A STRUCTURAL APPROACH TO THE DESCRIPTION AND PLANNING OF UNIVERSITIES

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DECLARATION

I declare that this thesis is my own original work

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ABSTRACT

This study attempts to illustrate the explanatory, taxonomic and practical potential of the linguistic approach to architecture. The structural paradigm which the study introduces follows the philosophy of semantic syntax, is orientated to the solution of particular problems and can be applied to particular institutional and building categories.

The study consists of two parts. In the first part, the main concepts of the linguistic paradigm are introduced and are, also, formulated through the analysis of the problem of alienation. In the second part, the general theory is filtered through the study of universities and of the planning methods which deal with them (namely, the 'activity models' and the 'pattern — language'). The examples of alienation and universities are adopted as being typical and at the same time particular enough to show the value of the concepts and methods introduced by the theory.

The author hopes that, in the end, some main conclusions will become clear to the reader of this study. Such conclusions are:
a. that it is possible to understand the architectural realities in a comprehensive way, by using a model which contains a limited number of basic concepts,
b. that such a model, through its taxonomic capacity, recovers areas of problems and proposals for their solutions which, until now, have remained either obscure or underestimated,
c. that the manipulation of the linguistic paradigm in architecture illustrates the superiority and realistic character of the concepts and the assumptions on which the paradigm is based, such as: the necessity of a semantic and not autonomous approach to the built space; the inevitability of an explanation based on problems and, therefore, automatically orientated to the solution of them; finally, the importance of a multi-level understanding of the artificial environment as well as the importance of a contradictional understanding of its dynamics.

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ACKNOWLEDGEMENTS

NOTE

Some quotations from E.A.R.(Edinburgh Architecture
Research -3 and-4)are written as normal text because
of their close connection with the meaning developed
in the original text of the thesis.
This is clearly indicated before and after the
quotation; e.g.:

...The following part is taken from E.A.R./3:

    "Consider two theories......................
..............the built space ,, (part taken from
E.A.R./3,pp.45-46).

My emphasis within quoted text is in spaced out lettering,
while author's emphasis is indicated by underlining.
However,my emphasis within ordinary text is also indicated
by underlining.

GENERAL INTRODUCTION

1.

Although the history of architectural thinking has been marked by numerous attempts to structure a scientific corpus of the description and planning of   artificial space, it is generally accepted that architecture is not established as what might be called a 'normal science'. A natural consequence of this is that the theoretical thinking in this domain has an interdisciplinary character and makes extensive use of models and paradigms from other domains of inquiry. So, architecture seems to be continuously at the crossroads, where the need for a way of thinking more general and more philosophical than in other sciences is always present.

The recent history of   theories concerned with explanation of and action on the built environment has shown this interdisciplinary and unstable process. We can accept that, in general, architecture has passed from a purely aesthetical era to an era of 'borrowing' from sciences or technologies which dispose methodological apparatuses that architectural theorists have considered as suitable for the organization and applicability of their own methods.

One aspect of this borrowing refers to methods of a limited significance for architectural theory as a whole, but of high practical importance for the solution of particular problems. University planning is an example, where such techniques have been largely applied with more or less successful results as regards their own prescriptions.

The other aspect of 'scientific borrowing', of which architecture is making use, refers to paradigms which are far more ambitious than the techniques mentioned previously and which are intended to structure or re-structure the scientific corpus of architectural thinking. The attempts to consider the production of the artificial space as incorporated in a more general mode of production and, consequently, to consider buildings as products and architecture as a social science are examples of this second aspect and signify what might be called the 'social era' in architectural thinking. However, it is now realised that such, yet perfectly justifiable, efforts have driven architecture to methodological deadlocks, where the social criticism of architectural production functions as a barrier for the solution of its practical problems.

Such deadlocks signify, in my view, a turning point in the theories of built space. The basic characteristic of this turning point is the internalization by theorists of the need for a new and more comprehensive integration of both methodological and social thinking as regards the artificial environment and its production.

It is certain that such a desirable integration cannot automatically signify the beginning of architecture as a normal science and that the theorists who attempt such an integration are obliged to make extensive use of the refuge of scientific borrowing. It is for this reason that the present study as well as the team work presented

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in EAR/3 and EAR/4 are well aware of their almost crude simplifications and of their limitations. What they propose, however, can be classified as an attempt towards such a direction, that is to the direction of combining methodological and social thinking in architecture.

This particular attempt is based upon a metaphor from the area of structural linguistics. There is nothing new in this, since architectural practice has been seen quite frequently in the past as a phenomenon analogous to that of language. Recently, however, these views have taken a more concrete and systematic form probably influenced by the development of structuralism as a more general philosophy and by the development of semiotics as the general science of signs where linguistics is incorporated. Where the present study hopes to contribute is a review of such efforts and a criticism of some problematic points, mainly those which function as an implicit barrier against the social integration of the linguistic views in architecture. It considers, therefore, these linguistic views from an aspect which opposes the construction of autonomous syntaxes of the built space and advocates a more socially meaningful manipulation of 'architectural language'.

2.

A theory of architectural practice, borrowed or not, imposes in my view an important question concerned with

the unity of architecture. It is part of our common sense that, although building-types correspond to institutional categories which have shown remarkable particularities in historical terms, the practice on them is viewed as belonging to a more or less unified category of human action. The question is concerned with the extent to which a general mode of thinking, in the form of a descriptive theory equipped with practical 'beyonds', is capable of dealing with all the particularities that such institutional categories imply as regards their environmental representation. An important consequence of the above yet unanswered question is that the linguistic approach to architecture, as any approach, has to be tested through its application to particular institutional categories and not be discussed in merely general terms.

While such a test seems to correspond to a clear necessity, the issues which it implies are not few. A first area of such issues refers to the demands from a general theory and a second one to the problems that the institutional categories and their building-types incorporate:

The main corpus of a descriptive theory of the built space based on the linguistic metaphor has to be clearly articulated by using a limited number of concepts of general value. This means that such a general theory inevitably acquires a taxonomic character; that is, it introduces a series of concepts which dispose the capacity of attributing a clear identity to an institutio-

nal and building category, of classifying it and, finally, of explaining it in depth. Moreover, such concepts should recover areas of problems which have remained until now obscure, underestimated or only empirically internalized.

It is interesting that some of these problems are of such general social origin that they can be hardly connected with any institutional category or building-type in particular. Yet, they are clear enough to indicate the capacity of a general theory to describe them as regards the artificial space. The problem of alienation is one characteristic example. This example is used here to illustrate the potential formalization of the concepts introduced by the linguistic paradigm and, also, to illustrate aspects of the problem of alienation which until now have not been taken seriously into account in the study of the built environment.

Finally, one of the most important demands from a general theory is that it should be able to classify and explain not only the institutional category and the building-type with which it deals, but also, the explanatory or planning apparatuses which have been developed around such categories and building-types. It is obvious that a proposed explanatory theory is in a state of feedback with such already established apparatuses; it attempts to clarify them and, at the same time, to clarify its own corpus.

The second area of issues concerned with the application of the linguistic paradigm refers to a series of

conceptual problems directly introduced by the building-
types themselves. There are many assumptions included in
the acceptance of what I have already called 'institutio-
nal categories' and 'bulding-types which correspond to
such categories'.

This acceptance, first, presupposes that there is a
kind of clear correspondance between the institutional
and the environmental image of such categories ;second,
it is to some extent contradictory with the taxonomic
character of the general paradigm the aim of which is
exactly to identify such categories.

The solution of such problems and contradictions
belongs to a more philosophical level. However, some
critical points have to be emphasized in simpler terms:
It is in fact impossible to abandon a generalized and
useless manipulation of spatial problems without ap-
plying any theory to the current practice and reality.
The question is, what this reality is and, mainly, how
it is classified. The artificial environment as well as
the theories of it are commonly known as belonging to
different kinds of classifications according to a variety
of criteria. I have already referred to classifications
of theories of architecture previously, when I dealt with
scientific borrowings, with the development of contemporary
architectural thinking as well as with the identity of the
linguistic metaphor. The built environment, however, is
itself commonly understood as classified according to two
main sets of criteria. The first set refers to the scale

and has produced conceptual categories like urbanism, architecture, interior design etc.

The second set of criteria refers to the institutional character of buildings and has promoted conceptual categories which concern the dominant activity which takes place in the buildings, the institutional state which defines the boundaries and the structure of this activity as well as the historical development of this institutional state and its embodiment in a more general mode of production. Making criticism of the real or illusionary substance of such categories seems to be a useless logical circle. What seems useful for any classificatory paradigm is to take such categories into account. Otherwise, it would be in the danger of redefining in a idiosyncratic and socially useless manner the subject of the science of the built environment and of the action on it. In any case, however, I believe that in the search for a path through such problems, it is much more essential to start from the institutional and building categories than from the categories which have been established according to the notion of scale.

Among these institutional categories and their environmental representation, universities seem to keep a unique position for a series of reasons which are mentioned in detail in the introduction of the second part of the present study. My involvement in the study of universities covers the past decade and concerns the planning of universities as well as the study of their

character and classification at a building scale.
This involvement definately constitutes a first, but highy
subjective reason for dealing with universities in the
present study.

However, I hope that more objective reasons justify
the significance of applying a general theory of the
built space to the universities and to the theories which
deal with them. A first one is that universities have
a clear institutional identity the development of which
through history is equally clear. At the same time,
universities have played and continue to play a role of
'societal guidance' which few other institutional
categories have played.

A second reason is that the built environment of
universities can be seen at different scales, from the
urban to the building-scale, keeping a remarkable unity
as regards the characteristics that the institutional
identity of university implies.

A third reason is that, while universities represent
a typical building category through their similarities
to other environmental forms of the same size, at the same
time their institutional identity implies particularities
and 'exaggerations' which are useful for testing the value
of a general theory of the built space.

Finally, a fourth reason is that universities as
institutions as well as built forms have been the subject
of many explanatory and planning theories, either at the
level of large scale decisions or at the level of building
design and construction.

Universities as such could constitute an obvious subject of the present study. In such a way, the study could redefine the corpus of its theory and, also, classify the universities through its taxonomic apparatus. The purpose of such a task would be to recover areas of problems which have remained more or less obscure and to introduce a logic for their solution. It has been decided, however, that such purposes can be better promoted by studying the explanatory and planning theories of universities rather than by analysing and classifying independent examples of university complexes and buildings. The main advantage of such an attitude is that, without minimizing the information from the institutional and building category with which the study is concerned, it is easier to test the taxonomic value as well as the coherence of the general theory, since such a theory is directly compared with similar, more or less comprehensive approaches to the built space in general and universities in particular.

There are three main kinds of such approaches, as regards the explanation and/or planning of universities. The first is the historical approach. Our interest in the history of universities is orientated to a particular period, namely the period of the first 'student universities' when certain critical transformations took place. Our interest is also in the way in which historians understand such transformations and incorporate this understanding in more general theories of institutions

and of their environmental representation.

The second kind of approaches concerns what has been called the 'activity models' of university planning. These models are criticized in the present study as regards their efficacy in their own terms and,also, as regards the concepts proposed by the linguistic paradigm of this study.

Finally,the third kind of approaches consists of more general explanatory models of universities which,in parallel, prescribe particular methods of planning. Such explanatory and planning models clearly represent comprehensive models of understanding the artificial environment. This is clear in the case of the 'Oregon Experiment'which,in the present study,is subject of an extensive analysis and discussion.

3.

I hope that it will become finally clear to the reader of this study that the analysis of the above cases promotes some general conclusions concerned with the nature of this study and with the effectiveness of the theory it proposes.

First of all, I think that it will be clear that it _is_ possible to understand the architectural realities in a comprehensive way,by using a model which contains a _limited_ number of basic concepts and has a simple structure.

A second conclusion which, I hope, will become clear is that the linguistic paradigm in architecture is capable of explaining a large spectrum of building categories and of theories concerned with them. Such an explanation ,first,

has a taxonomic character and, second, recovers areas of hidden problems the significance of which has been more or less underestimated.

Finally, a third conclusion is that the manipulation of the linguistic paradigm in architecture illustrates the superiority and realistic character of the concepts of the paradigm and of the assumptions on which it has been based, such as: the necessity of a semantic rather than an autonomous approach to the built space; the inevitability of an explanation based on problems and, therefore, automatically orientated to the solution of them; finally, the importance of a multi-level understanding of the artificial environment as well as the importance of a contradictional understanding of its dynamics.

I have to admit that the present work was fortunate in selecting the case studies. Especially, the 'pattern-language' of the 'Oregon Experiment', despite the social philosophy of design on which it is based and despite its utopian and eventually one-sided understanding of participatory processes, is probably the only worked example of a linguistic metaphor to architecture in general and to university planning in particular.

I would like to apologize to the reader for the large number of concepts used in the present study in an idiosyncratic and not generally established manner. I would like also to note that the study is divided into two parts; the first concerns the development of the linguistic paradigm in its general form and the second the case

studies on universities. There is an introductory note to the first part which explains the contents of it.There is, also, an introduction to the second part which functions as a link between the two parts; it contains the main conclusions of the first part and explains the way in which these conclusions are dealt with as regards the case studies:

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┌─── GENERAL  INTRODUCTION ──────────────┐
│   ┌──────────────────────────────────┐  │
│   │ INTRODUCTORY NOTE TO PART I│        │
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│ ┌─PART I─────────────────────────────┐  │
│ │                                    │  │
│ └──────────────┐  ┌─────────────────┘  │
│ ┌──────────────┘  └──────────────────┐ │
│ │INTRODUCTION TO THE CASE STUDIES    │ │
│ │THROUGH SOME MAIN CONCLUSIONS       │ │
│ │FROM PART I                         │ │
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│ ┌─PART II──────────────────────────┐    │
│ │                                  │    │
│ └────────────┐  ┌─────────────────┘    │
└─── GENERAL  SUMMARY AND CONCLUSIONS─────┘
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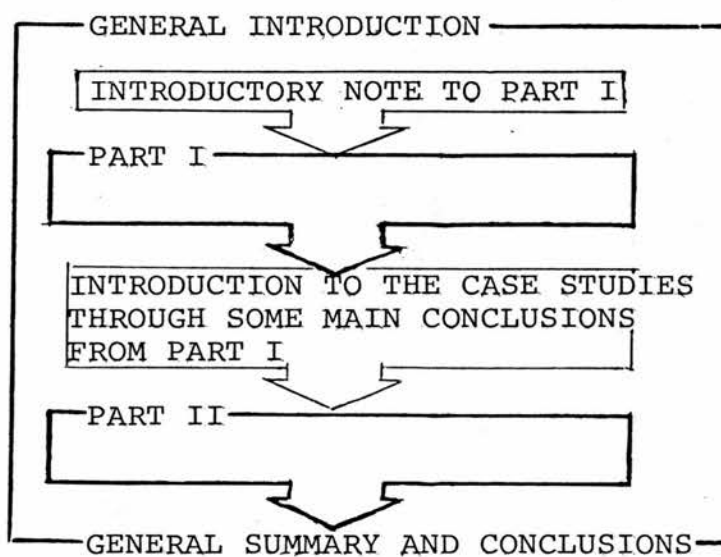
PART I

**A theory
of description
in architecture:
developing
the linguistic
paradigm**

I, O

INTRODUCTORY NOTE
TO PART I

The following first part of this thesis is concerned with a linguistic approach to architectural explanation and is divided into two sub-parts: Part I,1 and Part I,2.

Part I,1 introduces the general philosophy and the main concepts of the linguistic metaphor in architecture and contains four chapters:

Ch.I,1.1 ('The Dynamic Nature of Description') is a general introductory chapter on the broader notion of description, not particularly concerned with the linguistic approach. This approach is dealt with in the next three chapters starting from some general concepts (Ch.I,1.2,'The Linguistic Paradigm and the Environmental Structures') and leading towards an extensive discussion on the 'syntagmatic' character of description in architecture. The basic arguments are that, first, environmental 'syntax' cannot acquire a character analogous to that of 'autonomous syntax' in language but a character which resembles to that of 'semantic syntax', and second that the notion of meaning is broader and of different nature in the built space than in language. These arguments are developed in Ch.I,1.3 ('The Broader Notion of Meaning') and Ch.I,1.4 ('Syntagms and Prototypes').

Part I,2 is an attempt to develop the linguistic paradigm in architecture and to formulate it by using a limited number of basic concepts. The main purpose of this develop-

ment,however, is to make this paradigm capable of dealing with the complex problems of the artificial space in operational terms and by following the philosophy of 'semantic' and not 'autonomous' syntax. The main component of this sub-part is an example of how the general paradigm can take a specific form in the case of one particular family of problems, that is the problems concerned with the phenomenon of alienation. Part I,2 contains five chapters:

Ch.I,2.1 ('Differentiations in Descriptive Theories of the Artificial Space')is a brief review of some well known theories in architecture .This review illustrates the fact that the nature of the problems in which each theory is interested influences its own corpus. The next two chapters (Ch.I,2.2,'Operational Modifications of the Linguistic Paradigm:a Formal Basis' and Ch.I,2.3,'Operational Modifications of the Linguistic Paradigm: Catalysts or Problem-Solving Modifiers') describe the way in which the linguistic paradigm can take a particular form of describing the built space in such a manner that the solution of a particular problem can be promoted.Ch.I,2.2 outlines the conceptual apparatus of such a modification (a 'formal basis') and Ch.I,2.3 is a brief but necessary introduction to the detailed analysis of such a modification which follows in Ch.I,2.4 (concerning the problem of alienation). The discussion of alienation as a problem which occurs in the use and production of the artificial space is not simply an example of developing and giving a formal expression

to the linguistic paradigm. As it happens in the case of universities,which constitute not only a representative institution and building-type but also a unique example of clear transformations,societal guidance,'exaggerations' and highly specialised planning techniques(see General Introduction) in a similar way alienation is generally accepted as one of the most important problems in contemporary society;a problem,that is, which influences any aspect of human life and practice and,therefore,architectural practice as well. The selection of the examples of alienation and universities is, consequently,harmonized with the general 'semantic' attitude adopted in the present study.

Alienation is discussed in Ch.I,2.4 as a general problem (I,2.4.1),in connection with the notion of 'barrier' which functions as a useful concept to understand the nature of alienatory processes as regards the artificial space(I,2.4.2), in connection with participation as a strategy towards the gradual abolition of alienation(I,2.4.3) and is analysed (together with participation)through the linguistic paradigm, in detail(I,2.4.4).

Finally,Ch.I,2.5 is an attempt to examine some aspects of the dynamics of environmental structures,always through the logic of our paradigm.This chapter is more a terminological discussion than a real involvement in the analysis of spatial dynamics. However,some of the concepts developed here(especially the concepts of transformation and its versions as regards the built space,and,

mainly,the concepts of'contradictions' and normal'anomalies')
are closely related to the discussion of universities,in
the second part of this study.

I,1

THE LINGUISTIC PARADIGM

CHAPTER I,1.1
THE DYNAMIC NATURE OF DESCRIPTION

'Description' and 'descriptive models' are terms which
have been used mostly to refer to a static and not
particularly penetrating statement about what is described.
In this sense, the difference between descriptive models
on the one hand, and dynamic, predictive, prescriptive or
normative models on the other, has been always clear[1].
In architecture, considered as planning and design action,
description has been placed in a less important position
with the exception of architectural history. Yet,

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1. A further discussion of these terms is included in: R. CHORLEY
   and P. HAGGETT,Models in Geography, Methuen © 1967
   (especially, p. 25).

architectural history, as a domain of knowledge, has not contributed very much to a broadening of description in architecture. Architectural history still constitutes a tool merely for classifying the main products of environmental practice or for explaining them in an empirical and largely idiosyncratic manner. Apparently, there is some room for an understanding of these products which is more comprehensive than that offered by the conventional history of architecture.

In recent years there have been many attempts to enlarge the significance of description in the domain of the artificial environment. Two of the most important ones are probably Hillier and Leaman's 'architectural morphology'[2] and Alexander's 'synthesis of form' and, later, 'pattern language'[3]. Although there is a profound difference in the philosophy of these two attempts - the former being purely explanatory and 'syntactic' and the latter design orientated - both represent theories of description of the built space, where 'description' is far more ambitious and comprehensive than the traditional interpretation of the term would imply.

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2. B. HILLIER and A. LEAMAN, Space Syntax, 1974, and The Architecture of Architecture, 1974.

3. Ch. ALEXANDER, Notes on the Synthesis of Form, Harvard University Press 1979 (© 1964); Ch. ALEXANDER, I. FIKSDAHL-KING, S. ISHIKAWA, M. JACOBSON, M. SILVERSTEIN, A Pattern Language, Oxford University Press, 1975.

It is in this broader sense of 'explanation' that the term 'description' is to be used in this study. To what extent explanation denotes both a 'beyond' - concerned with the normative consequences of explanation for practice - as well as a 'behind' - concerned with the historical origin of the explanatory action - is a matter open to a general epistemological discussion about the nature of 'architectural description'. This study adopts the view, however, that 'behinds' and 'beyonds' are incorporated inevitably in the explanatory approaches which the social sciences use, especially when they deal with the products of human practice .

Explanatory description, therefore, is broader than description in conventional terms. The latter might be interested in a particular aspect of a given structure while the former requires a comprehensive and multi-level approach to it. It is this comprehensiveness of explanation that implies 'beyonds' and 'behinds' and introduces the rather paradoxical concept of 'descriptive theory'.

The concept of descriptive theory in the social sciences has been elaborated by Louis Althusser. He seems to be convinced   that,

> "great scientific discoveries cannot help but pass
> through the phase of ... <u>descriptive theory</u>."[4]
> (author's emphasis)

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4. L. ALTHUSSER, Ideology and Ideological State Apparatuses (1971)
   in: B. R. COSIN (ed.), Education: Structure and Society,
   Penguin © 1972, p. 249.

What is new and interesting in the above argument is the way Althusser understands the connection between description and practice. He writes:

> "(Descriptive theory) is the first phase of every theory, at least in the domain which concerns us (that of the science of social formations). As such, one might - and my opinion is one must - envisage this phase as a transitional one, necessary to the development of the theory. That it is transitional is inscribed in my expression 'descriptive theory', which reveals in its conjunction of terms the equivalent of a kind of 'contradiction'. In fact, the term theory 'clashes' to some extent with the adjective 'descriptive' which I have attached to it. This means quite precisely:
> 1. that the 'descriptive theory' really is, without a shadow of a doubt, the irreversible beginning of the theory; but
> 2. that the 'descriptive' form in which the theory is presented requires, precisely as an effect of this contradiction a development of the theory which goes beyond the form of description."[5]

Althusser's explanation of how the descriptive form of a theory is automatically equipped with a potential for praxis is based upon a logic of contradictions. This logic is quite common to a large spectrum of contemporary philosophy from Marx to Kuhn, though within a variety of contexts . The way this logic is understood as explaining the transformations of structures as well as the connection between description and practice is to be developed later in this study (Ch. I,2.5). Here, I shall be looking at some more general aspects of descriptive theories.

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5. Ibid., p. 249.

Descriptors may be considered as the components of descriptive theories. They represent the bases according to which description can be implemented. It is clear that a descriptive theory may either represent the particular importance which has been attributed to one basis - that is, it may consist of one predominant descriptor - or it may consist of a whole set of descriptors which supplement each other in a structural way. In the latter case it is obvious that, since different bases have been used to structure a unified apparatus for understanding a reality, this apparatus should be sufficiently comprehensive to incorporate all these bases.

The need for comprehensiveness is, consciously or not, understood in the development of scientific thinking and constitutes one fundamental reason for what might be called 'scientific borrowing' or 'metaphor' in the original meaning of the term[6]. This means that pre-structured and comprehensive scientific paradigms[7] are transferred from one scientific domain to another in order to incorporate and integrate a new field of knowledge based upon empirical

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6. From the greek "μεταφέρω" : move from one place to another, transfer.

7. For a classificatory analysis of the notion of "paradigm" see R. CHORLEY and P. HAGGETT, op. cit., p. 26. This notion is also discussed by T. S. Kuhn in: T. S. KUHN, The Structure of Scientific Revolutions, The University of Chicago, © 1970, p. 43 , and criticized especially by M. Masterman in: M. MASTERMAN, The Nature of a Paradigm, in: I. LAKATOS and A. MUSGRAVE (eds.), Criticism and the Growth of Knowledge, Cambridge University Press 1974 (© 1970), pp. 59-90.

research. Architecture, both as historical research as well as a practice, has been using - though mostly in an unconscious manner - comprehensive models suitable for its state at a given historical moment: from the aesthetical attitude of the 19th century to the technological-aesthetical paradigm that the Bauhaus introduced, and from the quasi-scientific approaches of the design methods of the '60s to the quasi-sociological activism of planning pluralism and to the semiological understanding of space adopted by what Jencks accepts as 'post-modern' architecture[8]. Very roughly, this game of predominant ideas in architectural thinking is shown in the following diagram, as developed by P. Tzonos (1972):

	1875	1920	1955	1972
IMPLICIT ASPECTS	social scientific technological	social scientific	social	
MAIN ASPECT ➡	AESTHETICAL	TECHNOLOGICAL	SCIENTIFIC	SOCIAL
EXPLICIT ASPECTS		aesthetical	technological aesthetical	scientific technological aesthetical

[9]

This model explains to some extent what has happened in modern architectural thinking. It represents also in a very generalized form the structure of a comprehensive

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8. C. JENCKS, The Language of Post-Modern Architecture, Academy 1978 (© 1977).

9. Π. ΤΖΩΝΟΣ, ᾿Εξέλιξη τῆς θεωρίας τῆς σύγχρονης ᾿Αρχιτε-κτονικῆς καί ᾿Αρχιτεκτονική ᾿Εκπαίδευση, Τεχνικά Χρο-νικά, Δεκ. 1972,σ. 1105 (P. TZONOS, Development of the theory of contemporary design and design education, Bulletin of the Technical Chamber of Greece, Dec. 1972, p. 1105).

descriptive model which corresponds to the attributes stated previously in this chapter. That is, it contains some basic descriptive tools and shows the transformations which have taken place as far as the importance of these tools is concerned. It gives, therefore, some information about the structural pattern which dominates the descriptors of the built environment and of its production. Although it deals with paradigms, it is itself a paradigm. It is, however, too general to go beyond description and, in any case, does not intend to do so.

A fundamental assumption - which could either evolve from the above example or be taken as a direct consequence of the arguments stated here about descriptive theories - is that sciences are historical products. Even if such an assumption seems to be inaccurate for the whole spectrum of knowledge, it is not particularly untrue for the social sciences and especially for those which deal with the products of human practice, i.e. the so-called sciences of the artificial. The point is that in these sciences, not only their stock of knowledge but also their very subject-matter is historically affected. The major explanation of this assumption is that these sciences describe human practice which itself is strongly influenced by ideology. The additional reason why paradigms in these sciences are interested in 'behinds' and automatically introduce 'beyonds' is simply that, as Wiener has pointed out, it is

extremely difficult for the observer to consider himself
excluded from the reality he investigates [10].

There is no doubt that a major epistemological
argument like this cannot be discussed and developed here
in its general form. What I shall consider as an axiom
in this study is an assumption from the above general
thesis. This assumption has been stated in EAR/3, as
follows:

> "Descriptors in architectural descriptive theories
> are generated as products of historically created
> problems with which the practice of architecture
> is concerned. Thus, descriptors represent in a
> way the ideological struggle of the historical
> moment in which they appear." [11]

The history of descriptive theories in architecture
is too short to give sufficient evidence for this assump-
tion. To some degree, the absence of explanatory
approaches is due to the fact that the predominant
attitude towards architecture until the twentieth century
was that architecture was a form of art. The same also
happened in other fields of human activity such as
language, music, and the visual arts in general. In all
these fields the attempt of investigating an 'art' in a
scientific way is a recent development.

10. N. WIENER, Cybernetics, Greek Edition 1974 (© 1961, M.I.T.
    Press), p. 172. See also C. Levi-Strauss's objections in: C.
    LEVI-STRAUSS, Structural Anthropology, Penguin 1972
    (© 1958), p. 56.
11. A. AWADALLA, T. KOTSIOPOULOS, T. MARAVELIAS, Description and
    Descriptors on Architecture, E.A.R. (Edinburgh Architecture
    Research)/3 1976, p. 39.

If we present, in a diagrammatic way, both the above assumption as well as the process of scientific borrowing, we have the following general model:
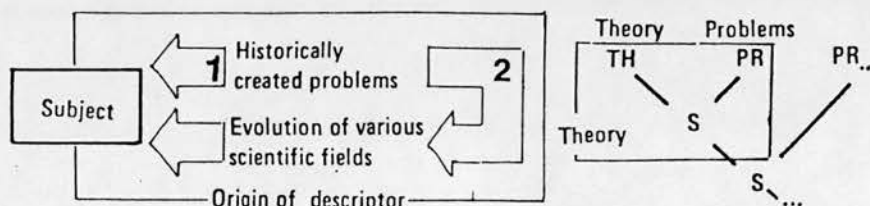
1. DIRECT ORIGIN: From historically created problems and from the social realization and formulation of these problems.
2. INDIRECT ORIGIN: From various scientific fields, where descriptors have been effective within analogous context. [12]

This model summarizes to some extent an attitude towards science which is much nearer to the Althusserian view than to those of Kuhn and Lakatos[13]. Although both Lakatos and Kuhn have produced sophisticated and convincing models of the involvement of historical time in scientific inquiry, they have not developed what Chalmers calls 'a formal theoretical framework for science' which can be sufficiently interrelated with a general theory of history. As Chalmers wrote:

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12. Ibid., p. 40.

13. According to a classification by A. F. Chalmers in: A. F. CHALMERS, What Is this Thing Called Science?, Open University 1978 (© 1976).

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"(Lakatos) (i) assumes without argument, and in
a theoretical framework that leaves no room for
the assumption to be challenged, that there is a
timeless scientific method, and (ii) he assumes
the existence of a history against which his theory
of science can be tested without offering an
adequate theory of that history. The Althusserian
position ... at least provides a formal theoretical
framework that does not share the same faults.
Firstly, it offers a general theory of history
(historical materialism), one feature of which is
that a particular society is understood in terms
of a number of interrelated practices. Secondly,
it offers a theory of science, according to which
a science is a particular kind of practice that is
relatively autonomous with respect to other
practices ... If a scientific practice is to be
eliminated, then this will result, primarily, not
from arguments but from changes in the social
structure. To think otherwise is, from the mater-
ialist point of view, to act like King Canute, who
addressed the incoming tide and unsuccessfully
urged it to stop."[14]

To accept, however, Althusser's view by rejecting at

the same time all the productive ideas developed by

Lakatos and especially Kuhn (concerning the formal

structure of scientific paradigms and their transforma-

tions) is not only unnecessary but also false. In the

end, the formalization of Althusser's thinking is not

clear to the degree which is necessary for domains like

architecture, for which the definition of 'non-science'

seems to be more accurate than the 'normal-science' one[15].

In order to structure theories in such domains, we have to

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14. Ibid., pp. 143-144.

15. The concept of "normal science" is developed by Kuhn in: T. S.
KUHN, The Structure of Scientific Revolutions , op.
cit., pp. 23-34.

take into account the revolutionary character of paradigms
and the characteristics of scientific communities as they were
developed by Kuhn. Paradigms and their transformation
and movement from one domain to another do not in any
case contradict the historically based Althusserian view
of science.

CHAPTER I,1.2
THE LINGUISTIC PARADIGM AND THE ENVIRONMENTAL STRUCTURES

1.2.1   THE METAPHOR

The field of structural linguistics, developed mainly after the publication of De Saussure's Cours de Linguistique Générale[1], has been very attractive for contemporary thinking in various scientific domains including architecture. Structural linguistics - connected with the development of structuralism as a more general philosophy as well as with the development of semiotics

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1. FERDINAND DE SAUSSURE, Course in General Linguistics, Fontana 1974 (© 1959, Philosophical Library, New York).

and the science of communication - has given the impression that it would provide the methodological apparatus for a better understanding of built space.

What we can find at the heart of such hopes is the consideration of architecture as a language or as a system of signs (if the term 'language' is not large enough to cover the totality of architectural phenomena).

The metaphor can sometimes take a more complex form as in Hillier and Leaman's work where

> "the generative syntax models of linguistics and
> the new epigenetic development languages of
> theoretical biology might ... be held to provide
> appropriate prototypes for such a model (for the
> study of the morphology of artificial space)."[2]

The dominant questions are of course,first,why a metaphor is necessary and, second, why this particular kind of metaphor is appropriate. To deal with these, we have to look at some general methodological problems which do not belong as such to the domain of architectural thinking but are present in various attempts to produce systematic approaches to design[3], especially when design is concerned with large-scale forms[4]. A good example of the nature of these problems at a level of maximum

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2. B. HILLIER and A. LEAMAN, Space Syntax, op. cit. pp. 2-3.
3. See also P. TZONOS, op. cit., p. 1109.
4. Such models are mentioned in the second part of this study.

abstraction is offered by A. Angyal who wrote in 1941,

that,

> "Our scientific thinking consists prevalently in
> the logical manipulation of relationships. That
> the structure of wholes cannot be described in
> terms of relationships has, however, been
> repeatedly pointed out by many writers. While
> accepting the premise that holistic connections
> cannot be resolved into relationships, some
> authors have implied that the pattern of structure
> of wholes does not lend itself at all to logical
> manipulation. We suggest, however, that the
> structure of wholes is perhaps amenable to
> logical treatment after all, that, though it may
> not be described in terms of relations, it may be
> described in terms of some more adequate logical
> unit, representing an entirely different logical
> genus."[5]

What Angyal referred to as 'the thinking which

consists prevalently in the logical manipulation of

relationships' has influenced the beginning of the scient-

ific era in architectural description and has been proven

inadequate to produce comprehensive methodological tools.

The obvious connection between the built environment and

the activities which take place in it seems to be one of

the main reasons why this logic of relationships is present

in the theoretical background of architectural thinking.

Human groups are, in fact, particularly relevant for a

description based on relationships for the simple reason

that their units are generally understood as independent

individuals. There is no confusion as to whether a human

individual is an independent measurable unit. Consequently,

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5. A. ANGYAL, A Logic of Systems in: F. EMERY (ed.),
   Systems Thinking , Penguin 1972 (© 1969) p. 20; see
   also T. KOTSIOPOULOS, Barriers and Participation, E.A.R./5,
   p. 53.

Bertalanffy's understanding of a system as consisting of elements and relations[6] may be, and in fact is, repeatedly applied to human groups and their activities.

There is at least one basic argument against the simplification of transferring to the artificial environment the systemic logic which is used to describe human groups and their activities. Hillier and Leaman have stressed this argument writing that:

> "the failure of general system theory to progress
> beyond an elementary level in characterizing how
> such systems work is because this elementary
> principle of the dynamics of artificial systems
> (that the internal autonomic structure of the
> 'simplest structures' of the morphology already
> contains the rules which govern aggregation into
> higher logical forms) cannot be formulated within
> a definition of a system as 'elements and their
> relations'. There simply are no elements."[7]

This position answers to some extent the question of the necessity of the metaphor. The above argument might equally refer to structural linguistics or to space. This, however, would be an arbitrary answer if it remained at a purely syntactic level, for the main reason that the very nature of the artefact is what gives to such systems the common characteristics which make metaphors possible.

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6. L. v. BERTALANFFY, General System Theory, Penguin 1973 (© 1968), p. 52.

7. B. HILLIER and A. LEAMAN, How is Design Possible?, in: J.A.R. (Journal of Architectural Research) 3/1, January 1974, p. 6.

There are, however, some other problems concerning the 'systemic' views at a syntactic level. These problems refer mainly to the way of dealing with artificial systems and are connected with the notion of 'comprehensiveness'. The problem with the so-called systemic manipulation of a complex system is that comprehensiveness in description is inevitably accompanied by increasing complexity. This complexity places limits to the degree of wholeness which might be achieved by the description and eliminates the explanatory power of it.

The approach to wholeness and comprehensiveness - a kind of methodological dream of our times - is one of the promises offered by the linguistic paradigm. And it does so by attempting at the same time to reduce complexity. The use of elementary operations together with transformational rules which lead from elementary to higher structures is the key to attain comprehensiveness with simplicity. Christopher Alexander, one of the most influential personalities of the design method era, constitutes a characteristic example of the realization of the problem of complexity. In the preface of the last edition of his famous 'Notes on the Synthesis of Form' (1974), he wrote:

> "I discovered that it is quite unnecessary to use
> such a complicated and formal way of getting at
> the independent diagrams."[8]

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8. Ch. ALEXANDER, Notes on the Synthesis of Form, op. cit.,
   (edition of 1974, preface).

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'and from the diagrams to higher forms' one could add, following Alexander's logic for the 'synthesis'.The fact that Alexander has moved from formal systemic thinking towards the quasi-linguistic approach of the 'pattern language' keeping at the same time the most linguistic of his ideas, that is, that of 'diagram', is an indication of the contemporary route towards the introduction of the linguistic paradigm in architecture.

The problem of wholeness and comprehensiveness is central in structuralism as a more general and inter-disciplinary philosophy. According to Piaget, wholeness can be attained genetically by 'reflective abstraction'. This means that, while in the systemic mode of thought a property can be derived by being drawn out of things by reflective abstraction, properties are derived from the way we act on things.[9] Piaget's route to comprehensiveness is important especially because it shows a different way of achieving comprehensiveness, a way which is neither purely syntactic nor abstract. The deep character of what he calls reflective abstraction is that description becomes anthropocentric and historically originated. D. Harvey in estimating Piaget's position in modern thinking seems to be quite familiar with this

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9. J. PIAGET, Structuralism, Routledge and Kegan Paul, 1971 (@ 1968), p. 19.

anthropocentrism, writing about Piaget's 'operational structuralism':

> "Fortunately too, living scholarship leads to the rediscovery of the method by those who might not otherwise regard themselves as 'Marxists'. Perhaps the most outstanding example in recent times is Piaget. ... Marx might be surprised to find himself described as 'an operational structuralist'."[10]

Piaget's structuralism is a general method of inquiry based on the concept of totality (wholeness) as well as on the concepts of self-regulation and transformation. These concepts could dominate,apart from linguistics and anthropology where they have been developed primarily, domains like mathematics, physics, biology, the social sciences, as well as philosophy and epistemology as Kuhn's and Althusser's work has shown to a certain extent . The global character of these concepts combined with the nature of elementary artefact structures seems to constitute the logical mechanism which favoured the use of the structural linguistic paradigm in the field of architecture.

A practical consequence of such a metaphor, however, which does not seem to be always understood, is that this metaphor implies clear guidelines which the elementary structures in the sciences of the artificial should

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10. D. HARVEY, Social Justice and the City , Edward Arnold 1975 (© 1973), pp. 287-288.

follow. Such structures have to be identified at an
operational level of abstraction, still capable of solving
particular problems within the social context within
which these structures have been formed. Less abstraction
makes the solution of problems idiosyncratic and more
abstraction makes it simply impossible.

In modern architectural thinking the linguistic
paradigm has been seen in a slightly different way than
that which might be directly introduced by genetic
structuralism. The source of linguistic views in
architecture is the newly developed and often misunderstood
field of semiotics[11] . There is no apparent connection
between structuralist thinking and semiotics though what
is called 'Semiotic (or Semiological) Structuralism' is
an underlying attitude in both domains.

Linguistic structuralism, which originated from
Saussurian linguistics, inevitably interprets Saussure's
view that language has to be considered as a particular
system of signs. On the other hand, semiotics, closely
connected with social anthropology and its structuralistic
versions, interprets human culture as a broader system of
signs but within the context of structural analysis[12] .
It is interesting that Piaget's more general structuralist

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11. An interesting discussion on the role of Semiotics in
    Architectural Science is included in : A.AWADALLA,Space
    Design and the Description of Built Environment:
    a theoretical enquiry into some structural aspects,
    Ph. D. Thesis , Edinburgh 1979.

12. For this subject see also: D.ROBEY(ed.),Structuralism,
    an Introduction, Clarendon Press 1973.

philosophy cannot work in the domain of the social sciences without accepting the notion of sign. It is also interesting that, when semiotics abandons a genetic view of human culture , it becomes a mere collection of poor comparisons of images and of ambiguous paths from the signifier to the signified. This is not too far from a modern version of astrology .

Semiotic structuralism, though not clearly established as a philosophy, would be a starting point for the kind of metaphor we need in architecture. There are two main reasons for such a more general understanding of the linguistic paradigm in the domain of the artificial environment. The first is the predominance of the concept of 'meaning' in architecture although the traditional meaning of 'meaning' in language is not enough to incorporate the social importance of the weight, cost, and permanence of buildings. Because of this, in EAR/3 we tried to replace the concept of meaning with what we called 'social evaluation' or 'socially evaluated meaning'[13] . The second reason is more methodological and is concerned with the desirable level at which both the genetic and semiotic approaches may be resolved. In EAR/3 we called this level 'syntagmatic'. The syntagmatic attitude[14] is very near to what in linguistics is called

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13. E.A.R./3, op. cit., p. 57.

14. For the use of the terms "syntagm" and "syntagmatic" in
    De Saussure's work, see: F. de SAUSSURE, op. cit., p. 123.

'generative semantics' (or in Seuren's view simply 'semantic syntax'[15]) and is certainly incorporated in domains more general than linguistics as, for instance, in Bernstein's sociolinguistics[16]. The basic characteristic of the syntagmatic approach is that the most elementary and deep structures are considered as socially meaningful. So, the concept of 'syntagm' becomes almost equivalent to the concept of 'prototype' in architecture. And it will be a fundamental principle in this study that a prototypic analysis of built forms, orientated towards problem-solving, is a successful way of dealing with both description and its planning 'beyonds' in architecture.

1.2.2   TOWARDS A SYNTAGMATIC SYNTAX ; AN EXAMPLE

The contribution of the linguistic paradigm to the explanatory theories of architecture was not directly identified until recently when Hillier and Leaman's proposals were formulated. This does not mean, however, that the general philosophy of this paradigm or the basic components of it(syntactic and semantic) were not mentioned or indirectly implied by other theorists of architecture. What is important is that such ideas had remained hidden under other explanatory models and in some cases were 'discovered'

15. P.A.M. SEUREN, 'Introduction' & 'Autonomous Versus
    Semantic Syntax', in: P.A.M. SEUREN (ed.),   Semantic
    Syntax , Oxford University Press 1978 (© 1974), pp. 1-28
    and 96-122.

16. B. BERNSTEIN, Class, Codes and Control, Three Volumes
    (1. Theoretical Studies Towards a Sociology of Language,
     2. Applied Studies Towards a Sociology of Language,
     3. Towards a Theory of Educational Transmissions),
    Routledge and Kegan Paul, 1971 to 1975.

by the authors themselves at a later stage of their work.The
general path that such a development usually followed is from
more or less systemic views concerned with design methods to
structural approaches concerned with the understanding of the
language of architecture. Two examples of such a development
are,in my view, Ch.Alexander's path to the'pattern language'
and D.A.Fatouros'recent 'syntactic structure of architecture'[17]

Syntax may be considered as the level at which the
generation of structures is investigated in an achronic
and abstract way. This investigation deals with the chain
from elementary to complex structures. In linguistics,
the involvement of meaning has been mapped on syntax and
has produced a different understanding of it; that is,
the chain from deep to surface structures. There has
been a long discussion between linguists on how semantics
are involved in the chain from deep to surface structures,
and references to this discussion concerning its
importance for architecture will be made in various
parts of this study[18]. I shall prefer, however, to use
both the concepts 'complexity chain' and 'deepness chain'
regardless of the view adopted in this study about the
connection between them.

The structural view of the path from the elementary
to the complex in architecture means that we assume

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17. See especially: Δ.Α.ΦΑΤΟΥΡΟΣ,'Οργάνωση τοῦ Χώρου καί Γεωμετρική
    'Οργάνωση, ἡ Συντακτική Δομή τῆς 'Αρχιτεκτονικῆς, Θεσσαλονίκη 1979,
    (D. A. FATOUROS, Organization of Space and Geometrical Organization;
    The Syntactic Structure of Architecture,Thessaloniki 1979).
18. A good sample of such a discussion is included in: P.A.M.
    SEUREN (ed.), op. cit.

that the complex structures we observe have been generated
by successive transformations of elementary structures.
This assumption stresses the importance of a methodo-
logical apparatus to understand complex structures and
does not mean necessarily that such structures have been
consciously produced by applying a set of transformational
rules to some elementary structures. Hillier and Leaman,
being interested in the evolution of deep structures of
space, have developed a terminology and a methodological
apparatus concerned with what they call 'space syntax'.
They adopt the view that elementary structures in
'architectural morphology' are developed towards higher
structures in a way which may be described by functional
variables - such as contiguity, differentiation,
boundaries, and permeability - as well as by operational
rules - such as what they call T, D, M, R[19] which are
logically interconnected by means of a 'universal formula'
borrowed from categorical algebra. This universal formula,
which may be expressed into the form of a commutative
square[20], is, according to them, the key to understand the
'simplest structure' of architectural form as well as the
key to understand the involvement of meaning in this
simplest structure which may be called 'minimum meaning
unit'. They understand, however, this meaning as product
of a 'mapping' procedure. They wrote in 'How is Design
Possible':

> "The pattern of dissimilar domains of entities,
> with mapping structures between them, one domain

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19. B. HILLIER and A. LEAMAN, Space Syntax, op. cit., p. 5.
20. B. HILLIER and A. LEAMAN, How is Design Possible, op. cit.,
    p. 6.

of which constitutes the normal 'manipulable set', are very general indeed in human cultures. It might not be fanciful to define man as a structure who knows how to effect a large number of mappings between dissimilar domains which may be expressed as commutative squares. Languages have this form, with mappings between an abstract domain of 'meaning' and a concrete domain of phonetic sounds. The architecture of architecture is equally based on such structures which include, for example, the mapping between human behaviour and its spatial containment, or between psycho-physiology and the environmental filter. In design the mapping structures are used as autonomic devices to solve problems. In research these mapping devices are studied in order to understand and improve them."[21] (authors' emphasis)

Hillier and Leaman's attitude towards 'mapping' is near to the Chomskian view in language, and emphasizes the possibility of an independent syntax in architectural morphology. Although their work takes the semantic component into account from the beginning, their logic of 'space syntax' is mostly concerned with the mechanisms from the simple to the complex. They are interested in the development of a more or less structural geometry of space. The use and interpretation of this geometry is to be investigated separately in a way very similar to that of sociolinguistics for language.

It is interesting to study to what extent both the syntactically pure complexity chain and the ambiguous deepness chain may be considered simultaneously in architecture; that is, to what extent the semantic element is involved in elementary architectural structures not through mapping but as an organic component of them. The following example is taken from EAR/3:

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21. Ibid., pp. 6-7.

