring in his problem, by the old and familiar forms he has to use as indirect referents.

Underlying the risks inherent in the practice of the metaphorical way – of which restricting the possibility of developing new problem-solving approaches is not a minor one – is the sad fact that the designer is perverting his heritage of formal types into meaningless clichés as a result of his partial understanding of the nature of forms and a lack of operative comprehension of the cultural and technological values which are embodied in forms. It is, moreover, especially alarming that, at a time when the interrelated multiscalar problems of our built environment pervade all of man's actions and thoughts, the professionals who are largely responsible for giving to these forces a physical solution are ill-equipped to do so in terms of the processes involved.

1.2.b. Need for new analytic tools

We may, from the preceding, state that the analytic tools currently employed – such as the described proportional models – for classifying and structuring users' aspirations and needs into design programs are unsatisfactory. And we could propose, then, that instead of his present juggling with patterns and configurations in an "underpowered" attempt to organize the processes inherent in a design problem, the designer would be better served if he would resort to formulating his problems according to the concept of *structural models*.[1] A structural model is an analytic tool specifically conceived for representing the *structure of relationships* of the processes involved in a problem.

The use of such analytic instruments would enable the designer to establish the structure of relationships existing between the different processes involved in a problem. In addition, the use of structural models would aid him in determining, first how will these processes relate to the actors who will enact them; and second how will these actors relate to the physical spaces and objects that they need in order to implement the processes?

In short, the formulation of design problems in terms of structural models would provide the designer with a system for postulating and evaluating a design problem's alternative solution in terms of processes, allowing him, in that way, to operate without previously having to know, for analytic purposes, what form his design will finally adopt.

Allow me at this point to request you kindly not to misunderstand me. Nothing has been said "against" Form per se. On the contrary! Form is here requested to be used not spuriously, but rather as the highest stadium of the designers' task. The arguments for the application of the notion of models should, therefore, be seen as an operative proposal that would contribute toward the development of a more systematic approach to design and toward achieving the evolution of design from a "spoken language" of implicit structure into a "written system with an explicit grammar."

2. Structure of the Design Process

2.1. Basic framework

It is inescapable that the explicit formulation of a structure of the design process upon which a discourse can be established will implicitly state a definite design philosophy. Alas, such is the condition of taking sides; but if I manage to delineate the profile of the existing attitudes toward problem-solving, I hope I will be able to turn my partiality into a position capable of objectivization.

It is possible, for the purposes of this presentation, to distinguish two different, though complementary, attitudes regarding problem-solving in design. The first one works toward the solution of the perceived undesired conditions, thus dealing with existing structures, or that "which is." The second one strives to establish an ideal, i.e. a standard for approximation as goal for its solutions, thus proposing that which presupposes "ought to be."

[1] This definition expands, I believe, the definition of analog models given by Max Black, *"Models and Metaphores,"* Ithaca, New York, 1966.

It is not realistic to try to separate one from the other, for both are reciprocal. I will attempt, therefore, to diagram a basic framework on which an environmental design discourse capable of satisfying both presented attitudes could be formulated (1). The scheme I will present and the points I will attempt to develop from it are by no means exhaustive of their subject, but postulative. Its intentions are, first, to show possible directions of investigation for the development of such a discourse, and secondly, to indicate some of the practical benefits that the concretion of such enterprise would render to environmental design as a discipline, as a profession, and as an educational undertaking.

2.1.1. Statement of aspirations in terms of models

Let us imagine, for ease of presentation, that we are supposed to design a certain building. Let us also assume that the most proper socio-psychologists, economists, librarians, engineers, and so on, have been duly consulted and that every one of them has provided us with their respective "List of Desired

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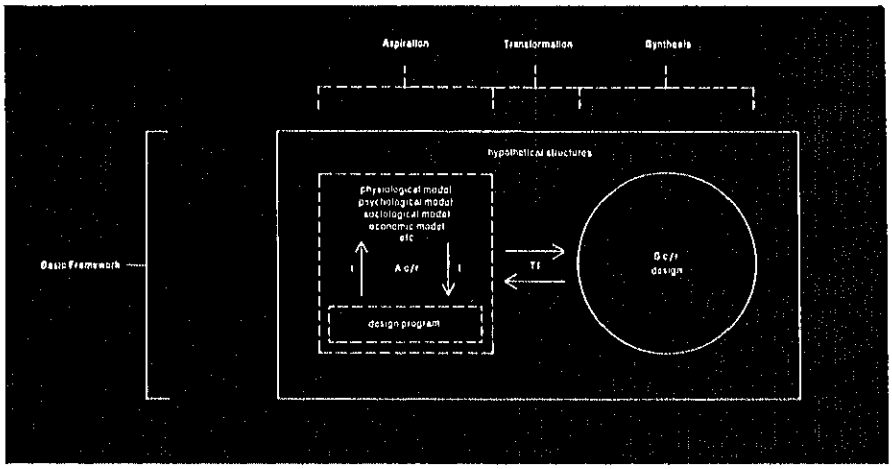

Conditions for the Building": which they have, for our benefit, stated in terms of models (1, A.c./r).