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" Consider a building element; for instance a wall.
By creating a wall we modify the various climatic fields
such as wind, temperature, radiation, humidity, precipita-
tion, etc. The result is that different boundaries are
produced attributing to the specific operation of
barrierization a multifunctional character. These
boundaries indicate the particular differentiations
which occur in each climatic field:

WIND FIELD   RAIN FIELD   SOLAR RADIATION FIELD

Wall   Wall   Wall

Boundary of   Rain boundary   Direct solar
wind modification   radiation boundary
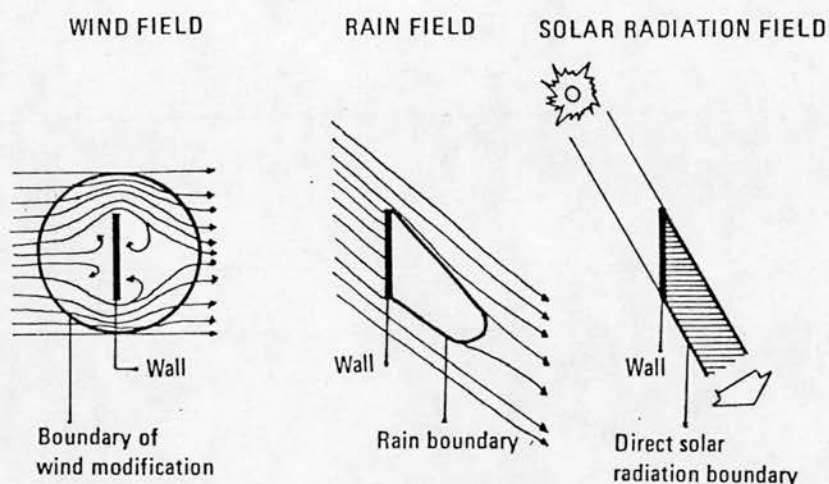
The physical properties which interconnect these
fields according to classical physics imply some funda-
mental characteristics of the elementary deep structure
of wall. These characteristics are analogous, for
instance, to the rule of linearity in language and may
be called 'topological characteristics of elementary
climatic structures':

| Wind modification boundary: Always on both sides of the barrier | Rain boundary: Always on the one side of the barrier | Direct solar radiation boundary: Always on the one side of the barrier |
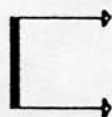
Obviously, these are images which have been necessarily derived from the involvement of a semantic dimension rather than from a pure physical actuality. Of course, in a strictly physical sense, rain and solar radiation boundaries are topologically identical to the wind boundary. However, we have considered them in the way shown in the diagram above - speaking about 'modification' in terms of wind but, at the same time, about 'presence-absence' in terms of rain and direct solar radiation - because of the fact that in architectural thinking even abstract elementary structures cannot be isolated from a certain semantic context ,, (taken from EAR/3) [22]

If we develop and generalize the above example, we will conclude that the above elementary structures correspond to a variety of surface structures. This variety may be constructed by taking into account the physical dynamics of the climatic fields such as value,

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22. E.A.R./3, op. cit., p. 46.

orientation etc. By combining such factors we can form
different surface images of a wall in a climatic field.
Such surface images are shown in the following example:

Physical Dynamics

	Value	Orientation
Rain	1 ●	1 →
	2 ○	2 ↓
Wind	1 ●	1 →
	2 ○	2 ↓

● Strong
○ Weak

EXAMPLES OF SURFACE
DIFFERENTIATIONS OF
THE ELEMENTARY
STRUCTURE, BEYOND
THE TOPOLOGICAL LEVEL

| Barrier (section)
—— Rain boundary
--- Wind modification
    boundary
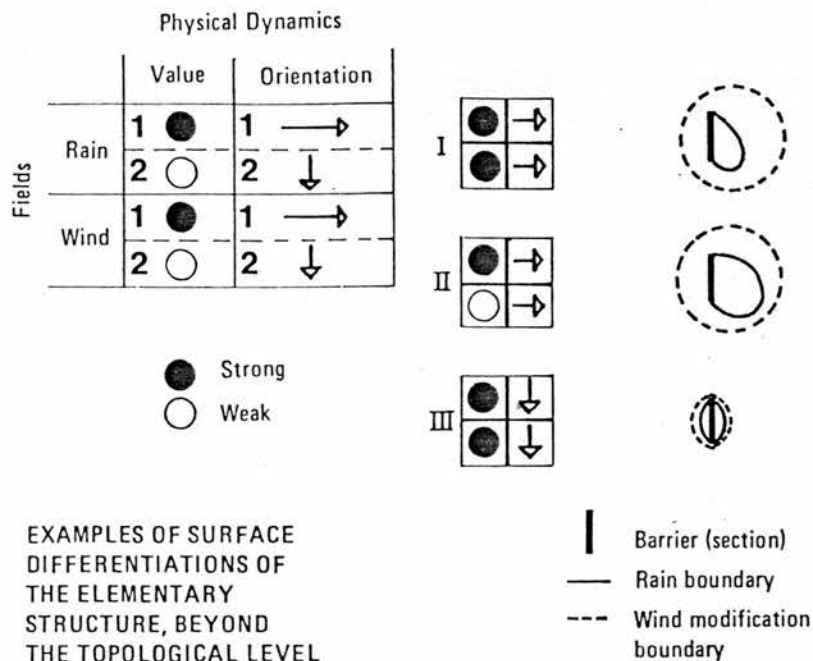
23

So, elementary structures of space include, even
at a deep topological level, the semantic component and
can produce a variety of surface structures by developing
the possible ways in which the semantic component may
occur in reality. However, the above example is over-
simplified in the sense that the built space very rarely
corresponds to the elementary degree of complexity which
was shown in the example. The artificial space is mainly

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23. Ibid., p. 46.

understood at a level of higher complexity at which

structures have already been transformed into

'enclosures'. This means that the deep structures from

which the everyday surface images are generated belong

to an order higher than the order of 'wall' and have

been formed after applying a transformational procedure

to the elementary structures. Consider the same example:
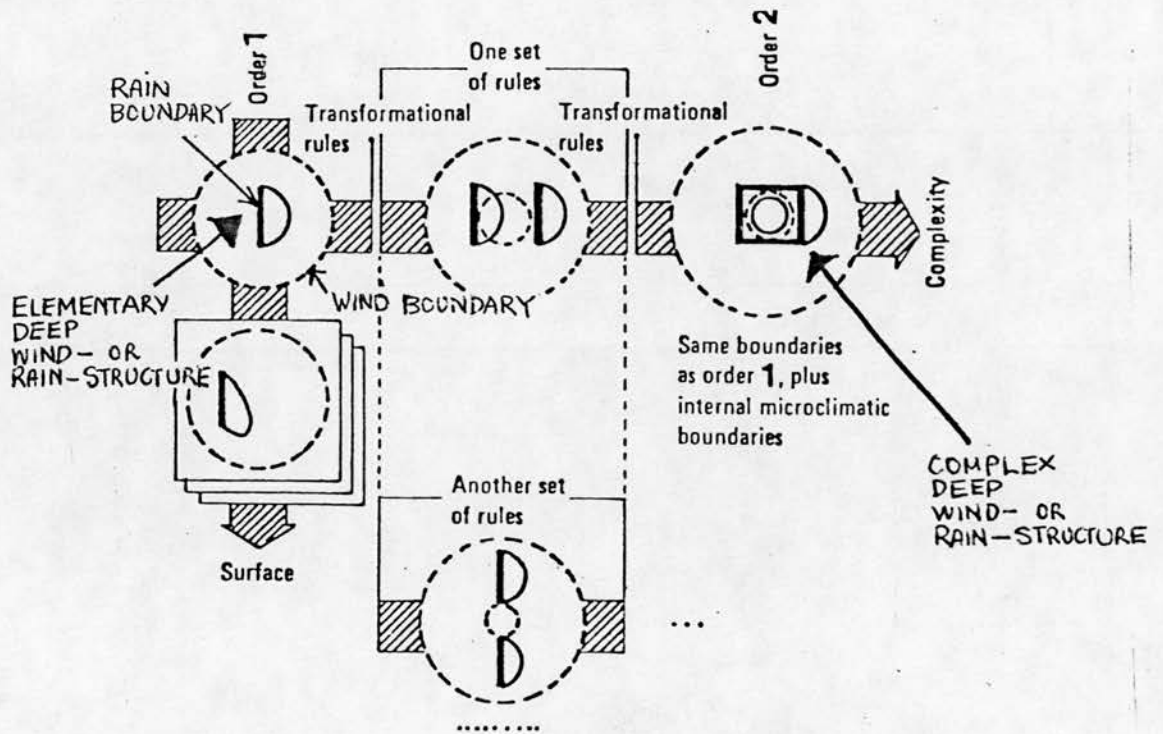
Again, the physical properties that interconnect the

microclimatic fields imply fundamental characteristics

of higher complexity deep structure, such as:

Barrier – enclosure and internal wind and rain boundaries are topologically identical

External boundaries are dominated by the same rules as in the elementary wall-structure

24
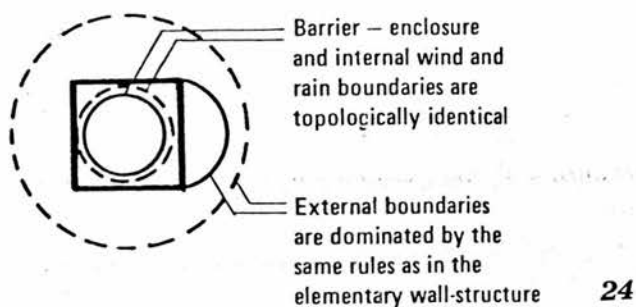
In all the cases stated in the above example there is a kind of dialectics between 'barriers' and 'boundaries'. The next diagram shows how these concepts are interrelated:

Boundary

Barrier

25
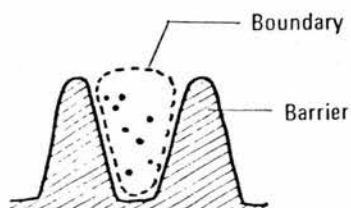
The diagram explains, in an abstract way, that a barrier creates a boundary but not in only one way. According to the physical property which is considered, the boundary created by the barrier may be different:

SEMANTIC FACTOR

ELEMENTARY MEANING UNITS

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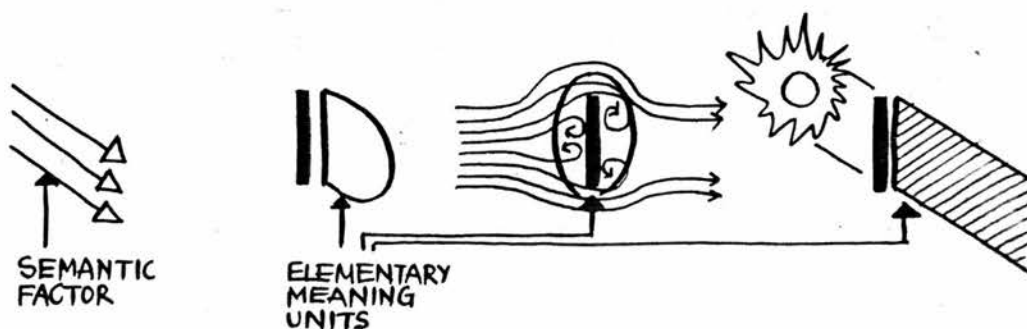
24. Ibid., p. 47.
25. Ibid., p. 52.

This means, in simple words, that it is meaningless to attempt to identify a deep structure independently from meaning. There is not even one mapping, since the wall itself does not constitute any structure without being equipped with its dialectical supplement, i.e. the boundary created by the wall. This duality is essential because it shows an eventual route towards an apparatus useful for understanding the structure of elementary architectural operations.

In reality, architectural operations work in two different directions: creation of boundaries and penetration of them, i.e. creation of channels. This is shown in the following examples:
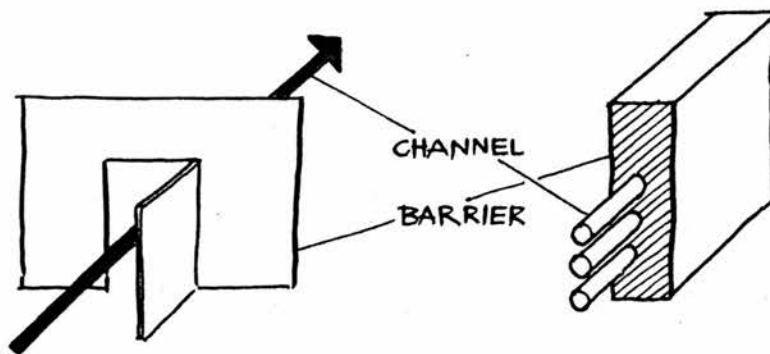
This can be expressed in a more abstract form, as shown in the following diagram:

B

FIELD OF
MEANING B
(SOLAR RADIATION)   SIMPLE STRUCTURE B

SURFACE LEVEL

DEEP LEVEL
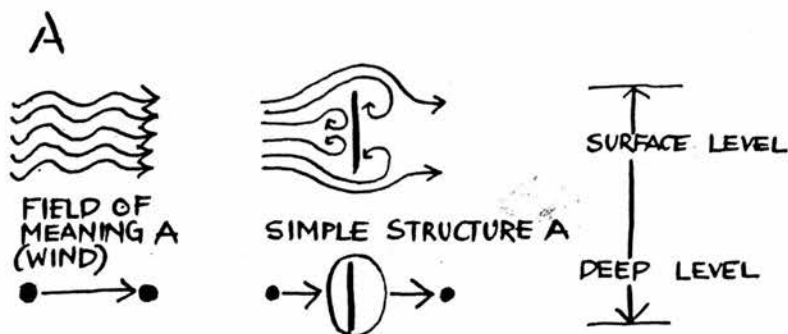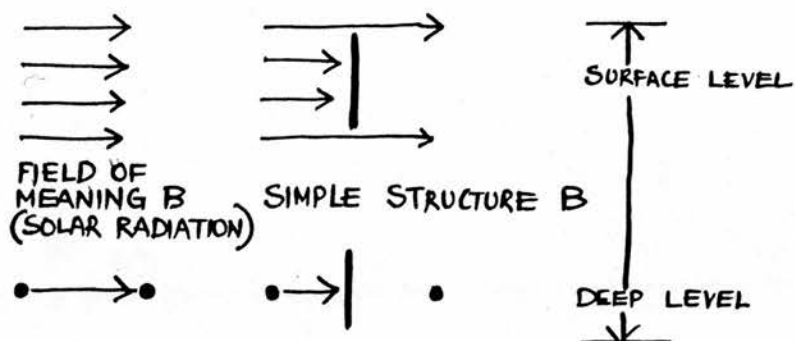
ELEMENTARY OPERATION
OF CREATING A BARRIER

A

SIMPLE STRUCTURE   SIMPLE STRUCTURE
A_0 A_1

SURFACE LEVEL

DEEP LEVEL

B

SIMPLE STRUCTURE   SIMPLE STRUCTURE
B_0 B_1

SURFACE LEVEL

DEEP LEVEL
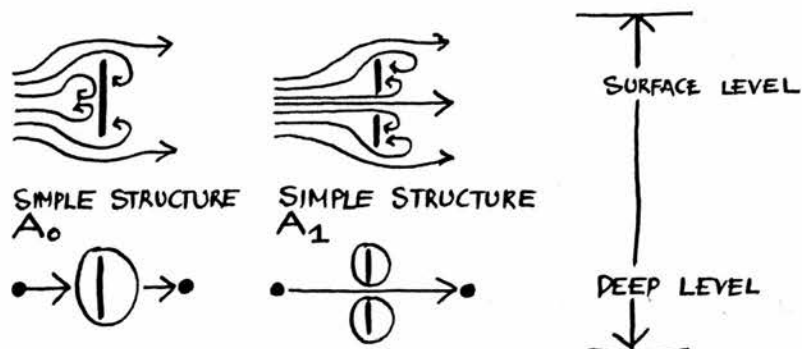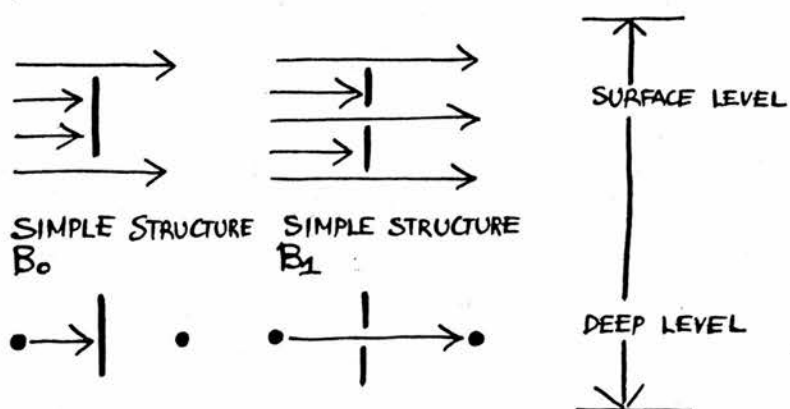
ELEMENTARY OPERATION
OF CREATING A CHANNEL

26

26. These elementary operations constitute a development of those
    mentioned in E.A.R./3, p. 52.

The reason why such operations work towards both directions is strongly connected with the semantic component of these operations. It is impossible for architecture to deal with non-permeable enclosures or with non-connected barriers. In a very abstract way, we could refer to this as the 'dual barrier-channel structure'. Such a structure deals with the continuity and discontinuity of the semantic field to which it refers, as shown in the following diagrams (first developed in EAR/3):
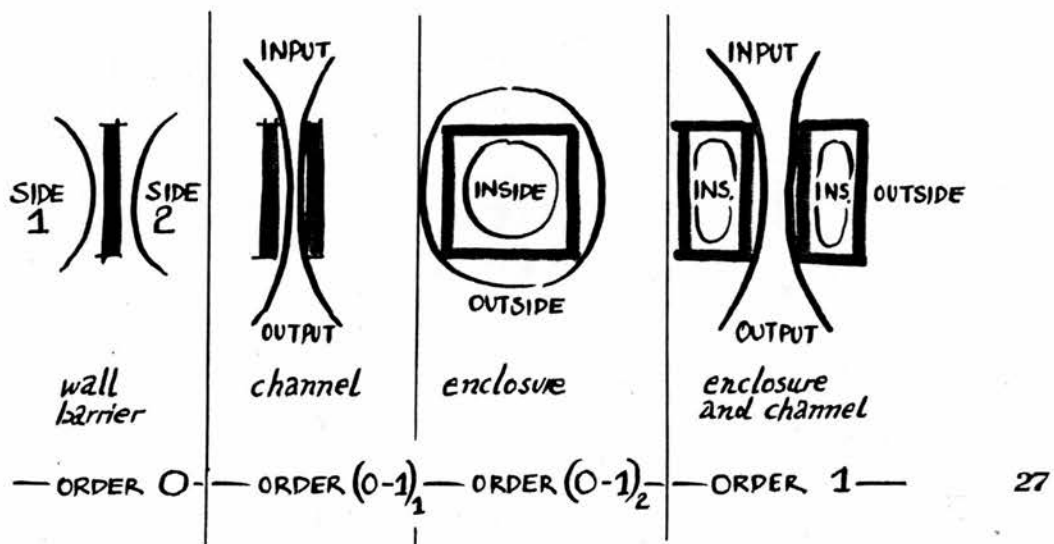
In a transformational form, the series of operations stated above may be represented as follows, according to the logical basis of the commutative square:

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27. Also a development of the diagrams   of E.A.R./3, p. 53.

28. E.A.R./3, op. cit., p. 54 (slightly changed).
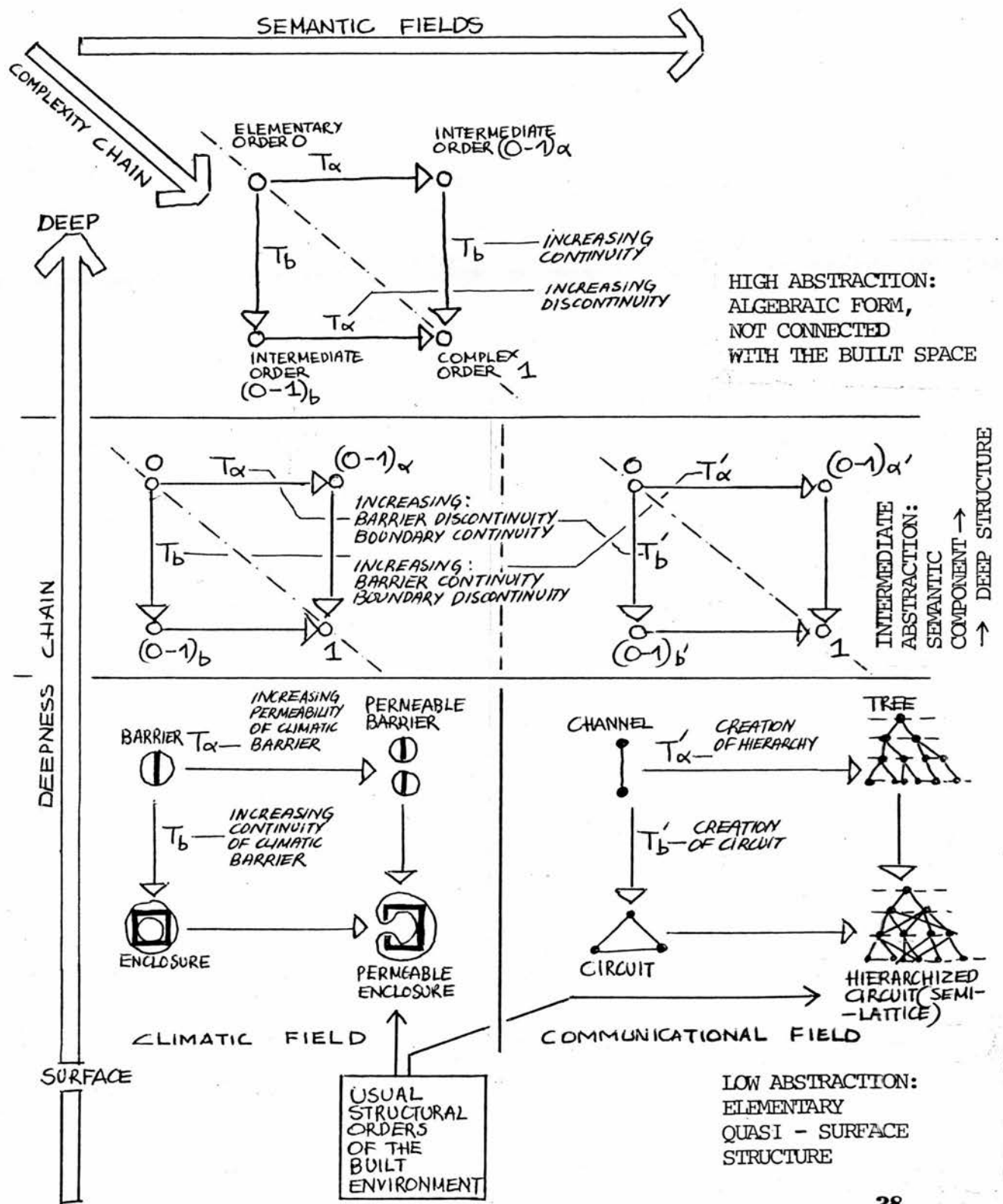
or more generally, for each field of meaning:
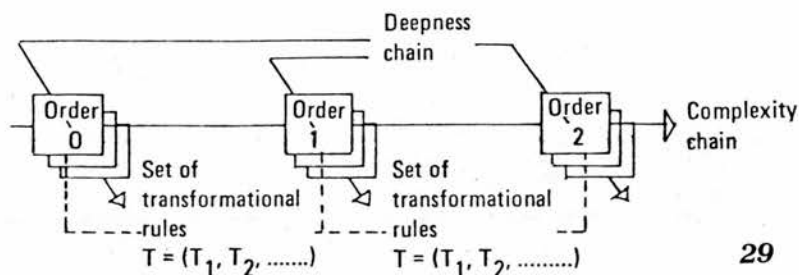
Such a highly theoretical consideration would be in
danger if it did not consider the syntagmatic identity of
the structures and the broader understanding of meaning
as 'social evaluation'. Even in the previous diagrams,
there is an involvement of the syntagmatic consideration
when, for example, 'continuity' and 'discontinuity'
first refer to barriers and boundaries and secondly take
forms like 'boundary discontinuity through hierarchy'
(in order to reach the tree-network, useful for flow
regulation) or 'boundary continuity through permeability'
(in order to reach the permeable microclimatic barrier,
useful for microclimatic regulation). The involvement
of meaning and social evaluation is discussed in more
detail in the following chapter.

Before discussing the concept of 'social evaluation',
however, it is worth restating the two central points
which have been developed in these first two chapters:

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29. Ibid., p. 54.

The first point is that, within the general attitude towards the development of scientific thinking adopted here, description cannot be considered achronically or without being connected with practice.

The second point is that, within the historical context of description, descriptors represent semantic bases which can influence the descriptive theory and its 'beyonds' and, in any case, have to be sufficiently structured to make description comprehensive.

1.3.1   GENERATIVE VERSUS AUTONOMOUS SYNTAX

The exploration of how semantics is involved in
linguistics constitutes a large area of research and no
definite answers   have been formulated yet. According to
the model developed by Chomsky , meaning is derived from
the syntactic deep structure through 'projection rules'.
Two versions of this model have appeared successively[1] :

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1. N. CHOMSKY, Aspects of the Theory of Syntax , M.I.T.
   Press 1972 (© 1965) and later N. CHOMSKY, Deep Structure,
   Surface Structure and Semantic Interpretation in: R. JAKOBSON,
   S. KAWANOTO (eds.), Studies in General and Oriental
   Linguistics , Tokyo, T.E.C. Company, 1970.

Semantic interpretation

↑ Projection rules

(Base) → | Deep structure |

↓ Transformational rules

| Surface structure |

Semantic interpretation ←

↑ Projection rules

(Base) → | Deep structure | Projection rules

↓ Transformational rules

| Surface structure |

2
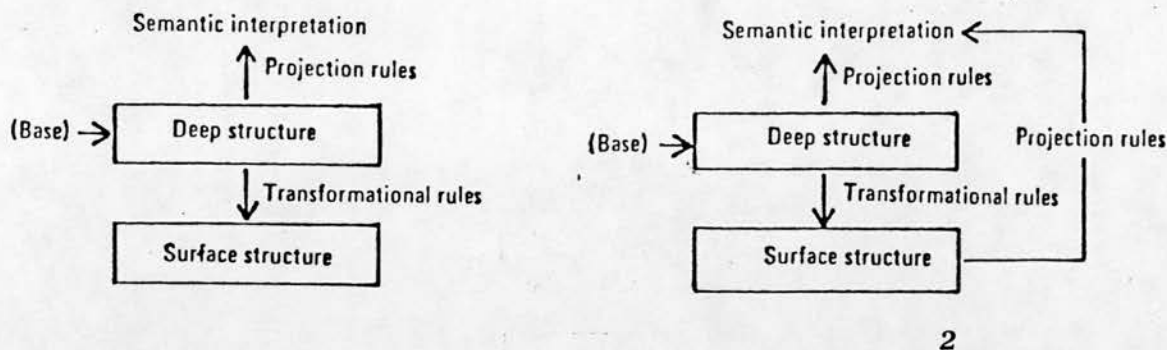
Both Chomskian versions constitute what has been called the 'interpretive approach' to semantics and, thus, have been distinguished from what has been called the 'generative approach'. According to the generative approach semantic interpretation is no longer derived from the purely syntactic deep structure, but the structure is so deep[3] that it is identical with semantic interpretation. In this manner, projection rules disappear and the model becomes simpler as follows:

| Semantic representation (deep structure) |

↓ Transformational rules

| Surface structure | *4*
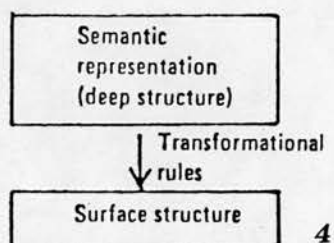
The above model represents the attitude which is understood as 'generative semantics' or 'semantic syntax'[5].

2. Diagrams   after G. LEECH, Semantics , Penguin 1974, pp. 328 and 329.

3. The "base" of the Chomskian version.

4. After G. LEECH, op. cit., p. 330; phonology, however, is not dealt with in this diagram.

5. After P.A.M. SEUREN (op. cit.).

The generative approach is based mainly on a strong

opposition to Chomsky's ideas as he is

> "by far, the most prominent defender of
> a u t o n o m o u s   s y n t a x   in its most
> tenable form."[6] (my emphasis)

The core of the generative approach may be summarized

by the following quotation from Seuren:

> "In semantic syntax, two independent claims are
> made with regard to lexical insertion. First,
> it is claimed that the semantic analysis of
> lexical items, i.e. the way in which they are
> represented in SR's (Semantic Representations),
> implies at least a tree structure or phrase-
> marker of the type well known in syntax.
> Secondly, the mapping rules relating lexical
> items to their semantic analyses fulfil not only
> the function of s p e c i f y i n g   p o s s i b l e
> m e a n i n g s   but also the function of
> r e l a t i n g   s u r f a c e   s t r u c t u r e s
> to   t h e i r   u n d e r l y i n g   s y n t a c t i c
> s t r u c t u r e s, and finally their SDS
> (syntactic deep structure). It is the latter
> claim which distinguishes semantic syntax from
> autonomous syntax."[7] (emphasis and parentheses mine).

The same argument in a more simple form is that

> "... semantic mappings coincide with those of
> syntax..."[8,9]

In the examples of the previous chapter, concerned with

the syntactic analyses of some space structures and the

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6. P.A.M. SEUREN, Introduction, op. cit., p. 2.

7. Ibid., pp. 17-18.

8. Ibid., p. 21.

9. The following diagram   gives an idea of the difference
   between autonomous and semantic syntax, as developed by

involvement of meaning, it was clear that no syntax may
be identified independently of the semantic component.
However, to what extent the influence of meaning over
syntax takes place according to a more or less automatic
procedure is a question the answer of which differentiates
language from architecture. As we have seen in the
examples, we can identify different semantic syntaxes
according to the descriptor used. In language,it is
natural to expect a more or less unique procedure since
communication dominates it. In architecture, the involve-
ment of additional semantic bases is necessary to
achieve comprehensiveness. In the end, the same could

Seuren (Ibid., pp. 109-110. Square boxes represent sets
of rules; round boxes represent sets of structures defined
by the rules).
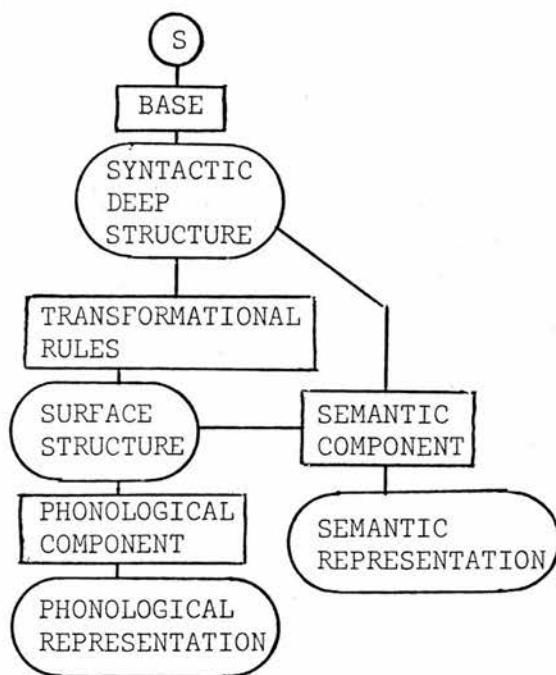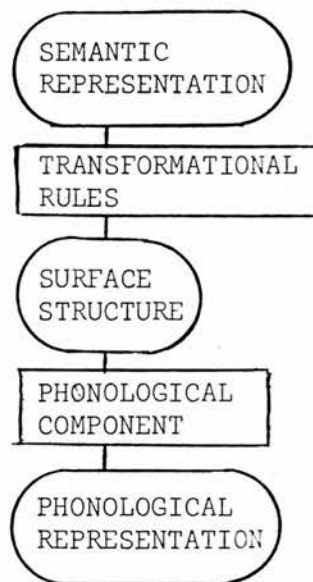
Autonomous Syntax   Semantic Syntax

happen in language if it were considered as a socio-
linguistic phenomenon and the communicative value of it
were not the only starting point for understanding it.

1.3.2   SEMANTIC PLURALISM OF SPACE AND 'SOCIAL EVALUATION'

It is a consequence of the above discussion that we
can introduce a concept like 'semantic pluralism' in
systems like architecture. It is also clear that, in
such systems, the initiatives incorporated in the
explanatory action represent the kind of 'beyonds'
which are expected from explanation. However, to
investigate this plurality it is necessary to discuss
further the notion of meaning and its extension to what
has been called 'social evaluation'.

Traditionally, semantics deals predominantly with the
concept of meaning in its communicative sense. C.K. Ogden
and I.A. Richard (1923)[10] wrote on what they called
'the meaning of meaning' and recently G. Leech in
'Semantics' (1974) proposed the concept of
'communicative value' instead of 'meaning'[11] . 'Value'

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10. C. K. OGDEN, I. A. RICHARD, The Meaning of Meaning,
    Routledge and Kegan Paul 1946 (© 1923).

11. G. LEECH, op. cit., p. 27.

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in semantics is the concept which explains the way in which the meaning of a semantic unit develops from the total set of semantic units. This interpretation has nothing to do with the nature of these units since it refers to their internal relationships. What Leech's definition offers is the extension of this 'value' beyond the esoteric situation of a linguistic structure. In this way, 'value' introduces a domain according to which it is measured, that is a 'system of evaluation'. There is no doubt, of course, that the predominant system according to which values are measured in language is the system of communication. So, 'communicative value' is a perfectly acceptable interpretation of meaning in linguistics which shows, however, at the same time the limitations of the linguistic paradigm and the elaboration which is necessary in order to develop this paradigm for architecture.

A first approach to such a development is the extension of 'communicative value' towards a broader semiotic framework. The route beyond the semiotic to a socially valuable framework would be the second step, but it is necessary to look first at the broader explanation of communicative value. Piaget pointed out that in all spheres of human behaviour there are systems of meanings the essential parts of which are studied by linguistics. However, he stressed the fact that,

although language has played an important role in the
transmission of values and rules of every kind, it is
not the only system of signs or symbols by which these
values and rules have been originated. For instance, the
appearance of representation in individual development
is not due to language alone, but to a much wider
'semiotic function'. Piaget proceeds by suggesting
that language constitutes a system of meaning 'to the
power of one' and it is accompanied in collective life
by systems 'to the power of two', such as myths, which
are simultaneously symbols and semantic characters[12].

Piaget's attitude represents a tendency which is
expressed by the involvement of semiotics in various
fields of human activities as an apparatus to explain
them. Yet, this tendency does not go beyond what has
been identified as 'communicative value'. The broadest
possible understanding of communicative value that
semiotics deals with is the communication of other values
to the investigator in the same context as language does,
by using codes which are different from language. Piaget
has translated this phenomenon by using the notion of
'convention'[13] .   According to Piaget convention indicates
that signs and meanings incorporate a social and
historical value and, thus, we can speak about the
'social evaluation' of signs at a given historical period.

12. J. PIAGET, Main Trends in Interdisciplinary Research,
    G. Allen and Unwin, 1973 (© 1970), pp. 20-24.
13. Ibid., p. 53.

The concept of 'evaluation' - as opposed to 'value' - is highly operational since it reminds us of the way operational structuralism looks at realities. Evaluation, within this context, is open to a broadening of its communicational context, since it includes <u>conscious preferences</u> for a potential planning action which go beyond the pure understanding of a structure. So, the simple concept of 'meaning' is replaced here by the more complicated but certainly more suitable concept of 'historically created social evaluation'. This concept is expected to allow, even starting from a purely semiological base, the inclusion of the broader social character of systems like architecture. An analogous concept has also been used by Morris. He used 'pragmatic meaning' in order to transfer the linguistic meaning - which he refers to as 'syntactic meaning' - to the sphere of examining the sign in relation to operations and behaviours[14]. In the next chapters both these concepts - 'social evaluation' and 'pragmatic meaning' - will be used alternatively as having the same content. The concept 'system of social evaluation', however, is to be used in a broader sense, indicating the social conditions under which a pragmatic meaning is attributed to a structure.

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14. C. MORRIS, Signs, Language and Behaviour, Prentice-Hall 1946.

1.3.3   BASES FOR SOCIAL EVALUATION IN SYSTEMS OF
         ARTEFACTS; A COMPARISON

The argument which directly follows the previous

discussion - that communicative value is only one aspect

of a broader value of a system of artefacts - is that

each particular historical period is characterized by a

particular balance of systems of evaluation for a system

of products. The following example, giving a brief

account of what happened in different systems like

architecture, painting, music and language is taken from

EAR/3 [15].

" Systems like painting,music and language have been

always dominated by communicative values while architecture

shows a different history. For instance, it is quite

easy to understand that communicative value has dominated

the production of artefacts as far as official or relig-

ious architecture is concerned, from the Pyramids to the

contemporary phenomenon of returning, at a morphological

level to the deep structure. This 'return' is supposed

to facilitate production, and produces another kind of

communicative value by the very acknowledgement of this

return. Banham emphasizes this point when he speaks

about functionalism, writing: "Under these circumstances

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15. E.A.R./3, op. cit., p. 56.

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it was better to advocate or defend the new architecture on logical and economic grounds than on grounds of aesthetics or symbolisms that might stir nothing but hostility. This may have been good tactics - the point remains arguable - but it was certainly misrepresentation. Emotion had played a much larger part than logic in the creation of the style; inexpensive buildings had been clothed in it, but it was no more an inherently economical style than any other. The true aim of the style had clearly been, to quote Gropius's words about the Bauhaus and its relation to the world of the Machine Age, "......to invent and create forms symbolizing that world , and it is in respect of such symbolic forms that its historical justification must lie." [16]

What we have to add to this is that the deep structure of this contemporary symbolism signifies - not in terms of each architect's emotional reaction, but in terms of social evaluation - the development of an economic basis of symbolism and what is more important, the beginning of an 'internalization' of this development.

Such an internalization already dominated other fields of description of human practice and one of the most important deep characteristics of contemporary architectural thinking is that it does not only assume

16. R. BANHAM, Theory and Design in the First Machine Age , Archit. Press 1972 (© 1960), p. 321.

the significance of an economic basis in the limited symbolic context of architecture, but also acknowledges the necessity of the interdisciplinary character of it.

Harvey is a good example of this. He points out that: "in asserting the primacy of the economic basis Marx was proposing two things. First, he is suggesting that the relationships between structures are themselves structured in some way within the totality. In a conflict between the evolution of the economic basis of society and elements in the superstructure, it is the latter that has to give way, adapt, or be eliminated. Some structures are therefore regarded as more basic than others within a totality. Structures can therefore be ranked in order of significance. Marx obviously decided that the conditions concerning the production and reproduction of material life were fundamental - he certainly argued more strenuously for this view. And this led him to his second main point. When we attempt to view society as a totality, then, ultimately everything has to be related to the structures in the economic basis of society. "*17*

One should expect that economic bases have been constituting the fundamental system of social evaluation of architecture because of the hardware operations required to produce architectural artefacts and the difficulty of reproducing them. This has been happening

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17. D. HARVEY, op. cit., p. 292.

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also in other systems - consider, for example, stone writing or sculpture - but the additional property of architecture is that it has mainly to do with land use and economic resources. We shall try to make a rough comparison of four systems of human practice: Architecture, language, painting and music.

COMPLEXITY CHAIN ↓	SYSTEMS				
	LANGUAGE	MUSIC	*	PAINTING	ARCHITECTURE
SUPER SURFACE STRUCTURE	Poem	Piece of music	Surface structure	Painting	Building
SURFACE STRUCTURE	Prose, Sentence	Elementary exercises on musical composition	Deep structure	(Painting as a picture)	(Building compartmentalization+ + activities' organisation etc.)
DEEP STRUCTURE	(NP – Aux – VP)	(Bar structure)	Underlying strings	Basic organization of painting	Basic organisation of building (enclosure + + access etc.)
UNDERLYING STRINGS (RULES OF THE BASE)	Linearity, Contiguity, etc.	Tonality, harmony, rhythm, etc.		Rules of combining materials + balance etc.	Building physics, etc. + + balance, etc.
CHOSEN ELEMENTS	a, b, c, ... phonemes, etc.	Tones, etc.	Chosen elements	Colours, materials, etc.	Materials, etc.
* After L. Bernstein **18**					

Social evaluation appears at a final level which has been already called 'super-surface structure' and which, particularly in painting, music, and language, has been considered as the aesthetic one. Specifically in

18. L. BERNSTEIN, The Unanswered Question, The Norton Lectures at Harvard University, 1973 (also shown on B.B.C. 2, 1976).

language, what has been accepted by Chomsky as surface structure constitutes a level which does not exist in the other systems as a self-sufficiently evaluated level, and it is the result of the highly communicative power of language.

Nevertheless, in architecture it is not only the aesthetic evaluation which constitutes the system of social evaluation, as opposed to music and painting in which, because of the ease of reproduction, aesthetic evaluation has historically become predominant. The bipolar form-substance, for instance, may be used as a basis which clarifies a comparison among these systems. Although these systems are comparable in terms of form, they are quite different as far as the substance of their final product is concerned. Substance in painting is completely preserved from the chosen elements to the super-surface structure. Language and music belong to another category in which there is always the opportunity of conceiving both systems either in a written or in an oral substance. Architecture belongs to another category in which the super-surface structure is reached through a mapping which is quite different from the substance of the real product. The important difference between these last two categories is concerned with the process of producing the super-surface structure and not with the process of resolving and understanding it.

This deals directly with the economic bases of social evaluation in architecture, which allows us to interpret the nature of the production of architectural 'syntagms' and what might be called pragmatic meaning in architecture. Indeed, the four systems of the artificial we mentioned, in terms of the properties of the super-surface structure may be compared as shown in the following table.

PROPERTIES OF SUPER SURFACE STRUCTURE (SSS) SYSTEMS	UNIQUENESS/ /PERFORMANCE A	VALUE AS A COMMODITY B	OTHER ECONOMIC UNITS C	CATEGORIES A·B·C
LANGUAGE 1	Dynamic & reproducable character of the SSS	Minimized economic value of the SSS	Minimized cost of producing the SSS	DYNAMIC, EVALUATED COMMUNICATIVELY, REPRODUCABLE 1·2
MUSIC 2				
PAINTING 3	Static & unique character of the SSS	Maximized economic value of the SSS	Low cost of reproducing the SSS	STATIC, EVALUATED COMMUNICATIVELY, REPRODUCABLE (ERSATZ) 3
19 ARCHITECTURE 4			Maximized cost or producing and reproducing the SSS	STATIC, EVALUATED IN A COMPOSITE SYSTEM, REPRODUCABLE BY CHANGING SUBSTANCE (MAPPING) 4

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(taken from EAR/3,pp.58-61).

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19. Industrial design belongs to a particular category in terms of the production of the super-surface structure. In this category, aesthetic value is greatly replaced by a set of operational advantages concerned with the prototype. However, in industrial

In fact, the economic basis for evaluating environmental artefacts has been developed towards a kind of symbolism of the mode of production in which these artefacts are incorporated. This shows an interesting metaphor which takes place consciously and which is represented by a variety of buildings such as the Pompidou cultural centre in Paris or the numerous mass housing blocks of the era of industrial purism. Such 'second power' symbolisms, which <u>consciously</u> emphasize <u>through communication</u> a system of social evaluation of architectural forms, is also included in the kind of architectural practice which is identified as 'post-modern architecture' . The critical point of view of post-modern architecture and the symbolic loading of its products constitute a return to communication as the predominant basis to appreciate the value of the built forms. Post-modern architecture is itself a strong criticism of what post-modernists call 'purism'. It is obvious to them that purism rejected the communicative values that an architectural artefact can incorporate[20].

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design, especially because prototypes are designed in order to be reproduced, the ability of being a commodity gets an aesthetic value, reversing the traditional scheme. This new kind of aesthetically evaluated functionalism can be very easily acknowledged in contemporary forms of architectural design (P.S.S.H.A. K., infrastructural design for flexibility, etc.).

20. See C. JENCKS (1977), op. cit., and R. VENTURI, Complexity and Contradiction in Architecture, The Architectural Press, 1977 (© 1967, 1977), particularly p. 16 (Nonstraightforward Architecture: a Gentle Manifesto).

CHAPTER I,1.4
SYNTAGMS AND PROTOTYPES

In the previous chapters I examined the dynamic
capacity which descriptive theories acquire by placing them
in a historical context. I discussed also some of the
fundamental concepts involved in the linguistic metaphor
of architecture; mostly the generative character of
environmental syntax and the broader notion of 'meaning'.

In this chapter this discussion will be completed by
introducing the concepts of 'syntagm' and 'prototype'.
These concepts formalize the whole idea of the linguistic
metaphor of architecture and make it suitable for further
elaboration.

According to De Saussure, a syntagm in linguistics
is a combination of consecutive units, supported by

linearity[1]. Also, 'syntagmatic relations' are considered as being opposed to 'paradigmatic relations'.[2] Lyons explains these points as follows:

> "Syntagmatic relations which an element contracts are those which derive from its combinations with preceding and following elements of the same level ... paradigmatic relations contracted by an element are those which hold between the actually occurring element and other elements of the same level which might have occurred in its place."[3]

The concept of 'syntagm' in the sense developed above represents a logically powerful combination which has appeared after a syntactic process and, at the same time, is automatically equipped with a coherent meaning. The logical understanding of a sentence in linguistics shows this power of cohesion which is not merely a product of autonomous syntax. Furthermore, a 'syntagm' implies a degree of complexity beyond the level of an elementary structure. So, the 'syntagmatic approach' includes the necessities with which architectural explanation should be equipped and is to be used in this study to summarize my view of the linguistic metaphor for the built environment.

In language, linearity is obviously a predominant structural rule for 'syntagms'[4]. However, the environ-

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1. F. de SAUSSURE, op. cit., p. 123.

2. They are also called "associative relations"(by de Saussure).

3. In D. ROBEY (ed.), op. cit., p. 12; also see: J. LYONS, Introduction to Theoretical Linguistics , Cambridge University Press, 1974 (© 1968), p. 70.

4. J. LYONS, (1968), op. cit., p. 209.

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mental artefacts considered as 'syntagms' do not follow this rule. They are subject to a plurality of interpretations and get meanings according to rules which are different from those of language[5]. Nevertheless, 'environmental syntagms' are certainly structured and are also classified (or can be classified) into particular categories following a paradigmatic procedure analogous to that of language. Following again the linguistic logic, we could establish the notion of 'prototype' to indicate the deeper structure of a family of surface environmental images which derive from the same deep structure; provided, of course, that we understand this deeper structure as totally meaningful, in the broader sense of 'meaning'.

A. Awadalla has developed a view of prototypes beyond the form initially adopted in our collective work (EAR/3). He investigated the analogies between linguistic and architectural prototypes, especially concerning their level of abstraction .

> "Prototypes ... are to be viewed as highly syn-
> thetic structures obtainable at intermediate
> levels of abstraction ... They are not surface
> phenomena in themselves, yet not entirely isolated
> from the rich level of observables, since they
> realize their potential and material existence in
> it ... They presuppose a structural organization
> that is relatively persistent and amenable to some
> form of analytic treatment, yet they retain a
> property of fundamental incompleteness that makes
> them flexible, dynamic and open to transformation
> and hierarchic permutation. They continuously
> negate their actuality only to reintroduce it
> enriched with new possibilities that obtain within
> various operational contexts."[6]

5. Compare with the concept of "ambiguity" in Venturi's "gentle manifesto" (R. VENTURI (1977), op. cit., p. 16).

6. A. AWADALLA (1979), p. 168.

Awadalla stressed that architectural syntagms repre-
sent structures which are produced by restricted productive
freedom because of the material resources involved. These
material resources are involved in a process which corres-
ponds to what Barthes has called logo-techniques which,
unlike natural language, have an essentially utilitarian
character and are not elaborated by a 'speaking mass' but
by a 'deciding group'[7]. Finally, Awadalla also indicated
that the timing rules involved in the production of
language do not exist as such in architecture:

> "In architecture, syntagmatic relations do not in
> principle presuppose (though they by no means exclude,
> especially during the process of construction) a linear
> ordering of units ... Architecture usually dis-
> plays and juxtaposes its elements all at once and
> imposes on them a physical existence in volumetric
> space."[8]

The history of architectural practice has been char-
acterized by an extensive use of prototypes, either at
the level of 'language' or at the level of 'speech'. At
the level of language, prototypes have been grouped in
different styles and at the level of speech, they have
been grouped in the individual ways in which architec-
tural surface-structures have been implemented.

Especially in architecture, prototypes appear as
pre-structured 'syntagms' carrying a particular meaning.
The changes in the system of social evaluation of these

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7. Ibid., pp. 169-170.
8. Ibid., p. 171.

syntagms, however, have continuously influenced the development of the apparatus to understand them, that is, the descriptive theories in architecture.

An important feature of such changes is that prototypic images not only distinguish one style from another but also distinguish a particular building-type from another. Again, whole periods in the history of architectural practice are characterized by the predominance of specific building-types and by the social meaning carried by them. Building-types, the institutions they represent, the style they promote, and the social meaning they carry, all seem to constitute coherent structural units which signify each particular period and place.

It is interesting to discuss here the consequences of this understanding of the role of prototypes on the conception of architecture as an autonomous and coherent discipline.

In the professional education of architects as well as in the academic organization of architectural schools two attitudes towards architecture are clear and distinct. According to the first, the logic of architectural practice - and consequently the logic of explaining it - is unique independently of the institutional characteristics as well as of the predominant activities taking place in a specific building type. According to the second attitude, such a unique logic does not exist or exists at a very

deep abstract and, therefore, useless level. Thus, both
practice and description in architecture are decisively
influenced by the particularities and the institutional
origin of the building-types or, more generally, by a set
of taxonomic factors which are involved in the whole field
of the built space.

At least one of these taxonomic factors, the _scale_,is
commonly accepted as highly influential for the creation
of distinguishable disciplines. There is undoubtedly a
conceptual gap between urbanism and architecture and some
would claim that a similar gap exists between architec-
ture and what belongs to the smaller scale of interior
design.

In general, the sciences of the artificial environ-
ment in both disciplinary as well as in practical terms
seem to follow a simple taxonomic model, which is based on
taxonomic factors such as 'scale', 'building-type', and
'explanatory paradigm'.

1. CLASSIFICATION ACCORDING TO THE SCALE

LARGE SCALE

BUILDING SCALE

SMALL SCALE

HEALTH.. EDUCATION.. HOUSING ....

3. CLASSIFICATION ACCORDING TO THE INSTITUTIONAL ORIGIN AND THE DOMINANT ACTIVITY

2. CLASSIFICATION ACCORDING TO THE EXPLANATORY PARADIGM
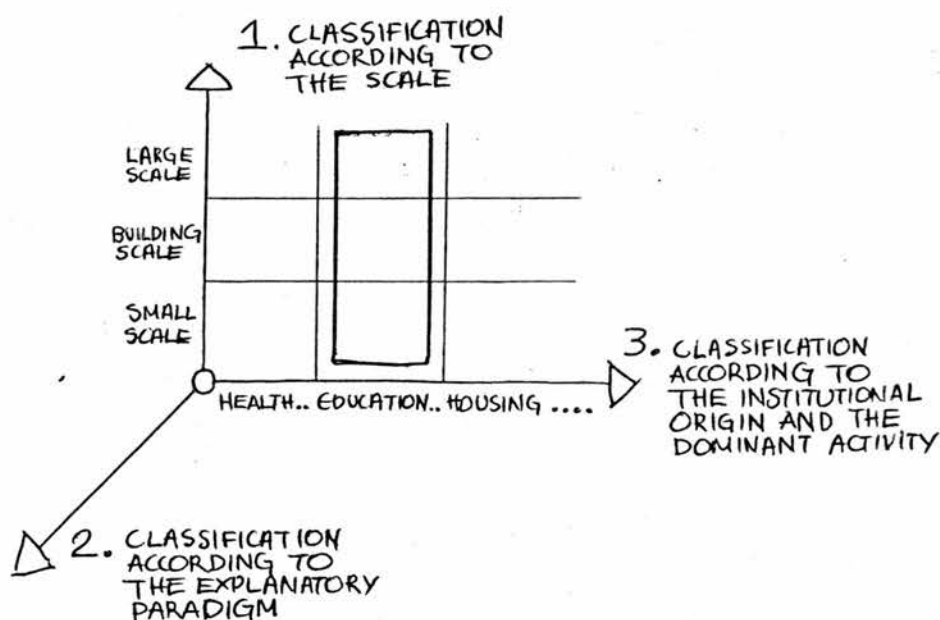
All the above factors (which constitute the basic
dimensions of a model through which architectural educa-
tion and practice can be classified) seem to function as
generators of prototypes in environmental thinking
through history. The argument is that one of these
factors, that is 'building-types', is more powerful than
the others in influencing the creation of autonomous
prototypic categories especially because of the insti-
tutional origin of these building-types. Universities
constitute the main but not the only example in favour of this
argument. There are no clear boundaries between large-
scale university planning and the design of specific
buildings. The problems are the same; at least, those problems
which come from the particular institutional identity of
universities as compared with other building-types such as
housing complexes or industrial areas.

The important epistemological question that the above
simple hypothesis imposes is whether   the environmental arte-
facts can be studied separately according to their insti-
tutional origin and their social evaluation rather than
according to scale disciplines. This study adopts the
view that, although it is meaningless to establish a
priori such barriers, building-types correspond to
structured prototypes or to model-structures which are
distinguishable at least to the same degree as model-structures
originated from scale,   if such structures exist at
all. This is a basic consequence of a 'prototypic
analysis' of space. According to such an analysis,

institutional prototypes and their environmental images
are more pragmatic than conceptual prototypes such as
'urban' or 'interior'. City, for example, is a model-
structure but it is as an institution that it has to be
looked at and not as a large-scale aggregate. The
interest of this study in the description and planning of
universities indicates exactly this attitude.

I,2

THE DEVELOPMENT
OF THE PARADIGM

CHAPTER *I,2.1*
DIFFERENTIATIONS IN DESCRIPTIVE THEORIES OF THE ARTIFICIAL SPACE

Some of the questions which arise from the linguistic
metaphor in architecture have been already discussed in
the previous chapters. Those questions referred to
two main areas. Firstly, to the historical origin of
description and its 'beyonds' and secondly to the
particular characteristics of the environmental 'syntagms';
that is, the generative character of these syntagms and
the broader significance of the meaning included in them.
According to the arguments developed in the previous
chapters, a linguistic product seen as a structure aims
predominantly at communication, although an <u>a posteriori</u>
analysis of it can raise some more general questions of
the kind investigated in sociolinguistics. On the

contrary, an architectural product aims predominantly at other purposes although the analysis of it can display communicative values which have not been consciously included in the process of its production.

A central concept which is based upon the previous conclusions is the concept of 'syntagm' or 'prototype'. The particular character of environmental prototypes, as it has been developed by A. Awadalla, shows the limitations of the linguistic metaphor in architecture and the need for further consideration of what has been called the prototypic analysis of the built space, or - in a more linguistic terminology - the 'syntagmatic approach to environmental structures'.

I have already noted that there are two main consequences of the 'syntagmatic approach'. The first refers to the involvement of prototypes in the production of different 'styles' in the course of architectural history. The meaning of the concept of prototype emphasizes the differentiations of architectural forms at the intermediate deepness level of prototypes.

The second consequence refers to the role of prototypes in the eventual introduction of different disciplinary areas within the context of architectural explanation. This meaning of the concept of prototype emphasizes the differences between architectural products as far as their institutional origin is concerned. It is interesting here to remember that in the history of

architecture different 'styles' were developed mostly
when they   were   exercised on a particular building-
type. It seems, therefore, quite reasonable to conclude
that the notion of prototype might incorporate both the
above meanings at the same time. It is also reasonable to
conclude that the social evaluation of specific building-
types would not be possible if we excluded from them the
morphological features of the intermediate deepness level
to which prototypes belong.

I shall try in this chapter to extend the concept of
'syntagm' a little further, towards the descriptive
apparatus for explaining the production of the built space.The
argument is that syntagms have dominated not only the
historical evolution of architectural practice, but
descriptive theories of architecture as well. And the
core of the argument refers of course to the operational
character of description and the subjectiveness of it.
Since syntagms include socially evaluated meanings,the
way they are understood is also characterized by the
predominances of particular attitudes towards both the
description of space and the practice of its products.
In EAR/3,we tried to examine three of the well known
theories of the artificial space, namely those developed
by Lynch, Alexander and Harvey. We wrote:

" Consider, for instance, three theories in architec-
ture concerned with the description of the built

environment and its 'beyonds'. In these theories - by
people who have been basically trained in quite different
disciplines - we shall see how the general principles
reflect the emphases on specific systems of social
evaluation in the way we called syntagmatic, and also how
such syntagmatic approaches differentiate the syntactic
chains which might be derived from them.

Lynch in his 'Image of the City' is concerned with
'the look of cities and whether this look is of any
importance, and whether it can be changed'[1]. His work,
which is predominantly experimental, stresses the
syntactic aspects of a built form by analyzing its
'environmental image' into three components:'identity',
'structure' and 'meaning'. By definition, the whole of
this approach is based on the communicative value of the
built forms. He points out that "so various are the
individual meanings of a city, even while its form may
be easily communicable, that it appears possible to
separate meaning from form, at least in the early stages
of analysis. This study will therefore concentrate on
the identity and structure of city images"[2]. Lynch
could not avoid the syntagmatic dimension in his work -
even working in a purely systemic way - since he had
himself pointed out that symbolic, aesthetic and other
values beyond the communicative one are also of equal,

1. K. LYNCH, The Image of the City , MIT Press 1973 (© 1969),
   Preface.
2. Ibid., p. 9.

if not more, importance. Furthermore, what is striking
is that city images, even in terms of communicative
value, are grouped according to social classes, age, sex,
education and profession.

Lynch has tried to investigate syntax chains
evaluated socially in terms of human perception,
cognition, and communication. The components of his
elementary structure [3] inevitably include this particular
kind of semantic interpretation, and consequently, the
whole structural chain does the same, belonging
to the syntagmatic approach.

We have to look at his chapter concerned with
'metropolitan form' in order to imagine how this chain may
be descriptively identified and to show how flexible
the syntactic chain and social evaluation is according to the
system of meaning we use.

Apart from Lynch's first technique-which is less
structural and more systemic [4] - to identify the way in
which higher order structures (such as metropolitan ones)
may be formulated, it is quite interesting how structurally
valuable is the second one in which the elementary
structures already contain the powerful attributes (always
within the communicative context) that allow them to pro-

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3. "Paths", "edges", "districts", "modes" and "landmarks".
4. K. LYNCH (1960), op. cit., p. 112.

duce higher order structures. He points out that: "The second technique is the use of one or two very large dominant elements, to which many smaller things may be related: the siting of settlement along a sea-coast for example; or the design of a linear town depending on a basic communication spine ..."[5] The structural chain that may be produced in such a way is syntactically different compared, for instance, with what we might understand as a hypothetical abstract topological syntax of a city, as it might be suggested by the first technique.

Alexander represents the kind of investigator who moved from the predominantly syntactic aspects of design to the syntagmatic ones. In his first book 'Notes on the Synthesis of Form' he tried to establish a general mathematical syntax according to which elementary structures can be equipped with some semantic interpretation[6].

Alexander accepted later the already structured prototypes (purely syntagmatic) and also the differentiation of their syntactic characteristics caused by political, social - in a word cultural - demands. When he established an institution like the 'Centre for Environmental Structure'[7] he had already realized the social

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5. Ibid., p. 113.
6. Alexander uses the term "needs", later changed into "tendencies".
7. Proceedings of the Seminar held by the Center for Environmental Structure in 1967.

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significance and changing character of architectural prototypes and tried to find a technique to record them and to produce his flexible 'environmental pattern language'.

In Harvey's work 'Social Justice and the City'[8] the predominance of economic evaluation of environmental structures at the urban scale is obvious. Equipped with the apparatus of theoretical Marxism combined with what Harvey calls the 'operational structuralism' of Piaget, he does not try just to use economics as one basis of an environmental descriptive theory, but as the comprehensive basis for it . Harvey's purely syntagmatic approach goes further, structuring the syntagms themselves through the structure of social evaluation. He does not speak anywhere about what this means in terms of syntagmatic syntax, but we may realize what that might be, considering some of his basic concepts, such as 'real income', 'use value', 'exchange value', etc. It is not our intention here to proceed with a detailed discussion of syntagmatic syntax as it may be formulated in relation to Harvey's work. Nevertheless, it will become more and more clear that Harvey's emphasis on the economic basis is considered here as being strong enough to stimulate further research on the syntagmatic nature of architectural prototypes „   (taken from EAR/3 ,p.65).

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8. D. HARVEY (1973), op. cit.

What becomes apparent in the above examples is that, of course, different descriptive approaches to architectural products are intended to solve problems which these approaches consider as most important and are influenced in their structure by the nature and historical origin of these problems. They also adopt particular views concerning the social meaning of elementary space structures. For Lynch a prototype has mostly a communicative value and this is the way he deals with it in attempting to propose ways of practice. For Alexander a prototype is a system of fundamental needs either in the older form of 'diagrams' or in the more recent form of the lexical items in his pattern language. Especially in Alexander's work, it is interesting to examine the enlargement of the social meaning included in each pattern, which goes beyond the formalistic attitude adopted in the 'Notes of the Synthesis of Form'. Finally, for Harvey, a prototype reflects the economic values embedded in it by the mode of production in which the prototype is incorporated and has also a fundamental institutional value for the one who investigates it.

According to a prototypic analysis of the built space, any attempts to produce the abstract autonomous syntax of it   fail to meet a problem-solving purpose. They have to be elaborated through mapping procedures. However, since mapping procedures do not belong to the context of a syntagmatic approach to the built space, abstract syntaxes have   a mere geometrical   significance for this kind of approach.

The level of abstraction of the prototypes which are
used in different descriptive theories   is by no
means clearly defined. Lynch's syntagms, for instance,
are nearer to the surface than Alexander's first
'diagrams'. Alexander himself moved later towards a
lower degree of abstraction by introducing the patterns.
Generally speaking, we have to admit that a high degree
of individuality characterizes different approaches as
they have been generated by different problem-solving
intentions and developed at different times. In a broader
sense, we can accept, however, that the strongly syntagmatic
character of architectural practice and the structural
complexity of environmental prototypes would imply, as a
rule, an intermediate level of abstraction for the descriptive
theories of the built space , as it is shown diagrammat-
ically below (first appeared in EAR/3).

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9. E.A.R./3, op. cit., p. 74.
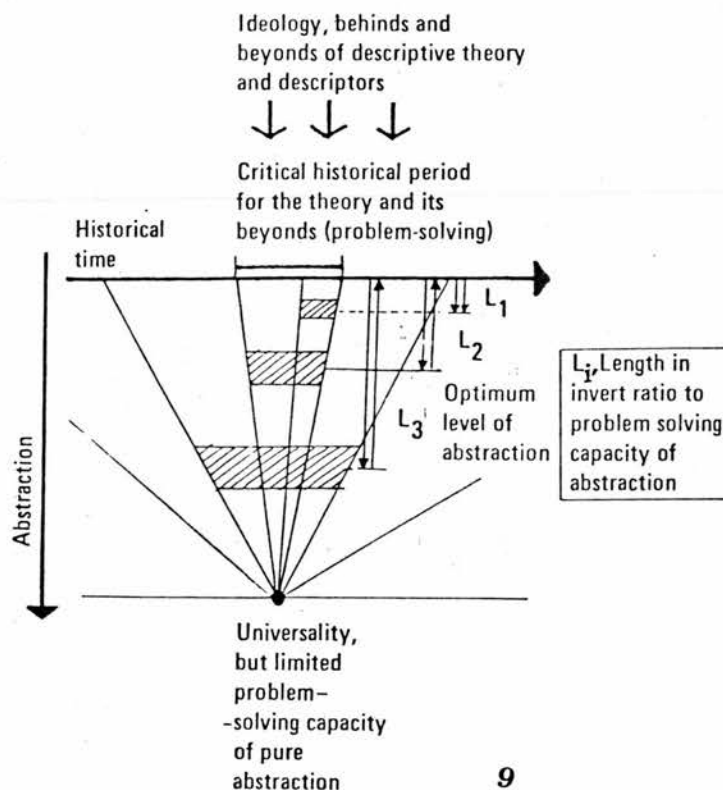
The major conclusion from the above discussion
is that, in practice, each explanatory apparatus for the
built space is historically generated and highly subjective.
The linguistic metaphor serves this explanatory task by
enlarging the notion of meaning towards 'social
evaluation' and by implying the structural philosophy
which is embedded in the linguistic paradigm. However,
it is precisely this enlargement - made necessary because
of the natural semantic pluralism of space - that shows
the limits of the linguistic metaphor. A modified paradigm
is inevitable and I shall be dealing with it in the
following chapters.

CHAPTER I,2.2

OPERATIONAL MODIFICATIONS OF THE LINGUISTIC PARADIGM:
A FORMAL BASIS

2.2.1   DESCRIPTIVE OR SUBSTANCE LEVELS

The development of the linguistic paradigm towards
the semantic pluralism of   artificial space is,by defini-
tion, subject to a kind of operational taxonomy. What we
really need to achieve by such a taxonomy is an average
formal basis which would be equally sufficient for a
plurality of explanatory approaches to the built space
regardless of the problem-origin and the structure of
these approaches. We may refer to this hypothetical
basis as the 'descriptive dimension' which should be
added to the linguistic paradigm. In general, this
descriptive dimension is the tool which makes the ling-

uistic metaphor conscious and serves as a <u>modifier</u> from the domain of language to the domain of the artificial space. In this sense, such a hypothetical basis is not a dimension at all, at least in the usual linear sense of dimension. It signifies the <u>structure</u> of the <u>descriptive apparatus</u> of the built space - or, in other words, the structure of descriptors of it - and as such, it indicates the ideological origin and the problem-solving intentions of the actor who describes the built environment. In strictly linguistic terms, the descriptive dimension is predominantly concerned with an <u>operational modification</u> of the <u>semantic</u> component of the linguistic paradigm. It is also expected that, because of its generative character, this operational modifica-tion of meaning cannot but affect the syntactic character-istics and the transformational rules of the explanatory apparatus for understanding the artificial space.

The best way to identify this hypothetical formal basis is, of course, by investigating and classifying the existing theories of the artificial environment and their historical development. I have been involved to some extent in this task, in the previous chapters, in discuss-ing some aspects of different systems of human practice[1] and some well known theories about the built environment[2]

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1. See Ch.I,1.3, comparison systems like language, music, painting and architecture.

2. See Ch.I,2.1, comparison of Alexander and Lynch's theories.

and the production of it[3] . This is still, however, far
from constituting a sufficient empirical inquiry on this
subject. Furthermore, it has been also repeatedly
claimed in this study that one basic consequence of the
semantic pluralism of the built space is the effect on the
coherence of architectural explanation, as far as the
institutional origin of environmental products is taken
into account. This means that different institutions
are not expected to correspond to environmental images
which could be explained in a unique and general manner,
although it is definitely possible to discover highly
abstract formal languages for this explanatory purpose.

In the following chapters, I shall be trying to
investigate some aspects of such a formal language but
my empirical research will be concentrated on a
particular institutionally defined structure: the
universities. The major inputs, however, for starting the
empirical research do not deal with university structures
in particular, but are based on more general assumptions .

The hypothetical formal basis according to which the
structure of descriptors can be understood is very
elastic and equally sufficient for a whole spectrum of
the sciences of the artificial. As such, this basis has
mostly a taxonomic character unless it is equippped
with some transformational rules which can illustrate

3. Especially Harvey's theory (see Ch.I,2.1).

the possible forms that this basis can take when it
refers to a particular domain of inquiry.

The linguistic paradigm, considered in a broader
sense as semiotic paradigm, provides us with a generally
accepted apparatus for such a formal basis. This appara-
tus is the path from the 'signifier' to the 'signified'.
Lagopoulos has shown in a digrammatic form how
complex such a path may be (in the case of urbanism) : [4]
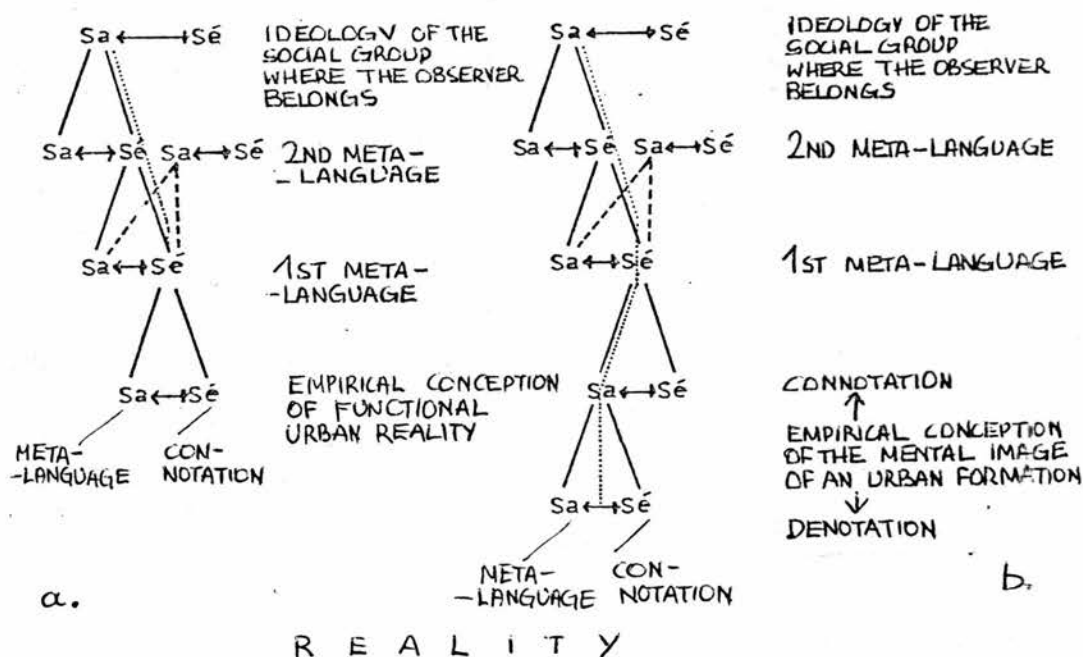
SCIENTIFIC PROCESS OF α. FUNCTIONAL & b. SEMIOLOGICAL URBANISM

The central concept introduced by the signifier-
signified logic is the level of approach of a structure
and, furthermore, of a domain of inquiry. The

4. Α.-Φ. ΛΑΓΟΠΟΥΛΟΣ, Δομική Πολεοδομία, Ἔκδοση Τ.Ε.Ε., 1973.
   (A.-Ph. LAGOPOULOS, Structural Urbanism , Technical Chamber
   of Greece, 1973), p. 159.

predominance of environmental considerations is, for
example, quite clear for the study of the built forms,but at
the same time the explanatory power of description is
definitely reinforced by the consideration of other
levels, such as the activity level or the level of the
institutional characteristics of the artificial environ-
ment.

The levels of approaching a structure are also
related to the differentiations of substance which can
appear as the investigator moves from one level of ap-
proach to another. The general form of this phenomenon was
developed previously as a basic characteristic of
different systems of human artefacts (Chapter 1.3.3).
Architecture was considered there as a system where
super-surface structures are static, which can be evaluated
in composite ways, and can be reproduced by changing
substance through mapping. Although the levels of
approach, which I mentioned previously as components of
a formal basis for description, do indeed describe
pragmatic aspects of space structures, it is also apparent
that these levels represent differentiations of substance
of these structures. The view which is adopted in this
study is that such levels (environmental,activity,
institutional) are not communicational artefacts merely
created to conceive better a spatial form, but existing
and interacting realities which are all included in what
we understand under the general title of 'environmental
structures'.

2.2.2   THE DOMINANCE OF THE ACTIVITY LEVEL

Among these levels of approaching an environmental
structure, the activity level is proven to be essential
for both theory and practice in architecture.   As J.
Farbstein wrote,

> "Activity studies are steadily gaining support and
> popularity at various scales of environmental
> studies, from the architectural to the urban,
> metropolitan and even national ... Activity is
> treated as an abstraction of human behaviour which
> can be usefully related to certain aspects of the
> environment."[5]

This support and popularity of activity studies has
driven architects to a behaviourist approach   towards the
artificial environment.   There is no doubt that activities
are what architects usually consider as the first
'signified' of the built space.   The behaviourist attitude
towards the design of the artificial environment, however,
is due to the opposite: built space is considered
as the first 'signified' of the activities.   Especially
in the planning of complex forms, like universities, the
production of activity models has been used as a kind of
panacea in order to face the complex problems which are
involved in large-scale planning.   In the case of
universities, such activity models constitute the essential

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5. J. FARBSTEIN, The definition and description of activity, in:
   J.A.R.3/1 (January 1974) p. 18.

part of the newly developed operational techniques which are used to translate academic order into built space.[6]

The importance of the activity level for modern architecture was first expressed in the Charte d'Athènes as a hierarchical arrangement of categories such as Dwelling, Recreation, Work, Transportation etc [7]. The Charte d'Athènes has been considered by the new generation of urban planners and architects as the source of many problems incorporated in the so-called Modern Movement. It is generally accepted that most of these problems derive from the attempts to translate activity groups into a strict environmental zoning.

Because of the popularity of activity studies numerous attempts to describe activities in a formal way have appeared. Farbstein's article (1974) is a good review of such attempts. He wrote on the definition of activity, that,

> "activities are the observable actions of indi-
> viduals, alone or in groups ... this excludes
> verbs describing interior states as opposed to
> actions (to be in love, to be sad, to think etc.)."[8]

and on the classification of activities (stressing the connection between activities and their locational characteristics), that

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6. See ch. 1.2.1 of part II of this study.

7. A brief summary in D. SHARP, A Visual History of Twentieth – Century Architecture, Heinemann 1972, p. 155.

8. J. FARBSTEIN (1974), op. cit., p. 18.

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"... activities are recognized as distinct in
themselves, but separate categories are included
for the same activity, carried out by different
locations. Eating, for example, would be given
a different code at home, at college and
'outside'."[9]

However, Farbstein's main contribution to the under-
standing of activities is his discussion on 'activity
patterns' and the regulation of activities. First, he
stresses the links between activity patterns and the insti-
tutional characteristics of an organization.

"The activity pattern of a particular organization
consists of the highly interdependent activity
routines of the people who compose that organiza-
tion ... The activities performed tend to be
identified strongly with the person's role in the
organization ... The characteristic pattern of
activities for the organization ... contains a
description of the temporal structure imposed by
the organization ..."[10]

Second, he stresses the possibility of controlling
activities and the role of this control in maintaining the
social structure.

"These controls influence greatly the daily
activity patterns of society and thus the use of
space and facilities. Another type of control is
that which determines which activities can take
place in which spaces. It is impossible, however,
to state precisely when 'functional' requirements
govern the location of activities and when more
symbolic concerns are responsible. Probably they
are mutually reinforcing. As Mary Douglas[23] said
in discussing dirt,
'It is a relative idea. Shoes are not dirty in
themselves, but it is dirty to place them on the
dining table; food is not dirty in itself, but it
is dirty to leave cooking utensils in the bedroom,
or ... bathroom equipment in the drawing room, ...
outdoor things indoors;... and so on'.(pp.35-36)"[11]

9. Ibid., p. 19.

10. Ibid., p. 22; reference to: T. HÄGERSTRAND, What about people
    in regional science? Papers and Proceedings of the
    Regional Science Association, vol. 24, 1970, pp. 7-21.

11. Ibid., p. 23; reference to: M. DOUGLAS, Purity and Danger,
    Preager, 1966.

What seems to be important in the above remarks is
that activities may signify deeper orders of the kind
which characterizes an organization, the system of roles
in it and the social order which is promoted by the
organization.

There is no doubt, therefore, that although
activities represent one level of approaching the built
forms - and as such belong to a Sa-Se path - they,
themselves, may be also understood at different levels of
approach. In a previous work, concerned with participa-
tion as a descriptor of the built environment, I attempted
such an analysis of the activity level. That analysis
identified successive levels of approaching the semantic
component of activities[12]. These levels are mentioned
below.

The first and simplest level of approaching
activities is expressed by the combination of the
participants with the time sequence of an activity.
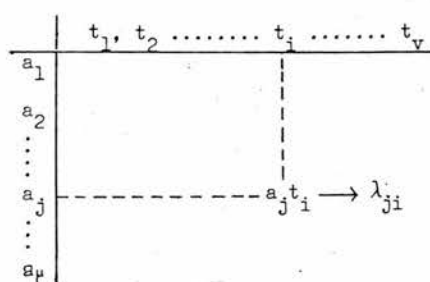
The typical element (λji) of such a matrix corres-
ponds to a variety of potential meanings, e.g. 'simple

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12. Α. Μ. ΚΩΤΣΙΟΠΟΥΛΟΣ, Συμμετοχή στίς Άρχιτεκτονικές
    Δράσεις, Θεσσαλονίκη 1975 (A. M. KOTSIOPOULOS, Participation
    in Architectural Actions, Ph. D. Thesis, Thessaloniki,
    1975) pp. 263-264 (english summary).

presence of an individual or group during one stage of
the process' or 'degree of control that each individual
or group exercises on the process in a particular stage
of it',etc.

A second, more complex and comprehensive level of
approaching activities is expressed by combining the
above matrix with a set of bases, which describe the
nature of activities:

according to a set of descriptive
bases: $M = (m_1, m_2, \dots m_e)$.
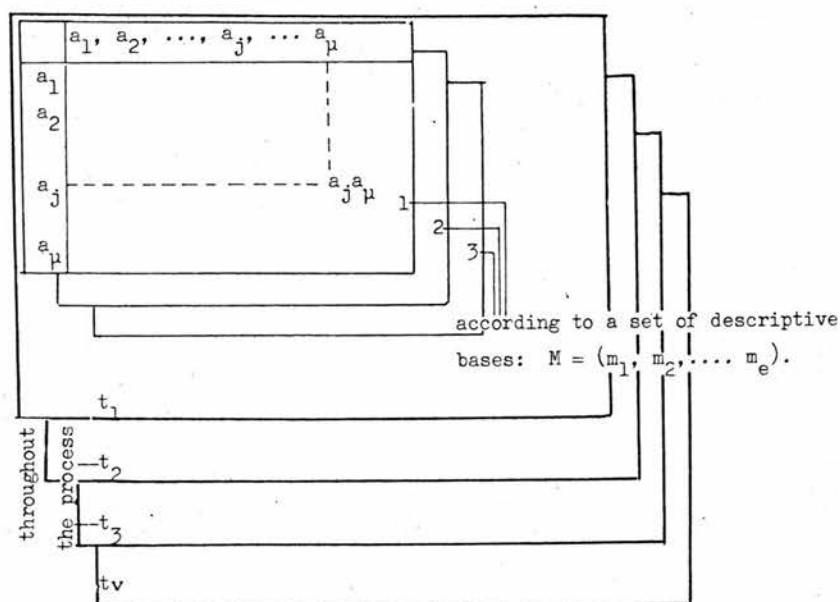
The main component of the above representation of
activities is the set of descriptive bases $M = (m_1, m_2, \dots m_p)$.
Such bases are: 'communication','coalition and conflict',
and finally 'dominance'. It is possible to represent
'coalition', 'conflict' and 'dominance' structures in
terms of matrices or graphs similar to sociograms. What
is important in such representations is the distribution

among the participants of the property which is described by each descriptive basis. The total set of these distributions constitutes a first step towards the understanding of the roles of participants. Roles are, in fact, the main components of a third, more comprehensive, level of approaching activities.

'Role' is a concept introduced by sociologists and social psychologists to explain human activities in a schematic and coherent manner. There has been a long discussion about what exactly 'role' is. As Goffman wrote:

> "In sociology there are few concepts more commonly used than 'role', few that are accorded more importance, and few that waver so much when looked at closely."[13]

'Role' means literally 'actor's part in a play' or 'person's task or duty in an undertaking' but this concept is generally used here in order to signify the typical connection of a unit or part with a whole or process. Berger and Luckman define role as follows:

> "We can properly begin to speak of roles when this kind of typification occurs in the context of an objectified stock of knowledge common to a collectivity of actors. Roles are types of actors in such a context. It can readily be seen that the construction of role typologies is a necessary correlate of the institutionalization of conduct. Institutions are embodied in individual experience by means of roles. The roles, objectified

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13. E. GOFFMAN, Encounters, Penguin University 1972 (Θ 1961), p. 75.

linguistically, are an essential ingredient of the objectively available world of any society. By playing roles, the individual participates in a social world. By internalizing these roles, the same becomes subjectively real to him."[14]

According to B. Berstein, roles are incorporated in a semiotic understanding of human activities:

"A social role can then be considered as a complex coding activity controlling both the creation and organization of specific meanings and the conditions for their transmission and reception."[15]

Roles are better understood within the framework of 'role systems'. Role systems represent a formalization and abstraction of activity sets and correspond to what Berger and Luckman define as 'institutionalization of conduct' . Role systems deal with activities in an overall way and are particularly important for the study of complex environmental structures as opposed to isolated roles. The following tables show an example of how rich the information which is included in role systems can be.

14. P. L. BERGER and T. LUCKMANN, The Social Construction of Reality, Penguin University 1973 (© 1966), p. 91.

15. B. BERNSTEIN, Class, Codes and Control, Vol. I (1973, © 1971), op. cit., p. 167.

Bases / Distribution	Presence 1	Communication 2		Coalition - Conflict 3		Dominance 4
		Codes 2_1	Notification 2_2	Coalition 3_1	Conflict 3_2	
Extreme Case 1: Accumulation of the property by one participant A	1 or 2 participants (only one interpersonal relationship).	Only one knows the specific code which is necessary in order to get the process going on	Only one is capable of distributing notification	Everybody is associated with and in favour of one particular participant	Everybody is against one particular participant	Any power is concentrated in one person ("monarchy")
Intermediate Case 1: Accumulation of the property by one group of participants B	Only one particular group of participants takes part in the process (e.g. only archi-tects)	There is an "elite" con-cerning communication. Its members know the necessary codes, and	are capable of distribut-ing notifica-tion towards the others	There is a group whose members are particularly intercon-nected.	There is a clear field of conflict. The others either sup-port the conflicting ones or stay neutral	Power is concentrated in one group (power elite, "oligarchy").
Intermediate Case 2: Accumulation of the prop-erty by several groups Anyone belongs to a certain group. C	Participants belong to groups and take part on behalf of them.	There are parti-cular codes corresponding to the participant groups (e.g. architects' codes, build-ers' codes, clients' codes etc.)	There are notification groups characterized by a stabilization of certain attitudes on the environ-mental object	There are coalition groups (cliques)	There are several and not clearly identified fields of conflict	Power is distributed among groups which control each other ("pluralism")
Extreme Case 2: No accumu-lation of any property D	Everyone who is likely to participate actually participates	Everyone knows the necessary codes	Nobody keeps notification back. Attitudes are largely interchanged	No cliques may occur	There are no fields of intense conflict	Power is distributed among all the partici-pants ("polyarchy")

[16]
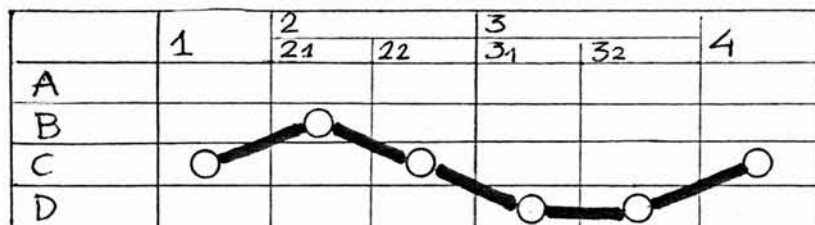
The example shown in the above table represents an activity (1C, 21B, 22C, 31D, 32D, 4C) which can be

16. A. M. KOTSIOPOULOS, Participation in Architectural Actions, 1975, op. cit., p. 266 (in english).

approached as a system of roles and has the following
characteristics:

1C: participants belong to several groups and represent
their groups during the process of the activity,

21B)
22C) only one group possesses the communicational codes
and is capable of distributing notification to other groups,

31D)
32D) no cliques appear and there are no fields of intense
conflict,

4C: a pluralistic situation exists as far as dominance
is concerned (i.e. during the activity, power is dis-
tributed among groups which control each other).

Obviously, semantic bases like communication, con-
flict or dominance are very general to describe the
surface characteristics of everyday activities. Such
bases belong to a deeper level of analysis. The form of
the path from deepness to surface, as far as the semantic
component of activities is concerned, is shown in the
following simple example. The example is based on a
tree-model of identifying activities, which has the
following general form[17] :
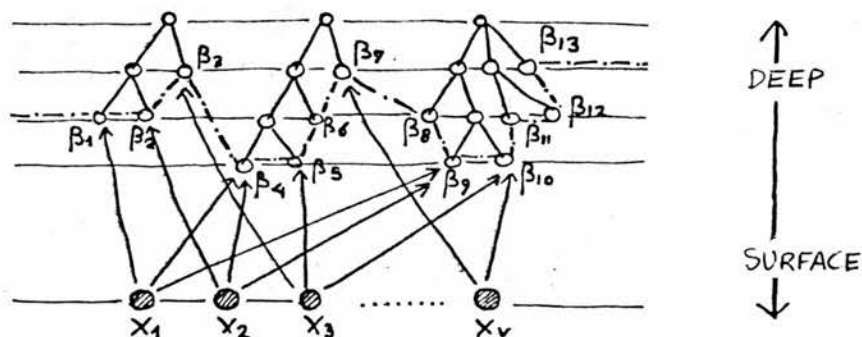
17. A. M. KOTSIOPOULOS, Design for University Activities, unpublished
    paper, Edinburgh 1975.
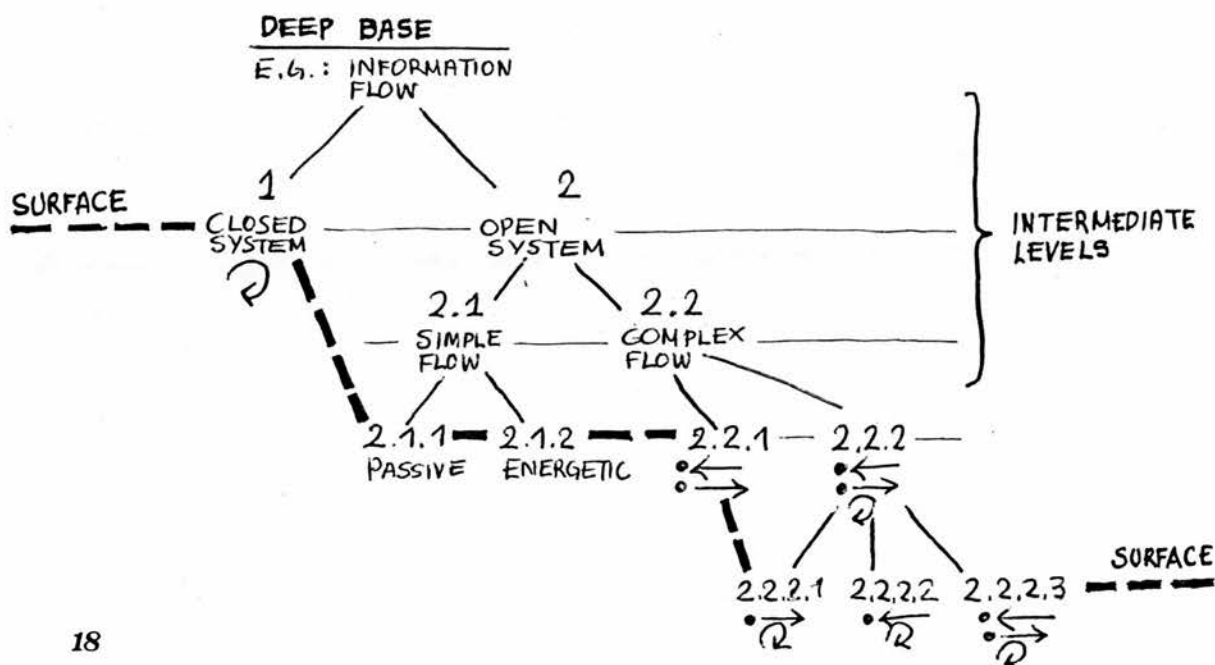
An example of developing one of the semantic bases
of activities (flow of information).

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18. Beyond these static descriptions, there have been numerous
    attempts to relate activities to human "needs" or "strings",
    As Abraham writes, activities may be related to the "needs"
    described by B. Malinowski because they are different between
    primitive and more civilized people only in degree (metabolism,
    reproduction, bodily comfort, safety, movement, growth and
    health; see J. H. ABRAHAM, Origins and Growth of Socio-
    logy, Penguin 1973, pp. 555-556). On the other hand, Leighton
    identified ten "basic strings" in man, Maslow described an
    hierarchical system of evolutionary needs, and Erikson took
    the view that each individual passes, during his life, through
    eight major stages, fighting a particular battle at each stage
    (see C. ALEXANDER, Major Changes in Environmental Form
    Required by Social and Psychological Demands in: ARCH+ ,
    2(1969) H. 7, p. 31; Alexander uses such concepts in order to
    develop his pattern language).

THE INSTITUTIONAL LEVEL; THE STRUCTURE OF THE
          FORMAL BASIS

A major assumption from the discussion about
activities is this: although activities represent a
coherent basis of approaching the built environment at an
intermediate level, they are themselves subject to a
deeper analysis. Such an analysis can reveal institutional
characteristics which influence both the structure of
activities as well as the structure of the built environ-
ment, in which these activities take place. Roughly, this
is shown in the following diagram:
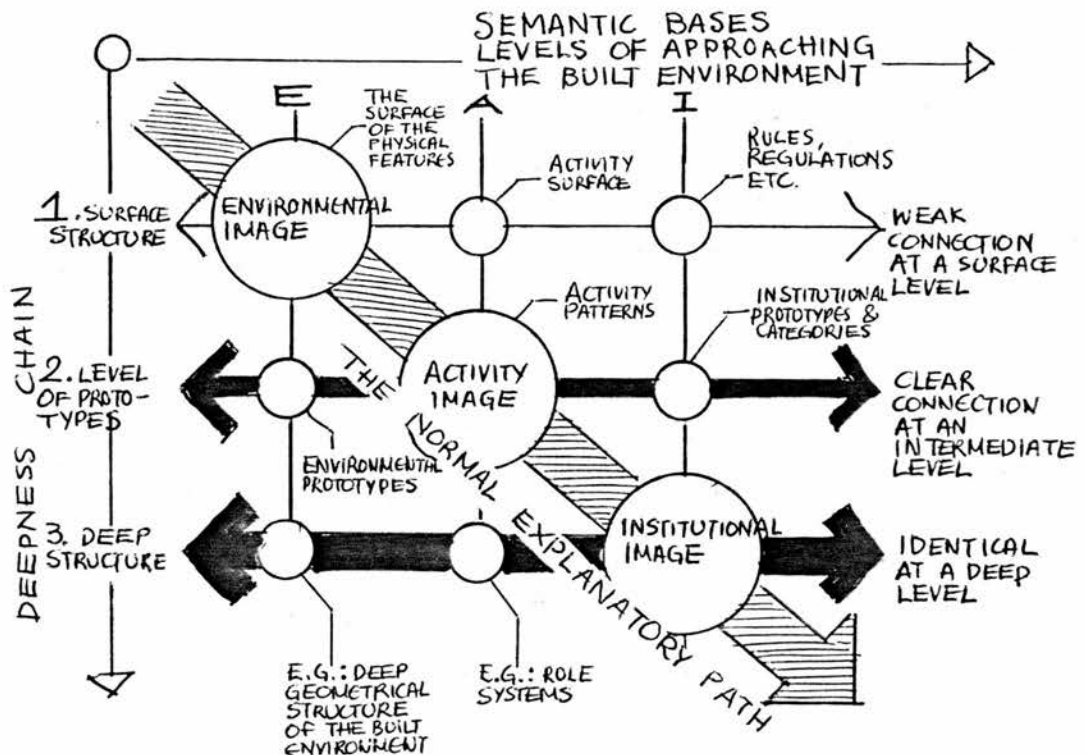
The different thickness of the horizontal arrows in
the above diagram represents the different degree of

cohesion between the images of an environmental struc-
ture, as we move from the surface to the deep level. For
example, in the study of the Master Development Plan of
the Bath University[19] it is easier to relate the strong
interdepartmental connections with the dominant idea of
a basic pedestrian movement and with the linear pattern
of the environmental development of the University than
to relate the detailed academic regulations with the
simulated activity images (which are used to aid the
design process) and with the complex built forms of the
University (E2-A2-I2 connections stronger than
E1-A1-I1 ones) .

1(S)

E1   BUILT FORMS   A1   DETAILED ACTIVITY DESCR.   I1   DETAILED ACAD. REGUL. (SCHEM.)

E   ENVIRONM. DEVELOPM.   A   BASIC PED. MOVEM.   I   INTERDEPT. CONNECTIONS

2(P)

E2   A2   I2
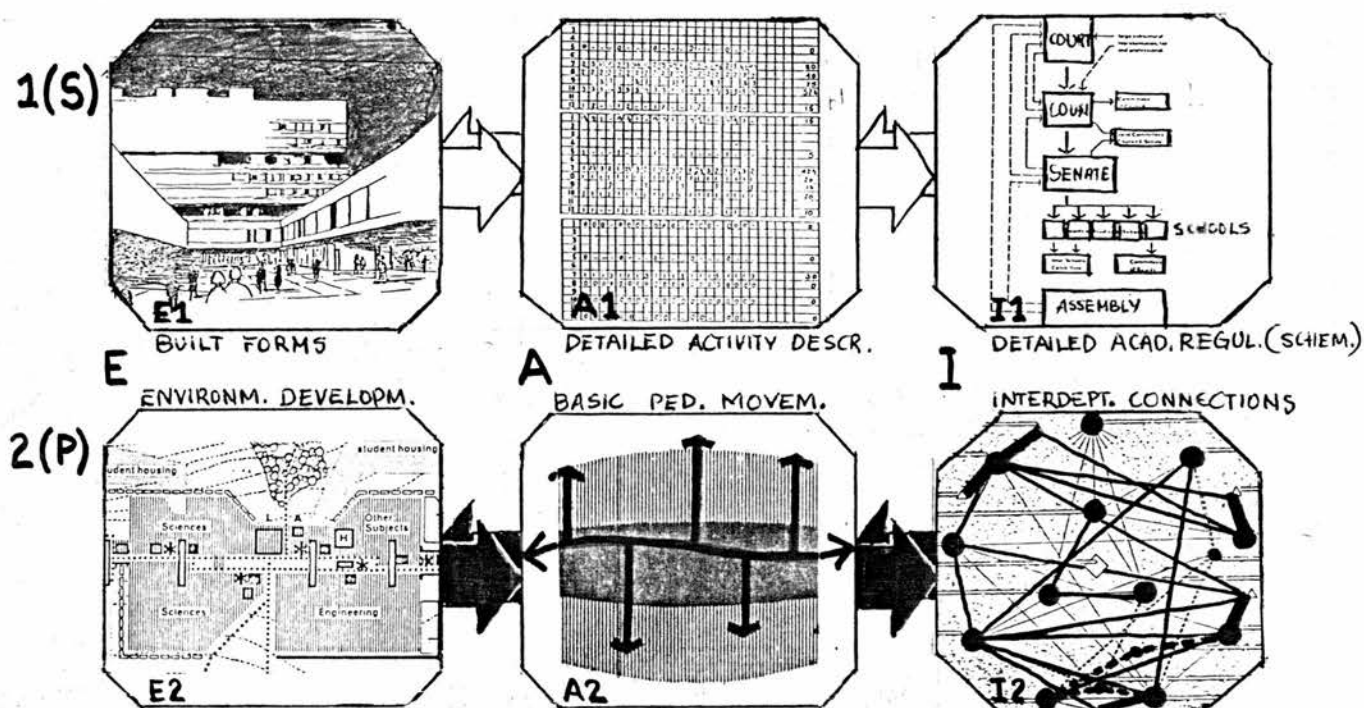
Institutions, by definition, represent a generaliza-
tion and abstraction of activities. According to D.
Bell, institutions are

> "activities which are repeated or continuous with-
> in a regularized pattern that is normatively

19. BATH, University of, The Proposed University of Bath,
    Development Plan, Rep. No 1, 1964, pp. 14,32,47,81,98,110.

sanctioned ... and they are studied comparatively
in order to see how different societies organize
their ... life."[20]

Thus, the investigation of a built form at the insti-

tutional level implies the explanation of the institutional

identity of the activities which take place in it.

Moreover, as a consequence of the argument discussed

previously, such an investigation reveals the deep

structural patterns which dominate the environmental,

activity and institutional characteristics of the built

form and which are so deep that they are common to all these

categories of characteristics.

Consciously or unconsciously, most of the history

of architecture is dominated by a coordination of such

patterns. The institutionalization of particular build-

ing patterns which correspond to particular activity

patterns and, consequently, the classification of building

types according to their institutional origin is a

dominant element in the production of the artificial space.

I have already mentioned this fact writing about the

development of prototypes in Chapter 1.4. In order to

understand better this attitude, it is worthwhile to

mention the opposite view taken by one of the strongest

polemists versus this kind of semantic purism. R.

Ventouri writes in his 'gentle manifests' for a

'Nonstraightforward Architecture':

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20. A. BULLOCK and O. STALLYBRASS (eds.), The Fontana
    Dictionary of Modern Thought, Fontana / Collins 1973,
    p. 313, (article by Prof. D. BELL).

"Architects can no longer afford to be intimidated by the puritanically moral language of orthodox modern architecture. I like elements which are hybrid rather than 'pure', compromising rather than 'clean', distorted rather than 'straightforward', ambiguous rather than articulated ... inconsistent and equivocal rather than direct and clear."[21]

The 'radical eclecticism' of what is called post-modern movement in architecture[22] introduces a kind of semantic pluralism of the built forms which makes it difficult for the observer to understand the path from the environmental surface to the deep institutional identity of the artificial environment.[23] In fact, post-modern ecclecticism is not merely a style since the whole explanatory model (used in this study to incorporate styles and building types) is seriously affected by the logic of the 'nonstraightforward architecture'. It becomes much richer:

SURFACE

PLURALITY OF LINKS, SEMANTIC AMBIGUITY ETC.

INTERMEDIATE

DEEP
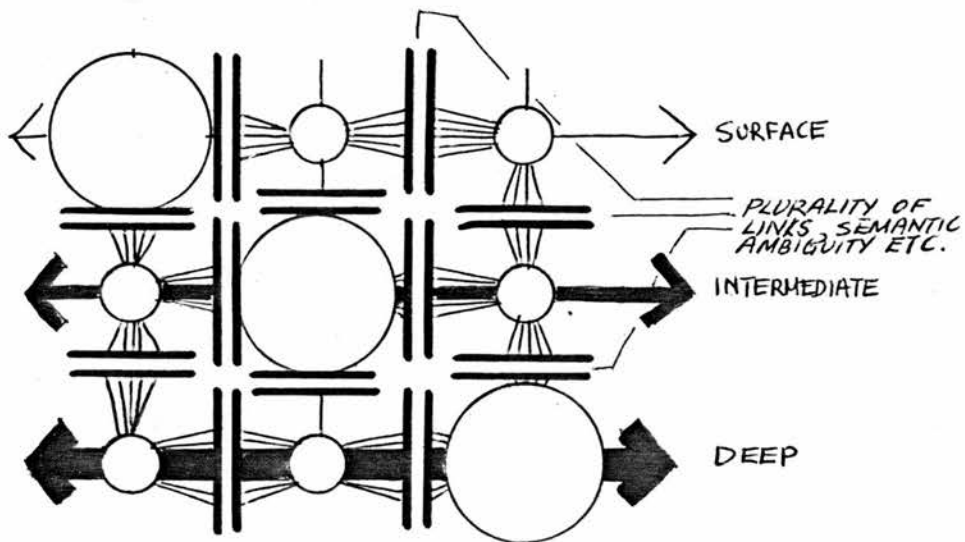
21. R. VENTURI (1967), op. cit., p. 16.

22. According to Jencks' view, in: C. JENCKS (1977), op. cit.

23. See also C.B. WILSON, Physical Relationships in Architecture, in: H.HAKEN and M.WAGNER(eds.), Cooperative Phenomena, Springer 1973. for an analysis of the physical aspects of the built environment in relation to what is called here"the process of internalization" (especially the introduction).

Summarizing the basic components of the hypothetical basis which constitutes the descriptive dimension of our enriched linguistic paradigm, it is necessary to make something clear: these components of such a formal basis are themselves rich enough to provide the investigator with a plurality of approaches. Architects are familiar with this plurality as it appears mostly at the environmental level. Different semantic bases (climate → building as climatic modifier, geometry → building as a form, etc) are involved in the understanding of the artificial space and some of them already include components of another level of approach (activity or institutional). In any case, these three families of concepts, however interconnected and complex, seem to be clear enough to establish a hypothetical formal basis for developing our linguistic paradigm.

CHAPTER I,2.3
OPERATIONAL MODIFICATIONS OF THE LINGUISTIC PARADIGM:
CATALYSTS OR PROBLEM-SOLVING MODIFIERS

A formal basis for organizing the descriptive dimension of the linguistic paradigm in architecture is, alone, not enough to include the operational structural principles, required for a comprehensive explanation of the artificial space. Some ways of involving such principles in the explanatory task have been mentioned previously. One, for instance, is the particular importance acquired by many planners to the level of activities. Another is Venturi's attitude in favour of a multiplicity of the meanings which are created at the surface level of the built forms and in favour of non-direct routes from the surface to the deep level and from the environmental images to the institutional ones.

What has been not yet shown is how such simplified or even more complex general principles may affect the generative semantics of the artificial space, either by articulating meaning according to the structure of the formal theoretical basis mentioned before, or/and by influencing the elementary deep structures of a semantic syntax of the artificial space. Such principles are of course not arbitrary. They highly depend on particular ideologies and on the solution of particular problems which they promote. On the other hand, these principles are so strong that they play the role of catalysts for the description of the artificial space. That is, they make theories comprehensive and coherent and they also articulate them in order to deal effectively with environmental practice.[1]

We can speak, therefore, of a second level of an operational modification of the descriptive apparatus, the level of overall catalysts. The hypothetical formal basis of the three levels of approach is influenced in its structure by these catalysts and corresponds to the social evaluation of the built environment which is introduced by the catalysts. In other words, a problem-originated catalyst does not constitute but a formalization of what I have called 'system of social evaluation'. Such a system is particular for the actor who performs

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1. See Ch.I,2.1.

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description and its formalization shows the way to a
practice which is, of course, equally affected by the
ideological context of the catalyst.

The particularity of catalysts does not necessarily
imply an arbitrary subjectivity in selecting them. A
'modified description' is arbitrary to the extent that
the ideological context of it is itself arbitrary.
Besides, the ideological context of scientific research
is a concept which is used under various interpretations.
At least two of these interpretations are clearly
defined and their antithesis illustrates the fundamental
contradiction between the 'mapping' philosophy of the
syntactic approach on the one hand, and the generative
philosophy of the operational structuralists on the other.

The 'mapping' philosophy is interested in a scient-
ific inquiry which <u>must</u> be autonomous and accepts
'ideology' as a <u>prism</u>. This prism may transform the results
of scientific research to the technology needed to promote
purposes which might be humanitarian but also might not.
Chomsky, himself a supporter of autonomous science but
at the same time strongly involved in political thinking,
has described such a function of technology as follows:

> "To the system the technical intelligentsia make
> a very definite contribution, not only by the
> design of technology and the implementation of
> policy but also at an ideological level - in pro-

tecting policy from criticism by investing it with the aura of science."[2]

This interest in the use of science signifies also some interesting views of the connection between science as such and the ideological representation of science. Such views advocate that it is possible to invest politics with science and signifies this level of 'mapping' as 'ideological'. What it does not mention is that science itself may be invested with the aura of politics or, in other words, be ideologically influenced at a much deeper level. Such an attitude leads to the second philosphy concerning the ideological structure of science. This philosophy adopts the view that not only the use of technology but even the research apparatus and methodology might be coloured by the ideological context of praxis. A. Gramsci emphasized this fundamental difference from the model of pure science writing that

> "In reality, science itself is a structure which belongs to man's superstructure ... it is ideology. Without human intervention which constructs every value, even scientific, what would 'objectivity' mean? ... Scientific research has two main faces. The one reviews the methods through which knowledge can be acquired and investigates and reinforces the instruments for observation; it also refines the apparatuses of experience and of its control. The other identifies what all humans can control and understand in the same way... "[3]

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2. N. CHOMSKY, Responsibility, in: J. ALLEN (ed.),,March 4, Scientists, Students and Society, M.I.T. Press, 1970 p. 11.

3. A. GRAMSCI, Il materialismo storico e la filosofia di Benedetto Croce, Greek Edition,1973, pp. 96-97 (translated from the Greek text).

Marxist philosophy has been quite often misunderstood concerning the point that Gramsci discusses. It has been not rarely believed that it provides the apparatus to understand the world. It has been also ignored that even theoretical Marxism is itself subject to the rules which are implied by its own view of the world and that, in the end, these rules emphasize the highly ideological and praxially orientated nature of research.

The same happens with any paradigm. By implying a linguistic metaphor we have to be aware of the limitations of it and of the fact that this metaphor beyond its modifications is itself subject to the present state of explanation in architecture and by no means constitutes the metaphor or the paradigm. Nevertheless, although the linguistic paradigm is not yet established as a generally accepted explanatory apparatus in architecture, it can function as what Kuhn calls 'normal science'[4] , provided that it can outline its boundaries and limitations.

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4. Kuhn is also very sceptical against any attempt to produce neutral languages for scientific observation (T. KUHN, Logic of Discovery or Psychology of Research? in: I. LAKATOS and A. MUSGRAVE (eds.) (1970), op. cit., p. 18). On the other hand, Badiou writes that, "if we try to find a formal background behind any science (and to connect all these backgrounds either among them or with an artificial language) it means that we confuse the development of a system with the rule which governs its production, since we can combine these rules only when the real subject of a science is absent .... " (A. BADIOU, Le concept de la modèle, Greek edition,1972 (© 1970), p. 27. The part in

What is, therefore, the kind of catalyst which would not only articulate in a specific manner the hypothetical descriptive dimension of our extended paradigm, but also would modify the elementary structures of the artificial space?

Inevitably, this question has to be answered within a double context. First, in connection with the problem which is supposed to be served by the introduction of such a catalyst. Second, within the particular context which is introduced by the institutional character of the environmental structures concerned with the above problem area. Both these considerations derive from the way in which we understand the 'semantic pluralism' of space . In the following, I shall attempt to show an example of a problem-originated modifier with catalytic effects on the description of the artificial space, i.e. the alienation modifier. Although alienation cannot be considered as the 'overall problem' it is significant enough to show how the logic of a 'modified description' can work.