Given that we are not concerned here with the specific procedures every one of our consultants followed, we will just accept that they have arrived at the models, in part by observing undesired conditions, and in part by postulating a set of ideal conditions for such a building.

Hopefully, all of our consultants' proposals will be in the end synthesized by our final design of "the building." We could say, however, that a building is not only its formal spaces, but the relation in which these spaces are structured in order to satisfy the many aspirations of our consultants' proposals. The design of the building – now considered as an entity with physical characteristics – will have demands and limitations of its own, and it will have need, therefore, of a special type of model in addition to all the other models previously presented. This special model we have in mind is that thing commonly referred to, but seldom practiced, a Design Program (1, A.c/r). The function of a Design Program is to translate all the statements of desired conditions listed in our consultants' models into statements which have direct relevance to the physical aspects of our building's design (1, t). More specifically, the function of a Design Program would be to classify all the processes which are wanted to occur in the building. This would be achieved by establishing all the activities that will take place in the building, by identifying all the actors that will participate in the building, by describing what type of physical entities (spaces, equipments, etc.) will the actors require in order to perform the activities which are parts of the processes that will implement our idea of the building. A Design Program should, in addition, establish standards of operational performance by structuring in what way the future building's different spaces and equipment should be organized and related one to the other in order to enable the building's actors to enact those desired conditions that were proposed by our consultants' models.

The question in this instance is to establish how are the statements of our

consultants' models to be translated into statements that have direct and explicit design implications, i.e., the design program? The relevance of this problem of translation becomes evident when we observe, first, that the "language" of the process of design is practiced without an explicit formulation of its discourse or structure; secondly, that the different procedures so far developed for formulating design programs are presented, and supposed to operate, in a vacuum of objective criteria against which to test their rationale; and thirdly, that due to the absence of techniques for formulating design programs which depend on more objective criteria than the common sense of the observer, our consultants do not know in what terms and according to what formats should their statements be formulated so as to facilitate their translation into Design Programs with a minimum of unfaithfulness.

2.1.2. The problem of synthesis

For all its relevance to the final design, a Design Program only establishes norms, i.e., objectives to be fulfilled by the design and against which its performance will be evaluated. There is no indication in it of what should be the final form which will embody all the aspirations proposed by our consultants' model. Even the most accomplished collection of proposal models and the most elaborate of Design Programs – assuming that the above mentioned problem of translation has been solved – can only "assure" that the final design will be, at best, a healthy vegetable. For the design to become a rose . . .

Thus we return to the eternal problem of design and the crucial question that reveals the limits of all methodologies (1, T1): how are we to transform the term of our models' proposals into an optimum formal design? How is the gap between *Aspirations* and its design *Synthesis* to be crossed? So far, that gap is only crossed by "lonely jumps." How can we objectivize that gap, and how can we foreshorten the length of the gap? Given that designing is an act of synthesis and not of aggregation, there is not, consequently, a direct and one to one correspondence between the prescriptions of the Design Program and the ensuing design. In spite of this fact of life, there is a belief among many of those involved in design methodology that, if all the possible performances expected of a design could be explicitly stated, then, one and only one aesthetic form would result. Such belief in the program as direct determinant of form is no more than another extremism in a long gallery of designers in search of a ritual.

A Design Program does not determine a design's aesthetic form, but it restricts the possible number of forms by stipulating the level of operational performance that the design's form is to satisfy. If we want to shed some light onto the phenomenon of design synthesis – that lonely jump – we will have the need for developing a more sophisticated approach to the objectivization of design which would be based on an *operative notion of indeterminacy* in design methodology, and would explore the possibility that the domain of methods in a synthetic activity such as designing may lay, in part, beyond the domain of the scientific method and within the dynamic domain of what we would provisorily refer to as *the Synthetic Method.* Such *meta-methodological approach to design systematization* would have to take into account the varying degress of dissonances which are bound to occur between the ideal processes postulated by our consultants in their respective models and the processes that the designed building will generate once built. This meta-methodological, or synthetic method, approach would have to make provisions for dealing operationally with the following two facts: firstly, that research on human behaviour determined by physical environment has yet a long way to go until establishing firmly the basic relations that may exist between man's primary phylogenetic characteristics and his physical environment; and, secondly, that should the relations above mentioned somehow be established, the designer would still have to synthesize intuitively an array of constantly changing cultural and supracultural values (social, aesthetical, cosmological, etc.) which have a dynamic and fluxing influence on human response to physical environment.

However, let us imagine for the sake of continuing with this presentation, that we have, somehow, jumped over the intuitive gap and thereby, hopefully,

synthesized all our consultants' models into the design of a building represented by its plans, sections, and elevations. The design we contemplate now may reveal to us many unexpected things; for example, that different groups of related, though distinct, "desired conditions" were satisfied by means of one single sub-form. The design may also "report" to us that, given adverse contextual circumstances – site problem for example – a certain number of desired conditions had to be compromised; as well as it may show us that a new form is capable of conciliating what before seemed conflicting postulates. As a further design stage we could propose that the designer feedback to the first stage of Aspiration stating, and correct these propositions in the light of what he has learned from the formal synthesis (S.c/r). We will return later (2.5) to this idea of conceiving the design as a model that renders information and permits interpretation as to the value of all its designers. (By designers in this context we refer to consultants as well as to the designer of the physical fabric.)