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parenthesis is summary of Badiou's reference to Carnap, where Badiou criticizes the logical positivism of the anglo-saxon type; Charles Wright Mills has also referred to the construction of what we called "useful models" when criticizing both "grand theories" and "strict empiricism". (C. W. MILLS, The Sociological Imagination, Penguin 1973 (© 1959), p. 51). Mills attitude is very near to Piaget's "reflective abstraction", to which Piaget arrives starting also from a criticism of "apriorism" and "empiricism". According to Piaget, both apriorism and empiricism take pre-existing realities for granted, as opposed to reflective abstraction where realities are constructed "by the way we act on things" (J. PIAGET, Genetic Epistemology, Norton Library 1971 (© 1970), p. 77). The main parts of the above discussion have been developed in: A. KOTSIOPOULOS, Participation in Architectural Actions , op. cit., p. 40-43.

CHAPTER I,2.4
AN EXAMPLE:THE PROBLEM OF ALIENATION

2.4.1   ALIENATION AS A PROBLEM

Alienation is one of the most controversial concepts
in contemporary thinking .   The general meaning of
alienation is an estrangement from society,

> "a feeling of 'powerlessness' to affect social
> change, or a depersonalization of the individual
> in a large and bureaucratic society."[1]

The development of the interest of political theory
in the concept of alienation is mainly due to the dis-

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1. A. BULLOCK and O. STALLYBRASS (eds.), (1973), op. cit., pp. 16-17.
   (article by Prof. D. BELL).

covery of the early writings of Marx[2]in which the strong influence of Hegel is reflected .

It is, of course, outside the scope of this study to discuss in general the origin and the social significance of alienation. To understand, however, the importance of this term for the study of the artificial environment, it is necessary to examine some fundamental aspects of alienation. This examination will be based on two important studies on alienation by E. Mandel (1970) and by I. Mészáros (1970)[3] , following the path from the conceptual understanding of alienation towards some aspects of it (mainly economic and 'aesthetical') which have close relations to the environmental phenomena.

Mészáros writes in his introduction that Marx's concept of alienation may be interpreted in four distinct ways; that is, (a) as man's alienation from nature (which expresses dialectically the relation of a worker with his product and at the same time with his sensuous

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2. Namely, Economic and Philosophic Manuscripts of 1844 (or Paris Manuscripts) and Grundrisse (or, as titled by the first editors of the manuscripts, Grundrisse der Kritik der politischen Ökonomie).

3. E. MANDEL, The Causes of Alienation, in: E. MANDEL and G. NOVACK, The Marxist Theory of Alienation, Pathfinder Press 1974 (© 1970); I.MÉSZÁROS, Marx's Theory of Alienation, Merlin Press 1975 (© 1970). See also R. SCHACHT, Alienation, Allen and Unwin 1972 (© 1970).

external world), (b) as man's alienation from himself
(that is, from his activity, which is the act of produc-
tion), (c) as man's alienation from his 'species-being'
(that is, man turns into a being alien to him, into a
means to his individual existence), and (d) as man's
alienation from man (that is from other men) [4] . Mészáros
emphasizes that these aspects are interconnected and he
attempts a formalization of the conceptual structure of
alienation:
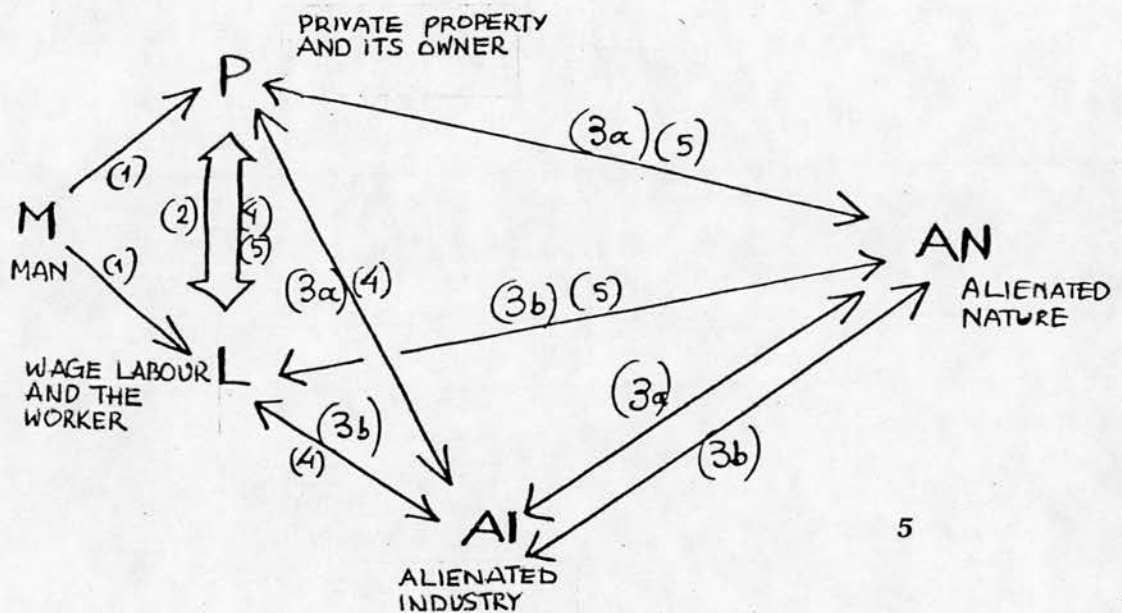
The central point of such a structure is that alien-
ation is mainly explained as 'alienation of human powers
from man through his own productive activity' [6] .
Mészáros' analytical understanding of the above structure
consists of the following:

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4. I. MÉSZÁROS (1970), op. cit., pp. 14-15.
5. Ibid., p. 108.
6. Ibid., p. 108.

"(1) Man (M) is split into private property (P)
and wage labour (L);
(2) Property and labour antagonistically oppose
each other;
(3) The original man (M) <—>industry (I) <—>nature (N)
reciprocity is transformed into the alienated
interrelationships between:
    (a) Private property (P) <—>alienated industry
    (AI) <—>alienated nature (AN) and
    (b) Labour (L) <—>alienated industry (AI) <—>
    alienated nature (AN).
Furthermore, since now everything is subordinated
to the basic antagonism between property (P) and
labour (L), we have the additional alienated
interrelations of:
(4) Property (P) <—>Labour (L) <—>alienated
industry (AI) and
(5) Property (P) <—>Labour (L) <—>alienated
nature (AN)." [7]

Mészáros attempts also to illustrate the involvement

of various disciplinary areas in the structure of

alienation using the same basic model:
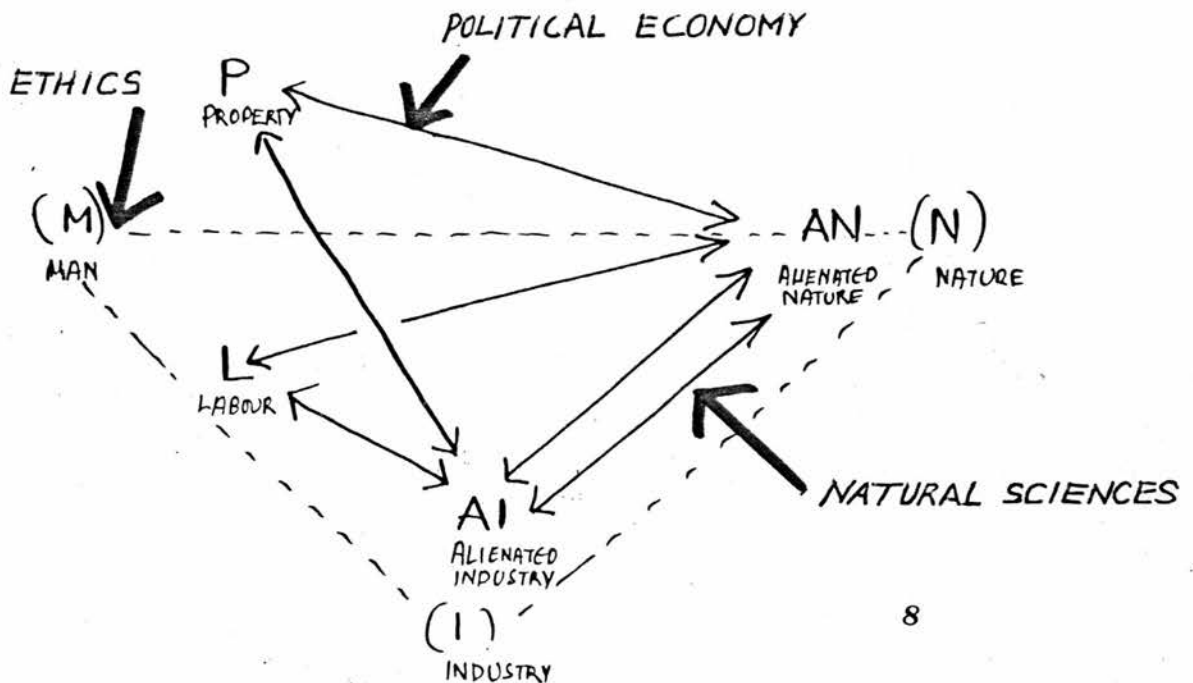
7. Ibid., pp. 108-109.

8. Ibid., p. 110.

Mészáros' understanding of alienation presents the
multiplicity of explanations of this concept but, at the
same time, it is very general to show directly how this
fundamental problem of industrialized societies would
serve as a methodological apparatus for the description
and planning of the built environment. His main contri-
bution to such a task is hidden under the more or less
misleading title of 'aesthetical aspects' of alienation.

Marx's writings on aesthetics have created many
controversial and one-sided consequences on artistic
creation. Especially responsible for this seems to be
Marx's concept of <u>realism</u>. In general, Marxist Realism
is described by Mészáros as follows:

> "(1) there is something significant - with char-
> acteristics <u>of its own</u> - to be depicted, and fail-
> ure to grasp those characteristics through the
> specific potentialities and means of art counts
> as misrepresentation or distortion, and as such is
> aesthetically unacceptable;
> (2) one must be able to apply certain standards
> to the <u>organs</u> of <u>depiction</u>, otherwise it would be
> impossible to raise the question of misrepresenta-
> tion and distortion;
> (3) similarly, one must be able to apply certain
> standards to the <u>organs</u> of aesthetic <u>experience</u>,
> otherwise there could be no aesthetic judgement;
> (4) the standards of creative depiction, aesthetic
> experience and critical judgement must have some
> <u>common</u> denominator, otherwise there is no guarantee
> against internal contradiction that would inevitably
> make vacuous the concept of realism.
> In other words: both the object of depiction and
> the artistic form in which it appears, just as much
> as the aesthetic experience itself under its
> various aspects, must have objective criteria of
> assessment."[9] (author's emphasis)

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9. Ibid., p. 199.

To discuss these 'criteria' it is necessary to remember that, for Marx, the fundamental characteristic of artistic creation is the dialectical interconnection between meaning, value and need, which can be only under-stood in the inherently historical concept of the 'self-mediating self-constitution' of the human natural being. Thus, the dichotomy of 'is' and 'ought' is false as regards the genesis of human values, and it is an artefact of the historically conditioned inability of abstract philosophers to account values except in a metaphysical form[10].

According to Marxian aesthetics, therefore, the phenomenon of alienation appears historically when artistic creation fails to match the objective criteria of assessment mentioned before which are,in the end, connected with the human natural being itself and its 'needs'.

The great danger of this kind of aesthetics is of course that, because it does not give clear guidelines for artistic creation and also because it can be interpreted in many different ways, it can be seriously misleading. In architecture, for instance, it would easily lead towards either a strict purism of form or a naive symbolism. This has happened quite frequently ,

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10. Ibid., p. 192.

not only in the U.S.S.R. in the age of ' Socialist Realism'[11]

but also in England by producing what Jencks calls,

> "the 'People's Detailing', the English version of
> 'Social Realism' or Marxist aesthetics, that
> became mandatory at the LCC in the early fifties:
> pitched roofs, bricky materials, ticky-tacky, cute
> lattice-work, little nooks and crannies,
> picturesque profiles all snuggled within a card-
> board-like rectitude."[12]

It would be one-sided aspect to understand the phenomenon
of alienation in the mere communicative sense that such
distortions seem to promote.

Alienation occurs not only when an artefact does not show
clearly the 'objective criteria of assessment' of it.
It appears <u>mainly</u> in the process of its production.
Mészáros seems to have understood clearly this meaning
when he writes about the significance of aesthetic
education:

> "As far as art is directly concerned, Marx's
> message means that artistic creation has ultimately
> to be transformed into an activity the social
> individuals as readily engage in as in the produc-
> tion of the goods necessary for the reproduction
> of the conditions of their life. It means above
> all that the existing-alienated-relationship
> between production and consumption must be radi-
> cally changed, so that the creative aspect of
> consumption enhances and intensifies the inherent
> creativity of artistic production. The only form
> in which this can happen is a reciprocal participa-
> tion of both sides in the various processes of
> artistic production and consumption."[13]

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11. See D. SHARP (1972) op. cit., p. 135 and C. JENCKS, Modern
    Movements in Architecture, Pelican 1977 (@ 1973),
    pp. 88-89.

12. C. JENCKS (1973), op. cit., p. 245.

13. I. MÉSZÁROS (1970) op. cit., pp. 213-214.

In the case of   environmental artefacts, this
attitude expresses clearly that space products become
alienated from man when they are produced and consumed
within a process, the rules of which are not controlled
by the users of the products. The 'selection' of such
products cannot replace participation. In addition to
this, Mészáros' final conclusion on 'aesthetic alienation'
is that a process towards disalienation is not conceivable
without the aesthetic education of man, which, however,
implies a radical change in all human relations[14].

Mészáros' major conclusions on the importance of
participation and aesthetic education (as the only anti-
dotes against alienation in industrialized societies) are
more empirically than structurally derived. Although his
work is marked by a unique effort to structure Marx's
concepts on alienation, his recommendations for action
express an esoterically articulated point of view and do
not function adequately as a tool for structuring an
explanatory apparatus for _the artificial space. However,
some of Mészáros' basic conclusions are quite important
for such a task: first, that alienation may occur at
different levels either as a pure aesthetic estrangement of
the user from the artefact, or as a basic characteristic
of the process of producing it. In the latter case it is
likely that 'aesthetic' alienation may also occur. The

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14. Ibid., p. 214 (reference to Marx).

second important conclusion from Mészáros' contribution is concerned with the disalienation process in which 'aesthetic education' and participation, or the former as a result of the latter, play a significant role.

Mandel's approach is interesting, especially because he attempted to hierarchize in a comprehensive way the effects of alienation. Using, as Mészáros, the original Marxist concept (as it appeared in the "Manuscripts of 1844" and later in the "Grundrisse der Kritik der politishen Oekonomie" (1857-58)) he stressed that alienation may be understood at different stages and always in connection with two other concepts, what he calls the "complicated word 'reification'" and the "still more complicated 'commodity fetishism'"[15].

The first stage of alienation is what Mandel calls 'economic alienation'. Economic alienation is, according to Mandel, the most decisive element in a comprehensive theory of alienation. Economic alienation can be approached at different levels. First, as

"the separation of people from free access to the means of production and means of subsistence."[16]

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15. E. MANDEL (1970) op. cit., p. 19.
16. Ibid., p. 20

Second, as 'alienated labour',

"when part of society was driven off the land, no longer had access to the means of production and means of subsistence, and, in order to survive, was forced to sell its labor power on the market." [17]

Third,

"when a wage earner has sold his labour power for a certain part of his life to his employer, and the products of his labour become the property of the employer." [18]

When this happens, a part of the working class has no control even on time in conflict with the normal rhythm of human life . This causes psychological and nervous disorders.

Finally, the most advanced stage of economic alienation appears when, as a result of the previous effects,

"a basic aspect of human nature, the capacity to perform creative work, becomes thwarted and distorted." [19]

It is this form of alienation which allows Mandel to proceed towards a wider application of the concept of alienation beyond the economic sphere. He starts from explaining what 'leisure time' is. The wage earner

"considers the hours passed in factories or in offices as time lost from his life. He must spend time there in order to get freedom and capacity for human development outside the sphere of production and of work.

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17. Ibid., p. 21.
18. Ibid., p. 22.
19. Ibid., p. 23.

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Ironically, this hope for fulfillment during
leisure time turns out to be an illusion. Many
humanitarian and philanthropic reformers of liberal
or social-democratic persuasion in the nineteenth
and the beginning of the twentieth centuries
thought that men could become liberated when their
leisure time would increase. They did not under-
stand that the nature of leisure was likewise
determined by the nature of wage labor and by the
conditions of a society based on commodity produc-
tion and wage labor.[20]
... The system must provoke continued a r t i f -
i c i a l   d i s s a t i s f a c t i o n   in human
beings because without that dissatisfaction the
sales of new gadgets which are more and more
divorced from genuine human needs cannot be
increased.
A society which is turned toward creating system-
atic frustration of this kind generates the bad
results recorded in the crime pages of the daily
newspapers. A society which breeds worthless
dissatisfaction will also breed all kinds of anti-
social attempts to overcome this dissatisfaction."[21]
(my emphasis)

It is important to study Mandel's transformational

logic as he moves from the surface to the deeper

implications of alienation on human nature.

"Alienation of human activity in general,
l e a d i n g   towards the alienation of human
beings in one of their most fundamental features,
the capacity to communicate and also, something
much worse, the tendency to transform relations
between human beings into relations between things;
the tendency towards 'reification'."[22] (my emphasis)

He illustrated these transformations on two

examples. First, on the reification process:

"I heard one waitress address herself to a person
and say, 'Ah, you are the corned-beef and cabbage.'
You are not Mr. or Mrs. Brown, not a person of a

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20. Ibid., p. 23.

21. Ibid., p. 25.

22. Ibid., p. 25.

certain age and with a certain address. You are
'corned-beef and cabbage' because the waitress has
on her mind the orders taken under stress from so
many people."[23]

and second as regards the elimination of communication:

"For a long time one of the main methods of social-
izing young children has been through playing with
dolls. When children play with dolls, they
duplicate themselves, project themselves outside
their own individuality and carry on a dialogue
with that other self. They speak two languages,
their own language and the language of the doll,
thereby bringing into play an artificial process
of communication which, through its spontaneous
nature, facilitates the development of language
and intelligence.

Recently, industry started to produce dolls which
speak. This is supposed to be a mark of progress.
But once the doll speaks, the dialogue is limited.
The child no longer speaks in two languages, or
with the same spontaneity. Part of its speech
is induced, and induced by some capitalist
corporation."[24]

It is also important to study the way in which

Mandel attempted to find a coherent and more structural

element behind all these kinds of alienation and the

transformations from one to another. This central element

is the development of the logic of individuality, as this

logic is conceived at a philosophical level. Since the

oppressors themselves are alienated from part of their

human capacity through their inability to communicate on

a human basis with the majority of society, individualism,

as a fundamental element in consumer society, has been

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23. Ibid., p. 26.

24. Ibid., p. 27; also quoted in: A. M. KOTSIOPOULOS, E.A.R./5
    (1978), op. cit., p. 52.

pushed to the extreme. The creation of activity,
communicational and many other kinds of barriers is
inevitable, as opposed to the eventual collective and
integrated life in societies which were characterized
by a different mode of production.

The antithesis between Mandel's Marxism and certain
existentialist philosophers about the basis and cause of
individuality and loneliness in man's nature constitutes
the core of a further discussion on alienation. It is
outside the scope of this study to develop such a dis-
cussion on the moral basis which is underlined by the
above antithesis. There is no doubt, however, that the
notion of barrier,which is central in both Mandel's
thinking as well as in the general theory of alienation,
describes the nature of this problem at a deeper struc-
tural level.

2.4.2   ALIENATION AND A BARRIER-LOGIC

The concept of barrier, as a fundamental component
of a semantic syntax of the built space, has already been
discussed in Chapter 1.2 of this study. To what extent
this concept is useful for a description, which would be
modified according to a disalienation logic, is a question
which will be discussed in the following. To begin with

such a discussion, it is necessary to understand and classify some of the basic forms of alienation as regards the artificial environment and the production of it.

a.   first family;barriers which occur in the production
      of the artificial space

The first family of meanings of alienation is that which has been developed by the classical Marxist theory and elaborated by a series of humanitarian Marxists such as Mészáros and Mandel. The basic characteristic of this family of meanings is that alienation is understood as a property of the capitalist mode of production and it appears as alienated labour.

The artificial environment can also be seen as a commodity. Therefore, it is expected that similar phenomena would appear in the process of its production. These phenomena mainly refer to the relationship between the wage labour in the building industry on the one hand, and the building product or the components of it on the other.

Our interest in this way of understanding alienation is inevitably limited because of the broader character of these phenomena. It is clear that processes towards a disalienation of this kind have a broader character and are those which Mészáros connected with 'a change in all human relations'[25]. However, although such broader processes belong to the general sphere of economic

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25. I. MÉSZÁROS (1970), op. cit., p. 214,

phenomena and are inevitably related with major social changes, it is obvious that they function as the source of other problems which belong to other families of meanings of alienation. Mandel's transformational explanation of alienation indicated why this happens .

b.   second family; barriers which occur at the levels of environment,activities,and institutions

The second family of meanings of alienation corresponds to the levels of social life . where alienation occurs as a result of the consumer characteristics of society. The deep structural element in Mandel's model (that is, the barriers created at any level of social activity) is the basic component of this family. According to this family of meanings, alienation can be understood at an institutional level as a property of the organizational system of society at an activity level as a barrier-system, which divides human activities,and at an environmental level showing the way in which institutional and activity barriers are 'translated' into the physical barriers of the artificial space.

Our interest in this way of understanding alienation is more serious. According to the previously developed levels of approaching the built space (Chapter 2.2), it is expected that there is a kind of cohesion in the total image of the artificial space and, therefore, an institutional barrier-structure represents the deep structure of barriers, which can apparently be conceived at an environmental or activity level.

An example of the simplest possible understanding of
an environment barrier-structure in its surface character-
istics is clearly developed in an article by A.G. Winslow,
entitled 'Towards Barrier-free Environments'. Winslow's
interest is in creating a good environment for elderly
and handicapped people. It is really astonishing how
well known and commonly used architectural elements can
be conceived as communicational, activity or functional
barriers from the time that a strong catalyst like the
inabilities of disabled persons is introduced[26]. A
similar simple understanding of environmental barrier-
structures can also evolve through a comparative study
of equivalent building-types in different climates or
in different institutional states.

The fact that physical barriers are understood as
creating and, at the same time, signifying activity and
institutional barriers is well incorporated in the pre-
viously developed logic of approaching artificial struc-
tures at different levels. As opposed to other commodi-
ties, however, the physical substance of the built space
has some unique properties. The most serious property
is what might be called the 'accumulation of the environ-
mental products on land'. Although the environmental artefacts

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26. A. G.WINSLOW, Towards barrier-free environments; criteria
    and policies for site design, working paper, Virginia State
    University,1977.

themselves are incorporated in a production-consumption circuit, they are also based on land and remain there for a period of time longer than the potential of the construction industry would eventually imply. Therefore, these artefacts transfer the characteristics of their process of production from the one historical moment to the other by continuously transforming their semantic and pragmatic value[27]. The environmental artefacts function through these transformations of their pragmatic value as a material infrastructure for institutional and activity barriers which did not originally belong to the mode of production in which these artefacts were initially produced. The majority of contemporary urban barriers and barriers at the scale of buildings correspond to a way of life different from ours. They signify that way of life (in fact, they constitute the best signifier of it) but, at the same time, they are transformed in order to incorporate the existing institutional and activity barrier-structures.[28]

To what extent these barriers are consciously internalized is illustrated in a text by the poet Villiers de l'Isle-Adam in the age of the Paris Commune, when the citizens of Paris suddenly saw their city as a 'festival'[29]. It is also illustrated in the way Lisa Peattie, one of the protagonists of the participation

27. See also E.A.R./3, op. cit., p. 39 and E.A.R./5, op. cit., p. 52.

28. For a general discussion of social structures in relation to spatial structures, see: R. E. PAHL, Patterns of Urban Life, Longman 1973 (© 1970), especially chapters 3 and 4 (social structure and spatial structure I and II , pp. 36-68).

29. S. EDWARDS (ed.), The Communards of Paris , Cornell University Press 1973, pp. 140-142.

movement, explains the educational results of participation:

> "Norton Long (1958) has described the city as an
> 'ecology of games'. For some purposes, it seems
> to me, one might better describe it as an ecology
> of dramatic performances ... The image of 'theater'
> also expresses more handily than the image of the
> game the quality of emotional engagement charac-
> teristic of the urban social order ... Some dramatic
> performances produced in the urban scene do have
> specified participants and a c l e a r   d i v i s i o n
> between the players and the audience, as in
> traditional stage theater. Traditional planning
> was of this sort ... Other dramatic performances
> are much more like the audience participation
> productions of the Living Theatre or even like
> those guerilla theater actions in which the aim is
> to provoke bystanders into becoming part of a play
> which is as much the 'reality' of the bystanders
> as the 'theater' of actors".30(author's emphasis,
> m y e m p h a s i s)

c. third family; barriers which occur in the process
   of internalizing the artificial space

The problem of understanding the internalization and use
of barriers leads to the third family of meanings with
which alienation is connected. This family refers to the
alienation of the observer or user from the potential
semantic pluralism of the built space, and is related to
the 'aesthetical' aspects of alienation. This family of
meanings of alienation is especially important because
of the practical 'beyonds' which it implies and which are
embedded in contemporary theories of participation
(although such beyonds are not always clear in the
manifestos for user planning and design action).

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30. L. PEATTIE, Drama and advocacy planning, A.I.P. Journal,
    Nov. '70, pp. 407-408.

The barrier between the artificial space and its user - as opposed to the barrier between the producer and the product - is a concept which is not sufficiently developed in the classical theory of alienation. However, there are many peripheral interpretations included in this theory, which might lead to a better understanding of such a barrier. Mandel's discussion, for instance, of the general effects of alienation, i.e. the elimination of the capacity to communicate, the distortion of the capacity to perform creative work, the illusion of the leisure time as well as the artificial increase of needs, are undoubtedly related to this problem. On the other side, it is also true that users often accept and internalize their environment either because they do not have the chance to act in a different way and are influenced by the widely distributed illusion that they have chosen it, or because they create their own semantic systems of the artificial space they own and, in the best case, they transform it to match such systems. There are numerous examples of how the cultural background of the users influences their way of transforming - even primitively - their environment, but there are also numerous examples where this transformation is itself incorporated in a production-consumption circuit and has nothing to do with the cultural background or the human needs of the users.

The natural semantic pluralism of space seems to function quite effectively in such processes, by produc-

ing alternative ways, according to which the user is able
to internalize his environment. The different kinds of
participation in the design, production and use of the built
space, which have occurred and occur in the historical
process, show this plurality of the potential solutions
of the problem. What Alexander calls 'unselfconscious
culture'[31] , for instance, is a perfect example of a
comprehensive internalization of the built space by the
users, however unconscious it is. Vernacular architecture
signifies this comprehensiveness by its success, its
historical survival and its attraction to the contemporary
professional architects. On the other hand, movements like
that of the 'owner-builders' show an understanding of
the activity barriers which have been created by indus-
trialized building production. Such movements, therefore,
introduce attempts to modify the existing built space in
order to match pre-existing activity images. In some
cases, this understanding becomes a protest against the
institutional structure of society and favours a non-
participation in the modes of production of the artificial
space, which are incorporated in this structure[32].
Advocacy planning is a characteristic example of this
kind of meaning adapted to the built environment although
the users themselves are not responsible for it.

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31. In the "Notes on the Synthesis of Form", op. cit.
32. An example of this attitude is the so called "provocacy
    planning"; see, A. STRUNK, Provocacy Planning, in: ARCH+
    (1970) H 10, p. 57.

It is obvious that there are, in fact, different
ways of evaluating socially the barrier structure of
built space, which are different as regards their depth
and semantic context. It is not surprising, therefore,
that different and often opposite strategies have been
proposed. The antithesis between advocacy planning and
what has been called 'provocacy planning' is an example
of this.

The fundamental issue concerning this third family of
alienation problems is indeed an issue of communication.
Yet, this issue does not refer directly to the elimination
of communication between individuals but mainly to the
elimination of communication between environmental
artefacts on the one hand and their users on the other.
We have to stress here that the notion of 'user' is far
from being plain. In the pure 'aesthetic' understanding
of alienation, for example, the user is identical with the
observer of space. Within this context, any environ-
mental artefact has the natural function of communicating
in a clear way its meaning to any observer, regardless
of his involvement in the use of the artefact. A deeper
involvement of the user, however, leads to a process of
internalization and it is not generally expected that
during such a process the observable values presented
by the artefact will remain the same. It is during the
course of such an internalization that what I have called
'semantic pluralism of space' is normally developed. A
first aspect of such a pluralism refers to the richness

of meanings developed by the discovery of the whole
structure of the environmental artefact. Every corner of
a house, for instance, creates surface images different
from each other but still structured together in an over-
all understanding of it. The continuous discovery of the
artefact constitutes a procedure quite distinct from what
we can understand as a mere 'observation'.

A second aspect of this semantic pluralism, however,
is more important. This is related to the development of
different bases of social evaluation of the environ-
mental artefact. The plurality of such bases becomes
richer when the use of the environment proceeds from
one stage to the other. A usual first step towards the
discovery of such bases is, for example, the development
of a liaison between the environmental and the activity
image of space. Activities are incorporated, structured
and guided by the physical elements of the built environ-
ment, creating norms which may well be defined as
'institutional'. Yet, institutional prototypes themselves
are also used as activity and space modifiers.

What has alienation to do with the above abstracted
procedure? What are the 'liaisons' which are damaged
by such a socially originated phenomenon? It would be
quite amateurish to attempt to describe such effects in
an equally abstract way without having the results of
empirical research on the problem. Since alienation is,
by definition, an overall phenomenon, we should imagine

that _every_ liaison is to some extent damaged, either
concerning the structure of the total image of the built
environment or concerning the integration and conscious
internalization of the different levels of approaching
it. The environmental artefact is consciously accepted
as it is, and the whole pattern of the user's life is
seriously influenced by the values which are originally
incorporated in the production-consumption circuit,
through which the artefact has been created. Further-
more, the initiatives by the user to promote an opposite
procedure by transforming its own environment are also
damaged. They either do not exist at all or belong
themselves to the same circuit as a surface fulfilment
of leisure-time. There is no creative development of the
cultural values of the user on the environment. He
simply becomes another liaison in the system of the
artificial increase of 'needs'.

The dangers described above are more or less serious
depending on some more general societal characteristics.
Whole cultures have been alienated in such a way in
under-developed or developing societies. At the same
time, however, there is no doubt that the whole system of
the building industry in industrialized societies does
not seriously contrast with the values which are
incorporated in the environmental prototypes originally
developed in these societies through history. In
industrialized societies, it is obvious that alienation
does not follow the path of brutally destroying culture.

Yet, even indirectly its effect is clear and the general form of this problem is represented by the controversies of the participation and advocacy movements.

However, there is still a major question concerning the communicational effects of alienation. The question is to what extent a building product can _itself_ eliminate communication among the users or between it and the users. Are the physical elements of the built environment powerful enough to function in such a way?

The immediate answer following the classical Marxist view of aesthetics would be positive: the environmental artefact _can_ create strong alienatory effects if it does not clearly present, within the context or realism, the natural human needs for which it has been built. It is needless to say, however, that this is only one way to answer the question and, of course, a dangerous one. The 'natural human needs' cannot be easily formalized and, even if they can, their surface image is seriously transformed by the particular conditions of each historical period. Socialist Realism and Purism have shown, in their inadequacy, some of the dangers of such formalizations. It is, in fact, difficult to establish a set of rules which would describe the route from the surface image of the built environment to its deep structure. It is, however, far more difficult to judge such rules and to decide that there are some which can give the best

possible results in communicating the deep pragmatic value of a building. Such an argument is weak in itself and, in any case, has proven historically false. Mészáros's analysis, for instance, of why what he calls the "various 'isms'[33].... capitulate before the artistic alienation which they had set out to oppose"[34] is not convincing and is also based on a generalization of what Marx has described as 'genuine human needs'. At least in the field of architecture there are numerous examples of how a piece of art can be understood, used,and internalized in multiple ways and with multiple pragmatic meanings. The surprising manifesto by Venturi (discussed previously in Chapter 2.2) and the variety of modes in re-using buildings which originally belonged to various kinds of 'isms' are convincing enough for the inability of answering such questions in mere stylistic terms.

There are, however, other kinds of positive answers to the question of whether the physical elements of a building can create alienatory effects among the users or between the building and the users.

The first kind of positive answers concern the communicative barriers among the users. I have already noted that environmental artefacts may signify,

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33. That is, "imagism", "expressionism", "dadaism", "analytic and synthetic cubism", "futurism", "surrealism", "constructivism" etc. See I. MÉSZÁROS (1970), op. cit., p. 196.

34. Ibid., p. 196.

emphasize or, in the worst case, create <u>activity</u> barriers.
I have also mentioned some of the particular character-
istics of the artificial space which are due to the
accumulation of buildings on land. Following this
property of accumulation, environmental and activity
barriers can be preserved and can influence the whole
pattern of societal life.

It is evident that, in order to understand such
effects, we need a logic based on barriers instead of a
logic based on relations. Such a barrier-logic would also
colour the apparatus for describing the built space and
for establishing a formal semantic syntax of it. We
cannot solve any alienation problem by a planning action
based upon the logic of inventing theoretical relation-
ships only; barriers of this kind exist and we have to
identify them.

The second and most important kind of positive
answers is concerned with the problem that Marxian
aesthetics itself tries to solve; that is, the communica-
tion barriers between the environment and the users.
We have, however, to define this problem in a more
pragmatic and dynamic way.

I developed previously a schematic process according to which the internalization of the built space by its user takes place. There are two aspects of this process. The first refers to the richness of meanings which evolves as the user discovers the complexity of the structure of an environmental artefact. The second refers to the development of different bases of social evaluation of the environment. ;that is,the environment becomes significant for its user within different contexts.Liaisons are developed between the physical elements and the activities and, also, the activities are integrated and structured by the physical elements of space. The crucial point, now, is that this process is continuous and dynamic. The eventual absence of this dynamic character of the process is essentially connected with the phenomenon of alienation. The built space becomes alienated from the user when it cannot sufficiently respond to an eventual development and transformation of his activity and institutional patterns. Similar alienatory effects also appear when the activities cannot respond to the development and transformation of the physical elements of the artificial space. On the contrary, when the built environment is constructed in that way that it can respond to such demands, there is room for the development of creative initiatives by the user and, in that case, alienation is not likely to appear.

The participation movement has shown to some extent how utopian it is to try to solve the problem of alienation by promoting the participation of users merely in the design and construction of their environment. Most of the theorists of participation seem to have conceived only one aspect of the problem[35]. They promoted the development of users' creativity during a very limited period of time; in fact, the period when the building itself does not exist but in schematic and ambiguous two-dimensional substances only. On the other hand, the professional expertise seems to have a more important role to play in designing a technical infrastructure for a continuous interaction between the built space and its users than in promoting the participation of the users in the design process. Participation in design only means that user 'needs' are conceived in a static way. It is contradictory to produce a solid and inflexible environment however satisfactory for the initial demands of the user it is. Even if the user is well known (as rarely happens), his 'needs' constitute a theoretical and

35. See P. Davidoff's view (P. DAVIDOFF, Advocacy and Pluralism
    in Planning, A.I.P. Journal, Nov, '65) and also L. PEATTIE'S
    summary of several views in: L. PEATTIE, Reflexions on
    Advocacy Planning, A.I.P. Journal, March '68, (p. 81:
    "Advocate planners take the view that any plan is the embodiment
    of particular group interests, and therefore they see it as
    important that any group which has interests at stake in the
    planning process should have those interests articulated. In
    effect, they reject both the notion of a single "best" solution
    and the notion of a general welfare which such a solution
    might serve. Planning in this view becomes pluralistic and
    partisan - in a word, overtly political".

oversimplified set of abstract formalizations which is most likely to change continuously as the semantic pluralism of space starts to develop.

When, of course, the user is unidentified, participation in design only, being possible through an ambiguous representation process (where representatives represent the future development of semantic pluralism of an unknown space on behalf of their unknown constituency using a language for design unknown to them) is not likely to satisfy any 'needs' at all. For the majority of building types, including housing in a massive şcale, this is one of the most crucial problems which the participation movement has to face. Some aspects of this problem in the case of universities will be discussed in the second part of this study (Chapter 1.3) .

'Infrastructural design' is a concept which gives a certain answer to the problem of alienation in the form discussed above. Y. Friedman's utopia of a large catalogue of possible personal contributions to an existing basic structural skeleton 'like in a restaurant'[36] and Habraken's more pragmatic proposals for 'support structures'[37] are two well known examples of the philosophy of infrastructural design and have largely

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36. Y. FRIEDMAN, Pour l' architecture scientifique , P. Belfond 1971, ch. VI.

37. N. J. HABRAKEN, Supports, An Alternative to Mass Housing, The Architectural Press 1972 (© 1961), mainly pp. 59-65.

influenced later developments[38]. To what extent a well
organized infrastructural design can function in this
direction is a question not yet answered. However, in the
theoretical field this form of participation, as an antidote
against alienation, is closely related to a very important
issue; the use of space as a learning or educational
apparatus for a more general disalienation process. The
limitations of such an approach will be discussed later
in this chapter.

        d. summary

        Summarizing the principal modifications caused to
the descriptive apparatus for space by the problem of
alienation, we can distinguish between two main areas:

        The problem of alienation introduces the notion of
barrier at any level of approach to   artificial space.
I have already mentioned in Chapter 1.2   the elementary
form in which the 'barrier-logic' is incorporated in the
structural understanding of the built environment. The
development of this logic is shown in the following
diagram: [39]

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38. For a summary of such developments see, A. M. KOTSIOPOULOS,
    Participation in Architectural Actions, 1975, op. cit.,
    pp. 183-184.

39. A. M. KOTSIOPOULOS, E.A.R./5, op. cit., p. 55.

1. The 'traditional' path	2. The purely syntactic path	3. The path proposed
Human activities are explained through the logic of relationships	Space has no elements, space elementary deep structure contains barriers, boundaries, etc.	Alienation is a basic contemporary problem which occurs in the process of production of the artificial space
↓	↓	↓
The space for human activities is explained through the logic of relationships	A structural logic of space is the logic of boundaries etc., complex environmental structures are produced by the transformation of elementary structures.	Human activities are explained through the creation of barriers which occur between the producer and the product and also at higher levels (barriers between groups, activity barriers, communication barriers etc.)
		↓
		space deep structure contains the elementary production barrier and the elementary activity barrier which have an institutional or/ and environmental material substance.

This development, however, does not explain in detail how a semantic syntax of the kind presented in 3 can integrate the modifications which are caused by the problem of alienation in the descriptive form of a theory of the artificial space. I shall, therefore, proceed

further discussing, first, such modifications in a more analytic form and, second, the potential nature of the transformational rules which are involved in a modified description of the built space.

If we summarize the principal modifications of our descriptive apparatus for the artificial space caused by the problem of alienation, we shall have the following diagram. This diagram shows the differences between a non-modified description and a modified one:
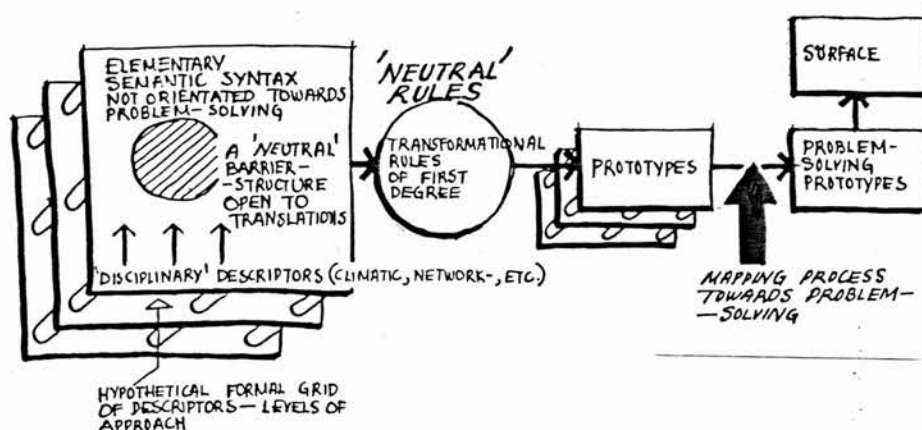
a. NON-MODIFIED DESCRIPTION: 'FIRST DEGREE' SEMANTIC SYNTAX
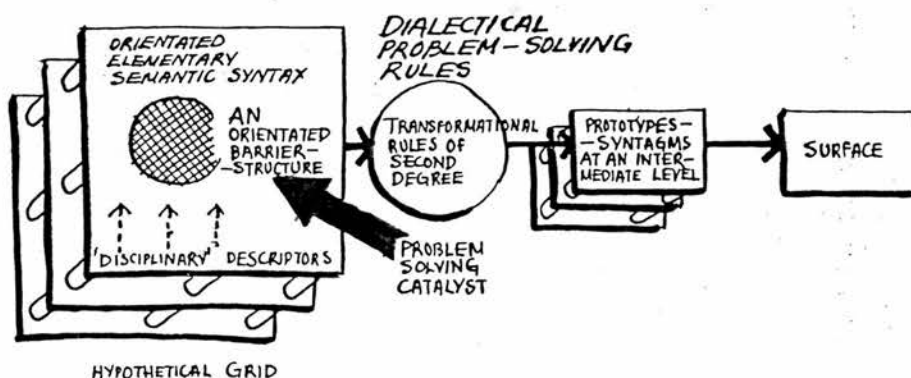
b. MODIFIED DESCRIPTION : 'SECOND DEGREE' SEMANTIC SYNTAX

The above diagram reflects, first, the dual origin of description in architecture, that is, the influence of other disciplines on the one hand and the problem—origin of descriptors on the other [40]. The case (a) is <u>not</u> an autonomous abstract syntax. The elementary deep structure of the built space is understood there as having a semantic content which is influenced by the existing peripheral disciplines and the metaphors they produce, as well as by the implicit semantic pluralism of space. The case (b) is also a semantic syntax, but in this case this syntax is ideologically influenced and orientated to the solution of problems. The elementary deep structure of the built space is understood in this case as having all the above mentioned characteristics but also as including an elementary normative <u>operational</u> rule aiming at the solution of problems like alienation.

Second, while 'mapping' is involved in the case of the non-modified description (a), it does not exist in the case of the modified description of (b). This is an important point and it needs to be clarified; how can 'mapping' be involved in a semantic syntax of space? The answer is incorporated in what we have called the 'semantic pluralism' of the artificial space. Language has a pure communicative identity and no other mapping is essential for solving its problems although there are cases where linguistic super-surface structures reflect a mapping operation in order to

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40. See Chapter 1.1.

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communicate meanings, which are richer than those of the super-surface structure:
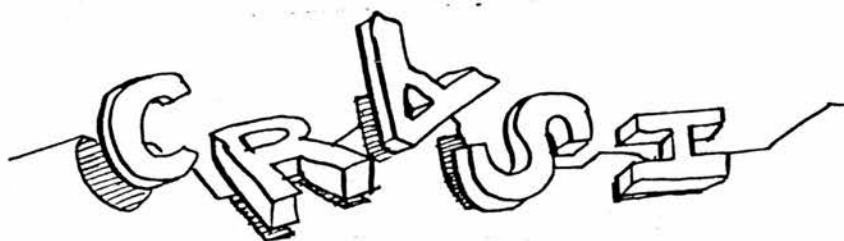
Since the understanding of the built space, however, is not always clearly orientated towards operational action, an established language of it can be <u>modified</u> to promote planning purposes. Alexander's flexible but already <u>defined</u> patterns constitute a characteristic example of this. They reflect a specific attitude to planning but they are still open to mapping procedures. In general, mapping is not forbidden since it may appear at a certain stage during the elaboration of a pre-modified syntax (before being incorporated in this syntax, in order to form a third degree semantic syntax, etc):
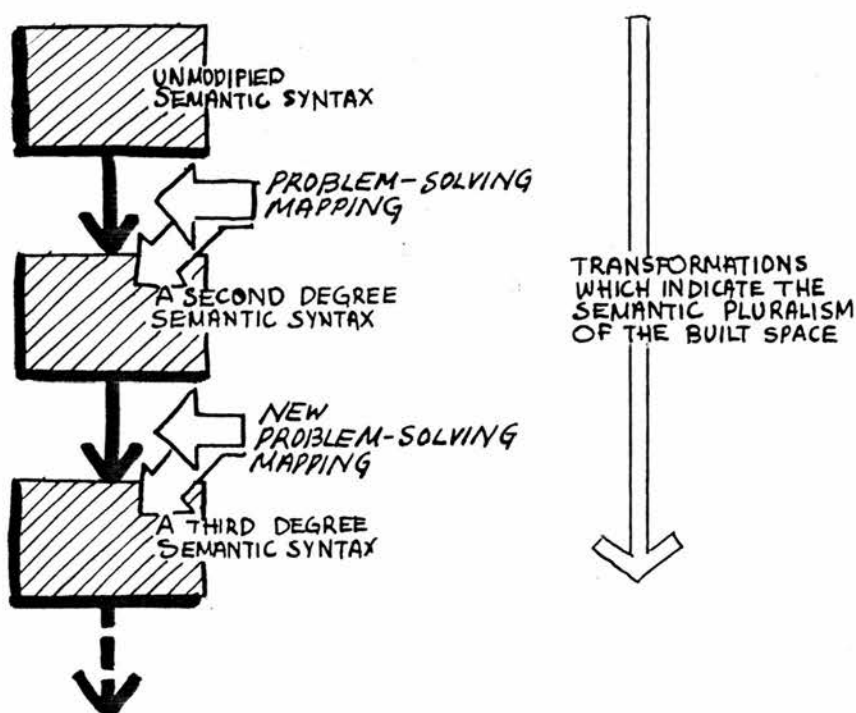
Third, the levels of approach (environmental, activity, institutional), which belong to a hypothetical grid for description, are also structured and hierarchised according to the effects of the problem-solving catalyst. An alienatory understanding of an elementary environmental deep structure inevitably promotes the activity and institutional barriers while in the non-modified semantic syntax the environmental physical barriers dominate the others.

Finally, the transformational rules of the second case (b) do necessarily include the dialectical character of a problem-solving process. They explain and propose simultaneously. On the contrary, in the first case (a), such rules simply explain the transformations of a deep elementary structure into structures of a higher order; this order is higher in both syntactic and semantic terms, since even the case (b) is still a semantic and not an autonomous syntax.

This final assumption leads to the core of our question of modification, that is, the nature of modified transformational rules.

I shall not attempt to give the answer to this question but only an example of such an answer. This example presupposes that a disalienation process is inevitably connected with a participatory strategy.

2.4.3   PARTICIPATION AS A COMPONENT OF A MODIFIED
         DESCRIPTION OF THE BUILT SPACE;PARTICIPATION
         VERSUS ALIENATION

Mandel, following an   Althusserian way of thinking,

has stressed that the theory of alienation

> "implies and contains a theory of disalienation
> through the creation of conditions for the grad-
> ual disappearance and eventual abolition of
> alienation." *41*

There has been a long discussion concerning the extent

to which participatory strategies function in such a way.

The discussion refers to two areas of understanding participa-

tion. First, at a general level where participation is consi-

dered as a fundamental constituent of the theory of democracy,

and second at a more specific level where the role of parti-

cipation in the production of the artificial space is dealt

with. I have already mentioned some aspects of the problem

of participation as regards   artificial space. I shall

return to them in the end of this chapter in the discussion of

the effects of a participatory logic on the structure of our

descriptive apparatus. Before that, however, it is necessary

to identify some of the ideas included in the more general

understanding of participation.

Carole Pateman's work on 'Participation and Democratic

Theory' is a profound investigation of recent theories about

participatory democracy. She shows that   most of these

theories,like those by Schumpeter, Berelson, Dahl, Sartori and

Eckstein,contain and sometimes misrepresent earlier theories,

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41. E. MANDEL (1970), op. cit., p. 30,

namely those by Rousseau, John Stuart Mill and G.D.H. Cole.[42]
She also emphasizes that, although Dahl and the others have
explicitly rejected the charge that they have produced a new
normative theory, in reality (as also Taylor has pointed out),
the chosen descriptive dimension in those theories supports
a normative position, a position implicit in the theory itself.[43]
This is a first important point which also supports our attitude
that there is no way of producing a 'value-free' descriptive
theory in such domains; and there is no reason for trying to do so either.

Dahl's theory is interesting especially because it sum-
marizes some important aspects of participation in a structu-
ral way. In Dahl's model, participation is one of the two
basic dimensions which lead from 'closed hegemony' to 'polyarchy'.
The model has the logical structure of the 'commutative square',
and may be presented as follows:
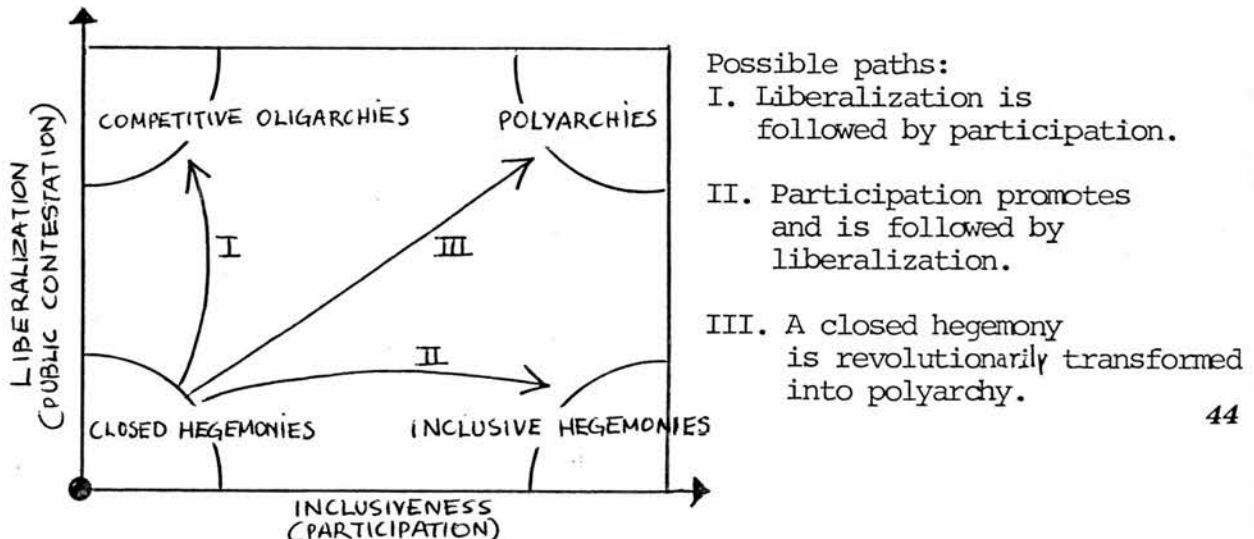
Pateman's criticism of Dahl's work did not take into account
the recent development of his theory (published in 1971) and did

42. C. PATEMAN, Participation and Democratic Theory,
    Cambridge University Press 1974 (⊙ 1970), pp. 1-44.

43. Ibid., p. 15.

44. R. DAHL, Polyarchy, Yale University Press, 1971, pp. 6-7
    and also p. 34.

not consider it as an original theory of participatory democracy.
After examining the routes of contemporary participatory thinking
in Rousseau and J.S. Mill, her interest is concentrated in G.D.
H. Cole's work. According to Pateman, Cole's work is significant
because

> "he developed a theory of participatory democracy
> that not only included and extended the basic
> postulates of the classical theories of parti-
> cipatory democracy, but was set in the context of
> a modern large-scale, industrialized society."[45]

The essential point in Cole's theory of society is
that there is a distinction between what he calls "the exi-
stence of repersentative institutional arrangements at
national level" and real democracy as he understands it. And
he understands real democracy within the context of 'guild
socialism':

> "Society is a complex of associations held to-
> gether by the wills of their members and not by
> force."[46]

As Pateman pointed out, there is a very essential lesson
to be learned by Cole's approach. This lesson refers to the
fact that in modern societies

> "industry provided the all-important arena for
> the e d u c a t i v e effect of participation."[47]
> (my emphasis)

Although Cole's view is different from Marxian thinking,
the development of Marxism and especially what has been cal-
led 'humanitarian Marxism' coincides with Cole's theory as far

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45. C. PATEMAN (1970), op. cit., p. 21.

46. Ibid., p. 36 (reference to G.D.H. COLE, Guild Socialism
    Restated, Leonard Parsons 1920, p. 12).

47. Ibid. (Pateman), p. 38.

as the connection between alienation and participation is
concerned. Pateman, in her review of Cole's theory, does not
mention 'alienation' as such. She describes it, however,
indirectly as follows:

> "One of the Cole's major objections to the
> capitalist organization of industry was that
> under it l a b o u r was just another
> c o m m o d i t y and so the 'humanity' of labour
> was denied."[48] (my emphasis)

Cole has proposed a coherent model of societal organiza-
tion based upon participation, which many of the contemporary
advocates for design participation in the built environment
would find satisfactory as a framework of their ideas. It is,
nevertheless, beyond the scope of this study to discuss such
proposals here. I shall mention, however, some of the dangers
included in a participatory aspect of society, especially those
connected with the production of   artificial space.

The core of these problems refers, at an abstract level, to
what P. Selzick has defined as co-optation :

> "Co-optation is the process of absorbing new
> elements into the leadership or policy-determining
> structure of an organization a s a m e a n s
> o f a v e r t i n g t h r e a t s t o i t s
> s t a b i l i t y o r e x i s t e n c e."[49]
> (my emphasis)

The phenomenon of co-optation describes in our language
that quite often, behind an apparent collapse of a barrier,
there are other more sophisticated barriers, which become

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48. Ibid., p. 39 (reference to G.D.H. COLE, Labour in the
    Commonwealth, Headley Bros. 1918, p. 24).

49. P. SELZNICK, Foundations of the theory of organizations,
    in F. E. EMERY, (ed.), Systems Thinking, Penguin 1972,(© 1969,
    Selznick's article: © 1948), p. 277.

stronger because of this collapse. Selznick stressed that participation in activities and responsibilities is used as an excuse for reinforcing institutional and power barriers, although in some cases (where an organization is in a desperate situation and is obliged to abolish any barriers) the organization tries to weaken the groups of participants by co-opting only selected parts of them.[50]

It is exactly this overall view developed in the General Theory of Organizations which seems to constitute the background for what Mandel called 'the illusion of creative leisure time'. This view is also the reason of the strong opposition of many writers to the use of participation as a disalienation process in the production of artificial space. This attitude has been expressed in many forms from cartoons, as those shown below, to alternative strategies, which oppose

Poster by students,
Sorbonnes, Paris 1968

– Just a minute Jackson; I simply want you
to participate in the following decisions!
(By T.W. Taylor, "TIME" 21.4.75, p. 10).

[51]

50. Ibid., p. 278 (also quoted in E.A.R./5, op. cit., p. 56.
51. Both in: A. M. KOTSIOPOULOS, Participation in Architectural Actions, 1975, op. cit., pp. 162 and 164.

participation and 'advocacy planning'. S.Arnstein has
described the limits of participatory strategies writing that

> "There is a critical difference between going
> through the empty ritual of participation and
> having the real power needed to affect the out-
> come of the process ... It allows the powerholders
> to claim that all sides were considered, but makes
> it possible for only some of those sides to
> benefit. It maintains the status quo."[52]

Before discussing some of the proposals for participation
in the production of the built environment, it is necessary
to mention Selznick's final conclusion. This conclusion is
encouraging for the advocates of participation. He wrote:

> "Cooptation reflects a state of tense between
> formal authority and social power ... When the
> formal authority is an expression of social power,
> its stability is assured. On the other hand, when
> it becomes divorced from the sources of social
> power its continued existence is threatened. This
> threat may arise from the sheer alienation of
> sentiment or from the fact that other leaderships
> have control over the sources of social power. Where
> a formal authority has been accustomed to the
> assumption that its constituents respond to it as
> individuals, there may be a rude awakening when
> organization of those constituents on a non-
> governmental basis creates nuclei of power which
> are able effectively to demand a sharing of power.
> The significance of cooptation for organizational
> analysis is not simply that there is a change in
> or a broadening of leadership, and that this is an
> adaptive response, but also that <u>this change is
> consequential for the character and the role of the
> organization</u> ... The concept of cooptation thus
> implicitly sets forth the major points ...: it is
> an adaptive response of a cooperative system to a
> stable need, generating transformations which
> reflect constraints enforced by the recalcitrant
> tools of action."[53] (author's emphasis)

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52. S. ARNSTEIN, A ladder of citizen participation, A.I.P.
    Journal, Jul. '69, p. 216.

53. P. SELZNICK (1948), op. cit., pp. 278-279.

The movement for user participation in the design and
construction of the built environment reflects positive and
negative attitudes to the concept of participation, similar
to those developed in the general theory of democracy and
social organizations.

The model in which the movement for'exhorted'participation
seems to believe is what Alexander called the 'unselfconscious
process' of vernacular architecture. In such a process, there
are no barriers between built products and users and the process
is well integrated in the mode of production and life of the
closed social   forms, where it belongs.[54]

A crucial stage in the development of modern participatory
movement was P. Davidoff's work 'Advocacy and Pluralism in
Planning' published in 1965. According to Davidoff,professional
designers and planners have played a negative role in the
production of the modern built space by promoting their own
views of the environment and by not being sufficiently intere-
sted in the needs and preferences of the various social groups
and individuals to whom the built space is addressed.
L. Peattie offers a comprehensive summary of Davidoff's
ideas as follows : the advocate planner accepts
that , in any project, the different interests of
various social groups are represented.For that reason,the

54. Formalizations of the difference between closed and open
    societal forms have been developed by E. Durkheim ("mechanical
    and organic solidarity") and by Ch. Alexander ("unselfconscious
    and selfconscious cultures"); see, A. GIDDENS (ed.), Emile
    Durkheim, Selected Writings , Cambridge University Press
    1974 (© 1972), pp. 141-142 and, also, C. ALEXANDER (1964)
    op. cit.

advocate planner believes that the essential property of the planning procedure is that every group is able to formulate in a clear form its interests which are in danger during the procedure. The planners help each group to define its objectives and the hierarchy of them. Consequently, there is neither 'best solution' nor 'common interest'. Planning becomes pluralistic and the final project does not represent but the balance between the various groups which are involved in the planning process.[55]

Davidoff's ideas have found serious support by the several planning groups and have been worked out within the framework of the Federal Urban Renewal Programs in the United States (such as the 'Antipoverty', 'Community Action' and mainly the 'Model Cities Programs'). Such Programs were mainly interested in the disadvantaged communities of slums and ghettos. There were numerous transformations of the basic idea of Davidoff. These transformations aimed not only at pluralistic plans but mainly at the educative effects of participation, where 'education' was used in its broader sense as John Palmer noted in the introduction of R. Goodman's 'After the Planners':

> "The professional, leaving behind the privileges
> and symbols of his former position, joins with the
> people in a j o i n t educational process."[56]
> (my emphasis)

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55. See note 35 of this chapter.

56. R.GOODMAN, After the Planners,(Introduction
    by J. PALMER), Penguin 1972.

So,education means both, education of the planners in order to involve them in the community life and to make them learn from it, as well as education of the community members to make them more conscious of their identity and power.

The political motives of the advocates of participation are quite clear. The production of the built environment is used as one area of developing political consciousness and promoting communal action,regardless of the fact that there have been also cases where participation is merely understood as an administrative technique to eliminate the problems of growing bureaucracy.[57]

The movement towards "exhorted" participation has a clear aim as I have previously mentioned: to make the artificial space more suitable for the needs of the users; in our terms that is, to eliminate the alienation effect caused by a strange and industrialized product, and to abolish the barrier between the artificial environment and the user.

What was   discovered later, however,was that exhorted participation has   other effects on the participants which are perhaps more important ;that is, participation promotes the understanding of the language of   artificial

57. According to S. Damer and C. Hague (S. DAMER and C. HAGUE, Public participation in planning: evolution and problems, in: C. LAMBERT and D. WEIR (eds.), Cities in Modern Britain, Fontana 1975).

space so that the participants-users become capable of <u>inter-</u><u>nalizing</u> better their environment. Moreover, the communal action in large-scale planning and the interchange of ideas within the framework of the pluralistic planning model promote a better social self-consciousness of the groups involved and, also, a better political background for <u>any</u> social activity. This means in our terms that the educative effect of participation is extended to the abolition of barriers, which are more complex and important than those in the design process.

The polemists of participation claim that such broader effects are not really possible. The whole procedure is well co-opted by the power-holders and no real concession to a re-distribution of power has to be expected. Participation, according to them, becomes an 'empty ritual' or an illusionist fulfilment of leisure time.

The semantic pluralism of space is so complicated that participation has to be understood as a dynamic and continuous process. We need an understanding by the user of the language of built space but we have to equip him with the material infrastructure to apply this language in practice. Otherwise, participation would be in danger of becoming another movement of an 'effective design method'; this would mean, in the long term,that participation could not function as an effective process towards disalienation .

2.4.4   THE FORMAL EXPRESSION OF THE ALIENATION-
-PARTICIPATION MODIFIER

In the following, I shall be attempting to express in a
formal way the effects of the alienation-participation bipolar
on the descriptive apparatus of   artificial space. We have
to remember that our problem deals with the fundamental trans-
formational rules, which are involved in the modified semantic syntax of
the built environment. Such rules, we have concluded, should
explain and propose at the same time, and should lead from
elementary deep structures to forms which are higher both
logically and semantically.

a.   general characteristics

The basic model of how transformational rules are included
in the semantic syntax of the built space was presented
previously as follows:
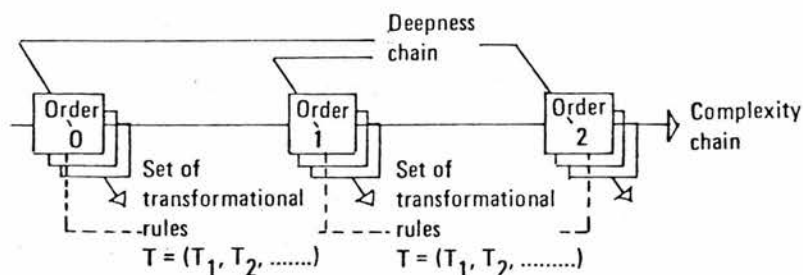
It has been also shown that this semantic pluralism leads
to an understanding of this model in a more complex form, as
follows:
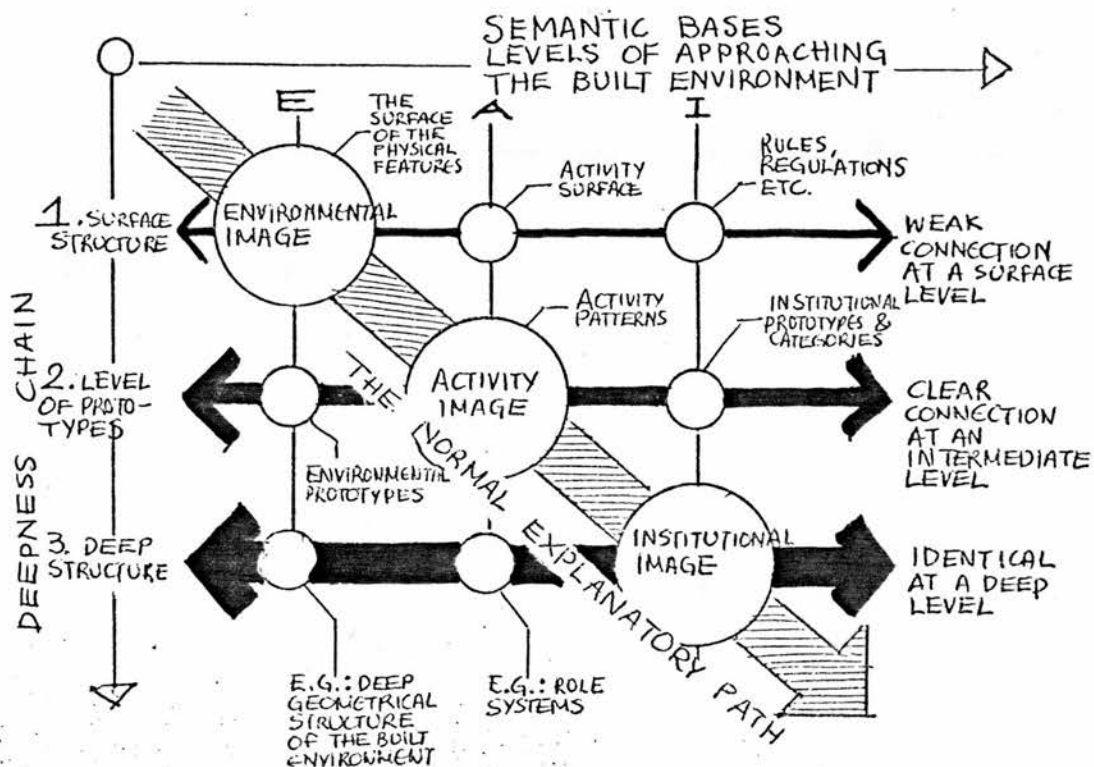
I have also referred indirectly to the transformational
rules which are included in this model, and I have shown the
differentiations among different semantic syntaxes when dif-
ferent semantic bases or descriptors are used. In the following
diagram   such differentiations are illustrated in a form
similar to that of the above diagram.

SEMANTIC FIELDS

COMPLEXITY CHAIN

ELEMENTARY ORDER O T_α INTERMEDIATE ORDER $(O-1)\alpha$

T_b T_b — INCREASING CONTINUITY

INCREASING DISCONTINUITY

DEEP

IDENTICAL VERY DEEP STRUCTURE: ABSTRACT SYNTAX

HIGH ABSTRACTION: ALGEBRAIC FORM, NOT CONNECTED WITH THE BUILT SPACE

INTERMEDIATE ORDER $(O-1)_b$ T_α COMPLEX ORDER 1

O T_α $(O-1)\times$

INCREASING: — BARRIER DISCONTINUITY BOUNDARY CONTINUITY

T_b

INCREASING BARRIER CONTINUITY BOUNDARY DISCONTINUITY

CLEAR CONNECTIONS BETWEEN DEEP STRUCTURES

O T'_α $(O-1)\alpha'$

T_b

INTERMEDIATE ABSTRACTION: SEMANTIC COMPONENT → DEEP STRUCTURE

$(O-1)_b$ 1 $(O-1)_b'$ 1

DEEPNESS CHAIN

BARRIER T_α INCREASING PERMEABILITY OF CLIMATIC BARRIER PERMEABLE BARRIER

T_b INCREASING CONTINUITY OF CLIMATIC BARRIER

CHANNEL T'_α CREATION OF HIERARCHY TREE

T'_b CREATION OF CIRCUIT

DIFFERENTIATIONS AT A SURFACE LEVEL

ENCLOSURE   PERMEABLE ENCLOSURE

CIRCUIT   HIERARCHIZED CIRCUIT (SEMI-LATTICE)

CLIMATIC FIELD   COMMUNICATIONAL FIELD

SURFACE

LOW ABSTRACTION: ELEMENTARY QUASI - SURFACE STRUCTURE

The following diagram   combines the hypothetical formal basis of the three levels (environmental, activity, institutional) the deepness levels (surface, prototypic, deep) and eventual transformational rules, which are analogous to those presented in the above diagram.

SEMANTIC BASES LEVELS OF APPROACHING THE BUILT ENVIRONMENT

E   THE SURFACE OF THE PHYSICAL FEATURES

A ACTIVITY SURFACE

I RULES, REGULATIONS ETC.

1. SURFACE STRUCTURE   ENVIRONMENTAL IMAGE

WEAK CONNECTION AT A SURFACE LEVEL

ACTIVITY PATTERNS   INSTITUTIONAL PROTOTYPES & CATEGORIES

DEEPNESS CHAIN

2. LEVEL OF PROTO-TYPES   ACTIVITY IMAGE   THE NORMAL EXPLANATORY PATH

CLEAR CONNECTION AT AN INTERMEDIATE LEVEL

ENVIRONMENTAL PROTOTYPES

3. DEEP STRUCTURE   INSTITUTIONAL IMAGE

IDENTICAL AT A DEEP LEVEL

E.G.: DEEP GEOMETRICAL STRUCTURE OF THE BUILT ENVIRONMENT   E.G.: ROLE SYSTEMS

E   A   I

E1 ENVIRON. SURFACE, PHYSICAL CHARACT   A1 ACTIVITY SURFACE   I1 INSTITUT, SURFACE, RULES, REGUL   1

E2 ENVIRON. PROTOTYPES   A2 ACTIVITY PROTOTYPES   I2 INSTITUT. CATEGORIES   2

E3 DEEP STRUCTURAL PATTERNS OF THE ENV   A3 ROLE SYSTEMS   I3 DEEP INSTIT. STRUCTURE   3

E → A → I

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A more schematic form of this combination (which will be used in the rest of this study) is the following where deep structures tend to coincide, as opposed to surface ones.

This means, that our understanding has to be concentrated only on the one half of the table.

AREA FOR EXPLORATION
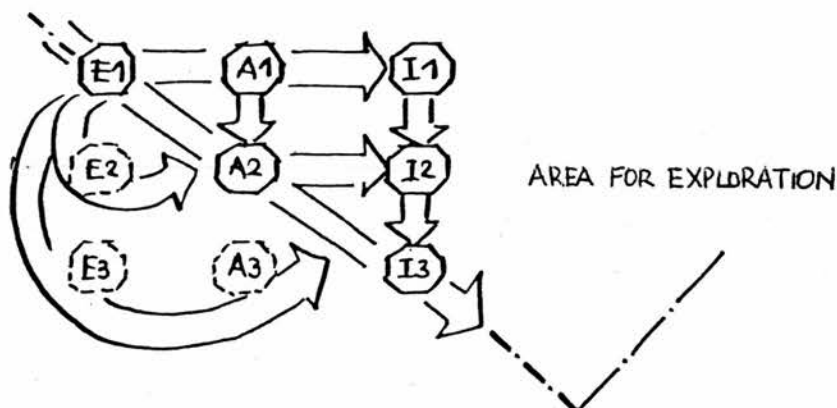
Normally, our explanatory task starts from a plurality of surface images, which are different in terms of substance and which, to some extent, signify a deepness chain:

ENVIRONMENTAL SURFACE (PHYSICAL CHARACTERISTICS)

ACTIVITY SURFACE (MOVEMENT, IDENTITY OF ACTIVITIES ETC.)

INSTITUTIONAL SURFACE (RULES, REGULATIONS, ETC.)
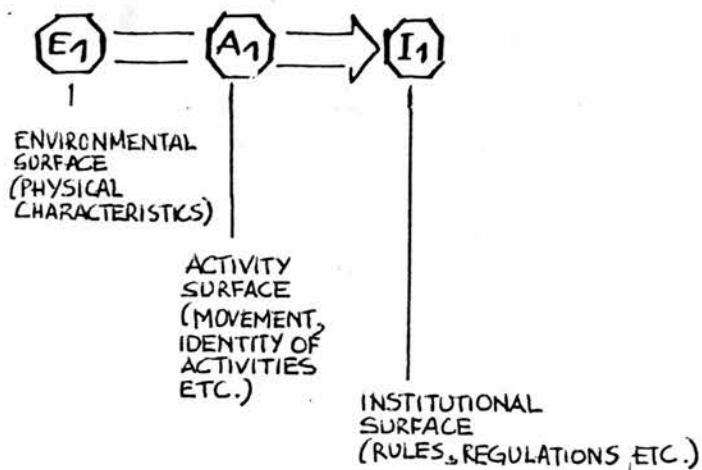
The term 'semantic pluralism' means, at this level, that the deepness chain is still ambiguous; that is, the institutional surface regulates the activities and the activities define the meaning of the built surface. At the same time, however, the built space re-defines the activities and the activities influence the institutional surface, etc. The whole structure at the surface level, is in a dynamic equilibrium. This equilibrium expresses the complexity of the internalization of the built space by the user.
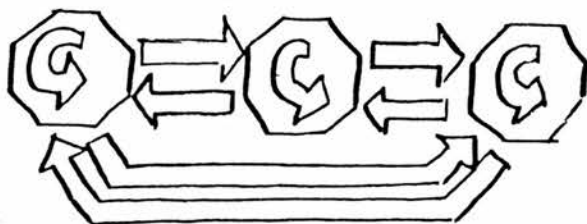
At the intermediate prototypic level, however, things are simpler. Environmental prototypes coincide with activity patterns since no environmental prototype may be defined without reference to the activity context of it. Yet, environmental-activity prototypes interact with institutional patterns. They may be either antagonistic or in agreement.
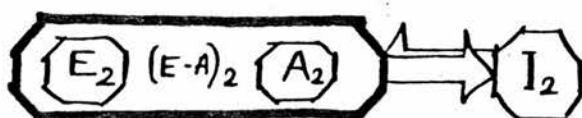
Finally, at the level of deep structures, there is no sense in differentiating between substances; deep environmental patterns express activity patterns and both of them express, in the

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end, an institutional category. There might be antagonisms but the meaning of deep structure is that such eventual antagonisms are integrated in a coherent deep image:

$$((E_3)(E\text{-}A)_3(A_3)(E\text{-}A\text{-}I)_3(I_3))$$
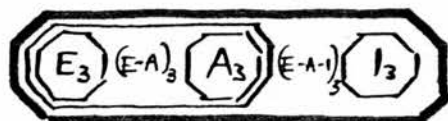
Therefore, what we have called the 'semantic pluralism' of artificial space can be expressed in the following general model, by using our hypothetical three level descriptive-substance basis:

$$E_1 \quad A_1 \quad I_1 \quad E_2\text{-}A_2 \quad I_2 \quad E_3\text{-}A_3\text{-}I_3$$
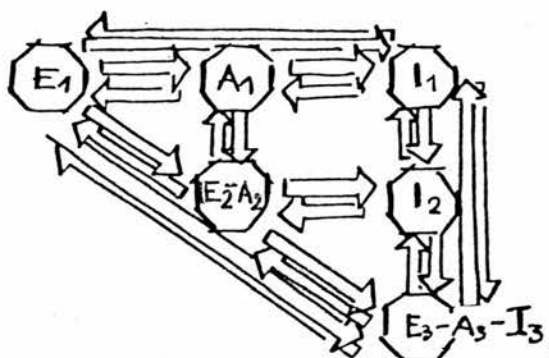
This means that, since the whole system is in a dynamic equilibrium, the most unexpected connections may appear in order to provide the user with the richness of meanings with which the built space is naturally equipped. The dynamics of design action shows some examples of this complexity. For instance, it is supposed that, in general, activities and institutional rules correspond and are in balance with the physical characteristics of the artificial environment. When the activity image changes corresponding to a different activity pattern, an 'anomaly' appears and is most likely that design action will be initiated

after a more or less complex procedure of internalization of
the 'anomaly':
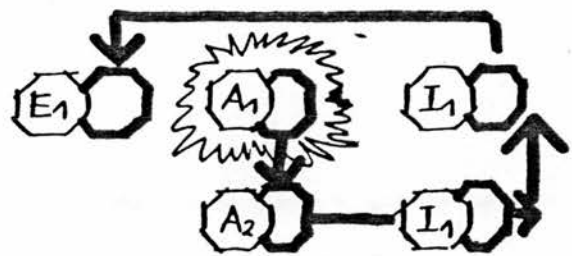
Such 'anomalies' are very important for design action and,
also, for explaining the dynamics of   artificial space. I shall
return to them in the final chapter of this part.

It is interesting to remember that each octagon in the
previous diagrams   is, in fact, complex. Such octagons contain
the complexity chain from the elementary to the complex structures
and the transformational rules, which govern this chain:

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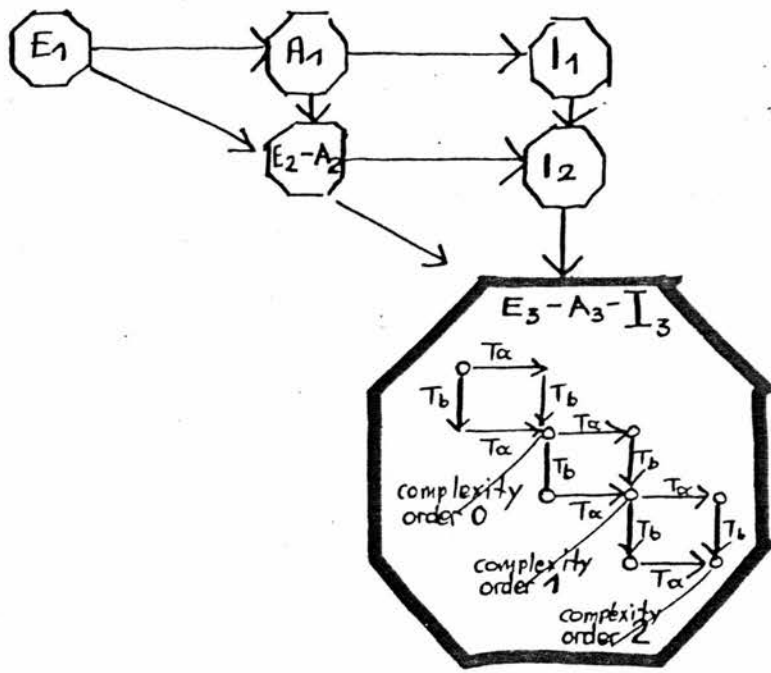
or, in the form presented previously:
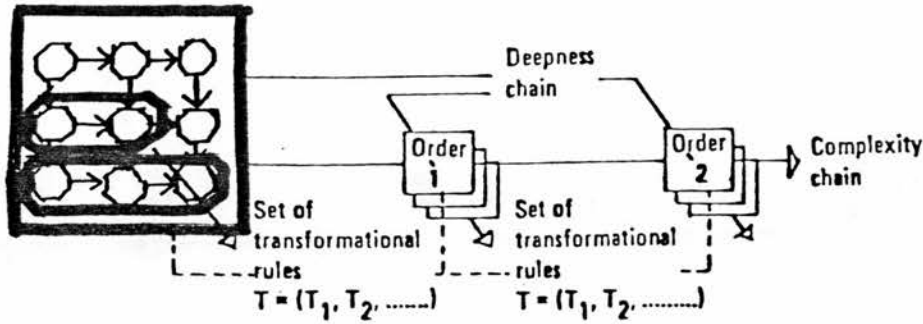
This form can be extended to the following :

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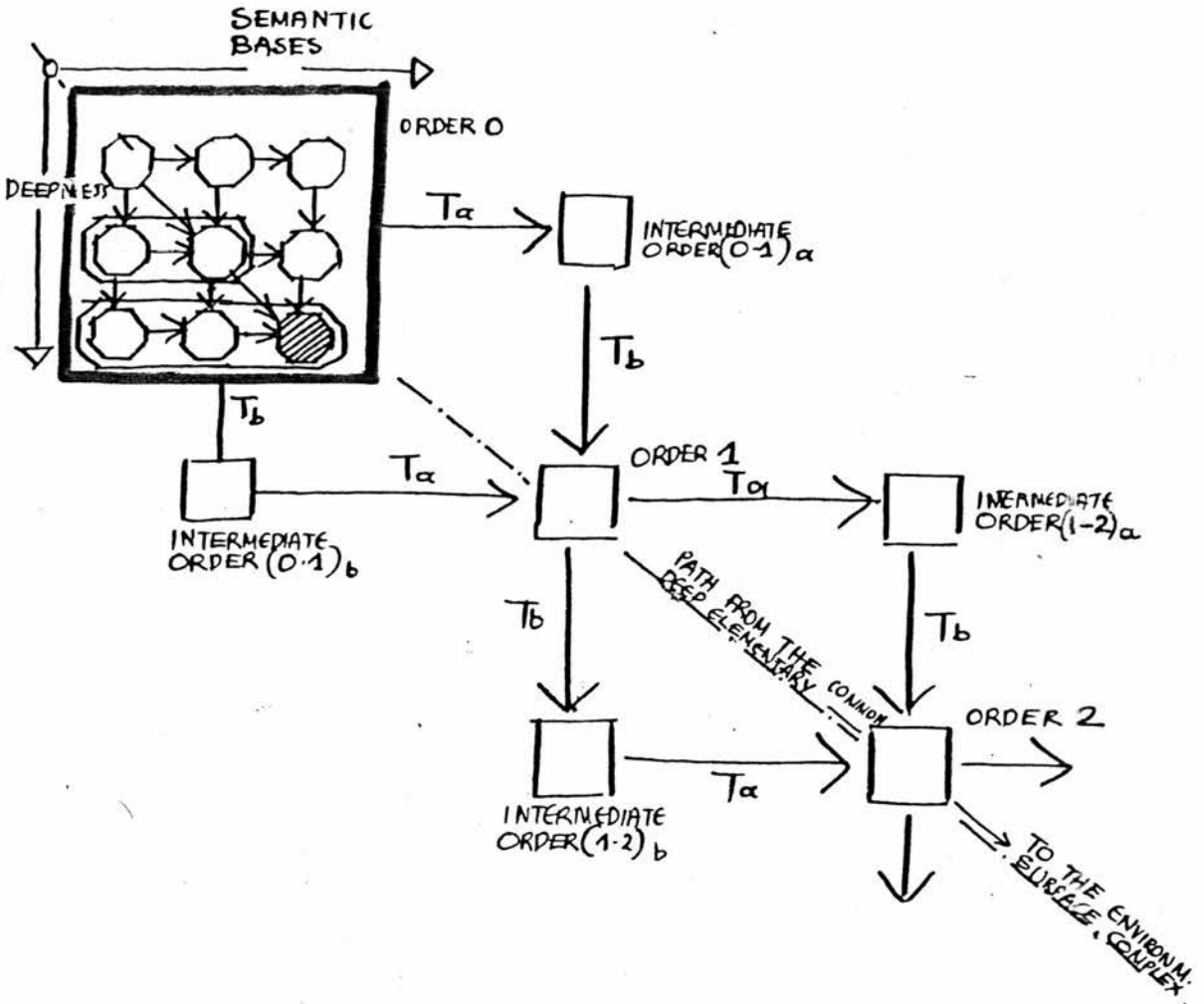
The above diagrams   illustrate a typical example of an non-modified   description, in which a series of semantic bases are involved in the form of the hypothetical basis of the three substance levels of approach.   The whole process of dealing with a problem in terms of a non-modified description was previously presented as follows.

ELEMENTARY SEMANTIC SYNTAX NOT ORIENTATED TOWARDS PROBLEM-SOLVING

A 'NEUTRAL' BARRIER- -STRUCTURE OPEN TO TRANSLATIONS

'NEUTRAL' RULES

TRANSFORMATIONAL RULES OF FIRST DEGREE

PROTOTYPES

SURFACE

PROBLEM- SOLVING PROTOTYPES

MAPPING PROCESS TOWARDS PROBLEM- -SOLVING

'DISCIPLINARY' DESCRIPTORS (CLIMATIC, NETWORK-, ETC.)

HYPOTHETICAL FORMAL GRID OF DESCRIPTORS - LEVELS OF APPROACH

The 'neutral rules', which are mentioned in this semantic representation of a problem-solving but yet non-modified description deal with the complexity chain. They explain how complex prototypes derive from elementary structures. Both, elementary structures and prototypes, are semantically equipped but their meaning is not necessarily orientated towards problem-solving.   The context of such rules does not necessarily refer to the 'explain-propose' bipolar we mentioned previously.   Instead, problem-solving prototypes derive directly from the neutral prototypes through an empirical and comparative mapping process.

The inclusion of normative action in the heart of trans-formational rules is indeed our task here.   The aim is to reach

an overall modified description as that shown below:

HYPOTHETICAL GRID
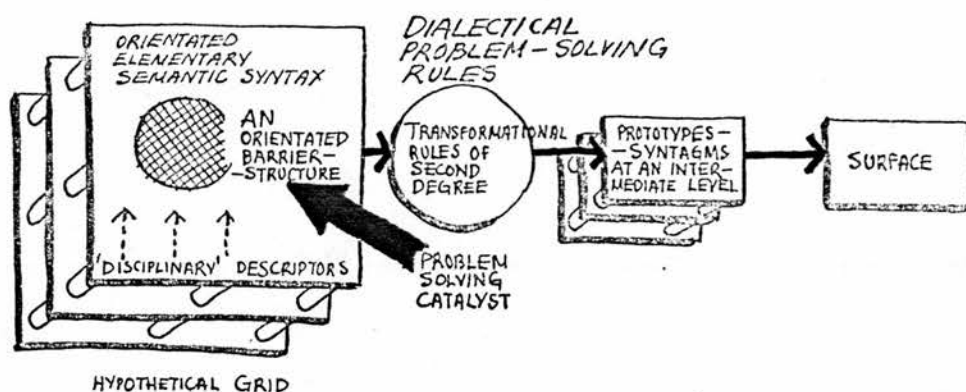
In the following, I shall be trying to outline the general character of this task as regards the problem of alienation. There is no doubt that definite answers are not expected here. The main purpose is to prescribe a methodology of dealing with such matters and not to find the exact transformational rules. This is the reason, why the basic transformational rule of 'explain-propose' is itself very simplified.

b.   complexity

The form of commutative square, used previously to incorporate the neutral semantic bases (such as 'permeability of climatic barrier' or ' continuity of channels' etc), may equally apply to the 'explain-propose' bipolar. Here, the major conceptual key is that the 'explain-propose' bipolar is translated into an 'explain' scheme where, however, the dialectical 'explain-propose' logic is integrated . Thus, the one set of transformational rules is used to explain how the

effect which is included in the definition of the problem might <u>increase</u>, while the other set is used to <u>explain</u> how this effect might <u>decrease</u>. This logic in the case of the problem of alienation becomes as follows: the one set of rules is used to explain how a barrier promotes increased alienatory effects, and the other set to explain how the abolition of a barrier promotes increased participatory effects (either among users or between user and environment).

By applying this general rule to our basic model of semantic syntax, we can have something like the following:

So, at an intermediate complexity order, our model becomes as follows:
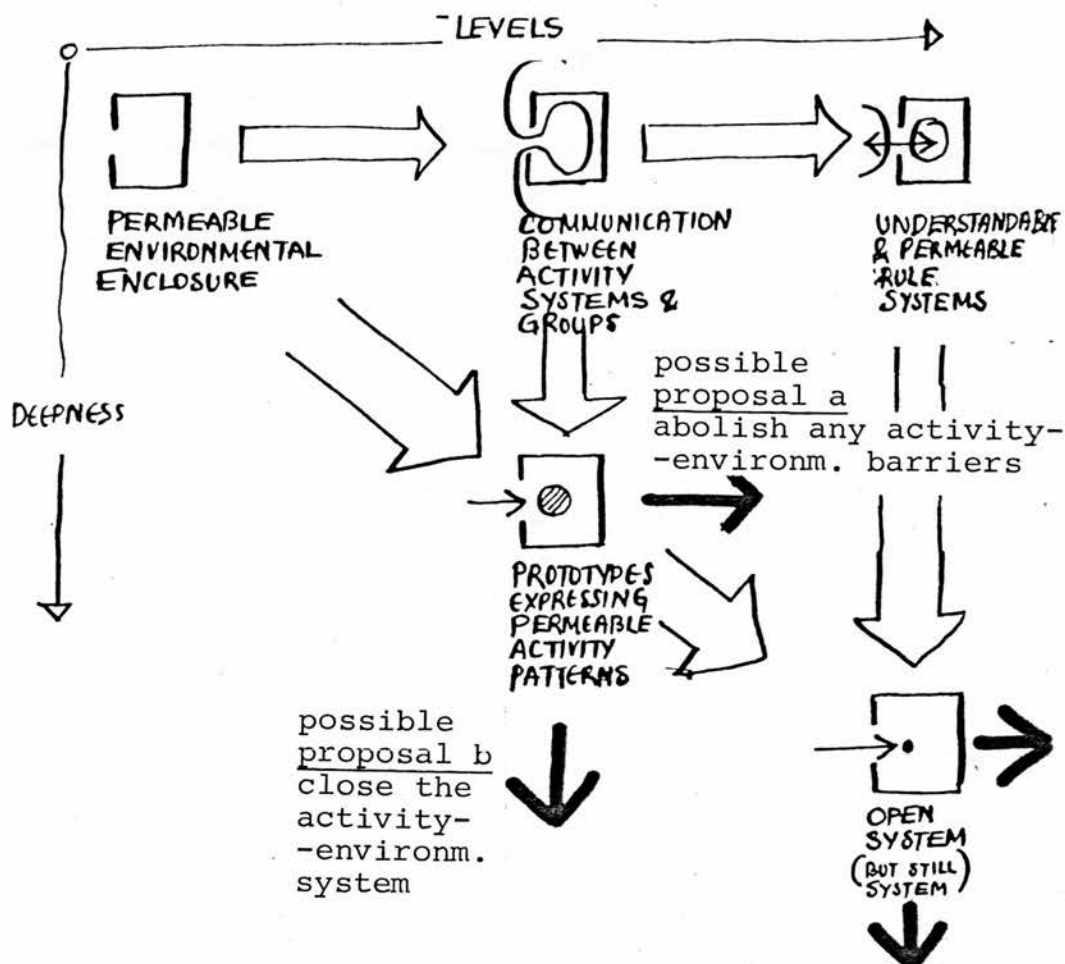
Intermediate orders may also be produced by an increased operation of one or both of the Ta and Tb rules. An extreme case, for example,* in the following page:

* is shown

ENVIRONMENT   ACTIVITY   INSTITUTION

T_a T_b

prop(α)
open external
barrier(return
to a-b order)

PROTOTYPE
EXPRESSING
A CLOSED
BUT INTERNALLY
OPEN ACTIVITY
PATTERN

(e.g. COURTYARD
HOUSE
PROTOTYPE).

prop(b)
No
proposal:
pattern
to its
Limits

CLOSED SYSTEM
WITH INTERNAL
PERMEABILITY
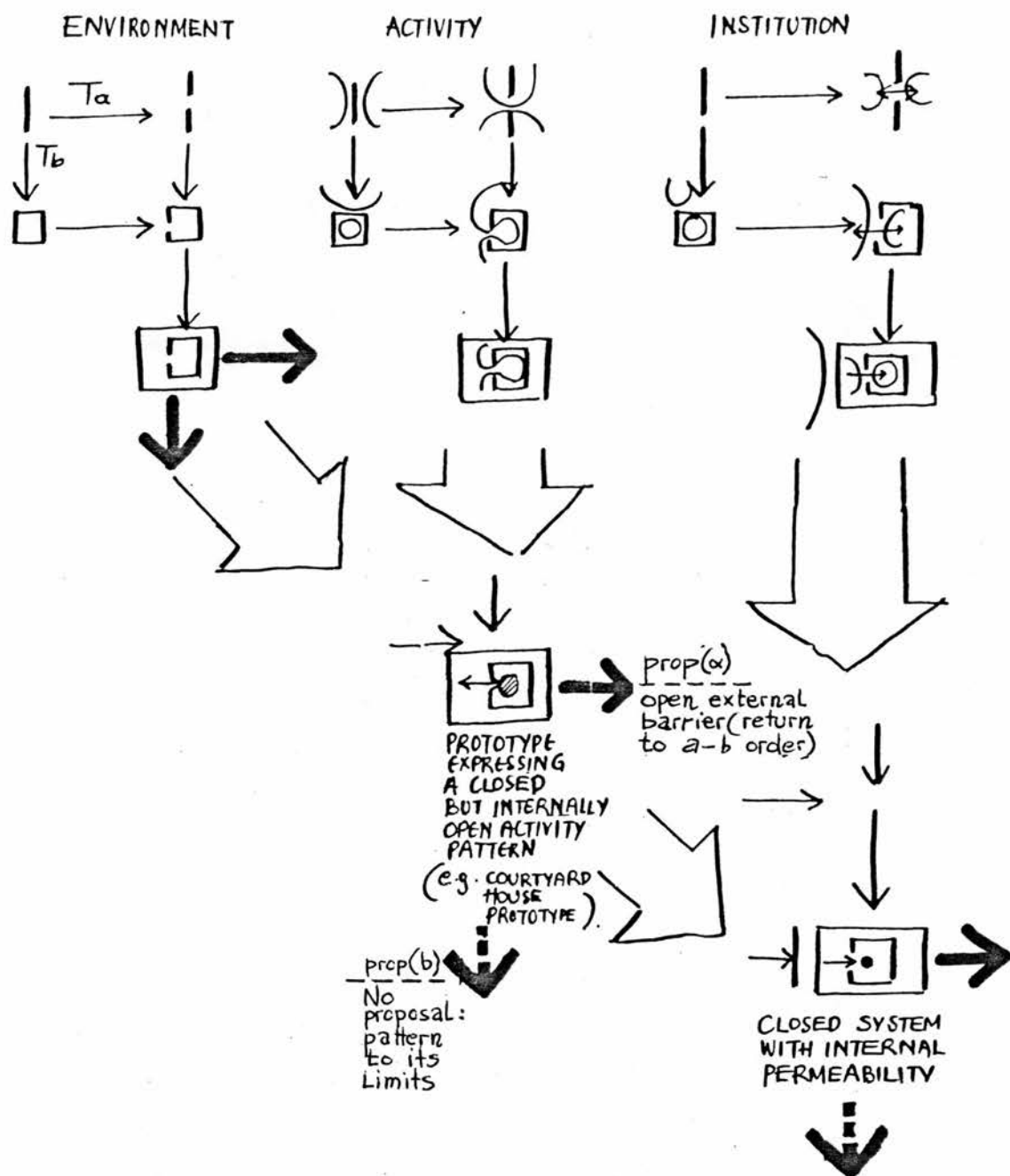
It is obvious that the above examples of certain very elementary structures cannot reflect the capacity of the alienation-participation bipolar to the extent I have discussed this capacity in the previous part of this chapter(2.4,b).

Alienation is a phenomenon which is inevitably connected with

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the complexity of the environmental, activity or institutional barriers. Thus, participatory strategies, in order to cope with such problems, have to be equally complex themselves. However, even in this elementary form, it is clear that planning action can be formalized according to the structural characteristics of what is explained. It is far more difficult, for example, to conceptualize a barrier-abolition practice at a complex prototypic level by using a more or less empirically originated mapping procedure than to organize planning action in close connection with the structural path in which the problem was created:

a.NON-MODIFIED PROCESS

INTERMEDIATE
DEEPNESS
LEVEL:
PROTOTYPE

problem

obvious action through
mapping

b.MODIFIED PROCESS

INTERMEDIATE
DEEPNESS
LEVEL:
PROTOTYPE

possible action:
open external barrier
(return to a-b order)

explain as a transformational
product

explain as a transformational
product at all levels and find
possible routes through which
the problem has been created

E   A   I

(2) CREATING ALIENATION FROM SURROUNDING ACTIVITIES

CREATING INSTITUTIONAL ISOLATION

CONCL. (1) EXTERNAL INSTITUTIONAL BARRIER FOR PROTECTION OF CULTURE

POSSIBLE ACTION:

← PROTECTION INSTITUTIONAL BARRIER

(WOULD DESTROY CULTURE)

or

ACTIVITY SEPARATION

CAUSING ALIENATION FROM POWER GROUP

CAUSING INTERMEDIATE POWER GROUP STILL ALIENATED FROM THE INTERNAL

CAUSING COMMUNICATION OF INTERNAL GROUPS BUT STILL POWER-ISLAND

EXPESSED INTO BUILT FROTOTYPE DIRECTLY

POSSIBLE ACTION:

— STage 1 —
(infrastructure for stage 2)

but close!

open

ALLOW A FIRST DEGREE
OF PARTICIPATION ONLY;
BE PROTECTED FROM THE
POWERFUL GROUP IN ORDER
TO AVOID CO-OPTATION BY
IT.

stage 2 ——>

IN THAT WAY, PARTICIPATION
AT THE FINAL STAGE IS
COMPLETE AND EFFECTIVE.

c.   deepness-substance

All the previous examples refer to the problem of alienation
as it is conceived in the simplest possible form. Alienation
is understood there as a characteristic which is conceived at
one or all the approach levels of an environmental structure
and it is caused by barriers, which again might appear at one or
all these levels.

In the beginning of this chapter, however, I have already
noted that this constitutes only one family of the possible
translations of the problem of alienation. The next question,
therefore, is how the other aspects of this problem can be
presented in the form of a modified semantic syntax. This means
that we have to elaborate in terms of a modified semantic syntax
the alienatory effects, which appear in the production of the
artificial space, when space is seen as a commodity. It means

also that we have to elaborate in terms of a modified semantic syntax the alienation of the user from the potential semantic pluralism of the built environment.

The first point, which we have to clarify here, is that the above simple explanation of alienation as a barrier-problem is basically related to transformational rules from elementary to complex syntagms. A barrier is developed when complex, environmental, activity and institutional images are produced by applying a set of transformational rules to simpler structural images. Nevertheless, the complex syntagms of a semantic syntax are unavoidably supported by a higher semantic content so that such barrier -structures (as we have already seen in the examples) contain a plurality of alternative alienatory interpretations and may lead to a plurality of participatory strategies.

Now, when we deal with the adaptation of the artificial environment by the user, our interest is mainly in the inter- actions between the semantic levels of space (either deepness or substance levels).

In a diagrammatic form , the richness of the semantic pluralism of the artificial space was previously presented as follows:

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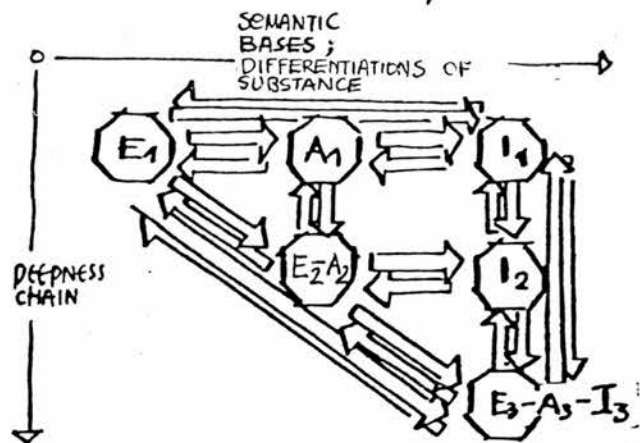
If this is a state of dynamic equilibrium where all
the possible interactions may function, no alienatory effects
appear. They appear when some of the links shown in the
above diagram   are destroyed or intentionally obscured.
'Barriers',in this case, have a different meaning. They signify
the fact that some transformational rules, which would normally
'transfer' the user from the surface to the deep base or from
the physical to the institutional image of the artificial space,
are destroyed, eliminated, or changed to pseudo-rules. The
following example shows, for instance, an alienatory effect,
which is caused by the absence of an activity interpretation
of the built space.
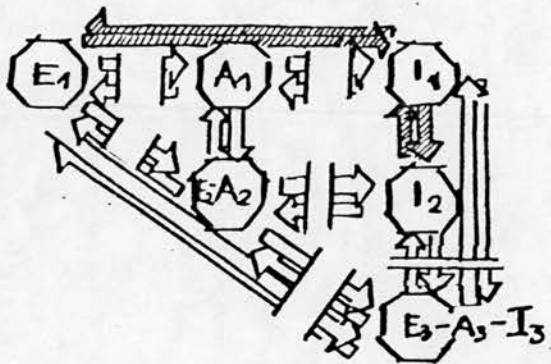
ALIENATORY EFFECTS
ON THE COMMUNICATION
BETWEEN THE BUILT
SPACE AND THE USER
CAUSED BY THE ABSENCE
OF AN INTERMEDIATE
ACTIVITY PATTERN OF THE
BUILT SPACE.

POSSIBLY ORGANIZATIONAL
RULES ARE DIRECTLY APPLIED
TO THE BUILT SPACE
AND VICE-VERSA.

What   the   reasons and the practical consequences of
such alienatory situations are is a different question and cannot
be answered without an empirical study. There are, however,
some other important points about the formal representation of
alienatory effects of this kind, which might be useful for
answering this question.

The first point is this: we mentioned that for the
investigator of the built space deeper structures coincide,
as opposed to surface ones. While it is essential to differentiate
between the surface physical, activity, or institutional
features of an environmental artefact, deeper structures
automatically contain or should contain all these features.
There is an important question, whether this always happens
and especially whether this happens in the real process of
the internalization of the artificial space by the user. Some-
times, for example, alienatory effects may be caused by the
easiness of abstracting environmental images:
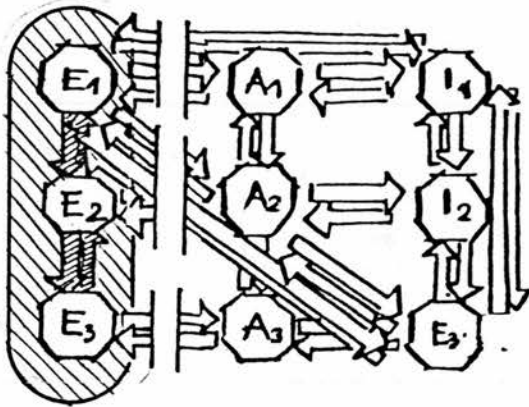
In this example, the interest of the investigator
or of the user of the built space is in the physical
characteristics of it. There is a kind of internalization
process but the exploration of the autonomous and undisputable
prototypic and deeper images results in a kind of closed circuit,
where everyone is satisfied and has no interest in a broader
understanding of the artificial environment. Such cases
characterize, we have to admit, predominantly the professional

expertise, where the development of empirically or 'scientifical-
ly' designed autonomous languages of   built space is a common
reality.

c2. characteristic routes

The second point refers to characteristic <u>routes</u>, which
appear in the process of internalizing space. Such routes do
not have a strict meaning of time, but do represent summaries
of characteristic stages of such an internalization process.
Since such routes are described in terms of our three-level,
three-substance hypothetical model, we can produce a taxonomy
of some characteristic alienatory effects, where our model
functions as a taxonomic basis. Again, such characteristic
routes have to be classified after an empirical research and
apply equally to professionals and users:

A. 'HORIZONTAL' BARRIERS
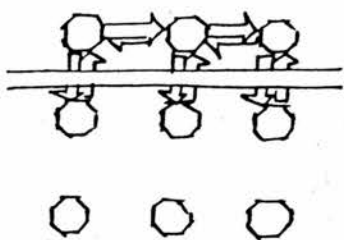
Non internalization:
interaction between the
different substances at a
surface level only;
however, frequent changes
of the physical characteri-
stics of the artificial
environment, caused by
"anomalies" in the cor-
respondance of the surface
images.
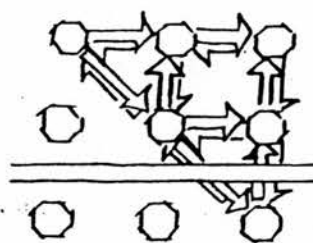
Partial internalization
inability to criticize
prototypes except through
activity patterns.