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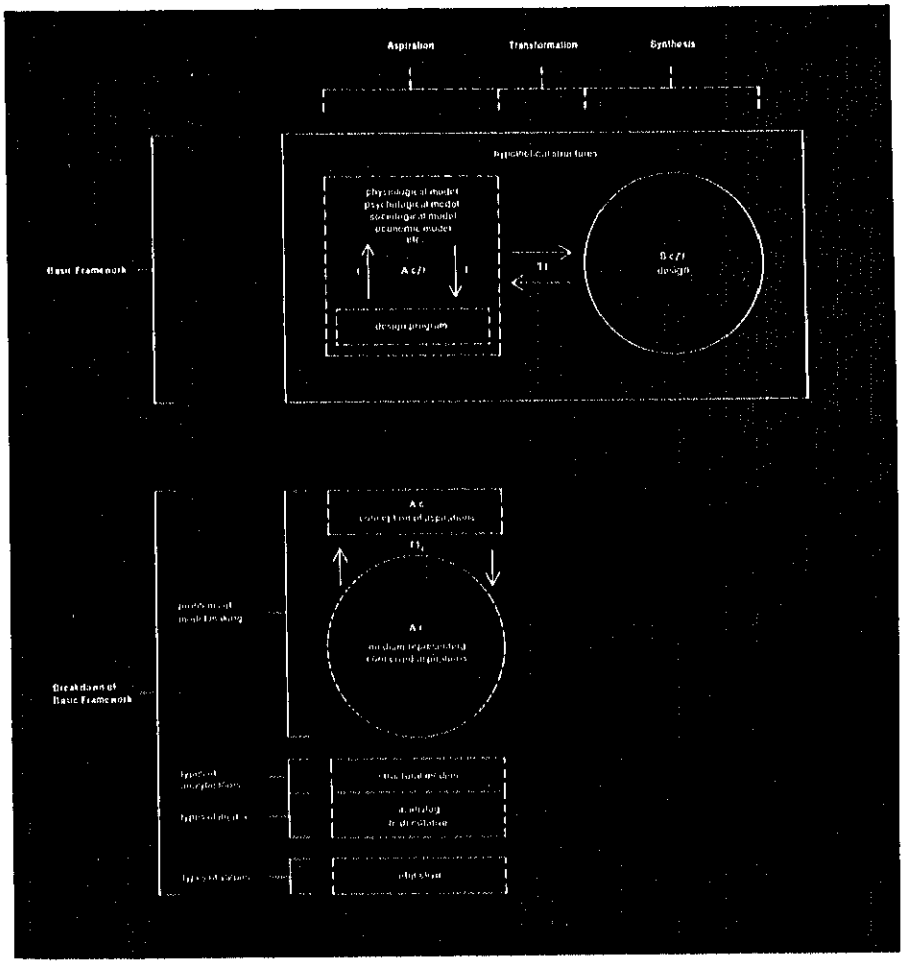

Such is in short terms, maybe too short, the basic framework of relations that can be said to exist between a set of aspirations that motivate the need for a design and the formal design that is created in order to satisfy those aspirations. We were not concerned here with discussing the design phases leading from inception to completion, but with the design processes leading from analysis to communication. Let us now break down the basic framework's diagram in order to examine more carefully the problems involved in the design process.

2.2. Breakdown of the basic framework

2.2.1. Statement of aspirations in terms of models. problems of model making

2.2.1.a. Conception of aspirations in terms of models

In the problems of model making we must distinguish the stage when the consultant conceives the structure of his aspirations from the stage when he represents his aspirations by means of a medium. In order to better understand what happens during the process of structuring aspirations into models, let us imagine that we have assumed the role of any one of our consultants. How do we, as consultants, apprehend the structure of the concepts "behind" our

aspirations? (2, A.c) And through what means do we represent them? That is to say, how do we conceive of our aspiration into structural models, and in what medium do we embody our model's concepts? (2, A.r)

2.2.1.b. Transformation one-sub-one

Here we have again the problem of transforming the concept of the model into its medium. However, the problem of transformation we face in this case ($T1_1$), is but one component part of the main process of transformation which we have previously defined as transformation one (T1) in our diagram. Consequently, $T1_1$ is more readily definable and easier to bound as a problem than what T1 could be. That is not difficult to see, for while in the case of T1 we had to embody all our models' proposals by means of a design, here, in $T1_1$ we only have to find the right medium to embody the concept of one model at a time.