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B. 'VERTICAL' BARRIERS
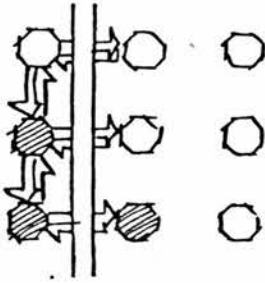
Emphasis on pseudo-levels.
Creation of autonomous
dialects of the artificial
space.
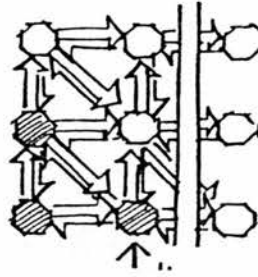
Creation of languages
concerned with the physical
and the activity characteri-
stics of the artificial
space. Pseudo-levels beyond
the prototypic level, such
as "needs".

C. SOME COMPLEX BARRIERS
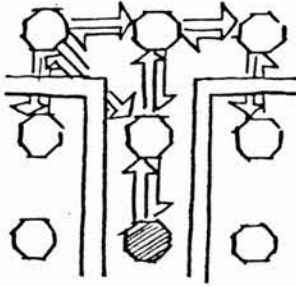
The dominance of activity
languages and behaviourist
approaches. Organizatio-
nal rules of the surface
are considered as
regulators of activities.
Human needs are dealt
with at the pseudo-level
of deep activity structures.
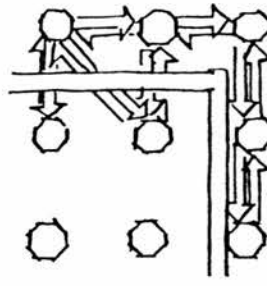
The exaggerated institutio-
nal understanding of the
artificial space. Any
problem of the surface is
directly referred to insti-
tutional problems. Design
is considered as useless
without major institutional
changes.

The third point deals with the involvement of the complexity chain in the above deepness-substance structure. In a simple form, I have previously presented the general model of this as follows:

or, in the inverted form :

What is important in a syntagmatic syntax is that complex syntagms are more loaded semantically than the elementary ones so that the problem seems not very decisive. However, our experience of   artificial space is full of overall images of very complex structures, which themselves look very simplified. Alexander's discussion of the tree-pattern of a city is a clear example [58]. The same happens with the basic pattern of the University of Bath [59]:

MASTER PLANS   THEIR TREE-STRUCTURE   THE GENERAL PATTERN

UNIV. OF BATH, MASTER PLAN   THE PATTERN OF GROWTH

To architects and planners the concept of scale has proven to be very useful. By using the established groups of concepts

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58. C. ALEXANDER, A city is not a tree (1966) in: G. BELL and
    J. TYRWHITT (eds.), Human Identity in the Urban
    Environment, Penguin 1972, p. 401.

59. BATH, University of, op. cit.

in each scale, they succeeded in avoiding an endless search

for those environmental patterns, which would belong to a

purely elementary level. For a structural understanding of

space such a search, although is does not directly contrast

the essence of structural analysis, it could not avoid the

danger of producing extremely complex systems. An endless or,

at least, very complicated complexity path would not succeed in

combining wholeness with simplicity [60]. Thus, environmental

syntagms have to be understood as belonging to a more or less

discontinuous path from the elementary to the complex:

ELEMENTARY ORDER
FOR THE SMALL SCALE

MAXIMUM
COMPLEXITY
ORDER FOR
THE SMALL
SCALE
ROOM

DISCIPLINARY BARRIER

ELEMENTARY
ORDER FOR THE
MIDDLE SCALE

MAXIMUM
COMPLEXITY
ORDER FOR
THE MIDDLE
SCALE
BUILDING

DISCIPLINARY BARRIER

ELEMENTARY
ORDER FOR THE
LARGE SCALE

NOT CLEARLY ESTABLISHED
INTERDISCIPLINARY
TRANSFORMATIONAL
RULES

MAXIMUM
COMPLEXITY
ORDER FOR THE
LARGE SCALE

---
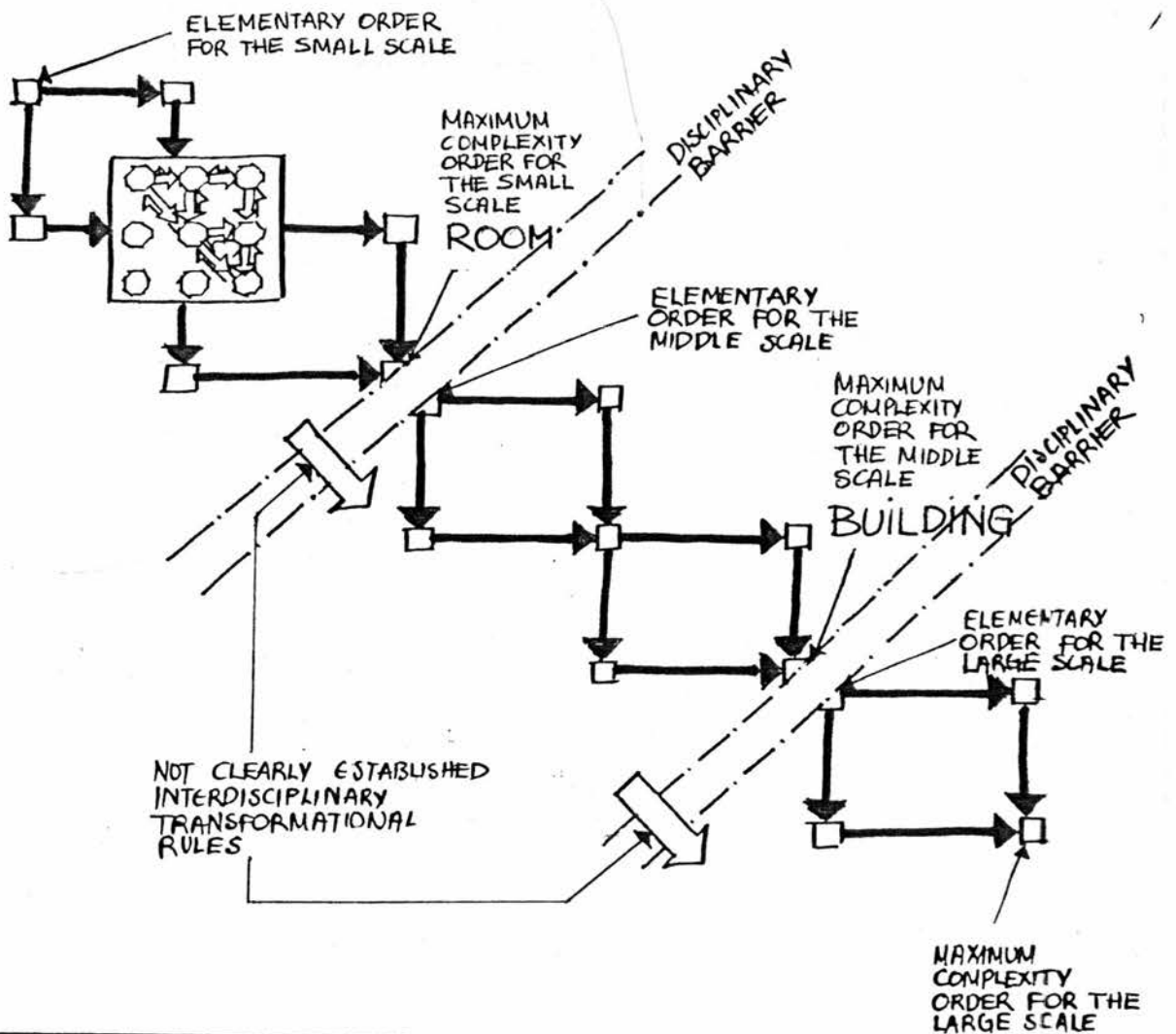
60. See the whole discussion about combining wholeness with
    simplicity in structuralist thinking, in ch. 1.1.

There are two major remarks concerned with this dis-
continuous path, as regards professional practice. First,
the whole path is normally understood as a tree, as follows:

"NORMAL-SCIENCE"
AREA, EXISTING PARADIGMS
FOR PROFESSIONAL PRACTICE
& EDUCATION

MAXIMUM
COMPLEXITY
ORDER FOR THE
SMALL SCALE

ALTERNATIVE
ROUTES TO THE
SMALL SCALE OR A
S E T OF ROUTES

"NORMAL-SCIENCE"
AREA, EXISTING PARADIGMS
FOR PROFESSIONAL PRACTICE
& EDUCATION

ALTERNATIVE
ROUTES TO THE
MIDDLE SCALE OR
A S E T OF ROUTES

ELEMENTARY
ORDER FOR THE
LARGE SCALE

"NORMAL-SCIENCE"
AREA. EXISTING PARADIGM
FOR PROFESSIONAL PRACTICE
& EDUCATION

Second, any attempts to apply the same transformational rules
between all the disciplinary scale-areas are semantically
valuable and are normally considered as a fundamental attribute
of a well designed environment.   Functionalist architectural
education is full of advice to apply the same constitutional
logic from the smallest to the largest elements of a building.

In fact, the whole path functions more semantically than
syntactically. The elementary city structures are atoms in
terms of complexity, and the same happens with the elementary

building structures. The barriers which constitute the 'non-science' voids between the paradigms of each scale are mostly understood in semantic than in syntactic terms. The gap is normally bridged at the surface level through a pure relationship-logic, which is accompanied by the semantic context of the elementary deep structures:
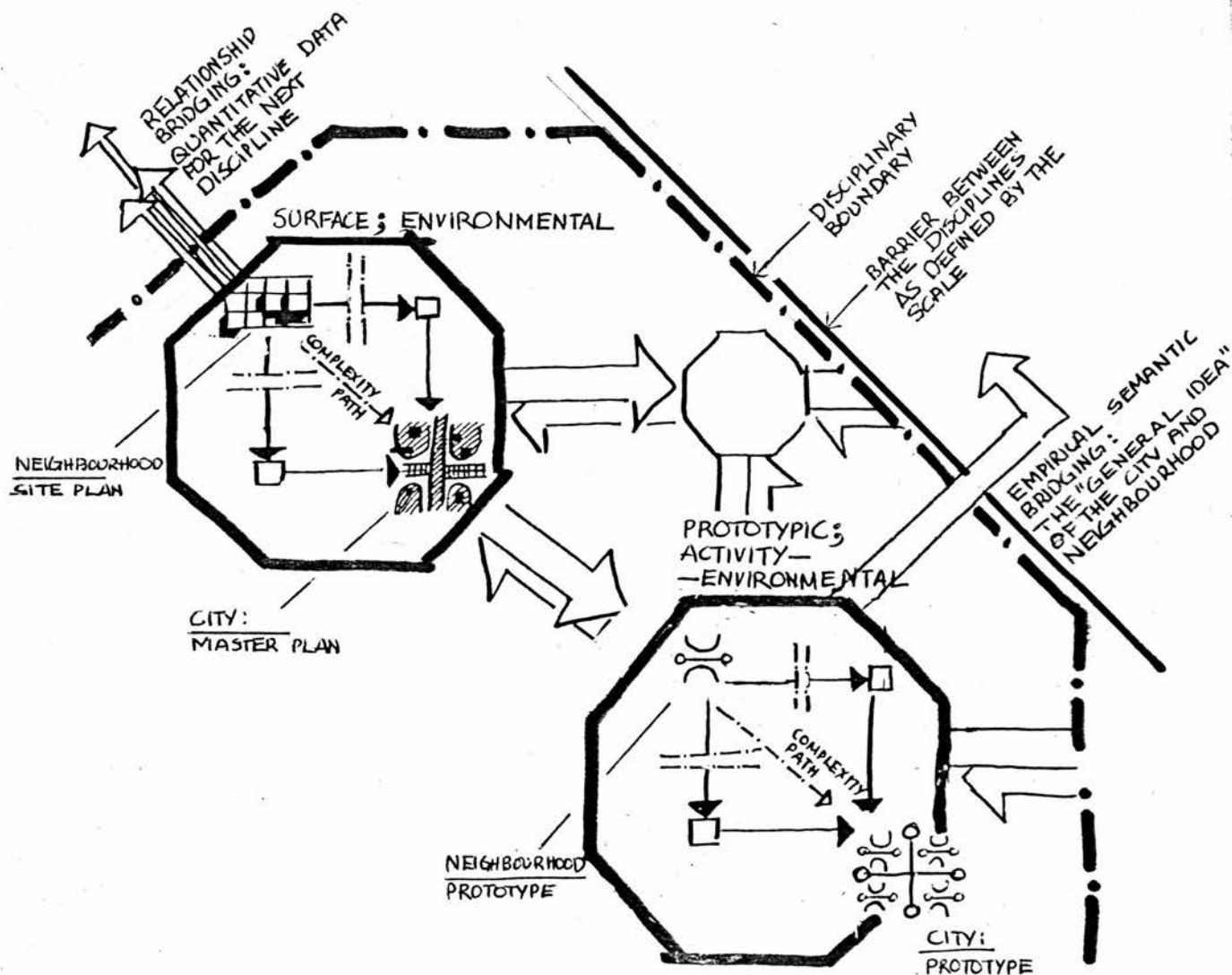
The above discussion has shown some additional barriers, especially concerning the understanding of space by the

designers. Theoretically, the form of barriers as regards
the total model, including scale, can be presented as follows:
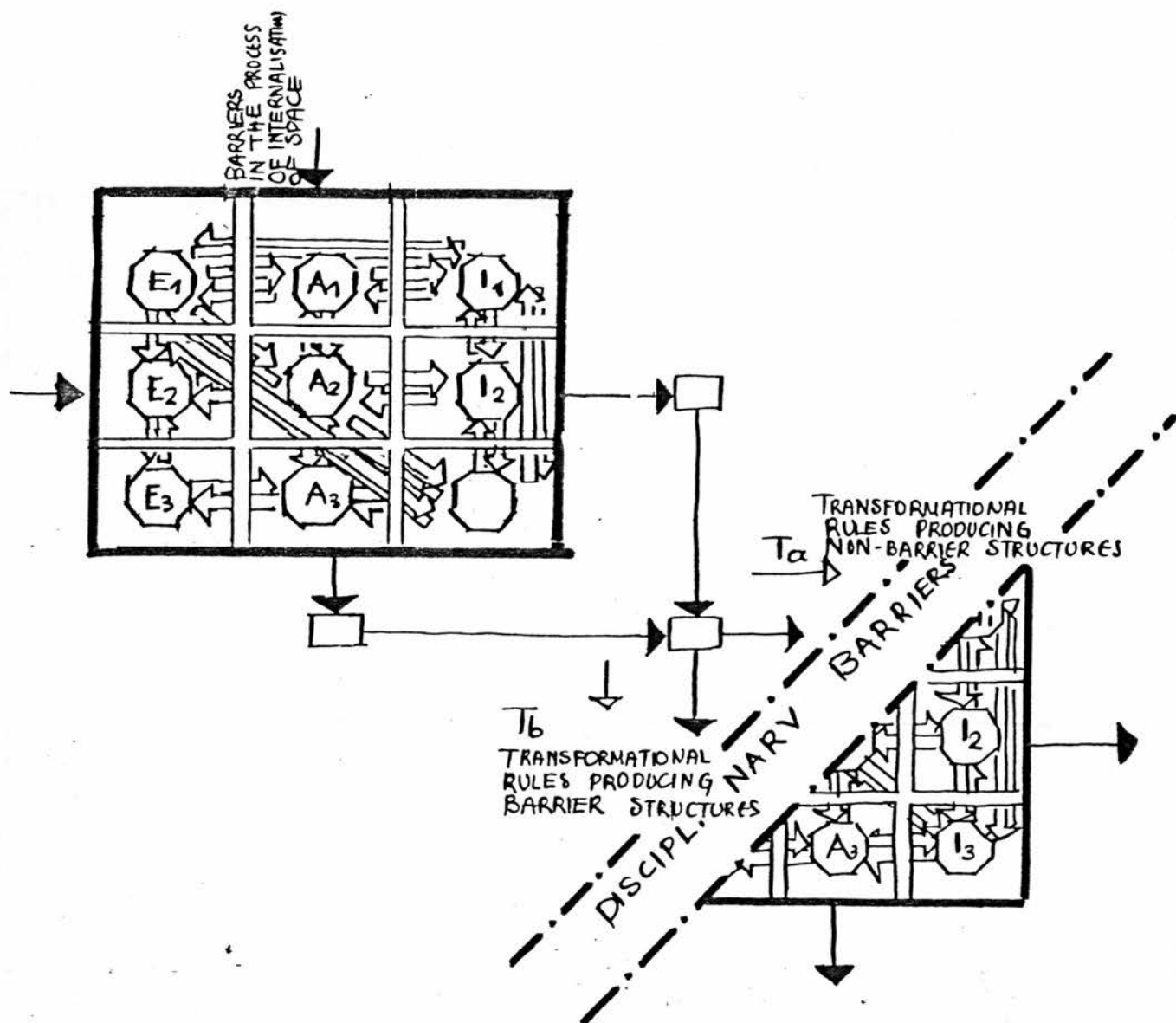
In fact, although disciplinary barriers are clear in the
designers' understanding of the artificial space, what happens
in the case of users is still obscure. To what extent the
internalization of the city image has something common with
that of the house is a question which could be answered only
after empirical research.

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In order to complete this section about the formal repre-
sentation of the alienation-participation bipolar in our modified
semantic syntax of the artificial space, we have to deal with
another subject: We have seen how participatory action can
be included in the semantic syntax concerned with the path from
the simpler to the more complex barrier-structures.
What remains is to understand how participatory action can be
represented in terms of the total model and, particularly, that
part of it which deals with the process of barrier-production
in the internalization of the artificial environment.

The simple model is as follows:
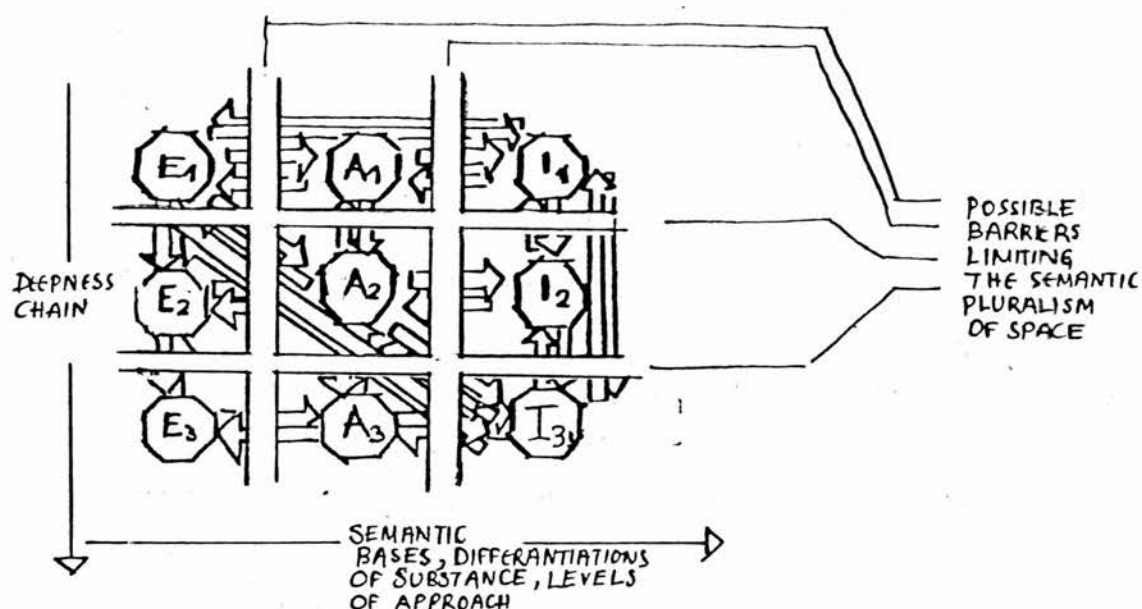
It has been also mentioned that these eventual
barriers do not occur randomly ; they follow particular
patterns('routes')as,for example:
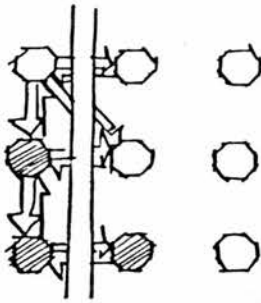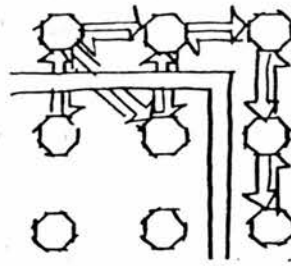
emphasis on
plasmatic (⬡)
pseudo-levels;
creation of
autonomous
dialects of the
built-space

overloaded institutional
understanding of the
artificial space;every
problem is considered as
being caused by institu-
tional problems.Design is
considered as possible
only after major institu-
tional changes.

What has to be stressed now is that even these routes
are not correctly expressed in the above static way. In reality,
they function in a dynamic way. This means that the overall
equilibrium, presented in the above two examples, has been
stabilized after an alienatory procedure. For instance, the
second example could be described in a simplified linear form,
as follows:
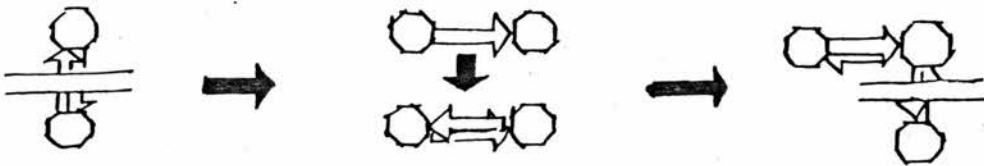
1.lack of know-
ledge of an
environmental
language; no pos-
sibility of
interaction
between the sur-
face of the
physical envi-
ronment and the
prototypic image
of it; so,

2.mapping of the
physical chara-
cteristics on the
activities at a
surface level and
vice-versa; so,

3.no possibility
of internalizing
prototypic pat-
terns (and
acting on them);
so,
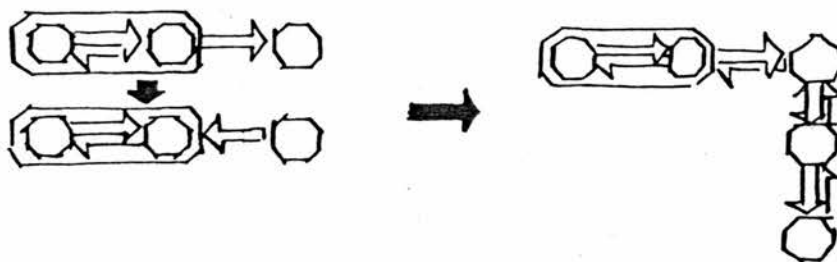
4.mapping on the
surface of the
institutional
image (organi-
zational rules
etc.) and
vice-versa; so,

5.function of
the institutional
deepness chain
as a whole
(because some
explanation is
necessary). There-
fore, any problem
is understood as
directly caused
by societal
problems. The
possibilities for
design and reduced
or considered as
useless without
major institutio-
nal changes.

In general, we should expect that empirical research
would provide us with a dynamic taxonomy of such cases. This
means that we could understand how a case, where a 'horizontal'
communicative barrier exists, may be transformed into a case
characterized by a complex barrier, etc.:

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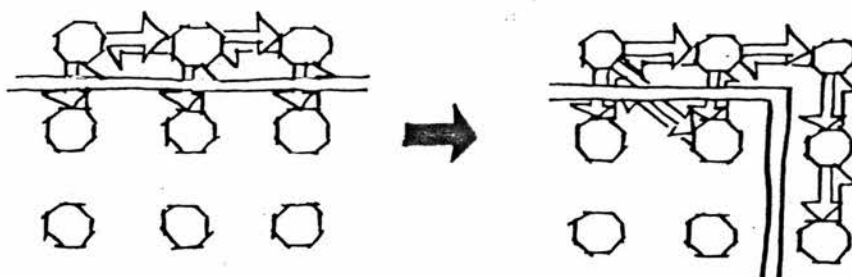
A general form of the above examples is the following:
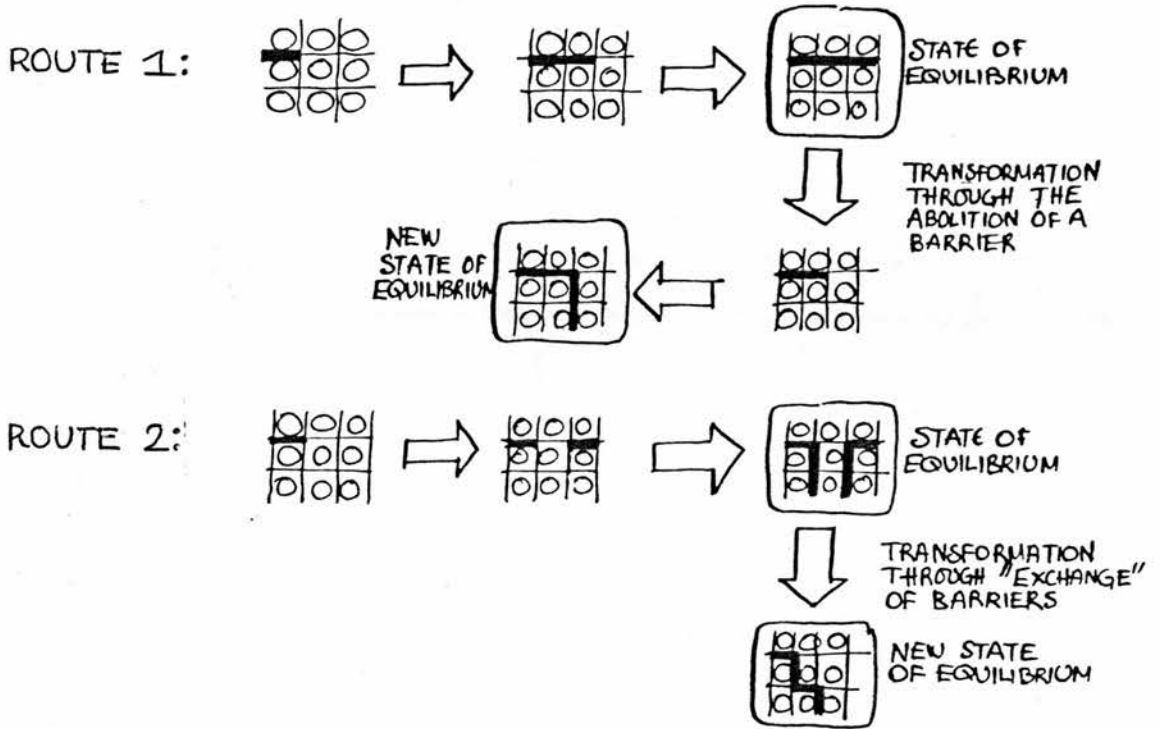
In fact, the linear form is not sufficient at all to give a coherent idea of the reality. Usually, for instance, the understanding of space might start from an elementary form
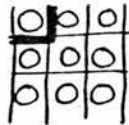
and might achieve the optimum non-alienated form,
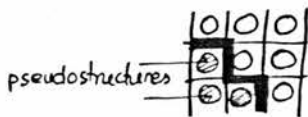
by passing through continuous reversable transformations concerned with alienated cases of the kind described previously. Some of these cases are characteristic as regards their state of dynamic equilibrium.

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In these terms, participatory action means a <u>reverse</u>
dynamic procedure from the highly alienated towards the
optimum cases.

Being dynamic, this procedure has also to pass through
stages of equilibrium which function as <u>infrastructures</u>
for subsequent less alienated cases.Disalienation, I
have already stressed   , is a gradual procedure and these
infrastructural intermediate stages of equilibrium are
essential for the procedure as a whole. An example of this
is the following.

NON·MODIFIED   DESCRIPTION

STARTING   CHARACTERISTIC   FINAL STAGE
POINT   INTERMEDIATE   OF EQUILIBRIUM
                  STAGES OF
                  EQUILIBRIUM
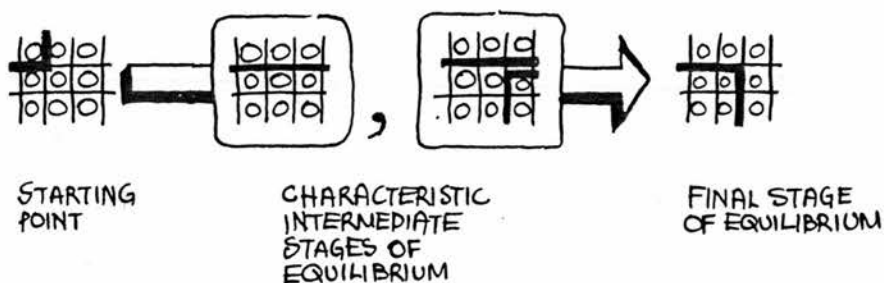
MODIFIED DESCRIPTION; INFRASTRUCTURAL STAGES:

FORGET THE   MATERIALIZE   FINALLY,   CONSULTATION
RULES, CONCENTRATE INSTITUTIONAL   INTERNALIZE   OR CREATION
ON DEEPER   PROTOTYPES   THE   OF PRAGMATIC
ACTIVITY PATTERNS   PROTOTYPES   CONDITIONS
                                                      IN ORDER TO,

TRANSFORMATIONAL
ACTION IN
ORDER TO
CREATE INFRA-
STRUCTURAL STAGES

INFRASTRUCTURAL STAGES
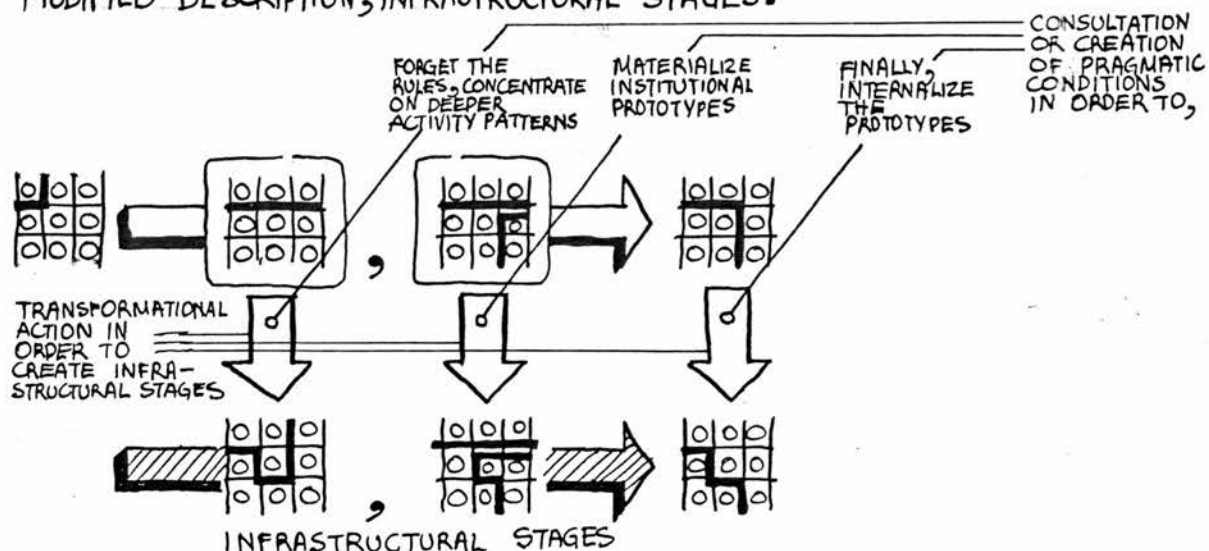
The importance of this definition of <u>participatory</u>
<u>infrastructures</u> is double: first, it enlarges the way in
which participation itself is understood (not only as
design participation, but also as a continuous process concerned
with the user-environment connection) and second, it
enlarges the concept of infrastructure; infrastructures are
not only conceived as material backgrounds for transforming
the physical elements of the built space, but they are also
conceived as activity or institutional infrastructures;
that is, at different levels of approach and different
substances. More important, however, is that they are
conceived also as dynamic equilibrium infrastructures;
that is, as intermediate useful states, where <u>some</u> barriers
still exist but these barriers are important for the procedure
of internalization of the built space as a whole.

There are two clear general conclusions from the above
discussion. First, the entire way of thinking about parti-
cipatory planning is highly ideological. Participation
exists only in order to lead to a non-alienated
exploration of space by the user and, as such, it depends on
the definition of alienated communication between space
and user. Second, the participation-alienation logic, as
any problem-solving normative logic, deals predominantly

with the dynamics of the environmental structures. I shall
end, therefore, this part of the study concerning the
linguistic paradigm and its development with a discussion
on some aspects of the dynamic behaviour of the artificial
environment; namely the aspects which require a logic of
contradictions in order to understand the transformations
of the built forms.

CHAPTER I,2.5

NOTES ON THE DYNAMICS OF THE ENVIRONMENTAL STRUCTURES
AS SEEN THROUGH THE LOGIC OF CONTRADICTIONS

To some extent, it is an exaggeration to discuss

'structural dynamics' within a structuralist context;

'dynamics' are automatically included in the concept of

structure itself. Before introducing the particular

reasons for this discussion here, I feel it useful to clarify

the concepts of 'structure' and 'transformation'. These

concepts have also been discussed in EAR/4 ('Description

and Descriptive Theories in Architecture') and I shall

start from there.

In EAR/4, we stressed that there are two major semantic bases according to which two different values are adapted to the term 'structure'.

> "(i) the conditions under which a structure can be applied as such: For Piaget, for instance, the conditions of 'wholeness', 'transformation', and 'self-regulation' are applied to define 'structure' as a system of transformations under some well defined transformational rules[1]. Two extreme examples produced according to this basis may be given: the 'mathematical group' (to Piaget, the finest prototype of his definition of structure)[2] and a concept in general use, the 'social structure' where no such formal conditions may necessarily be applied[3]
> (ii) the degree of abstraction applied to a certain reality which is necessary in order to understand a structure ... According to this basis, structures are to be identified either at the abstract level of deep structure[4] or, alternatively, at the surface level of the observable reality. One attitude identifies a structure at a surface level under the condition that t h e r e   i s   a   d e e p   l e v e l w h i c h   i s   i t s e l f   t h e   s t r u c t u r e, while a second attitude accepts the deep level analysis as inevitable without imposing conditions in identifying a structure at a surface level."[5]
> (my emphasis)

1. J. PIAGET (1968), op. cit., p. 5 (also quoted in A. AWADALLA, A. M. KOTSIOPOULOS, T. MARAVELIAS, Description and descriptive theories in architecture, E.A.R./4, 1977, p. 26).

2. Ibid. (Piaget), p. 5.

3. See E.A.R./4, op. cit., p. 26, n.6; "social structure", even in its broader sense, may depend upon higher structures. For a discussion of this dependence, see H. GERTH and C. W. MILLS, Character and Social Structure; the Psychology of Social Institutions, Routledge and Kegan Paul © 1957.

4. Ibid.,(E.A.R./4), p. 8.

5. Ibid., p. 26.

A broader understanding of the above duality, more connected with my previous analysis of artificial structures, would lead towards two quite clear translations of the concept of 'structure': the first defines 'structure' as the <u>overall</u> reality which is under investigation, regardless of the conditions under which 'structure' is understood (within the structuralistic methodology these procedures inevitably involve Piaget's conditions as well as transformational chains as those mentioned previously). It is in this context that the expression 'environmental structures' is used.

The second defines 'structure' as the set of characteristics which dominates the analysis of an overall structure. As such, structure refers mainly to the rules and the methodological apparatuses which are used in order to investigate an overall structure. The expression 'the structure of the environment' - or, strictly, 'the structure of the environmental (overall) structures'—belongs to this translation.

The reader who is already familiar with the use of the term 'structure' in this study will understand that, in the end, there is no essential difference between the two ways in which 'structure' is conceived. This clarification, however, is useful for the discussion of the dynamics of the environmental structures.

Now, the initial question; what is the meaning of
the 'dynamics of the environmental structures'? Are there
any new concepts introduced by this, apart from the trans-
formational rules of the complexity chain and the semantic
pluralism of space?

The hidden problem behind this question deals with
the concept of 'transformation' itself. It is obvious that
buildings are usually stable and the question is whether
the term 'transformation' is merely adapted to the compara-
tively rare cases, where the existing environmental
artefacts are modified in order to satisfy new 'needs' or
new activity patterns.

The phenomenon of transformation in language is an
everyday reality . Linguistic syntagms are in a state of
continuous production. So, there is a rich statistical
sample for identifying transformational rules in the grammar
of language. This is done either by tracing the similarities
and differences between recorded syntagms or by mentally
analysing the way in which a syntagm might have been
produced. We have to accept, however, that although archi-
tectural syntagms are much 'heavier' than the linguistic
ones and, also, accumulated on land in a more complex way,
the nature of their 'transformations' is conceived in a
similar manner as in language. Transformations, that is,
are first recorded in the paradigmatic way of comparing
simpler to more complicated forms and, second, in a purely
mental syntagmatic way, where it is supposed that a super-

surface environmental artefact corresponds to deeper

structural representations and creates a semantic pluralism

at different substance levels.

J. Lyons gives an idea of the controversial polysemy

of the terms 'generative' and 'transformational' within the

context of linguistics itself:

> "... But first we must say something more about the
> terms 'generate' and 'generative', since they have
> often been misunderstood. The first point to be
> stressed is the negative one: a generative grammar
> is not necessarily a transformational grammar....
> (the term generative) was first introduced in the
> sense of 'projective' (or 'predictive'): to refer
> to any set of grammatical rules which, explicitly
> or implicitly, described a given corpus of sentences
> by 'projecting' them upon, or treating them as a
> 'sample' of, a larger set of sentences. A grammar
> of this kind is 'predictive' in that it establishes
> as grammatical, not only 'actual' sentences, but
> also 'p o t e n t i a l' sentences. It is important
> to realize that most of the grammars that have ever
> been written throughout the history of linguistics
> are generative in this first sense of the term.
> But the term 'generative' was subsequently used in
> this section in a rather particular sense of
> 'explicit' ... When we say that a grammar generates
> the sentences of a language we imply that it
> constitutes a system of rules ... which are
> formulated in such a way that they yield, in
> principle, a decision procedure for any combination
> of the elements of the language in more or less
> the above sense."*6* (my emphasis)

The above dichotomy refers to the basic distinction

between a more or less paradigmatic way of thinking and a

clearly syntagmatic one (in the case of the structural

generative grammar and, especially, the transformational

grammar[7]). However, it is the concept of <u>prediction</u> which

6. J. LYONS (1968), op. cit., pp. 155-156.
7. Ibid., p. 248.

gives a new dimension to the above discussion and which is
of course particularly important for 'architectural grammars'.
The reason is that the concept of prediction signifies the
conscious design action with which   environmental practice
is largely connected. So, transformations in both linguistic
as well as in architectural practice constitute a mental
apparatus which is necessary for planning the action on the
communicational and the environmental artefacts respectively.

Where, however, the environmental structures are
richer is exactly in the domain in which we apparently
understand them through their material substance. This
means that they are transformed on an ad hoc basis and what
is transformed is their material substance. This happens
in addition to the possibility of explaining and designing
the environmental structures also through a transformational
logic. On the contrary, linguistic syntagms are too flexible
and too numerous to behave in the same way. Their material
transformations (and undoubtedly these transformations are
equally numerous as the linguistic syntagms) are inevitably
incorporated in a mental process of continuous reproduction.

The argument which this discussion attempted to
promote is that it is exactly the semantic pluralism of
 artificial space and the different substances through
which this pluralism is communicated which give to the
concept of 'transformation' of   built space an inter-
pretation broader than that implied by the linguistic para-
digm.

Therefore, when we talk about the dynamics of the environmental structures, we mean not only the mental paradigmatic and syntagmatic procedures, through which space is explained and produced but we also mean the material differentiations of the built space through the course of time and through a distinct ad hoc design action.

Design action is also incorporated in language when very complex syntagms are produced. Nevertheless, language is perhaps the less characteristic system in the domain of artefacts as regards design action. On the contrary, in the case of the artificial space the distinct character of design action is closely connected with the differentiations of the substance of the artefact, before the artefact takes a three-dimensional physical form. In this sense, design action is both mentally transformational (since it needs a continuous feedback from the deep to the surface, from the large scale to the small, from the physical to the activity and the institutional and from the elementary to the complex and all these in explanatory and propositional terms) as well as dynamically transformational (since it deals with the change of an existing reality to a new one, even if this 'change' belongs to the extreme case, where a physically new artefact takes the place of an institutional or activity mental formation). In this chapter, we shall especially discuss the latter case of transformations and the term 'structural dynamics of the built space' refers mainly to them. Needless to say, however, continuous reference will be made to the syntagmatic understanding of

transformations, without which no 'dynamics' (in the latter strict sense) can be understood.

2.5.2   CONTRADICTIONS AND POTENTIAL FOR TRANSFORMATION

It is a serious matter to claim that there are general laws which govern the development of man either at the level of societal characteristics or at the level of mental or material artefacts. Popper, for instance, rejects completely the idea that human history can be interpreted in the same way as natural sciences:

> "I wish to defend the view, so often attacked as
> old-fashioned by historicists, that history is
> characterized by its interest in actual, singular,
> or specific events, rather than in laws or
> generalizations. This view is perfectly compatible
> with the analysis of scientific method, and esp-
> ecially of causal explanation ... Against my
> analysis of historical explanation it may be
> argued that history d o e s m a k e u s e of
> universal laws contrary to the emphatic declaration
> of so many historians ... But these laws may be so
> trivial, so much part of our common knowledge, that
> we need not mention them and rarely notice them."[8]
> (author's emphasis, my e m p h a s i s)

Although the position taken in this study is different from Popper's view, such a discussion is far more general than the scope of this study allows. I have to make clear, however, that Popper's attitude against any attempt to construct theories concerned with artefacts and their

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8. K. R. POPPER, The Poverty of Historicism, Routledge and
   Kegan Paul 1976 (© 1957, 1960, 1961), pp. 143 and 145.

historical embodiment is, even indirectly, in   obvious
opposition with the scope of a socially valuable but system-
atic understanding of the structure of   e artificial space.

The argument that <u>contradictions</u> are the fundamental
constituents of transformations is apparently concerned
with a 'law', which Popper would consider as a historicist
illusion. And this law is not of course a 'trivial' one
which we would not need to mention.[9]

Kuhn represents an example of thinking, in which the logic
of contradictions is organically embedded in a theory of
history even if this history is a history of science. Kuhn
himself becomes an advocate of 'historicism' writing:

> "How could history of science fail to be a source
> of phenomena to which theories about knowledge may
> legitimately be asked to apply?"[10]

However, he is really a 'historicist' when he traces
the close connection between the societal characteristics
of scientific communities and the development of scientific
paradigms:[11]

Kuhn's epistemology is a clear effort to prove that
'anomalies' and contradictions within the context of the
normal-science paradigms constitute the potential for the
transformation or complete change of the paradigms. Yet,
Kuhn does not present something new. The profound import-

9.Ibid.,p.145,Popper is not interested in laws which are trivial
   and are part of our common knowledge.
10. T.S. KUHN (1960), op. cit., p. 9.
11. Ibid., postscript.

ance of contradictions for the development of structures,
material or mental, is to be found in materialist dialectics
and its origins. Mao Tse-Tung, for instance, made an
epigrammatic summary of these attitudes writing that

> "Contradictoriness w i t h i n a thing is the
> fundamental cause of its development, while its
> interrelations and interactions with other things
> are secondary causes ... Contradiction has a
> twofold meaning. One is that contradiction exists
> in the process of development of all things, and
> the other is that in the process of development of
> each thing a movement of opposites exists from
> beginning to end." [12] (my emphasis)

The 'antithetic' character of structural dynamics is
a very attractive field for a general discussion in the field
of 'natural' sciences, the sciences of the artificial and
especially in the field of epistemology. It must have been
clear to the reader of this study that the basic philosophy
of contradiction has already been integrated in the way
in which the whole issue of the linguistic metaphor of
architecture has been dealt with. The very elementary
form of the commutative square, for instance, where
antithetic transformational rules constitute the potential
for the development of the structure to higher orders, is
an indication of this. However, it is difficult to discuss
here the general epistemological problems of contradictional
thinking. Instead, I shall proceed to some aspects which
offer a basis for the conceptualization of the notion of
contradiction and for its extention to the study of the

12. MAO, TSE-TUNG, On Contradictions, in:Selected Works, Vol. 1,
    Foreign Language Press 1975 (People's Publishing House © 1960),
    pp. 313-316.

dynamics of environmental structures. The following part refers to these aspects and it is extracted from the team work in EAR/4.[13]

" One basic point is the differentiations made between principal and secondary contradictions. Mao's attitude on this might be concluded from the following extract:

> "The fundamental contradiction in the process of development of a thing and the essence of the process determined by this f u n d a m e n t a l c o n t r a d i c t i o n will not disappear until the process is completed; but in a lengthy process the conditions usually differ at each stage. The reason is that, although the nature of the fundamental contradiction in the process of development of a thing and the essence of the process remain unchanged, the fundamental contradition becomes more and more intensified as it passes from one stage to another in the lengthy process. In addition, among the numerous major and minor contradictions which are determined or influenced by the fundamental contradiction, some become intensified, some are temporarily or partially resolved or mitigated, and some new ones emerge; hence the process is marked by stages."[14](our emphasis)

In reference to Mao's work Althusser defines contradictions in terms of principal and secondary ones. For the first ones, he prefers the term 'general contradictions'. He defines a general contradiction as:

> "the contradiction between the forces of production and the relations of production, essentially embodied in the contradiction between two antagonistic classes."[15]

13. E.A.R./4, op. cit., p. 33.

14. MAO, TSE-TUNG (1960), op. cit., p. 325.

15. L. ALTHUSSER, For Marx, Allen Lane, The Penguin Press 1971 (© Maspero 1965), p. 99.

He also writes that this 'general contradiction' cannot of its own explain neither a 'revolutionary situation' nor the 'rupture and triumph of the revolution'. He specifies that, in addition to this general contradiction, there must be an accumulation of what we might understand as 'secondary contradictions', which are not necessarily solely derived from the same base as the general contradiction though they might be affected by it. He says:

> "... They derive from the relations of production which are, of course, one of the terms of the contradiction, but at the same time its conditions of existence; from the superstructures, instances which derive from it, but have their own consistency and effectivity, from the international conjuncture itself, which intervenes as a determination with a specific role to play." *16* (author's emphasis). "

(part taken from EAR/4,p. 33).

An interesting example of how contradictions are related to the process of production of the artificial space is given by D. Harvey. Harvey accepts a transformational logic which was similar to that mentioned previously in this chapter. He proceeds, nevertheless, to a deeper analysis:

> "... structures have to be d e f i n e d through an u n d e r s t a n d i n g of the transformational rules that shape them ... A higher order structure may be obtained from a lower by way of transformation ... Lower and higher order structures may thus coexist ... But such a hierarchical view does not seem adequate to interpret the relationship between, say, a mode of production and an

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16. Ibid., p. 100.

ecological structure. In this last case we cannot
derive one structure from another through a
transformation ... One consequence of this is that
we are obliged to distinguish between contradictions
within a structure and contradictions between
structures ...
... Godelier ... suggests that many of the contra-
dictions which Marx exposed were of the internal
variety, but that some of the more fundamental ones
are to be interpreted as contradictions between
structures ...
... Following Marx, the only valid way to approach
the question of urban origins, is to seek out the
internal and external contradictions present in
pre-urban society and to show how these contradic-
tions were resolved through the transformation to
urban forms of social organization ... Such a trans-
formation generated new contradictions and tensions
(in particular the antagonism between town and
country) which eventually would have to be resolved."[17]
(author's emphasis, my e m p h a s i s)

Harvey's work is concentrated on the nature of urbanism.

In his conclusions he gives an idea of how urbanism has to

be regarded:

"Urbanism has to be regarded as a set of social
relationships which reflects the relationships
established throughout society as a whole. Further,
these relationships have to express the laws whereby
urban phenomena are structured, regulated and
constructed. We then have to consider whether
urbanism is (1) a separate structure with its own
laws of inner transformation and construction, or
(2) the expression of a set of relationships embedded
in some broader structure (such as the social
relations of production)."[18]

Harvey gives an answer to the above questions in

connection with Lefebvre's work:[19]

"... we also both accept that urbanism has to be
understood as a self-sustaining entity which
expresses and fashions relationships with other

17. D. HARVEY (1973), op. cit., pp. 293-294.

18. Ibid., p. 304.

19. H. LEFEBVRE, La Revolution Urbaine , (1970), La Pensée
Marxiste et la Ville (1972), Editions Casterman, Paris.

structures in the totality. Neither of us regarded urbanism as something simply derived out of other structures. Lefebvre also attempts to incorporate adequate concepts of space into his analysis. He notes <u>the conflict between the dialectics of the social process and the static geometry of the spatial form</u> ... But urbanism is not merely a structure fashioned out by a spatial logic. It has attached to it distinctive ideologies (urban versus rural images for example) ..."[20](author's emphasis).

Harvey proceeds to the kinds of contradictions he realizes:

"The city as a built form and urbanism as a way of life have to be considered separately from each other for they have become separated in reality ... But as the old antagonisms between town and country come to play a much reduced role, so new antagonisms emerge in the heart of the urbanization process itself. At the global level there is the conflict between the metropolitan centres of the world and the underdeveloped nations. At the local level we see the import of rural problems into the city, ... usually in shanty towns around the edges of the major cities. Urban poverty is, for the most part, rural poverty refashioned within the city system ... the urbanization of the countryside involves a subsidiary ruralization of the city[21]..."[22]

"Traditional conceptions of property rights no longer appear adequate and have to be supplemented by the creation of collective property rights through the political organization of space ... The difficulty of distinguishing between public and private (generated out of the urban form of spatial organization) establishes the necessity for greater governmental participation ..."[23]

Harvey also accepts that some particular contradictions evolve as a result of the fact that "urbanism is becoming less homogenous":

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20. D. HARVEY (1973), op. cit., p. 307.

21. Also, according to Lefebvre.

22. Ibid. (Harvey), pp. 307-308.

23. Ibid., p. 308.

"... Created space replaces effective space as the overriding principle of geographical organization ... The urbanization of the countryside implies the elimination of regional life-styles through the forces of the world market ... Created space comes to dominate effective space as a consequence of the changing organic composition of capital.
It is possible that our culture, conceived as of an ethnic domain, emanates from created space more than it succeeds in creating space. A frequently expressed alienation from urban culture and an antipathy to the image of the city in part arises out of a deeper estrangement. Neither the activity of space creation nor the final product of created space appear to be within our individual or collective control but fashioned by forces alien to us ... We still tend to analyse urban phenomena as if effective space (largely understood as efficiency of movement) were the o n l y appropriate concept."[24] (author's emphasis, my e m p h a s i s)

Harvey's last remark advocates a new problem-solving way of analyzing urban phenomena ; a way which deals with the present contradictions of spatial formations and the problems these formations create. According to him, it is obvious that antagonistic situations are to be resolved towards a new urban reality and also that our way of understanding and acting on artificial space has much to do with this process of transformations.

It is interesting to attempt to 'translate' Harvey's conclusions about the nature of such antagonisms into the language which was previously adopted for the present study. The additional reason for doing this is that Harvey's philosophy of praxis is based upon a view of the importance of description, which is similar to the view of this study[25].

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24. Ibid., pp. 309-310.

25. Harvey's work, although adopting such a problem-solving explanatory philosophy, remains itself descriptive in

For Harvey, contradictions constitute the power which allowed the transformation of pre-urban society to the urban forms of social organization. These contradictions are so related in the course of history that an urban structure of a higher order includes the causes of its production and also contains contradictions, the resolution of which would lead to new orders.