2.2.1.c. Problem of media

What media are available for representing structural models? I have been able, so far, to distinguish two types of media, namely *analog* and *denotative*, which can be utilized for such representation:

Analog medium: in this case[2] one type of known medium is used as analogy for the one wanted. For example, Joel Cohen, a Harvard mathematician, has a book[3] on economical competition in which he uses a biological model of cellular competition to illustrate the procedure and process involved in economic competition. In this case, as in metaphors, one known medium's behavior has been used as a way of explaining the not yet understood behavior of the original. The use of analog medium involves, therefore, the change of medium (as seen from the economic medium, which was not directly accessible, into the biological medium, which was known). Problems of approximation and faithfulness do, therefore, arise in the process of transforming the model's concept into its representing medium, i.e. the transformation designated as $T1_1$ (2).

Denotative medium: in this case a "new language" has to be created in order to represent the model's structure of relationships.

The medium used for representing the relation of spatial adjacencies in our example may be a graphic diagram in which the spaces are represented by circles, and the relationships between them are represented by lines. But in this case, as opposed to that of the analog medium, there is no change of medium, but on the contrary, the denotative medium – that is, the new language created for denoting the relation of space adjacencies in our design – becomes the model of those relations. There is no way of disembodying one from the other. Under this circumstance, the denotative medium becomes the structural model itself, acquiring the state of icon in Peirce's terminology.[4] Whatever we know of the concept of the structural model by virtue of its representation is all and whatever the model will be. The problem in the case of the denotative medium is that a system of symbols – whether graphic, mathematical, etc. – which will stand for the concept of the model has to be invented.

2.2.1.d. Rules for transformation

There is need, in the above described case of transformation ($T1_1$), as well as in all the other cases of transformation, for the formulation of a set of rules to be used in the transformation of the concept of the model into the medium that will denote it.[5]

Given the fact that whatever the medium is it will have demands and

[2]This definition of media is an expansion of Max Black's, *Ibid.*, notion of analog model which, in my opinion, is but a partial aspect of the presented notion of structural models.

[3]Cohen, Joel, *A Model of Simple Competition*, "The Annals of the Computation Laboratory," Cambridge, Massachusetts, Harvard University Press, 1967.

[4]Peirce, Charles S., *Collected Papers of Charles Sanders Peirce*, Cambridge, Massachusetts, 1931-1935, Vol. II, pp. 247.

[5]Simon, Herbert, "Models: their uses and limitations," *Current Perspectus in Social Psychology Readings with Commentary*, New York, Oxford University Press, 1963, pp. 79-90.

characteristics imposed by its own structure (as is the case, for example, with the Gestalt properties inherent to the use of visual representations). This proposed set of rules for transformation once formulated – not an easy task – would serve for determining whether the medium utilized renders exactly the desired degree of representation or less than expected, or maybe even more than it was initially intended to render (see also 2.2.2.d.).

2.2.2. Problems of synthesis

2.2.2.a. Need for a theory of form

The designer's job is to synthesize all the different proposed models by means of a designed Form. This designed Form will thus embody the objective as well as the subjective contents of our aspirations (our consultants' models, and the designer's values and those of his culture, respectively). However, we know little of the many meanings that can accrue to Form in relation to its multifaceted contents, and in relation to other Forms and their contents. There is an urgent need, therefore, for developing a *Theory of Form* as an integral part of any attempt at formulating the syntactic structure of the design

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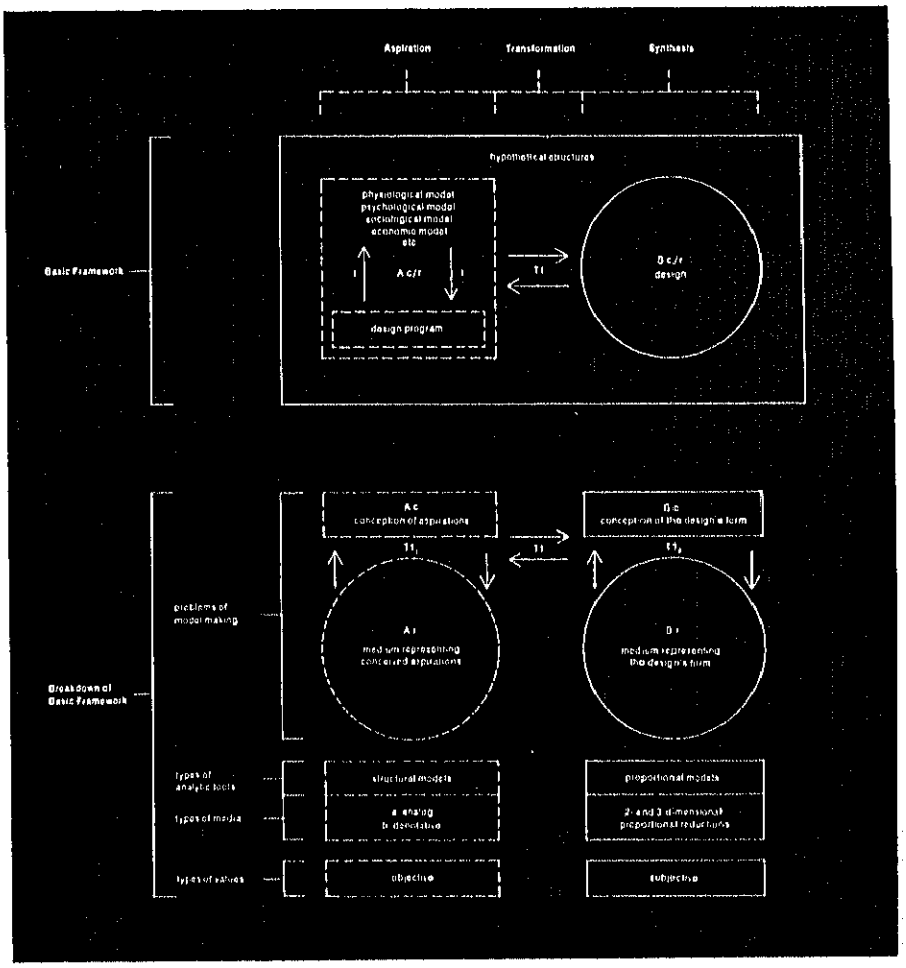

process. A comprehensive theory of form would comprise, as well as establish, the relations existing among the diverse syntactic, semantic, and pragmatic discourses dealing with the abstract, operational, symbolical, historical, psychological, mathematical, philosophical, and aesthetical properties of Form. But this is evidently so complex a subject to allow but a passing reference in this essay.

2.2.2.b. Conception of the designer's form

If we want to understand better the nature of the process of synthesis by which the form of the design is arrived at, we may have to establish, for analytical purposes, a distinction between the stage when the designer conceives the form of his design and the stage when he represents his conception by means of a medium. During the initial conceptual stage when the designer imagines his design – regardless of whether he "flies over it, walks through or along it, sees it in horizontal or vertical projection, or all at once – the conceptual image conceived has the characteristics of a Form, that is, something he can "see" (3, S.c).

2.2.2.c. Problem of media and of transformation ($T1_2$)

The next move on the designer's part is to represent his conception of the form of the design through a medium; i.e. in this case (see S.r) a form itself. The problems of transformation ($T1_2$) which are involved in the process of transforming the concept of the design's form into a medium that will represent such concept are easy to grasp and not difficult to operate with. The medium that represents the concept of the design's form belongs to the domain of the already defined proportional models. It is in this defined situation, and only here, where proportional models apply and have full validity.

2.2.2.d. Rules for transformation

The rules for transformation which would help to control this process of transformation ($T1_2$) would involve less complex demands than in the case of $T1_1$, because the only condition that has to be satisfied in this case is that the representing media (any two and/or three dimensional constructions) preserve the proportions of the design's formal concept.

2.3. The hypothetical structures: Problems of transformation two (T.2): "Strategies, Tactics, and Techniques for Implementing Change"

Let us recapitulate here for a moment before going any further. We have, first structured our consultants' aspirations in terms of models; second, we have synthesized these proposals by means of the form of a design; third, we have analyzed and interpreted the resulting design and fed our findings back to the models in order to correct them; fourth, we have corrected the form of our design on the basis of our corrected models. And so we could go on, from aspiration to synthesis, back to aspirations and on and on.

However, regardless of the refinements to which we could carry our structural and proportional models, we would only have in front of us the design's plans, sections, and elevations. The design still belongs to the domain of *hypothetical structures* (4).

How is a hypothetical structure transformed into the realm of real structures? How do we change the condition of real structures (zoning laws, traffic ordinances, social systems, geopolitical boundaries, technological procedures, etc.) in order to get them to accommodate the new structure? And to what extent do we compromise the intentions of the hypothetical structure so as to make its concretization feasible? In this case the rules that regulate this transformation (T2) could be called *strategies, tactics, and techniques for implementing change.* They would be related to those disciplines that were involved in the formulation of our models' aspirations and would pertain to the internal political mechanisms and technological disciplines involved in the physical concretization of our building example.

If this set of strategies, tactics, and techniques were developed to an operative point, they could aid the designer in achieving the concretization of his ideas through fighting the enemies of change on the fields of reality rather than by diplomatic compromises on his drafting table.

2.4. Problems of "deterioration" and concept of residue

The process of transforming hypothetical structures into reality necessarily entails "deterioration." We are faced, therefore, with the necessity of devising a *factor of residue* for referring to that deterioration of the ideal. This so-called "deterioration or deformation" (in Platonic terms) or "reformation or transformation" (in Aristotelian terms) occurs not only in the stages of Transformation T2, but in all the other instances of transformation previously described ($T1_1$ and $T1_2$). An example may be found in Renaissance man's conception of the world which was partly structured in transparent and geometric terms. The ideal medium of this world was dimensionless; that is, it had no thickness. However, when physical manifestation had to be given to this conception, man discovered that materials possessed the inconvenient property of having thickness and weight.

A classic instance of this Renaissance procedure is found in Santa Maria del Miracoli, Venice, by the Lombardi brothers. Its front facade consists of five arches made of white marble. The two arches on either side of the center are infilled with green marble, while the center arch itself contains a door. When you come inside and look back you will see the same thing: five arches. If walls have thickness and corners dimensions, how can this be? If you make a plan of the facade, you will see that the arches visible from the interior of the

church are in fact applied to the inner side of a regular masonry wall with their dimensions slightly reduced to accommodate their new situation. When Renaissance architects had to give physical consistency to their images of dimensionless structures, they reconciled the ideal structures with reality by diminishing sizes but preserving proportions. The residue factor may then be understood as the measure of discrepancy between the proposed ideals and the facts of reality.