Harvey emphasizes that urbanism proceeds following a double process. First, following the substantial antagonisms between the stability and accumulation of its physical elements on the one hand, and the dynamics of human activities and institutions on the other; second, following the leading forces which appear in the societal structure itself and, therefore, following the struggle between ideologies which are not directly connected with urbanism but are mapped on it ("it has attached to it distinctive ideologies (urban versus rural images for example)"):

ANTAGONISM BETWEEN PHYSICAL ELEMENTS AND SOCIETAL CHARACTERISTICS

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the traditional use of the term. His final conclusion functions as a logical barrier in its unexpected generality: "An urbanism founded upon exploitation is a legacy of history. A genuinely humanizing urbanism has yet to be brought into being. It remains for revolutionary theory to chart the path from an urbanism based in exploitation to an urbanism appropriate for the human species. And it remains for revolutionary practice to accomplish such a transformation" (Ibid., p. 314).

and also

DEEP IMAGES
IDEOLOGICALLY
DEFINED THROUGH
"INTERNAL" STRUGGLE,

PARTIALLY DERIVED
FROM THE ENVIRONMENTAL
SURFACE THROUGH
PROTOTYPIC IMAGES,

AND CAUSING
DEVELOPMENTS
AT THE ENVIRONMENTAL
SURFACE LEVEL .
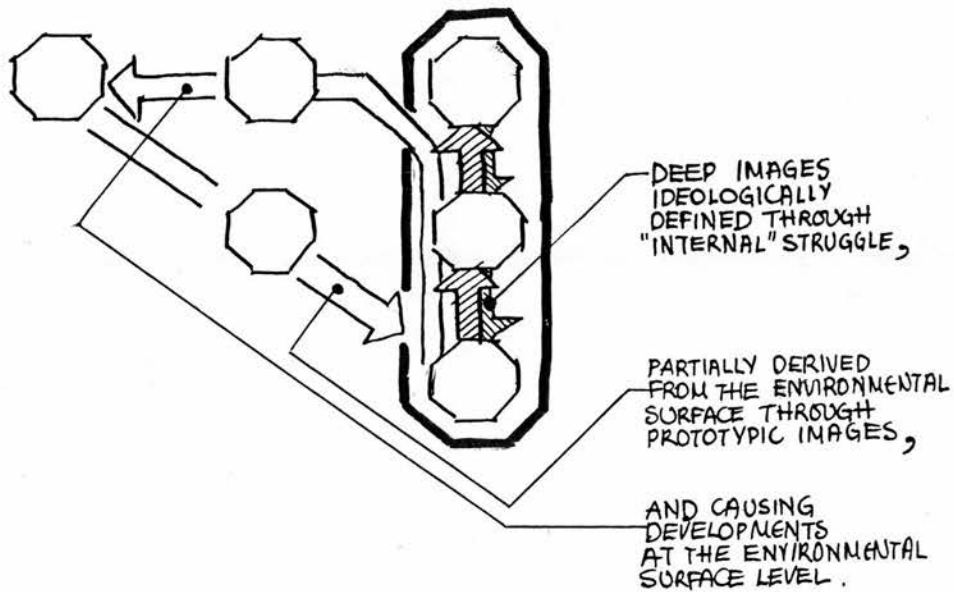
Finally, Harvey accepts that these antagonisms follow
a generative process, leading from 'ancient' forms (like
between urban and rural) to contemporary ones (urbanization
of the countryside and ruralization of the city). All these
antagonisms have also deeper levels, such as 'created
space' versus 'effective space' (a deep description of the
process produced by the antagonism between physical elements
and societal characteristics).

One of the important conclusions by Harvey is that it
is useless and misleading to find structures everywhere.
Of course, everything is structured but it is outside the
scope of operational structuralism to invent or discover
theoretical artefacts which are not originated from real
problems. So, the process of production of the artificial
space is (or at least has to be) discontinuous. That is,

<u>there are</u> structures and transformations but there are also domains in this process which are independent or loosely related to each other. It is this discontinuity which allows productive exploration of contradictions towards praxial beyonds.

This logic of discontinuity is apparent in this study, especially concerning the 'hypothetical three-level basis' (physical elements, activities, and institutions) of approaching built space and also concerning the notion of 'prototype' as an intermediate level of the deepness chain. It is, therefore, within the framework of this logic to think that antagonisms appear <u>between</u> the images of the artificial environment as these images appear at those three levels of approaching it and also that these antagonisms are organically embedded in the semantic pluralism of built space. Furthermore, it is also logical to think that such antagonisms constitute a <u>potential</u> for the transformation of environmental structures as both Harvey and Lefebvre have shown as regards the 'beyonds' of contemporary urbanism. In EAR/4 we called this kind of contradiction 'normal anomalies'. We defined them as follows:

" It is our thesis here that a descriptive theory in which there are various descriptive levels - such as the 'environmental', 'activity' and the 'institutional' ones - articulates respectively the kind of contradictions which are eventually identified as connected with the trans-

formation of the structure as a whole. Apparently, contradictions between the different images of the structure at those descriptive levels are by no means impossible. On the contrary, experience has repeatedly proven that such contradictions constitute fundamental causes for 'design action'. It is logical, however, to expect that such 'inter-level' contradictions (for example, an environment which is not corresponding to a changing activity image or an institutional framework which is far beyond an environmental image or much behind an activity one) do express the existence of more general contradictions which are more intelligible at higher descriptive levels.

In particular, when we consider structures in terms of their environmental image, it is possible to distinguish a specific category of contradictions caused by the differentiation of substance between the descriptive levels. We prefer to call this category of contradictions 'normal anomalies', the most common kind of which are those between the stable environmental and the changing activity image of a structure. Normal anomalies of this kind on the one hand, and conservative design on the other, are perhaps the most typical bipolar in architectural design action,, (taken from EAR/4).[26]

Harvey and Lefebvre realized the existence of such 'anomalies' (which are 'normal' within the framework of

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26. E.A.R./4, op. cit., p. 35.

industrial capitalist society) when they wrote about the
"conflict between the dialectics of the social process and
the static geometry of the spatial form". They do not
seem to accept, however, that such 'anomalies' constitute
a more general phenomenon which existed even in the pre-
industrial societies before the 'urbanization of the country-
side and the ruralization of the city'.

In EAR/4 we proceeded towards a further understanding
of such 'normal anomalies' (which in our view are 'normal'
in general and not only within the context of industrial
capitalist society).We wrote that

> "it is logical to expect that such 'inter-level'
> contradictions do express the existence of more
> general contradictions which are more intelligible
> at higher descriptive levels."[27]

We also defined the nature of these more general
contradictions as follows.

> "Leading contradictions, as opposed to normal
> anomalies, are more general and less circumstan-
> tial. The adjective 'leading' means simply that
> they are present and recognizable in different
> forms, perhaps at more than one image of a built-
> environment structure. The character of leading
> contradictions depends on the individual attitude
> of the architect or planner, on his general
> position against the particular structure under
> investigation and on the particular system of
> social evaluation employed in the investigation of
> this structure."[28]

Harvey and Lefebvre seem to accept this kind of
contradiction. For Harvey, "urbanism is not merely a

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27. Ibid., p. 35.
28. Ibid., p. 35.

structure fashioned out by a spatial logic. It has attached
to it distinctive ideologies". For Lefebvre such contra-
dictions appear through "the conflict between the dialectics
of the social process" as opposed to "the static geometry
of the spatial form". They emphasize, however, that these
contradictions   refer mainly to the general societal process[29]
and they have nothing to do with the internal, or even the
activity, characteristics of the spatial forms. The reason
for this simple reference to the dialectics of societal process
is that, in fact, in Harvey and Lefebvre's work all contra-
dictions are considered as equally important for urbanism,
although Harvey distinguishes between contradictions within
a structure and contradictions between structures. Harvey's
interest is more in hierarchizing and explaining how such
contradictions are generated in the process of urbanization
and how they lead to the fundamental antagonism between
created space and effective space. His interest is also
in explaining how all this takes place mainly as the
expression of a set of relationships embedded in some broader
structure (the social relations of production) and less
as an internal attribute of the built space.

There is no doubt that this would be a right way of
explaining the spatial dynamics. There are, nevertheless,

29. I don't think that they would have serious objections to call them
    'leading'; at least, this is what Harvey stresses, mentioning this
    part from Lefebvre's work: "...No.The reality of urbanism modifies the
    relations of production without being sufficient to transform them..."
    D.HARVEY(1973),op.cit.,p.306;reference to H.LEFEBVRE(1970),op.cit.,p.25.

two serious difficulties. First, the whole procedure has to be understood in a more or less continuous way, in spite of what I understand as Harvey's advocacy in favour of a discontinuous operational understanding of urban realities. Second, Harvey and Lefebvre's subject belongs to a disciplinary domain - what they call 'urbanism'-which is itself more coherent and continuous in its generality than 'umbrella' concepts like 'architecture' or 'production of the artificial space'.

'Urbanism' as a concept is richer and more comprehensive than 'design' or, moreover, concepts like 'design implementation', 'construction','use' etc. As such, 'urbanism' belongs to a larger domain than the physical elements of the environments would imply and it is, therefore, not suitable for taxonomic elaborations of the kind proposed throughout this study. Urbanism includes 'leading contradictions' of the built environment itself, which provoke the physical renewal of   spatial forms. It also includes leading contradictions which appear at the level of activities and cause the re-organization of activities as a result of problems of large numbers and complexity.

In EAR/4, we used this highly hypothetical conception of 'leading contradictions' at any level of approaching spatial forms, precisely because of the taxonomic value of it. This value is important also for another reason. Our interest was in understanding contradictions as one expression of the potential for transformation, with which both spatial dynamics as well as design action are closely

connected. And it was clear to us that, apart from any summarization like the 'dialectics of social process', antagonisms occur not only as a characteristic of the dialectics of society in general, nor as a mere lack of correspondence between a heavy accumulated space and the societal reality of a given time. They also occur first as problems created by the physical elements of the built space (such as the antagonisms of the different materials which are forced to co-operate or the antagonisms between the designed physical elements and the non-designed ones, etc.), and second as problems created by the activity characteristics of the built space (such as the antagonisms between activities which are forced to take place simultaneously in an environment of a limited capacity, etc.). It would be, indeed, irrelevant to the scope of this study to separate those surface antagonisms from their contribution to structuring the deeper institutional dynamics of the artificial space.

The following is a list of the characteristics of 'normal anomalies' and of 'leading contradictions' as they have been presented in EAR/4.

'NORMAL ANOMALIES'	'LEADING CONTRADICTIONS'
a. Diachronic contradictions caused by differentiation of substance and, consequently, lack of correspondence between different descriptive levels of a structure.	Present and recognizable in different forms within each descriptive image of a structure. More general and less circumstantial than normal anomalies.

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b. More objectified, since the objectivity of the descriptive theory is reflected in the ability of N.A. to represent real causes for transformation of a structure.	More subjective and ideologically influenced since they heavily depend on the individual attitude and the general position of the architect or planner against the structure he investigates.
c. <u>High potential for transformation of a structure in terms of design action</u>, because normal anomalies due to their nature, always suggest to a certain degree the spatial implications of their resolution (e.g. environmental-institutional, environmental-activity, and activity-institutional images).	Limited potential for transformation in terms of design action due to their ambiguity in suggesting ways for their resolution. This ambiguity stems, mainly, from their representation in a very generalized form and only within one descriptive image of a structure.
d. Related to the system of social evaluation involved in the investigation of the structure, in terms of the ability of this system to construct predominant descriptive images of this structure.	Related to the system of social evaluation involved in the investigation of the structure, in terms of the ability of this system to construct predominancies of descriptors within each descriptive image of this structure.

From the arguments previously given and summarized in the table above, the structural role of social evaluation can be seen in terms of:

(a) Identifying the structure and hierarchy of normal anomalies and leading contradictions, thus, defining transformation both in terms of its nature and its context within a structured whole.

(b)   Arranging the logical tools of the descriptive theory and, in particular, the descriptive dimension of the structured whole by influencing the theoretical conception of the problem and indicating particular design action, thus, operating within a given mode of 'theory-practice'.

Therefore, the resolution of contradictions - either in the form of design action of a conservative character, or as a revolutionary process, especially concerning the leading contradiction - takes place within a historically determined system of social evaluation which itself is contradictory and characterized by such leading contradictions.

According to a fundamental assumption of this study - especially discussed in EAR/3[30] - description as a whole reflects this system of social evaluation and, therefore, the contradictions within the context of its subjectivity. Although it is an exaggeration to claim that this subjectivity can continuously change the nature of the logical tools that a descriptive theory uses, on the other hand it is necessary to admit that these tools express different concepts at different times. In our case, without losing their abstract and generalized character, they should be articulated in order to

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30. E.A.R./3, op. cit., pp. 37-38.

include a 'contradictional' interpretation of the trans-
formations of structures which are of specific interest
for the study of the built environment. It seems,
therefore, that there is some room,here,for an interesting
task for the theorist: that is,to check his tools and the
concepts which are involved in any dynamic consideration
of environmental structures from this particular point
of view,, (from EAR/4)[31]

31. EAR/4, op. cit.,pp.37-38.

PART II

The description and planning of universities through the theory

II,0 ⇐ I,3
INTRODUCTION TO THE CASE STUDIES THROUGH SOME MAIN CONCLUSIONS FROM PART I

CHAPTER II, 0.1

WHY THE UNIVERSITIES?

This is the basic question which should follow the previous extensive analysis of a general and more or less theoretical approach to the problems of understanding and planning the spatial forms.

There are two main ways in which this question might be answered. The first is concerned with the origin of this study and has been sufficiently discussed, I think, in the general introduction. This remains, nevertheless, a highly subjective and circumstantial answer. Thus, I shall be attempting here to discuss the second one, which is much more objective and deals with the extent to which universities constitute a satisfactory domain for evaluating the conclusions of a general approach to the explanation of and planning action on the artificial environment. There is, also, another problem, which derives

from this second answer. This problem refers to the kind of case studies, which would fulfil the purpose of such a discussion. Is it necessary to study the whole history of universities as institutions, the recent examples of campus design or, eventually, the techniques for structuring this design? Since I shall be dealing in the next chapters with each of these cases, I will include the reasons of my choice in the general discussion here.

Universities constitute a unique category of buildings, activity patterns and institutions. Most architects, urban designers and planners tend to refer as well as to conceive of them as being 'microcosms' of a city' and in general they are right. Universities coincide with urban formations in terms of scale (although they never reach the scale of urban metropolitan structures) in terms of complexity of activities and of the actors involved in them (although these activities follow more organized and simpler patterns than in ordinary urban forms and although the actors involved are mostly temporary and do not cover such a large age spectrum as in city life) and also have some common institutional characteristics with cities (although they are much younger and do not express the totality of institutions of a mode of production, as urban forms generally do). It would be, therefore, reasonable to argue that studying such microcosms would give sufficient evidence of the validity of a general method of approaching and explaining the built environment.

Although the structure of this study advocates that such a view is generally accepted here, it is necessary to stress some important problems concerned with what, in the end, is a mere simplification. To do this, I shall try first to identify some particularities of universities and then to discuss the consequences of these particularities on the value of the general theoretical conclusions, which were introduced in the first part of this study.

Following the logic of our general paradigm, we expect to identify these particularities of universities at different levels, from the physical environment to the institutional characteristics. We also expect that such particularities will deal with the dynamics of university structures. Finally, we expect to find out that the proposals of explaining and planning the universities as they are elaborated by historians, architects and planners are affected by such particularities. At the same time, however, we also expect that such proposals reflect their general views of built space. Such general views are expected to supplement the particularities of universities and reveal the underlying attitude that universities are indeed microcosms of urban formations. To quote Alexander and his colleagues:

> "... the master plan for the university ... describes a practical way of implementing these ideas in a community although this is a very special kind of community."[1]

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1. Ch. ALEXANDER, M. SILVERSTEIN, S. ANGEL, S. ISHIKAWA, D. ABRAMS, The Oregon Experiment, Oxford University Press 1975, p. 3.

So, what are the particularities of universities?
At the level of the physical environment such particularities
depend strongly on the historical origin of a university.
Universities may be small-sized independent formations but
may also be well incorporated in a city structure, as normally
happens in the case of old European Universities. They may
consist of highly specialized and technically equipped
building units but they may also simply reflect the institutional
attraction of a 'temple of knowledge', as it happened in the
past and continues to happen. Universities are, therefore,
mixtures of such quite different ideologies and their buildings
represent the accumulation of such mixtures on land .

A unique characteristic of university buildings,
however, is that, until now, they have been conceived as
representatives of the dominant architectural dialect of the
time in which they were designed and constructed. So, the
first particularity emerges: ·universities have been continuously
emphasizing or even exaggerating such dialects and the mode
of production represented by these dialects, both in terms
of scale as well as in terms of what can be defined as the
'environmental institutionalization' of university buildings.

At the level of activities, differences are less
important than some theorists believe. The importance of the
particular activity identity of universities has been recently
exaggerated, I think, by the introduction of highly
sophisticated techniques, used in order to plan the building
program of a university through its activity image.

The failure of such methods is due to the dif-
ficulties they face in including activities which cannot be
scheduled but, on the other hand, are very important for
university life. However, such methods reflect the high
degree of dependance of university normal activities on
academic patterns and on programmed time-tables. Still, in
terms of activity patterns, ... , there are some other
more important particularities of university structures.
The first one is concerned with the virtually triple
structure of a university in terms of human groups. Students,
staff and non-academic staff do not represent classes nor
sub-cultures but distinct role systems. In an urban formation
these role systems are more complex and overlapping and, most
important, are continuously transformed according to
identifiable patterns through time circles. The employee
becomes the boss in the family, leisure time functions
as an antidote against the alienation of labour etc.
The university image is less complex in these terms.
Universities seem to correspond more to the commercial urban
kernels, where concrete role systems are performed, than to
the 'ecology of games' of the city as a whole (as N. Long
has described it[2]).

The second particularity of universities as regards
their activity image refers to the structure of human groups,
which take part in these activities. The 'users' of the

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2. See Ch. 2.4.2, n. 30 (L. PEATTIE, A.I.P. Journal (Nov. 70),
   op. cit., pp. 407-408).

university - especially the students - change continuously and, also, belong to a particular age spectrum. Moreover, they belong to a distinct intellectual class and this is, I believe, the most important particularity of all. Universities have repeatedly played a role of <u>societal guidance</u> [3] (successful or not, pragmatic or illusionist) and this had nothing to do with the 'unknown' identity of their users. It had, also, less to do with the age of the users than with their intellectual identity. As Rashdall wrote, the case of medieval Bologna proved that basic transformations of university institutions were performed by students of 'mature age and professional ambitions' and not by enthusiastic young revolutionaries.

However, the most interesting components of the particular identity of university structures belong to the institutional level. '<u>Universitas</u>' originally means 'guild' or 'aggregate of persons'. It is important · how such aggregates have been formalized to such an extent that they have been characterized by the complex superstructure, inherited to our times from the Middle Ages. As Rashdall has stressed, many contemporary institutions have a medieval origin but it is the university which is probably the most distinct of them. The dominant view among historians is that the concept of 'university' does not equally apply to famous ancient institutions of high

3. The concept of societal guidance has been extensively · discussed by K. Deutsch and John Friedmann; see J. FRIEDMANN, Notes on societal action, A.I.P. Journal, Sep. 69, p. 311.

education such as the Hindoist Schools, Plato's Academy, Aristotle's Lyceum or the Arabic Schools of Medicine. It is the _particular_ institutional superstructure which signifies the beginning of university history from Salerno, Bologna and Paris regardless of how important the transformations of the deep institutional structure of universities have been through the course of their history.

Such transformations, nevertheless, reflect fundamental institutional characteristics, which could hardly be adapted to any other building-type or to any urban form. The most important, I believe, as I have already mentioned, is the role of 'societal guidance'which universities have played. It is not unlikely that universities function today as 'educational State apparatuses' (a term used by L. Althusser[4] to emphasize the function of universities as the basic media, which reproduce the conditions of capitalist production through education).However, it would be a mistake to accept that they do not influence the political arena directly or, perhaps most significantly, indirectly by playing an important role in the production and distribution of applied knowledge and technology.

I believe that it is exactly this institutional particularity of university structures which constitutes the core of our question about the identity of universities. This

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4. L. ALTHUSSER (1971), op. cit..

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institutional particularity of universities has also some important consequences on the use of universities as case studies for a theory of   spatial artefacts. Before discussing some of these consequences, however, I feel that it would be useful to examine some aspects of university dynamics and especially those aspects, which are particularly concerned with planning.

One important particularity is the development of <u>overall</u> design techniques for Universities. This development is undoubtedly connected with the need for new universities in the past twenty years. At the same time, however, it reflects the almost anxious tendency of planners to find an area for applying the conclusions and the experimental methods, which have been conceived during the 'scientific design age' of functionalist architecture.[5] There are, for example, innumerable studies which deal with computer models for time-tabling, and also other studies which try to apply such models to an overall design method for university complexes.
Thus, universities offer an interesting field to test the efficacy of such methods, either in terms of the conditions which these methods introduce for themselves or in more general terms.

The second important particularity of the dynamics of universities is their 'vertical' function in terms of planning.

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5. See Ch. 1.1, n. 8 and 9.

This function distinguishes   universities from other
building types and institutions because of their scale. At
the same time, however, it distinguishes university planning
from urban planning because of the catalytic role which
universities are supposed to play in regional development. So,
'vertical' means that,normally,university planning involves
decisions which range from a top governmental level to a local
one, as well as decisions which range from a purely political
level to a purely environmental one.   It seems to me that this
large spectrum of decision-making (equipped with the particular
catalytic role that universities are expected to play) is one
of the reasons for which design techniques have been so much
developed for universities (although these techniques do not
question the political or academic context of universities) and,
also, for which university buildings have always been and still
are semantically overloaded. This means that the environmental
symbolism of university buildings is used by   designers as
a means to justify the significance of universities as this
significance is conceived in terms of decision-making.

University structures, nevertheless, (and this is a final
particularity in terms of university dynamics) are still
characterized by important contradictions, either of the kind
we have called 'normal anomalies' or of a more general nature.
Such contradictions have influenced the potential for
transformation of university structures in the past and there
is no reason to believe that they will not influence this
potential now. The strong institutional character of the first

'student university', for instance, was contradictory to its
lack of any stable environmental representation. It was
exactly the resolution of such a contradiction which signified
a total alteration of the institutional deep structure of the
'student university', transforming it into a 'State-dependant'
university. Contradictions between dogmas like 'academic
freedom' or 'autonomy' and the economic dependance of
universities on the State, are likely to initiate equally
important transformations in the future with serious
consequences on the environmental image of universities. It is
exactly this particularity of contradictions that also
differentiates universities from urban formations, the dynamics
of which seems to follow different laws. There is no problem of
antagonism between urban and rural, for instance, in the case
of universities and, even if there is, it plays a much less
important role in the development of universities. Even
urbanization as a process, (to remember Harvey and Lefebvre)
hardly affects universities as such, and the contradictions
included in this process simply support or oppose the basic
contradictions, which are internal to university dynamics.

What are the consequences of the particularities
mentioned before to an eventual verification of a theory of
understanding and planning the spatial forms?
We have to remember that we are dealing with a theory which
has mainly a taxonomic character. That is, it accepts a
general borrowed paradigm and modifies it to solve a problem.
And it does so, to introduce particular descriptive theories

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for _particular problems_ eventually concerned with _particular_
institutional categories and building-types.

So, there are two criteria for verifying such a theory;
first, it has to be _formulated_ in terms of the particular
problem-area and, moreover, it has to prove through this
formulation   its general value. Second, it has to be _ap-_
plied to a particular institutional category (and, therefore,
to a formulation of the problems of this category) and, more-
over, to outline through this application the _identity_ of this
particular institutional category.

Both of these criteria are not as simple as they appear.
Take the first one, that is, the formulation of the theory in
terms of a specific problem: it is a misleading logical circle
to understand a 'problem' only through the apparatus of the
theory. The theory should not _invent_ problems (although it
could be used to clarify them and to illustrate well obscured
sub-problems) but it should be capable of translating generally
accepted and important problems into its language. In the first
part of this study (concerned with the problem of alienation),
I attempted to do exactly this; to take a generally accepted
problem, to illustrate how this problem can modify the theory,
and to show some hidden sub-problems expressed through the
theory and integrated in its main corpus. This did not prove,
of course, the general value of the theory. This can be
achieved only by extensive empirical research and by applying
the theory to other areas of problems.

Take, now, the second criterion, the application of the
theory to a particular building type of a specific institutional
origin and identity. It is a very serious task indeed to
apply such a general taxonomic theory to any university, for
example, at any period of time or even to characteristic cases
of universities at characteristic historical periods. Although
there is nothing contradictory in such a task (on the contrary,
strictly speaking, this is what 'application' means, though for
only one institutional category) there is one hidden danger:
to create a logical circle again. That is, to manipulate
universities, to re-define them using the tools of the theory,
so that they would loose, in the end, their commonly understood
identity and their connection with generally accepted problems.
In fact, the linguistic paradigm is dangerous precisely
because it is elastic enough to be applied to everything.
Only a huge scale application of it could really verify its
ability to structure pragmatic situations and problems after
decomposing these situations and problems through the logical
apparatus of the theory.The other way,however,
of applying the linguistic paradigm to a particular building type
is to study this paradigm comparatively with other already
structured paradigms. Instead of studying the subject itself,
i.e. the universities, we can study theories of approaching
the subject; either theories which are descriptive (as in the
case of Rashadall's history) or planning strategies which have,
nevertheless, a descriptive component (as in the case of
'activity models' and of the 'Oregon Experiment').

Generally speaking, what we expect from the linguistic paradigm and its modification is that it should show itself powerful enough to be applied to a series of pragmatic situations in the artificial space as well as to produce sub-theories for these situations in order to give sufficient evidence for the taxonomic value of it. Still, this also is not as simple as it looks. A borrowed paradigm cannot function as 'normal science'. If there are any hopes for this to be established, it can only happen through time and after an extensive series of applications to particular cases. It is in favour of such hopes that structural linguistics and semiotics gain increasing support in architectural thinking but this still occurs in a strongly hypothetical context.

Taking these criteria and reservations into account, we can discuss our question about the value of studying universities through an accepted theoretical apparatus. I believe that the value of a university study lies predominantly in the dual identity of these structures. University structures constitute a representative building, activity and institutional category through their similarities to the urban formations. At the same time, they constitute an exaggerated case in which most of the well-balanced characteristics of the urban forms are particularly emphasized. The built forms of universities are large, well designed and symbolically overloaded. Their activities follow clear patterns but, at the same time, they include many of the non-scheduled components, which enrich city life. Finally, their

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institutional characteristics are distinct, socially important and include internal contradictions, which to some extent can explain the dynamics of university structures.

There is no doubt that such similarities and particularities have been taken into account for structuring the planning methods which have been proposed for universities. Some of these methods emphasize the similarities (as the 'Oregon Experiment' does) and some the particularities (as 'activity models' do, since they are based on assumptions which are unique for universities). Our linguistic paradigm can function as an apparatus to evaluate the comprehensiveness of such methods and,in addition to this, its own comprehensiveness. Moreover, it can function through this comparative study as an apparatus to clarify and enlarge our knoweledge about universities. And it can do so, either by considering universities as a particular institutional category which has an environmental image or by considering them as urban formations in general.

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CHAPTER II, 0.2
THE NATURE OF THE CASE STUDIES

There is a large variety of studies about universities, which would be useful as a field for testing the value of the linguistic paradigm and for promoting the solution of problems concerned with universities.

These studies may be classified into three categories. The first category refers to studies which deal with the development and the present status of universities as institutions. This category contains both historical studies (from the Middle Ages until now) as well as numerous investigations into the present institutional character of the university and the eventual transformation of this character. University histories are either general (as the

famous works of Savigny, Deniffle, Rashdall and D'Irsay[1])
or particularly orientated towards a specific institution
or a specific aspect of investigating university history (as
the study edited by J.K.Baldwin and R.A.Goldthwaite

'Universities in Politics'[2],which will be extensively

used   in the first chapter of this part). The studies
about the present problems of universities constitute either
general views (as Max Weber's or Karl Jasper's[3] work) or
particular references to particular problems of descriptive
or normative character. There are also studies in the more
general field of political science, which do not start from
university studies as such, but have important consequences
on the way we understand the institutional identity of
universities (such as Althusser's 'Ideology and Ideological
State Apparatuses'[4] , or the collection of student texts
of 1968 edited by Cockburn and Blackburn under the title
'Student Power'[5]).

1. H. S. DENIFFLE, Die Entstehung der Universität des Mittelalters,
   Berlin 1885; F.K.von SAVIGNY, Geschichte des Roemischen Reechts
   in Mittelalter, 1834; H. RASHDALL, The Universities of
   Europe in the Middle Ages, 1896 (edited by F. M. POWICKE
   and A. M. EADEN, Oxford 1936); S. D. IRSAY, Histoire des
   Universités, Paris 1935.

2. J. K. HYDE, Commune, University and Society in Early Medieval
   Bologna, in: J. K. BALDWIN and R. A. GOLDTHWAITE (eds.),
   Universities in Politics, The John Hopkins University
   Press, 1972.

3. See, E. SHILLS (ed.), Max Weber on Universities, The
   University of Chicago Press 1974 (© 1973) and K. JASPERS,
   The Idea of the University, P. Owen 1965 (© 1959).

4. L. ALTHUSSER (1971), op. cit.

5. R. BLACKBURN and A. COCKBURN (eds.), Student Power, Penguin 1969.

The second category refers to methodologies for
university planning or to more general works which, never-
theless, are concentrated upon the environmental and activity
image of universities or, at least, take these images
seriously into account in constructing their models.
Architects and planners are essentially involved in such
studies as opposed to the category mentioned previously.
The methodologies for university planning are either orienta-
ted towards the solution of a given problem or adopt more
comprehensive views and attempt to apply them to campus-
design in general . It is necessary to stress here that
there are also planning methods which do not refer directly
to the built environment of the universities (as the time-
tabling techniques or the methods of studying universities
as subjects of regional development or as parts of an
educational system [6]). Unfortunately, comprehensive works
dealing with all the aspects of universities and paying at
the same time particular attention to their environmental
image are rather rare. One of the studies which attempt
such a comprehensive approach is the study carried out by the
U.C.L. and L.S.E. joint team ('The University in an Urban
Environment') [7] .

6. See, Α.Μ.ΚΩΤΣΙΟΠΟΥΛΟΣ, 'Επιδράσεις τῶν Προγραμμάτων
   Σπουδῶν στή Διαδικασία Σχεδιασμοῦ τῶν Πανεπιστημίων
   'Επιστ. 'Επετ. Πολυτεχν. Σχ. Α.Π.Θ., Τόμος Ε. 1972
   (A. M. KOTSIOPOULOS, The role of time-tables in university
   design, Bulletin of the School of Technology, Arist.
   Univ. of Thessaloniki, Vol. E, 1972), pp. 351-422 (especially,
   p. 415, bibliography); See, also: H. LINDE (ed.),
   Hochschulplanung, Werner Verlag 1970, Vol. 2, pp. 114-121.

7. P.COWAN(ed.), The University in an Urban Environment,
   Heinemann, 1973.

The third category refers to <u>examples</u> of university planning and design. World-wide experience during the past twenty or twenty-five years is rich in projects, implemented or not, for new universities. Most of them refer to the design of new campuses, which vary considerably in terms of size and academic structure. There is, also, a limited number of studies for what could be called 'university renewal' (such as the projects by G.Carlo de Carlo et al.for Pavia and Urbino [8]) as well as projects for new urban university networks (such as the project for the Metro-Education in Montreal). Some of these projects are accompanied by an extensive analysis, which in some cases (as in Bath University and Ruhr-Universität Bochum [9]) has reached the point of implying coherent methods for university planning and design.[10]

Each one of the above categories of studies promotes a particular aspect of universities. With all the dangers of generalization, we could argue that the first category promotes the institutional understanding of universities, the second the understanding of them through the language of activity patterns, and the third has no alternative but to promote its

8. The Universities of Pavia and Urbino are presented in A.A./183, Jan.-Feb.1976, pp. 53,57.

9. BATH, University of, op. cit.; Die Universität Bochum, Gesamtplanung, Band 1, Karl Krämer 1965.

10. We have to mention here the role of the Zentralarchiv für Hochschulbau, Stuttgart, in collecting the material of all these examples and in publishing a very useful reference book (H. LINDE (ed.), Hochschulplanung, Vol. 1,2,3,4, Werner Verlag 1970-1971).

main interest, that is, the understanding of universities in terms of the built space.

The main case studies I shall be dealing with here belong to the first two categories; that is, the history of universities and the planning methods proposed to solve the problems of contemporary university environment. In the following chapter of this introduction, I shall explain in detail how these case studies will be discussed through the development of our linguistic paradigm.

CHAPTER II,0.3
THE CASE STUDIES THROUGH THE LINGUISTIC PARADIGM

An obvious way to understand what a university is, is
to study the past and recent examples of universities and
to attempt general conclusions about what could be called
the 'university model-structure'. A more advanced form
of such a task would be to study these examples by means and
through the prism of a general theory and then to attempt
also general conclusions, which will be based, however, on
the logical apparatus of the general theory.

A less obvious way to understand what a university is,
is to study how other theorists have approached such an
understanding and have constructed their own university model-
structures. They could have done this either directly by

describing universities or indirectly by implying a descriptive theory of universities through design methods and proposals. A more advanced way of understanding universities through this comparative study would be to study such approaches by means and through the prism of a general theory and then to attempt general conclusions, which will be concerned both with the extent such approaches coincide with the theory as well as with the eventual problems of the theory itself.

For reasons explained previously and concerned predominantly with the interest in testing the linguistic paradigm, I have already indicated that I shall follow the last of the above mentioned paths. As   is clear, however, the comparative study of theories through our theory does not exclude the possibility of studying universities as such and particularly what has been mentioned as a university model-structure. Although there is no hope of exploring such a model-structure entirely and in full depth, the material included in the case studies provides enough information to outline some of the basic characteristics of it.

Thus, inevitably, the case studies acquire a double character which signifies a double use of the linguistic paradigm; that is, to discuss first the theories of explaining and planning the universities and second the universities as such (although the latter will evolve through the former). An important consequence of this double character of the case studies is that the conclusions of the first part about the linguistic paradigm may be considered in two different ways and may also be classified into two different groups.

The first group contains the conclusions about the requirements from a descriptive theory in general, such as the problem-solving character, the comprehensiveness of the theory and the optimal degree of abstraction of it.

The second group contains the conclusions about the description of an environmental structure like universities through the paradigm developed in the first part of this study. Such conclusions refer to the multi-dimensional approach, the semantic syntax including the deepness and complexity chains, the nature of the elementary structures and the semantic pluralism of the built space. This group contains also the conclusions included in a description, modified under the influence of a particular problem. Since these problems have to be identified dynamically, the whole discussion about the problems and the dynamics of universities can only take the form of a highly ideological speculation.

I shall try, now, to analyse these two groups of conclusions about the linguistic paradigm.

Group 1: Conclusions about descriptive theories in general, and, therefore, about theories of universities.

Conclusion A: The problem-solving nature of description.

One basic conclusion of the discussion in the first part was that descriptive theories imply (directly or indirectly) practical 'beyonds'. Most of the case studies

refer to theories, which are indeed orientated to planning.
What is obscure is rather the opposite; that is, the ap-
paratuses hidden in such planning studies which can explain
the spatial forms and universities in particular. The
general philosophy which governs these eventual apparatuses
is also obscure, although a close investigation of them would
prove that there are hidden paradigms which influence both the
explanatory tools as well as the planning strategies which
these studies propose. So, a first task is to explore the
eventual existence of such hidden paradigms through the
taxonomic conclusions of our linguistic paradigm.

Conclusion B: The nature of descriptors and the need of
comprehensiveness.

A second conclusion in the first part of this study was
that, within the context of problem-solving, description has
to reach a certain degree of comprehensiveness. Any description
does not constitute a 'descriptive theory'. It has to
involve a variety of descriptors, which will be organically
structured and which can be modified in order to serve the
solution of problems. The use of a borrowed paradigm does not
as such guarantee the comprehensiveness of a theory. However,
the criteria for testing the comprehensiveness of a descriptive
theory are themselves quite obscure. I have tried in the
first part of this study to show why a modified linguistic
paradigm can be comprehensively structured when it refers to
the solution of a problem like alienation. A similar elabora-
tion has to be made apparently for any particular descriptive

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theory concerned with a particular problem-area. It is very difficult to do this here. Instead, I shall give a definition of what I understand as a basic criterion for a 'descriptive theory' by modifying Althusser's 'criterion of correctness' for such theories [1].

A descriptive theory is correct since it is perfectly possible to make the vast majority of

the structures observed and their transformations	⎫	the facts
in its domain, which is defined by a set of comprehensively structured descriptors	⎬	in the domain with which it is concerned
		ALTHUSSER'S CRITERION

Correspond to the definition it gives to

| the model-structure with reference to which the descriptive theory has been created | ⎬ | its object |

[2]

So, the descriptions used in the case studies will be discussed in terms of descriptors, in terms of the correspondance of their descriptors to our hypothetical three-level basis, in terms of the structure of their descriptors serving the explanation and the action on a problem area, and finally in terms of their dynamics. 'Dynamics', we have to remember,

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1. L. ALTHUSSER (1971), op. cit., p. 249.

2. What I have done here is a modification of Althusser's criterion of _empirical_ evidence for the comprehensiveness and correctness of descriptive theories, according to the language introduced by our paradigm. Such a "mapping" is one of the available ways of criticizing the comprehensiveness of descriptive theories, though it is highly subjective.

refers to the transformational rules, which are involved in the description and, also, to the degree to which such rules deal with the contradictional potential of the structures.

During the course of this second part, it will gradually become obvious that few of the above concepts are actually involved in the descriptive apparatuses, which are used in the case studies. On the other hand, however, it is possible to translate most of these apparatuses into the language of our paradigm. For example, it is easy to identify the use of the three-level basis in almost all the cases and it is also possible to realize that some of these cases introduce a basic logic, which is opposite to the logic of barrier we introduced in our paradigm. In any case, this 'mapping' has something useful to say about the descriptive theories, which are in current use in university planning.

Conclusion C: The optimal degree of abstraction .

This third conclusion is a consequence and formalization of the previous two. In the first part of this study, it was noted that the strong syntagmatic character of the architectural practice combined with the high level of complexity of the architectural prototypes suggest that, for the descriptive theories of the spatial artefacts, an intermediate level of abstraction is the most useful.

This means that very high abstraction makes theories universal but eliminates their capacity of solving problems; on the contrary, very low abstraction facilitates problem-

solving purposes but, at the same time, it eliminates their
comprehensiveness and, consequently, the social value of their
problem-solving capacity.

Group 2: Conclusions about university model-structures and
their dynamics, as seen through theories about universities,
as these theories are seen through the linguistic paradigm.
Therefore, conclusions about university model-structures
as seen through the linguistic paradigm.

There is a large variety of concepts, introduced by
the linguistic paradigm and its development, which may function
as conclusions useful to describe university structures.
Here, I shall give only a list of such concepts and I shall
try to hierarchize them.

A first family of conclusions refers to the basic
concepts introduced by the linguistic metaphor before modifying
it in order to serve the solution of a problem. This family
includes conclusions mainly about the syntagmatic character
of description in architecture. That is, elementary deep
environmental structures are meaningful in a sense which
allows a multiple evaluation of them as they are transformed
from the deep elementary to the super-surface structures of
a higher complexity. Social evaluation (i.e. the broader
sense of 'meaning') is important for the built environment
and reflects a kind of balance in the societal system, where
such an evaluation takes place.

A second family of conclusions refers to the concepts introduced after the modification of the linguistic paradigm. These conclusions deal mainly with the dimensions of the semantic pluralism of the built space as these dimensions are transformed by the dialectical, explanatory and propositional character of the problem-modifier. Such conclusions refer to concepts like the set and the hierarchy of descriptors, the nature of the elementary deep structure and the nature of the transformational rules, which are involved in the syntax of the built environment.

In the first part of this study, the discussion about the 'modified description' was directed towards the problem of alienation and the participatory strategies to solve it. So, concepts like the barrier-structure of the artificial space and the semantic pluralism of it were introduced. It is not expected, of course, that this particular direction will be obvious in any example of university structures.

Finally, a third family of conclusions refers to the dynamics of the spatial structures. The basic concepts introduced here were the 'normal anomalies' (observed diachronically, between the different images of a structure and constituting the basic stimulation for planning and design action) and the 'leading contradictions' (affecting the total status of the structures and influencing major institutional transformations of them). Enough room will be devoted here to these dynamic problems, the importance of which for university structures is remarkable.

II,1

CASE STUDIES

CHAPTER II,1.1
THE STUDENT-UNIVERSITY OF MEDIEVAL BOLOGNA
AS SEEN BY H.RASHDALL AND J.K.HYDE

The historical studies of the medieval universities are
important for two reasons. First, they express a unique way
of explaining universities and their dynamics,
quite different than that of architects and planners.
Second, they describe a crucial period in the evolution of the
institutional status of universities illustrating the conditions
under which such institutions were generated and transformed.
An interesting point is that the first transformations of the
medieval universities took place in a rather short period of
time and, therefore, they are easily readable. In this chapter,
I shall attempt to explain both the language used by historians
to describe those prototypic university forms and their

transformations, as well as the university structures them-
selves through the conclusions which derive from our
linguistic paradigm.

The medieval universities are generally classified into
two categories. The southern 'student universities' and the
northern 'universities of masters'. The University of Bologna
is probably the most representative of the student universities,
while the University of Paris is undoubtedly the most
representative - and the prototype too - of the universities
of masters. The study of student nniversities , however,
is particularly important because of the significance of the
transformations which took place in the first decades of
their life. These transformations signified the transition
from a state of independence and mobility to a state of
integration and institutionalization as regards the relation-
ship between the universities and the State.And this happened
in a clearer way than in the case of the northern 'universities
of masters'.

Hastings Rashdall's history is perhaps the most
important in the English language concerning the medieval
university prototypes. Although his work is not free of
repetitions and problematic hierarchies of important points
(see introduction by F.M. Powicke, Rashdall, XXV-XIIV), it
represents a typical view of universities and contains some
significant personal remarks which are surprisingly progressive
for the time this history was written (1895)[1]

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1. F. M. POWICKE, Introduction,in: H. RASHDALL (ed. 1936),
   op. cit., p. XXV.

There is a considerable effort in Rashdall's work to determine the nature of a university and to establish some standard descriptive tools for it. He was very reluctant, for example, to attribute the name 'university' to institutions such as the ancient Greek schools or the famous Arabic schools of medicine, although he accepted that they had most of the characteristics of what we called 'universities'[2] . Apparently, Rashdall considered the institutional identity of a university (and especially one particular kind of institutional identity) as the most significant feature of it, as is shown in the following extract from his epilogue:

> "The genius of the Middle Ages showed itself above all in the creation of institutions. The institutions of the Middle Age are greater - they may prove more imperishable - e v e n t h a n i t s c a t h e d r a l s. The university is a distinctly medieval institution ... The very idea of the institution is essentially medieval, and it is curious to observe how largely that idea still dominates our modern schemes of education."[3]
> (my emphasis)

What the particular institutional identity - that Rashdall realized as the inheritance of the Middle Ages- was and to what extent this inheritance met Rashdall's personal views is expressed in a negative form as follows:

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2. See, H. RASHDALL (1936), vol. III, p. 459, B. FLETCHER, Universities in the Modern World, Pergamon Press 1968, pp. 11-13, and Α. Μ. ΚΩΤΣΙΟΠΟΥΛΟΣ, Τό σημερινό πανεπι-στήμιο μέσα ἀπό τήν ἀνάλυση τῶν πρώτων πανεπιστημιακῶν θεσμῶν· τό μεσαιωνικό φοιτητικό πανεπιστήμιο τῆς Bologna , Σύγχρονα Θέματα, 4/1979, (A. M. KOTSIOPOULOS, The modern university through the analysis of the first university institutions; the student university of Medieval Bologna, Synchrona Themata, 4/1979) p. 41.

3. H. RASHDALL (1936), op. cit., vol. III, p. 458.

"Universities ... did not exist in the most highly cultivated societies of the ancient world. It is entirely misleading to apply the name to the schools of ancient Athens or Alexandria. If higher education is to exist, there must obviously be teachers to impart it, and it is likely that particular places will become famous for particular studies. But it is not necessary that the teachers should be united into a corporate body enjoying more or less privilege and autonomy. It is not necessary that the teachers of different subjects should teach in the same place and be united in a single institution... It is not necessary that studies should be grouped into particular faculties, and students required to confine themselves more or less exclusively to one. It is not necessary that a definite line of study should be marked out by authority, that a definite period of year should be assigned to a student's course, or that at the end of that period he should be subjected to examination and receive, with more or less formality and ceremony, a title of honour. All this we owe to the Middle Ages. In the form in which we have them, teaching corporations, courses of study, examinations, degrees, are a direct inheritance from the Middle Ages; and it would not be difficult to show that these inherited institutions carry with them not a few assumptions in educational theory and method which might have appeared questionable enough to an ancient thinker."[4]

It is possible to identify the descriptive tool adopted by Rashdall to signify the emergence of universities in the Middle Ages: this descriptive tool corresponds to a definition of a university as 'a set of institutionalized high educational activities'. Through this kind of definition Rashdall identified, in the above extract, the university model-structure at a surface and at a deeper level ("these must be obviously.... particular studies"). He clearly stated that the Middle Ages have established a complex and semantically overloaded institutional surface for a structure, the deep level of which can be identified in simpler terms. There is no doubt that

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4. Ibid., vol. III, pp. 459-460.

Rashdall would accept that this deep structure applies equally to the previous institutions, which historians do not accept as universities. It is the institutional surface, however, which gives the definition of a university structure.

There is also another level in Rashdall's conception of universities. The reason he does not accept that Salerno was a university is that

"it never enjoyed that r e p r o d u c t i v e p o w e r which is so remarkable a characteristic of Bologna and Paris."[5] (my emphasis)

Rashdall showed his respect for this property of re-productive power by summarizing a great deal of the history of medieval universities, as follows:

"Though each type ... was affected in its develop-ment by the influence of the other, Bologna ... exerted more influence over Paris than Paris over Bologna ... French universities - a curious fact - are mostly c h i l d r e n of Bologna rather than of Paris ... Scottish universities are in certain points more closely a f f i l i a t e d to Bologna than to Paris or Oxford ... English universities though belonging wholly to the magisterial type and originally modelled on Paris, constitute a separate n a t u r a l o r d e r of universities ..."[6] (my emphasis)

A possible conclusion from this remark, if we combine it with the previous ones, is that the boundaries which have been drawn around the university model-structure by Rashdall (and by the majority of university histories on

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5. Ibid., vol. I, p. 19.
6. Ibid., vol. I, pp. 18-19.

which Rashdall has based his work or which followed his history) are quite weak. The conditions which seem to be the most powerful are, in fact, of this kind: universities are attributed their title provided that they fulfil at least one of the following conditions: first, they are one of the two generally accepted prototypes (Bologna and Paris); second, they are direct imitations of them in the first period of thirteenth and fourteenth century; and third, they are high educational institutions, which cover a relatively large spectrum of disciplines and which keep the institutional surface of the prototypes or of their imitations in the later period when 'university' had been already established as a conceptual category.

The attitude, therefore, one can form by reading Rashdall's work is that, although at a surface level the boundaries of a university structure are well defined, at a deeper level it is necessary to use diachronic transformations to define a posteriori the prototypes. This is, in fact, not peculiar in the social sciences, but a consequence of this a posteriori realization is that the institutional descriptor of university structures becomes necessarily more powerful than any other, especially than the environmental one. Rashdall had not the slightest hesitation in naming Bologna and Paris of the early 13th century as 'universities' despite their complete lack of buildings of their own. More than that, the mobility of these institutions is realized as an important factor with serious results in their reproductive power. Rashdall pointed

that out starting from the situation of the university of

Paris, but, at the same time, generalizing:

> "Each of the faculties and nations constituting
> the university had some church or convent which was
> usually borrowed for its meetings; but the place of
> meeting was not invariable, and neither the
> university nor its constituent bodies assembled
> in a building of its own ... In this poverty lay
> the real strength of the universities, upon
> occasions of collision with the spiritual and
> temporal authorities. If a university 'seceded'
> or 'dispersed', there were no temporalities which
> could be sequestreted; it took all its property -
> the fees of its students - with it. Wherever
> there were rooms to be hired for schools, and
> churches and convents to be borrowed for congrega-
> tions, a university could soon make itself at home."[7]

So, the environmental descriptor _is_ taken into account:

Rashdall identified the source of this reproductive power of

the university prototypes (which firstly was a power for

survival) as the particular connection between the institutional

and the environmental representation of a university structure.

One could expect that, after all, it was clear in Rashdall's

mind that the process of environmentalization of the university

institutions (a process which started later) constitutes an

important reason for their deep change in character and for

the emergence of features, which were developed later and

which in many aspects would remain unexplained (such as the

decline of Rectorship, the emergence of Chancellorship, the

institutionalization of the built environment of the

universities, etc.).

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7. Ibid., vol. I,pp.197-215.

What is for Rashdall the central point which explains the power of reproduction, the process of institutionalization and all this game between the environmental and the institutional images of the first university structures? This point is a remarkable phenomenon of the Middle Ages: the formation of professional guilds. Rashdall understands the institutionalization of the first universities as a process which is well embedded in the general process of institutionalization of the guilds. This institutionalization was a general characteristic of the medieval times and explains the survival of the guilds through the environmental conditions in which they appeared. The guild is for Rashdall the core of the very name 'university'. He rejected the idea that the word 'universitas' means 'universitas facultatum' and pointed out that 'university'

> "means merely a number, a plurality, an aggregate
> of persons. In the earliest period it is never
> used absolutely. The phrase is always 'university
> of scholars', 'university of masters and scholars',
> 'university of study' or the like."[8]

This realization, which refers simultaneously to both the origin as well as the deep structure of the medieval university prototypes, is also supported by other authors[9]. J. K. Hyde[10], for instance, uses the same attitude (that guilds constituted the core of medieval university structures) and

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8. Ibid., vol. I, p. 5.

9. See for example Mumford's view in: L. MUMFORD, The City in History, Penguin 1973 (© 1961), p. 318.

10. J. K. HYDE (1972), op. cit.

extends it to the dynamics of university structures. He
shows that the Bolognese prototype is to be explained through
a series of institutional conflicts, which finally led to the
formation of various guilds created for the mutual protection
of their members. The student guilds represented a special
kind of aggregates of persons who had in common the fact that
they did not belong to the city where they were studying.
Belonging to guilds of foreigners, they had to protect them-
selves against the hostility of the Commune, but at the same
time they were also necessary to the city and, therefore, they
were respected by the Commune. This contradiction played a
serious role in the transformation of the first student
universities, and I shall return to it later.

If we summarize Rashdall's attitude to the nature of the
first university in Bologna, we will find that from the
arguments developed up to this point, this attitude is the
following: a university is "an aggregate of persons, taking part
in institutionalized high educational activities which have
a reproductive power". There is one point, however, which is
not clear in this definition; this is the meaning of 'high
educational activities'. Rashdall has given enough personal
views throughout his work of what such activities should mean
("there must be teachers ... and particular places will become
famous for particular studies..."[11] , for example). But this
rough idea that high educational activities are mostly

11. H. RASHDALL (1936), op. cit., vol. III, p. 460.

represented by the exchange of specialized information does not show clearly the nature of the first universities and, more importantly, does not explain the differences between the prototypes of Bologna and Paris.