If the notion of residue can be accepted as a measure of existential compromise, the physical design should be seen as the expression of the pact of conciliation established between man's physical and spiritual aspirations and those natural and cultural boundaries within which these desires are exercised and in their turn generated.

2.5. Types of values

The notion of residue factors and deterioration faces us with the issue of value systems and the problem-how to objectivize values in design (3, types of values)

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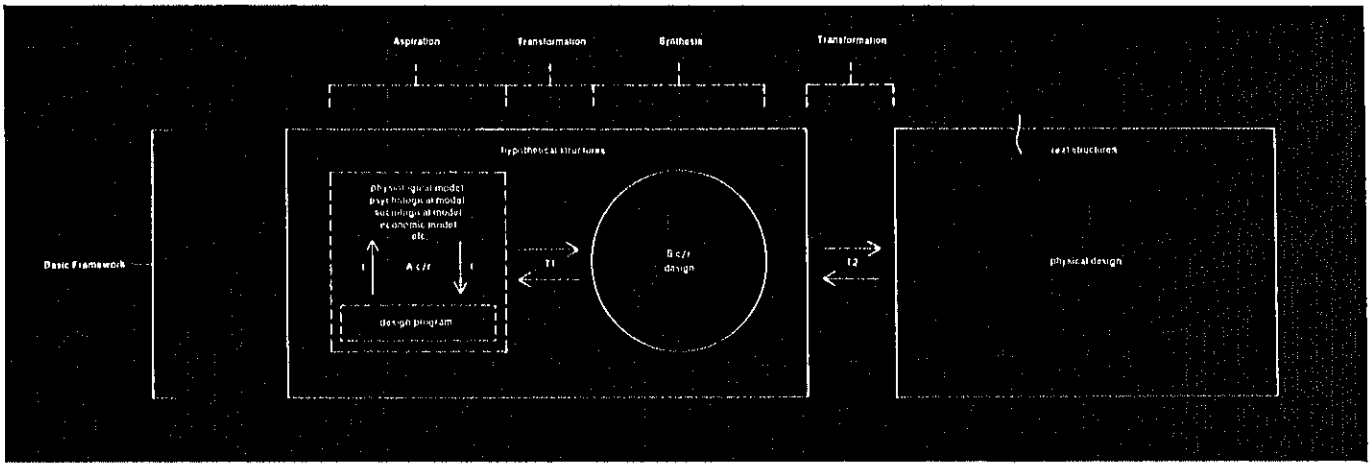

In the case of our consultants' models and the Design Program, the value systems on which they were based could easily be checked given that they had been explicitly stated as models, i.e. objectives for approximation. However, how can the designer's aesthetic aspirations be stated explicitly before the act of synthesis? And how is the designer to extricate his own system of values from those of the culture that has formed him?

In order to gain some understanding of the mechanism of a designer's value system, let us accept as working hypothesis that: the final design has synthesized all the aspirations stated explicitly by our consultants in their models. Given that the design embodies the values of the consultants' models, we may assume, for a moment, that the design is a very special type of model for information feedback. We would by virtue of this feedback process, be able, at least in theory, to reconstruct those values that we have called objectives; i.e. we should be able to read into the design the different statements of aspirations that were formulated by our consultants prior to the creation of the design. If this analysis were carried through as described, then the results could easily be tested against the record of our consultants' models. Still within our hypothesis, but now on an interpretative level of analysis rather than on an informative one, we could attempt to infer and understand which were the designer's aesthetic values from the interpretation of the aesthetic form of his design. But we must be careful because, not only is the designer's aesthetic value system subjective up to being revealed through the interpretation of the design, but the system of values of he who acts as critic or interpreter is also subjective. The critic's or interpreter's own system are revealed to us indirectly; i.e. through the aesthetic values he will attribute to the design. One could argue that this confusing situation might be obviated if the designer acted as the interpreter of his own aesthetic values.
In order to develop into an operative device, that which Tomás Maldonado,[5]

[5]Seminar given at Princeton University School of Architecture, Fall 1966, under the title "Man and Environment."

after Georg von Wright[7] and Abraham Moles,[8] calls a "logic of aesthetic preference, "we have to deal with the design as a prototype, which if properly interpreted, will render light on the aesthetic values of the designer as well as on the values of the culture that has formed the designer and to which the designer contributes by giving form. Consequently, a "logic of aesthetic preference" can only be formulated after the design has been created.

The important move to further this hypothesis would be, of course, to develop an "operative system for interpretation, "which would be applied to formulating a "logic of aesthetic preferences." If such a logic were formulated it would be possible to extract from it "items of interpretation," and apply these back to our consultants' models, the design program included. In addition, it would be possible to correct and revise these models now in the light of what we have understood from the design that synthesized them. Once the models have been thus corrected and the designer is more conscious of his own system of aesthetic values, good methodological upbringing would recommend that the designer undertake anew the formal synthesis of his improved models.

3. Theory of Formal Types

3.1. Parallel between the basic framework and a theory of formal types

Of course, the framework that I have proposed for structuring the design process is too clean a dissection of a complex act which does not follow exactly such neatly marked steps. However, I believe that I may be able to establish the validity of the proposed structure of the design process, at least, within the context of cultural processes. I would like, therefore, to delineate the parallelism that I see underlying the concepts of Aspirations and Synthesis, whether they are stated as conscious or subconscious acts. In other words, I will attempt to consider aspirations stated in terms of *explicit models* as a concept equivalent to that of *archetype;* and to consider the concept of synthesis stated in terms of *explicitly designed objects* as a concept similar to that of formal *prototypes* (5).

3.2. Notion of "prototype," "type," and "stereotype" as characteristics adopted by the design according to its cultural context

Archetypes, in the Jungian sense of the term, can also, within their realm, be construed as models. We could in this light, accept the aspiration for Order – one of humanity's most widespread and constant desires – as an ever-reappearing archetype, acquiring different formal characteristics – that which we call prototypes – according to whether it is responding to religious, literary, urban, or technological notions of order. The aspirations imbedded in an archetype are always the same, although expressed in different forms according to the values of the culture enacting it. In this manner, the prototype or prototypical form created for satisfying the archetype's aspirations, on one hand is determined by its cultural context and on the other contributes to determine its own cultural context. Thus, Man has travelled, while constantly restating in forms his aspirations for order, through the fenced gardens of Flemish tapestry, over the walled cities of Ambroggio Lorenzetti's paintings, along the Renaissance notions of harmony as geometry,

[7]von Wright, Georg H., "Remarks on the Epistemology of Subjective Probability," *Logic, Methodology and Philosophy of Science*, Edited by Nagel, E., Tarski, A., Suppes, P., Stanford University Press, 1962, pp. 330-340.

[8]Moles, Abraham, *Information Theory and Aesthetic Perception*, University of Illinois, 1963.

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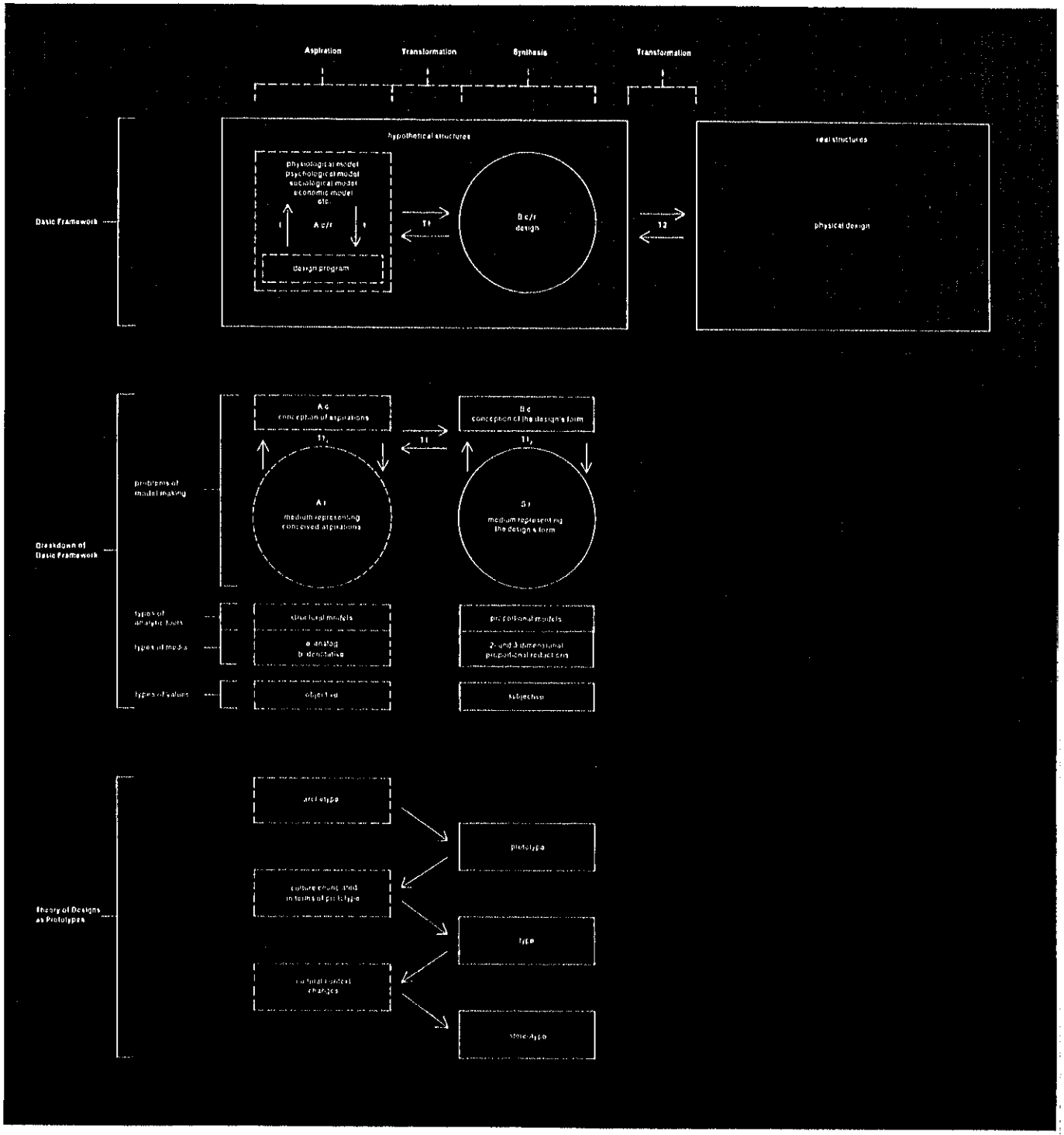
Aspiration
Transformation
Synthesis
Transformation
Basic Framework
hypothetical structures
physiological model
psychological model
sociological model
economic model
etc.
design program
real structures
physical design
Breakdown of Basic Framework
problems of model making
types of analytic tools
types of models
types of values
objective
subjective
Theory of Designs as Prototypes
archetype
prototype
type
stereotype

out to the coordinates of Versailles, now to just emerge from Le Corbusier's mental landscape of the Radiant City.

3.3. The design as icon

Given that the aspirations of an archetype are synthesized by formal prototypes, it would be possible to consider the transcendence of prototypes, whether conceptual or physical, on many levels. On one, as the formal structure that an archetype adopts for its satisfaction. On the other, as the pact of conciliation established between the aspirations of an archetype and the corresponding physical and cultural boundaries within which these demands are exercised. On a higher level, we could see the prototype as the iconic agent through the interpretation of which the values of its culture are understood and explicitly enunciated.

At this point, the prototype understood – i.e. beheld in terms of the culture that it helped to reveal and that simultaneously unveiled it – makes its conscious re-apparition as *the type*. In other words, it is when the many levels of meaning of the prototype become elements of the semantic domain that it becomes the type. However, it is the condition of cultures to flux, and, thus, those cultural references that gave the key to the type's context, begin to lose their meaning. The type, therefore, no longer responds to a deteriorating discourse, and thus becomes *the stereotype*.

3.4. Domain of the designer as artist and as professional

Let us not, however, commit the error of oversimplifying, for the cultural process' progress is not linear, and prototypes are made with parts of other prototypes, types, and stereotypes. Indeed it is in the form of this combination that the prototype truly occurs. As for the actors in this process, it would be possible to establish a line between prototype and type, for I believe that the creation of the prototype is the domain of the designer as artist, while the institutionalization of the prototype, i.e., the type, is the domain of the designer as professional. In my opinion, it is in the area of type that the convention of any design discourse, its consequent research and design methodology, as well as its corresponding theory of design education is able to be applied and developed.

4. Conclusions and Future Directions

I have attempted in the preceding pages to present arguments toward the formulation of a discourse of the design process, and to outline a possible structure of the design process on which such discourse could be enunciated. I have also intended to show that this proposed framework was not only consistent with the structure of the design process, but was also congruent with the notion of physical design as one of the actions through which man reconciles his aspirations with the facts of the natural and cultural world. Clearly, many of this essay's concepts need further exploration and development, for as I indicated before (2.1.), they were by no means intended to be exhaustive of their subject, but postulative. My intentions were first, to indicate possible directions for investigation, and secondly, to remark on some of the practical benefits to be gained from the explicit formulation of a design discourse.

As for directions a re-examination of the arguments presented would indicate that the following points require continued research:

1. the *problem of translating* the requirements stated by our consultants in their models into statements that have explicit design implications (2.1.1.).

2. the need for a *comprehensive theory of form* (2.2.2.a.) which would give the designer an operative understanding of many of the meanings of the forms which he manipulates.

3. *an operational theory for analyzing the design as "a model for information and interpretation:* "as a possible approach toward objectivizing values in design (2.5.), and developing a "logic of aesthetic preference."

4. *a theory of residue* (2.4.) which would deal with the problems of transformation indicated (T1 and T2), and which would also comprehend a system of *rules for transformation* (2.2.1.d.) and (2.2.2.d.).

5. *a meta-methodological approach to design objectivization* (2.1.2) which would provide a way for dealing operationally with the concepts of indeterminacy and intuition in design synthesis.

As for the practical advantages "to be gained from the formulation of a design discourse, there will be for one, the possibility of referring the currently disparate searches for theories and design methods to a common "grammar" of the design process. In addition, the chances for establishing an effective exchange between environment design and the related disciplines would have been enhanced by making explicit the "syntactic" rules of the design process. At the same time, the designer's familiarity with the process of structuring aspirations and proposals in terms of models, as well as his capacity for understanding operationally the distinction between different types of media should assist him in the transfer of methods and solutions developed by other disciplines into the discipline of environmental design.