To illustrate this point, it is necessary to have a clearer definition of the specialization, which was taking place in the first universities. Rashdall describes this specialization stating that, since educational activities as such never disappeared since the ancient world, the difference that Bologna made was the emergence of highly specialized professional education, much more specialized than in the case of the Parisian prototype. He emphasized this point with reference to the misunderstandings about the first universities:

> "... We have been told that a university must embrace all faculties, we have seen that many very famous medieval universities did nothing of the kind ... We have been told that the great business of a university was considered to be liberal as distinct from professional education: we have seen that many universities were almost exclusively occupied with professional education."[12]

There is an explanation of the development of professional law studies in Bologna according to Rashdall. In Italy, although ecclesiastical education was taking place, the educational traditions of the old Roman world were by no means entirely broken off. The details of internal administration and, above all, the private relations of native citizens continued to be regarded by Roman Law and

12. Ibid., vol. III, p. 461.

tradition. Even in the cities of the north, dominated by the Lombards, the old municipal pattern of life "died only to rise again with renewed vitality"[13].

Instead of taking seriously into account views which have related this 'vitality' to the abilities of famous teachers of the time (as Irnerius, for instance), Rashdall indicated some particular events, which played an important role in the development of professional education in medieval Italy. Such events were, according to Rashdall, first, the introduction of the Justinian Digest, not partly but as a whole; second, a more close, more technical and more professional study of the texts (as opposed to the previous rather philosophical study of law); and third, the separation of law studies from general education. So, law became

> "an element of purely professional study for a
> special class of professional students and not, as
> previously, a branch of rhetoric and, therefore,
> an element in a liberal education."[14]

Finally, a consequence of all these was that a new class of students emerged; students who were   older and more independent than the students of the time of monastic pre-university education. As Rashdall pointed out,

> "In this fact - when taken in connexion with the
> lay character and high social position already
> characteristic of the Italian student - we may
> trace the germ of that most characteristic
> institution of Bologna, the student-university. It
> was from the age of Irnerius, or at least very
> early in the century ushered in by his teaching,
> that men of mature age - men of good birth and good

13. Ibid., vol. I, p. 96.
14. Ibid., vol. I, p. 124.

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position - beneficed and dignified ecclesiastics
or sons of nobles flocked from the remotest parts
of Europe to the lecture-rooms of Bologna.
Connected with this change in the position of the
law-students was the rise of the law-doctor in
southern Europe to a position of marked superiority
to that of all other masters. Legal knowledge
possessed then, as it still possesses, a political
and commercial value to which no purely
speculative knowledge can pretend. No teachers
perhaps in the whole history of education had
hitherto occupied quite so high a position in
public estimation as the early doctors of Bologna;
their rise to this position marks an epoch not
only in the evolution of the university-system
but in the development of the legal profession."[15]

Here, the guilds, this deep structural component of

medieval universities, become for Rashdall particular sub-

cultures . Their activity characteristics (such as their

unity for mutual protection, the professional orientation

of their education, their mutual economic relation to their

masters, which were dependant on them, and of course their

mobility) are, in fact, a sufficient background to explain

the institutional and the environmental image of the

Bolognese university prototype. Both the description of

the constitution of Bologna university, which Rashdall

analyses in great detail, as well as its environmental

characteristics (that is, the lack of stable installations

and the eventual use of public buildings and of private

houses) reflects,in Rashdall's text,the same attitude

towards the activity and group characteristics of those

students.

However, for Rashdall, there is something more. This

investigation of the social position and respect that legal

15. Ibid., vol. I, p. 125.

education had at that time seems to be for him a powerful apparatus to explain the reproductive power and the first critical transformations of the Bolognese prototype. Rashdall's attention to such changes is very characteristic, and the concept of transformation is well incorporated in his work. However, it is very difficult to find in his logic any connection between these transformations and the conflicts or contradictions, which were included in the first university forms. It is in the work carried out by J.K. Hyde that this logic of transformations based on conflicts seems to take a more clear form.

I shall attempt to illustrate an example of this difference between the two attitudes; namely, the conflict between the real institutional character of the Bologna University and the nature of teaching carried out in it.

Rashdall used a clear language to describe the power of the empirically originated professional education in Bologna. The important subject was civil law and the introduction of canon law was not of the kind that one should expect as a direct inheritance of the theological studies of the monastic period. Rashdall emphasized that, instead of theology, what had been introduced was canon law ('concordantia discordantium canonum') initially tought by Gratian . Canon law studies were based on the civil law to the extent that "everything in the canon law was Roman which was not of directly Christian or of Jewish origin".[16]

16. Ibid., vol. I, p. 133.

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According to Rashdall, the influence exercised by law studies over the ecclesiastical education was enough to explain the independence of the first universities from the cathedral and the bishop, through the creation of more and more lawer-style theologians.

However, this attitude does not explain the later evolution of Bologna and, also, the nature of its influence over Paris, where civil law was very quickly forbidden, as opposed to canon law. The question of whether or not there was an influence of the kind described by Rashdall seems to impose an insufficient basis of investigation. It does not take into account the internal contradictions of the Bolognese prototype. By emphasizing the significance of the nostalgia of the old municipal life, Rashdall seems to accept almost exclusively a logic of positive developments.

As opposed to that, in J.K. Hyde's analysis, it is easy to identify the lacking element of Rashdall's analysis. Hyde stresses the conflict between the traditional interpretation of the texts and the situation of the commune, as follows.

> "A much wider problem was raised by the doctrine
> contained in the texts concerning colleges, guilds,
> compagnes, and other associations within the
> state ... Of course, texts could be found to
> justify certain types of associations, such as
> religious fraternities, but what could be said of
> the noble tower societies, which were electing
> their own officials, exacting oaths from their
> members, and passing what they called acta,
> statuta, and ordinamenta which regulated among
> other things, the descent of property for their
> members, a matter which should obviously have been
> regulated by the public law ... The contrast
> between the situation de facto and de jure became
> more and more blatant."17

17. J. HYDE (1972), op. cit., p. 92

In fact, the institutional structure of the Bolognese University was in an obvious contradiction with the subjects taught in it. This contradiction or 'contrast', that Hyde describes above can be considered as 'internal' in the sense that it is concerned with the contents of university teaching. Its broader meaning, however, is that the Bolognese scholars were generally respected because they had the power to interpret the texts in a way, which was <u>necessary</u> for their guilds to survive and for the Commune to prove its own formation as legal. In other words, this contradiction between the original texts and their self-imposed interpretation was used by the two institutions (the Commune and the University of students) to establish their existence and to develop their relationship, which for a short while was good. The whole history, however, of the first period of the Bolognese University is full of contradictions and conflicts and one might well think that these contradictions constitute the core for the transformations of the University.

It is interesting, at this point, to mention the basic stages of the later development of the student universities[18]. The first student universities were institutions which changed very rapidly. We can identify three major axes around which the basic transformations of the first student universities took shape. These three axes describe the

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18. This subject is also discussed in: A. ΚΩΤΣΙΟΠΟΥΛΟΣ (1979), op. cit., pp. 43-47. The discussion is based on H. RASHDALL (1936), op. cit., vol. I, and S. D'IRSAY (1935), op. cit., vol. I.

changes which appeared at all three levels of our paradigm (environmental, activity and institutional).

A first axis describes the co-optation of university institutions by the ecclesiastical and, later, the State institutions. Even in the first years, the internal difficulties in the function of student universities became apparent. The expenses and the time all officials and particularly the rectors should devote to the university affairs made these posts a kind of compulsory but not desirable duty for the richer students. The problem was so clear that limitations to leaves of absence and trips were imposed in order to protect the university from an eventual escape of these officials. In the 16th century, there were no more student-rectors. They had already been replaced by professors, obliged to state clearly their obedience to the Chancellor of Bologna.

On the other hand, the attempts by the papal authority to control the student universities were clear, much earlier than the above internal problems. According to an official order issued by the Pope Honorius III (formerly Archdeacon of Bologna) no doctors should be graduating from Bologna University without the consent of the Archdeacon of Bologna. The initial reaction to Honorius's order was limited probably because the post of Bologna's Archdeacon was occupied at that time by Gratia Aretinus, a famous professor of canon law. The official right of the Archdeacon to intervene in university affairs had

remained only a formality for quite a long time, because of the power of students and the economic significance of the University for the City of Bologna. However, the papal gesture became the prototype for the ecclesiastical and later the State chancellorship in the University of Bologna as well as in all European Universities.

A second axis describes the gradual increase of the power of professors. Moreover, it describes the internal stratification in their groups. Although their social status and authority in examining the students were never questioned, their involvement in the decision-making of the University was very limited. However, their power increased from the time they became economically independant from their students. The transformation of the traditional system of collecta into the system of salaria (initiated not in Bologna but in other Italian universities to compete with Bologna by absorbing her famous teachers) signified the beginning of the economic dependence of universities on the city and later the State. This transformation had also another important impact on the stratification of the corpus of teachers. The control exercised by the city over the university affected the selection of teachers. Bolognese citizens were preferred against foreigners. Gradually, the title of 'doctor' became only a formality. Teaching was transformed only to a small fraction of doctors, signifying the first separation of university titles from their original professional context.

Finally, a third axis describes the decomposition of the original universitates, that is, of the student guilds. The first student university was a mobile institution. Until the middle of 13th century student universities had no studium of their own activities. The environmental representation of the student universities was an image of great distribution and no institutionalization at all. It was exactly the increase of the social attraction of universities which led to this institutionalization. The first step was the establishment of collegia [19], sponsored by economically powerful fellow-countrymen
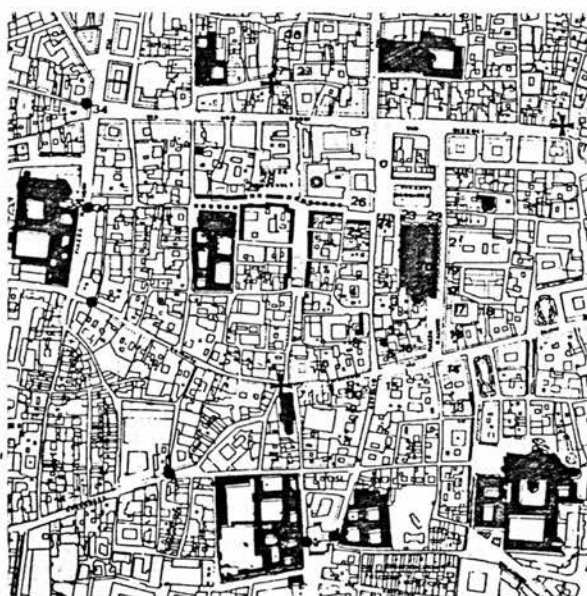
Bologna,historical centre

▣ : Convents and colleges

Bologna,College of Spain, arcade.

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19. The most famous was the College of Spain, (Collegio di Spagna) established in 1364 by Albornoz. See, (ed.), **Bologna Centro Storico**, Edizioni Alfa 1970, p. 241.

20. Ibid., pp. 239,   and 241.

of the students. Quite rapidly, these buildings settled the majority of university activities. Institutions powerful and stable in locational terms were created, minimizing one of the main sources of student power, that is, the threat for migration.

At the same time, the basis for the structure of student guilds was gradually changing shape. The common origin became insufficient as an attraction for forming universitates, since common problems were gradually becoming unimportant as the co-optation of the university by the city progressed. Such a role was to be played in the future by the common scientific subject. Thus, what today is known as a kind of cultural unity between teachers, students and professionals, united under the name of scientific specialization, replaced the initial unity of guilds which was created by the pressure of common problems.[21]

As we have seen, the whole history of the first period of the Bolognese University (and, also, the other student universities of medieval Italy) is characterized by internal conflicts, which functioned as a potential for the fundamental transformations of the university structure. The institutional superstructure was very heavy for the students. The complex system of administration proved to be contradictory in itself and failed to survive. The major officials were powerful in formalities but weak in their ability

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21. See, A. ΚΩΤΣΙΟΠΟΥΛΟΣ (1979), op. cit., pp. 44-45.

to carry out their duties. On the other hand, the conflicts among the professors initiated their internal stratification, and this stratification was supported by the antagonism between Bologna and the other Italian cities. University degrees became contradictory with their real context and new titles occured (doctores legentes and non-legentes).

Even in Rashdall's words, such internal contradictions are easily recognizable though not clearly explained. What is also recognizable and, I believe, equally important, is the basic contradiction between the mobility of the university and its institutional significance and clarity. It is rather ironical that this contradiction included the transformational potential to make Bologna and the other Italian universities so important and powerful that they had to be environmentalized in a stable and symbolically clear manner.

Bologna,historical centre
⊓⊓: buildings used for the first university acti-
vities

Bologna,'Archiginnasio', one of the later built(1563) large university buildings.

It is difficult to express in a formalized manner the whole series of contradictions, anomalies and transformations, which appeared in the first years of the students universities. Knowing all the dangers of over-simplification , I shall attempt to show them in a diagram, as follows:

KEY:
→ TRANSFORMATION ,
L.C. ←→ LEADING CONTRADICTION ,
N.A. ←→ NORMAL ANOMALY ,
------ REPRESENTATION

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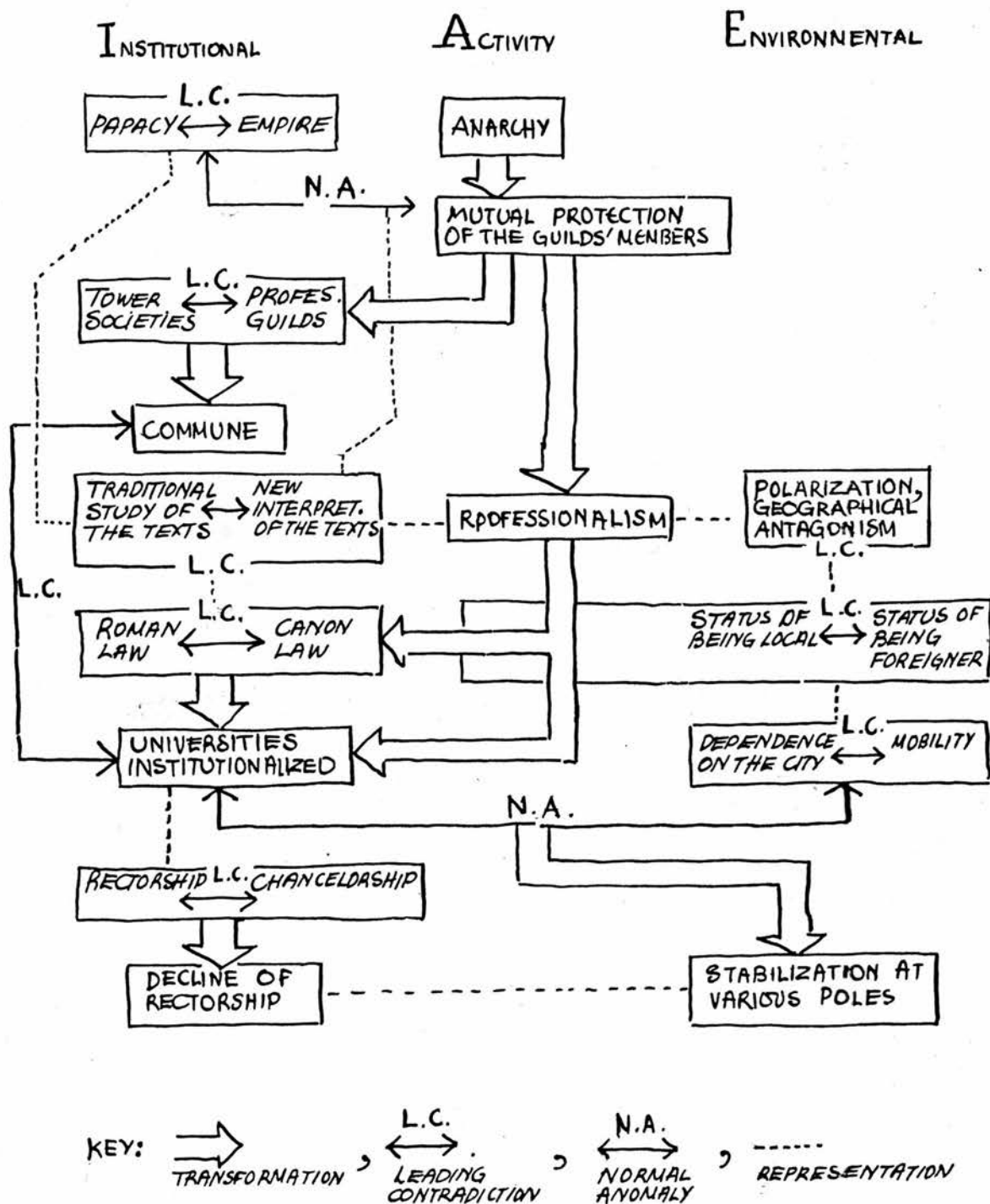
The history of the first student University of Bologna, as written by Rashdall and Hyde, is an example of the clarity and comprehensiveness of the historical approach to environmental structures. Since historians do not attempt to solve particular problems, their description is optimally abstracted. They have the freedom to extract general conclusions and to criticize them through their own ideology, as Rashdall has repeatedly done. The historical description is also, by definition, dynamic but not necessarily contradictional. The important point is that the real facts in the history of the student universities can be explained through the logic of contradictions.

It has been also shown previously that the theoretical three-level basis can function as a satisfactory background for integrating the contradictional logic. I do not claim that all the components of our linguistic paradigm have been transferred into the previous discussion. This would be impossible done in a small number of pages and by examining only a specific period of only one case. I hope, however, that both Rashdall's text as well as Hyde's exploration into the nature of the Bolognese University have indicated that even the most elaborated of these components – such as the 'guild' deep structure of the sophisticated institutional superstructure of the University or the inter-level antagomisms between institutional symbolism and environmental mobility – can express the real facts.

CHAPTER II,1.2
THE ACTIVITY MODELS OF UNIVERSITY PLANNING

Planning models are, by definition, orientated towards the solution of problems. Consequently, their degree of abstraction is lower than that of historical studies and their interest in the environmental image of a structure is higher than in the institutional. What, nevertheless, makes these studies important for our discussion here lies beyond these obvious properties. As it was repeatedly stressed previously, planning models reflect descriptive apparatuses, explanatory logical tools or even general paradigms to outline the subject on which action is concentrated. I do not claim that any lack of interest of such techniques in other levels of a structure has to be taken as a symbol of lack of any social philosophy in them. They are

operational by definition and they do not deal with broader
data if they cannot formulate them. This does not mean ,
however, that they should stay outside the scope of a discussion
about comprehensiveness. The unquestionable problem-solving
capacity of such planning techniques is still subject to a
question concerned with the definition of the problems they intend to solve.

Modern practice about universities, and consequently the
description of university structures through this practice, can
be considered at two quite distinct levels: first, the level
of educational decisions and, therefore, the level of
describing a university in educational or organizational terms
(such as State policies of high education, orientation of
university teaching, academic structure etc.) and the level
of implementing such decisions, which ends in designing and
building the built environment of the universities. There is
an obvious difference, however, between the new university
campuses and the already existing and stabilized urban universities,
as regards the extent to which both educational and
environmental decisions can be effective. Any possible reform
in the case of the old urban universities is necessarily limited
mainly because of economic constraints (cost of land etc.).
A consequence of this difference is that planning methods deal
predominantly with new universities, while any practice
concerned with existing urban universities is, as a rule,
circumstantial.

The descriptive tools, which are used to determine the
identity of a university for the purposes of modern practice,

are clearer than those used in the histories of universities. The reason is operational. Each step of the planning process has to be related with the previous and the following steps and the best attitude to achieve this has been proven to be the systemic logic of descriptively de-composing a university structure in order to re-compose it in normative terms. In fact, what the models of university planning try to achieve is an analysis of the university model-structure, which could be easily transformed into the successive steps of planning (such as academic organization, input-output, population and its classification, activity patterns, schedule of accomodation, location, environmental image etc.). It is supposed that such an hierarchization of the university images can be combined with the necessity of implementing the 'larger' decisions (the educational policy of the university or the educational policy of the State). It is also supposed that such an hierarchization can be easily expressed in the built environment of the university.

What remains unanswered, however, is first, to what extent such an operationally orientated re-composition results in re-structuring a university and not in producing artificial images of it and second, whether the descriptive tools, which are created in such a way, are sufficient enough to improve this eventually uncomplete re-composition.

1.2.1   THE MODEL DEVELOPED BY BULLOCK,DICKENS,AND STEADMAN

The models of university planning are numerous and complicated [1]. In most of these models, the main tool for bridging the gap between the institutional identity and the environmental characteristics of a university is the analysis of activities and, in particular, the description and prediction of the activity patterns of the university population. A typical example of these models is that developed by Bullock, Dickens, and Steadman [2].

In this chapter, I shall be dealing mainly with this model. My argument will be that such techniques of modern university practice are so operational that, in terms of descriptive comprehensiveness and, therefore, in terms of understanding the transformations of university structures, they are of less value than the methods used by the historians. Thus, they become, in the end, unoperational in broader terms, that is contradictory with their own initial definition and purpose. To illustrate more clearly this argument, I shall

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1. See H. LINDE (ed.), Hochschulplanung , op. cit., vol. 2 (Struktur- und Bedarfsplanung); also, P. JOCKUSCH, University Campus Design, A.D./11/74, pp. 702-717 and A. ΚΩΤΣΙΟΠΟΥΛΟΣ (1975), op. cit., pp. 190-214.

2. N. BULLOCK, P. DICKENS, P. STEADMAN, The use of models in planning and the architectural design process; a theoretical model for university planning; the modelling of day to day activities, in: L. MARTIN and L. MARCH (eds.), Urban Space and Structures, Cambridge University Press 1975 (© 1972), pp. 97-108, 113-128, 129-158.

close the discussion in this chapter with a brief terminological analysis of a criticism of modern university planning included in the work carried out by the U.C.L. - L.S.E. Joint Team on the 'University in an Urban Environment'[3] . My opinion is that, although this study is still concentrated on the environmental aspects of universities, it is an example of a more comprehensive approach to university structures.

Bullock, Dickens, and Steadman's work constitutes a contribution mostly to the techniques of typical university planning and not to its conceptual background,which remains mainly behaviourist. The schedule of accomodation and the locational patterns of a university derive, after a series of rather complex calculations, from the activity patterns,which the inhabitants of the university are supposed to follow. These patterns refer mostly to scheduled activities but may also include non-scheduled ones. All this happens within an institutional contex which is pre-determined. So, the ambition of the model goes further, to test alternative academic policies as regards their activity and environmental performance. As the authors expressed it, the fundamental purpose of this work is the following:

"At a more general level the model could be used, in a systematic series of experiments , to investigate the effects of broadly differing types of academic policy, of the different policies for the social and residential organization of the university, of different characteristic types of site layout and building form; and their implications one for another".[4]

3. P. COWAN (ed.), The University in an Urban Environment, Heinemann 1973.

4. N. BULLOCK, P. DICKENS and P. STEADMAN (1972), op. cit., p.150.

The two major fields, of which the model consists, are the description of the activities of a university and the investigation of alternative ways of organizing the physical layout of it. The clarity, in which these descriptive levels are represented in Bullock, Dickens and Steadman's work, is remarkable: the activity image of the university, which represents "the functioning of the university as an institution" consists of two basic concepts; "who is where when" and "who travels when from where to where". So, the combinations of words like 'who', 'when', 'where' can, in the end, represent "patterns of teaching, (...) dining and library use, (...) activity in residential accomodation (...)" etc.[5] The authors stress, nevertheless, the distinction between those activities which are governed by time-tables and those which are not.

The environmental image of a university is clarified by imposing the concept of 'scale'. The features which have to be described are, therefore, classified as follows: the siting of different elements of the university within the city , then the relationship between different buildings on the same site , and finally the systematic representation of alternative forms of building and building layout.[6] .

The means of representing the activities are described in detail by Bullock, Dickens, and Steadman in an article titled 'the modelling of day to day activities' (A re-preparation of two

5. Ibid., p. 136.
6. Ibid., p. 117-128.

previous papers: 'activities, space, and location' and 'the model-ling of day to day activities patterns')[7] . The method can be summarized as follows: assuming (a) that students attend the scheduled classes, lectures etc., and (b) that the proportions of time, which a group of students (which follow a common pattern of behaviour) spend in various activities over some repeated period, remain the same, the authors construct what they call 'time-budget', an example of which is shown in the figure below:

```
Arts
students          10%         50%              20%     20%
                  A           B                D       E
morning
9.00 a.m.-1.00 p.m.

                  10%     45%         5%  20%    20%
                  A       B           C   D      E
afternoon
2.00 p.m.-7.00 p.m.

                      40%         30%         30%
                      B           D           E
evening
8.00 p.m.-11.00 p.m.

Science
students          10%     30%         30%         30%
                  A       B           D           E
morning
9.00 a.m.-1.00 p.m.

                  10%     30%     20%     20%     20%
                  A       B       C       D       E
afternoon
2.00 p.m.-7.00 p.m.

                  10%     40%             50%
                  B       D               E
evening
8.00 p.m.-11.00 p.m.
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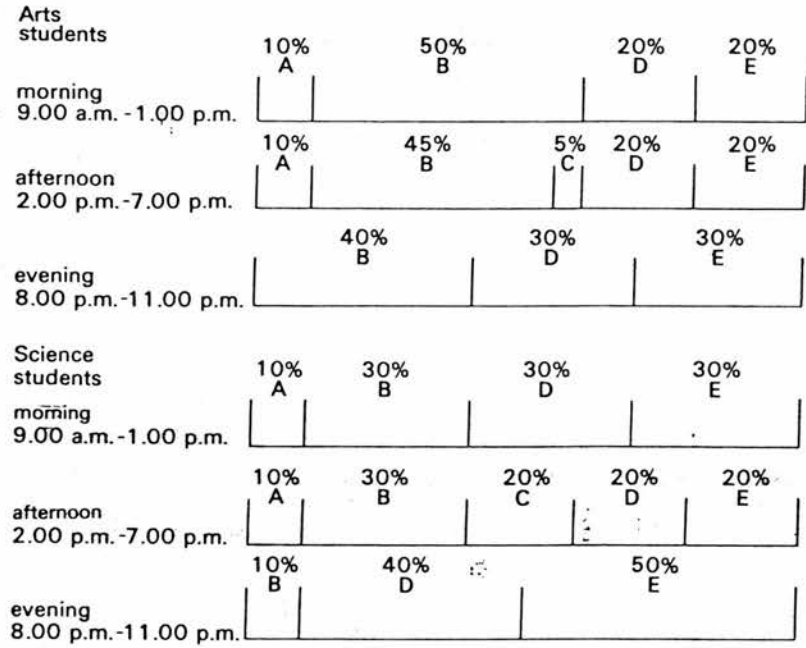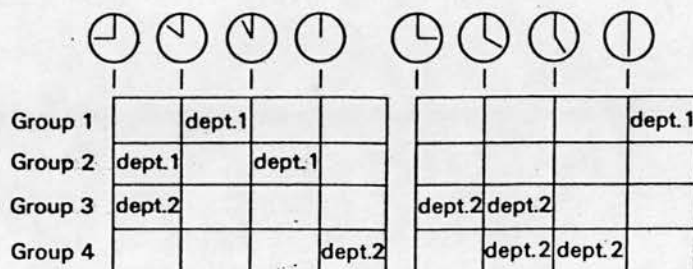
Fig 6.1 'Time-budget': the proportion of
time spent in different activities by arts
and science students, for different times of
the day (A, library study; B, private study;
C, sports; D, social activities; E, town-
based activities).

7. Op. cit.

8. N. BULLOCK, P. DICKENS and P. STEADMAN (1972), The modelling of
   day to day activities, op. cit., p. 137.

In addition to this, assuming that lectures are fully attended, it is possible to record the information concerned with lectures:

Group 1		dept.1						dept.1
Group 2	dept.1		dept.1					
Group 3	dept.2				dept.2	dept.2		
Group 4				dept.2		dept.2	dept.2	

The next step in Bullock, Dickens, and Steadman's model is to assume a certain plan for the university installation, on which the activities are to be mapped through a simulation process. The next assumption is that activities take place in different locations, according to a random pattern. However, the alternatives are not infinite, as the following diagram indicates:

TABLE A. *Locations allowed for different activities*

		Private study	Library study	Social: talking, coffee, etc.	Sports	Town-based activities	Eating
▨	Residence	□		□			□
▦	Café			□			□
N	Library	□	□				
⊔⊔	Department						
■	Town					□	
▨	Union			□			□
III	Sportsfield				□		

Notes: No eating facilities are provided in residence on the teaching site. All lectures and practicals, as well as supervisions, are taught in the departments.

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9. Ibid.,p.137,

10. This is a simplification of more complex models of recording information for time-tables, used in practice. A general method concerned with the production of time-tables has been developed in: A. ΚΩΤΣΙΟΠΟΥΛΟΣ (1972), op. cit.

11. Ibid. (BULLOCK et al.), p. 139.

The critical assumption, however, in Bullock, Dickens, and Steadman's model comes immediately after the previous one: the nearest location is chosen for an activity, following the 'principle of least effort', so that the students' journeys from one activity to another can be minimized.

The importance of this assumption is fundamental. Using this assumption, the authors give a semantic content to their syntactic activity patterns. This assumption means in simple words that, in the end, the semantic pluralism of space is roughly expressed in quantitative terms according to the following principle: in order to move from one area to another, we will generally follow the shortest and not the semantically important path. Thus, the elementary deep structure at the activity level becomes so one-dimensional that it is very near to an autonomous spatial elementary structure, liberated from any semantic component. I shall give an example of how this principle may be questioned. The example is based on a preliminary study of the master plan of Ioannina University in Greece[12] and shows the applicability gap that this logic has to face, mainly because of the fact that the central idea in it is based on 'mapping'.

12. See: Κ. ΑΝΤΩΝΙΟΥ, Μ. ΒΑΛΛΙΑΔΟΥ, Α. ΚΩΤΣΙΟΠΟΥΛΟΣ, Ὀργάνωση Πανεπιστημίου ᾿Ιωαννίνων, ῎Εκδ. ᾿Εργαστ. Εἰδ. Κτιριολογίας 12/1970 (K. ANTONIOY, M. VALLIADOU, A. KOTSIOPOULOS, The Organization of Ioannina University, Lab. of Architectural Design 12/1970), p.63.
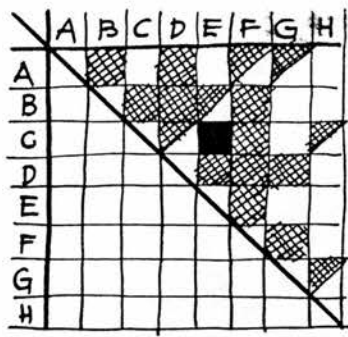
ABCDEFGH ← PLACES

■ EXTREMELY STRONG RELATIONSHIP

▨ STRONG RELATIONSHIP

◩ WEAK RELATIONSHIP

☐ NO RELATIONSHIP

GENERAL SIMPLIFIED RESULT OF AN ACTIVITY SIMULATION IN LOCATIONAL TERMS
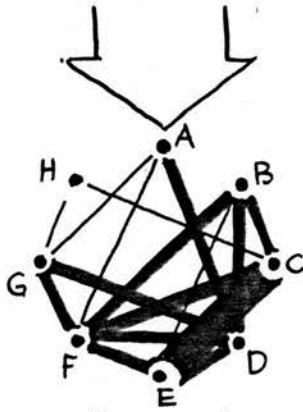
DIAGRAMMATIC REPRESENTATION

SEMANTIC MAPPING
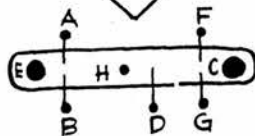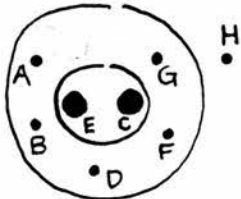(AT THE LEVEL OF ENVIRONMENTAL—ACTIVITY PROTOTYPES:

MAPPING ACCORDING TO THE PRINCIPLE OF "LEAST EFFORT"

OTHER POSSIBLE MAPPINGS

■ ⇒ •→ ←•
STRONG RELATIONSHIP MEANS SHORT DISTANCE

■ ⇒ IMPORTANT, SO: EVERYTHING MUST BE NEAR TO THE IMPORTANT ROUTE (ESPECIALLY H)

■ ⇒ ANTAGONISTIC TO SETS OF OTHER RELATIONSHIPS

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The diagram,first,shows the eventual existence of other
mappings apart from 'least effort' and,also,illustrates the
applicability gap : all the mappings are intentional and
ambiguous and may have serious consequences of the kind
shown below.
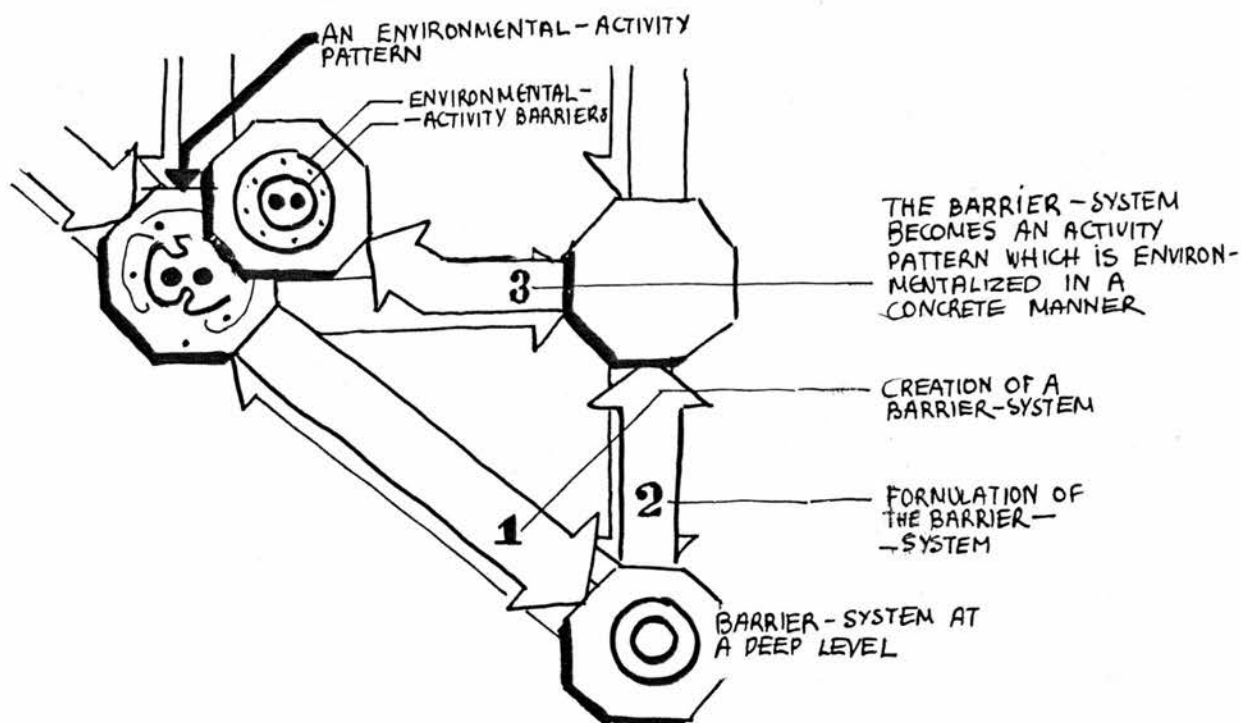
So,the question of whether the principle of 'least
effort'is the right one is a pseudo-question.It is certain that
this principle can be a posteriori realized as an abstract
pattern of many environmental and activity realities. The
question concerns the mapping itself. It is difficult to
introduce such principles as design considerations without
structurally integrating them in the planning process.
This point is essential for the logic developed in our paradigm
and I shall return to it later. First, we have to complete
the presentation of Bullock, Dickens, and Steadman's model.

The following tables show the results of a simple simulation, in which the patterns of student activities and the location of university facilities are connected through a 'mapping' procedure:
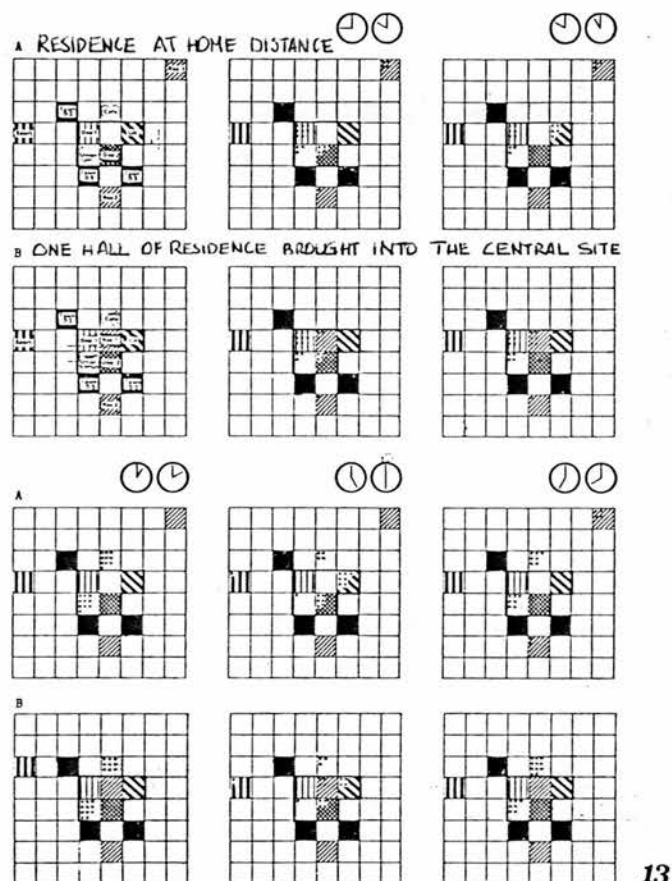
(Fig 6.4) Location of university facilities and patterns of students' activities: the results of the simple simulation. Central university site shown in heavy outline. Dots indicate numbers of students in each facility, for different times of the day. Only certain town cells are visited by students: figures give probabilities of a given trip to town being made to that cell.

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13. N. BULLOCK, P. DICKENS and P. STEADMAN (1972), op. cit., p. 141.
    Bullock,Dickens and Steadman have applied their model to a more
    realistic situation (taking 10% of a student population of 3,000,
    with actual buildings).As they write,however,the underlying
    assumptions about behaviour,on which their simple example was
    based,have remained the same.
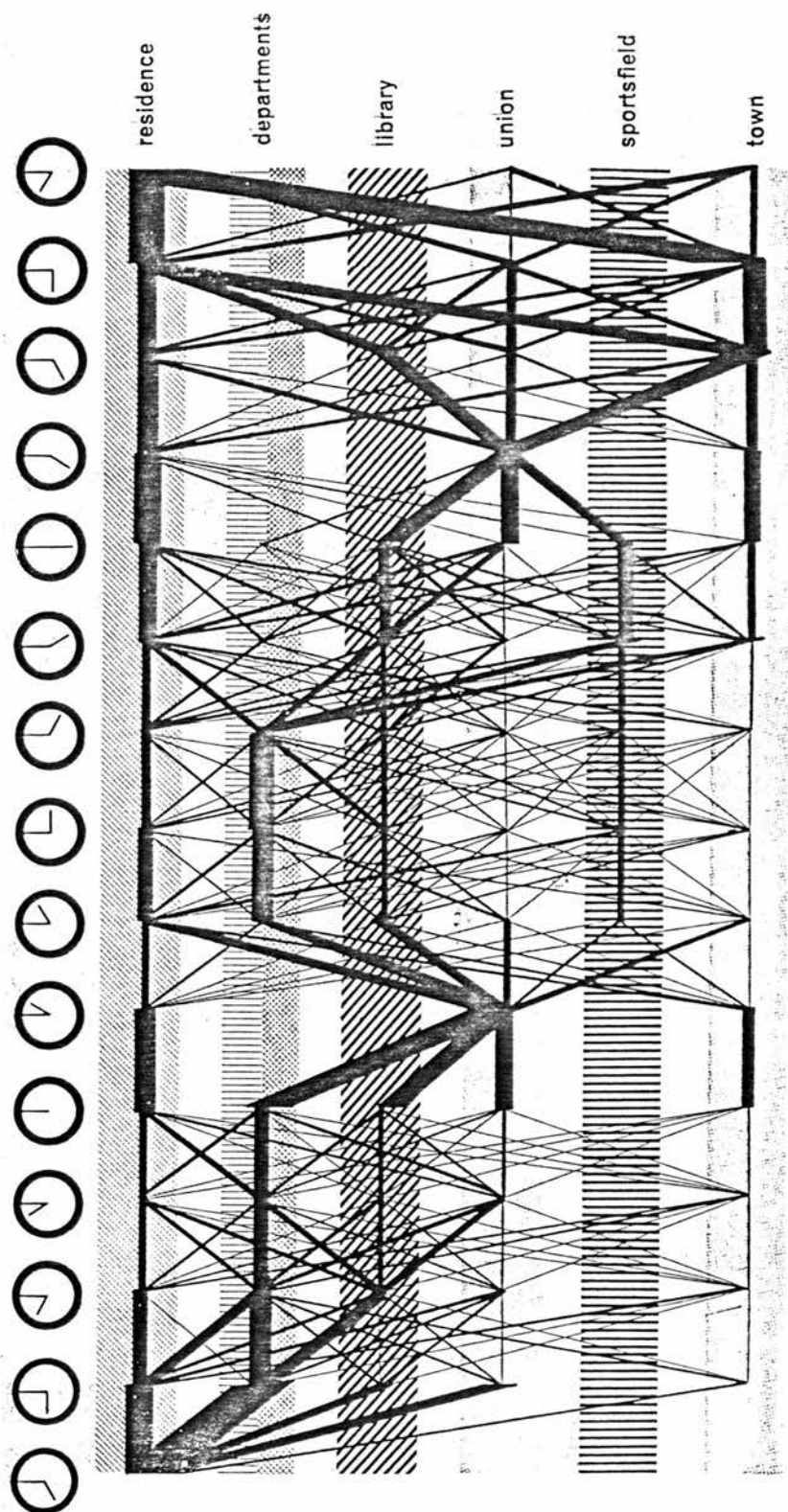
(Fig. 6.5) Diagrammatic presentation of the results of a large-scale simulation of student activities for a 10% sample of a university of 3000 students in all. The tinted bands denote different facilities, the clocks the hours of the day: the superimposed black lines represent the numbers of students moving from one facility to the next, from one hour time period to the next (the thickness of the line being proportional to the numbers of students). Note lectures in the morning, the convergence on the Union for lunch and dinner, laboratory classes and sports in the afternoon, town-based activities in the evening.

14. Ibid., p. 144.
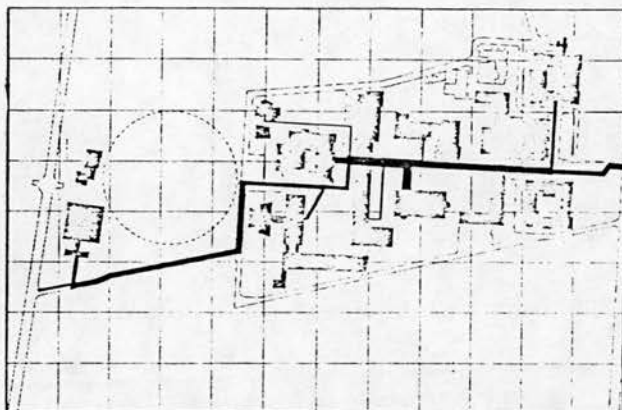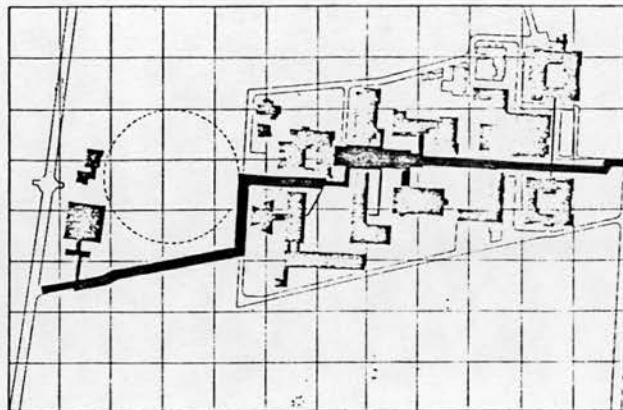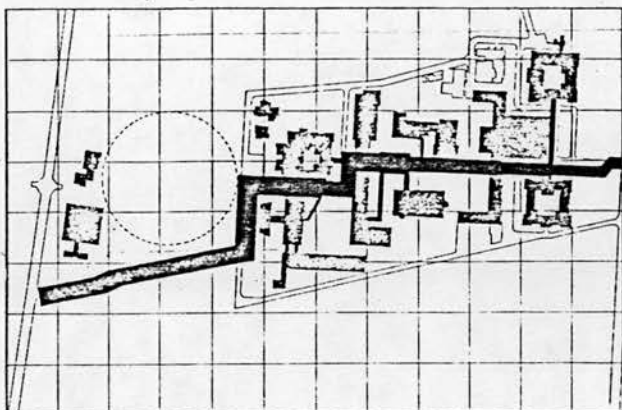
(Fig 6.6) Results of the large-scale simulation (compare Fig 6.5), showing the pedestrian traffic movement on the main university site for 3-hour periods during the day, 8.00 a.m.-9.00 a.m., 1.00 p.m.-2.00 p.m., and 3.00 p.m.-4.00 p.m. The heavy superimposed lines are proportional in thickness to the numbers of students moving along each route.

(Fig 6.7) Results of the large-scale simula-
tion (compare Figs 6.5 and 6.6), showing the
movement of students (by all means of trans-
port) through the city for 3-hour periods
during the day, 8.00 a.m.-9.00 p.m., 1.00 p.m.-
2.00 p.m. and 3.00 p.m.-4.00 p.m. (as in
Fig 6.6). Journeys are shown as 'bee-lines'
from the centre of one city 'cell' to
another (small circles). The thickness of
the lines is proportional to the number of
students travelling. The large circle in the
centre of the map is the main university site,
the large circle upper right is the city
centre, and the large circle lower left the
principal group of halls of residence. The
city is divided with a regular grid into half-
kilometre square grid 'cells'.

I have already stressed that a basic purpose of this

model is to make the planning decisions more understandable by

the academic policy-makers. No deterministic relationships can

be established between the requirements of a program and a

resulting physical form; nevertheless, the university administra-

tors have something to learn about the environmental implications

of their own decisions: according to the authors, the model is

useful for the administrators, since it can

> "... give them facts and figures on a variety of
> alternative plans - a kind of 'a d v o c a c y
> p l a n n i n g' and ... enable them to exercise
> their judgement on the basis of better information.

15. Ibid., pp. 146-148.

> Also ... the same information should be available
> to architects and planners, for the rapid evalua-
> tion of different design proposals at an early
> stage."[16]   (my emphasis)

This purpose outlines the framework of the discussion on Bullock, Dickens, and Steadman's model. This model deserves this discussion not only for its own value but also for being representative of other similar models, which are based on the same philosophy . Thus, the main question to answer, within the context which the model itself outlines, refers to whether this model fulfils the 'advocacy' function it prescribes. There are, however, some more general questions concerning the descriptive value of such models in the broader context of their explanatory power and comprehensiveness. A part of such an extended discussion has been developed previously when I referred to the critical assumption of the model concerning the 'least effort' principle. There are also two other questions of this broader kind: a first question is whether the representation of the university structure that the model promotes is of any dynamic value. How, that is, can transformations and the potential for them be expressed through the language of the model? Finally, there is a third more general question: what is the ideological background and the limitations of this kind of 'advocacy planning'? It is needless to say that an answer to this question does not merely refer to the particular model but to a more general tendency in university planning.

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16. See: N.BULLOCK,P.DICKENS, Ph.STEADMAN, . Activities, space, and location, Architectural Review, Apr. 1973.

So, the main question first: does the model fulfil the advocacy function it prescribes? The answer to this is generally positive. This means that the representation of a university at an activity level can be useful as an intermediate tool, which facilitates the links between academic policies and environmental images. However, it does so only to the extent which is determined by the components of this representation, i.e. 'who is when, where' and 'who moves when from where to where'. Whether this constitutes a sufficient activity description of a university structure is a question for which there is no secure basis of answer, unless we consider the university structure as a whole and in a transformational sense.

Apart from this, however, there are some problems, which appear at the descriptive level, which the model itself outlines. These problems derive from the fundamental assumptions on which the model is based. The authors admit the weakness of such assumption stating, for instance, that

> "the implication that an activity is decided upon,
> and then the nearest appropriate location chosen, is,
> clearly an extreme simplification ... more serious
> problems could arise through the effect which the
> location of some facility might have on the choice
> of activity ..."[17]

So, the basic descriptive inability of the model to express the semantic pluralism of the built space at a deep level becomes a serious difficulty for the operational purposes of the model itself. Apart from that, however, there are other

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17. Ibid., p. 145.

problems. One is that the amount of information about student
behaviour is more concentrated on the so-called 'scheduled'
activities than on the 'non-scheduled' ones. In fact, one
could say at this point that one basic reason for the recent
developments in university planning models seems to be the at-
traction of dealing with the stock of concrete and detailed
information which the university time-tables provide. There is
no apparent reason why university planning should be more
computerized than the planning of any urban formation of the
same scale. The explanation why this happens is to be found
more in the availability of information, which is necessary to
make planning models computable, than in the necessity of
doing this.

It is possible to improve the performance of the activity
models within their own context. More realistic simulations
and less significant formulations and assumptions are not
impossible. It is also probable that even the elementary
activity structures, on which the whole philosophy about
universities is based, can be semantically equipped. For instance,
alternative semantic bases, more comprehensive than 'least
effort' can be introduced even within the context of a mapping
procedure. It is not necessary to produce advocacy apparatuses,
which would only represent energy saving pedestrian movements.
The importance of some routes because of their environmental
image can also be taken into account and more general
ideologies (for instance, to avoid the creation of environmental
barriers) can also be represented and mapped within the logic
of such models.

Unfortunately, the problem is more general. Activity models still belong to the domain of autonomous syntaxes. The understanding of the built environment, which such models promote, is based on the logic of relationships and on mapping. Their problem-solving capacity cannot be transferred into the internal dialectics of the elementary structures. They cannot introduce planning patterns which would explain and propose at the same time. For that reason they are loosely related to the dynamics of the environmental structures and, even un-consciously, they cannot take into consideration the ideologies they promote.

It is necessary, therefore, to discuss in more detail the broader questions I mentioned previously. First, the question about the transformations of universities. Since planning deals by definition with these transformations, we have every right to claim that a planning model of universities could have no advocacy value if university structures would not be able to be expressed dynamically. The problem is, of course, what this 'dynamically' means. For Bullock, Dickens, and Steadman it means 'the dynamics of alternatives'. They have correctly imagined that there are some basic requirements by a planning model, which are expressed in terms of its ability to evaluate alternative solutions. This would enable the real actors (planners and academics) to influence objectively the dynamics of universities. As they stressed, the model serves purposes of the following kind:

"to investigate the effects of broadly differing types of academic policy, of different policies for the social and residential organization of the university, of different characteristic types of site layout and building form; and their implications one for another." [18]

The authors do not deny (on the contrary, they emphasize) that the key to estimate what happens in the university is the appraisal of alternatives and it is not difficult to extend this appraisal not only to a synchronic but also to a diachronic discontinuous chain of alternatives:

KEY:
REPRESENTATION
OF ACTIVITIES

ENVIRONMENTAL
IMPLICATIONS

ALTERNATIVE
DESIGN
PROPOSALS
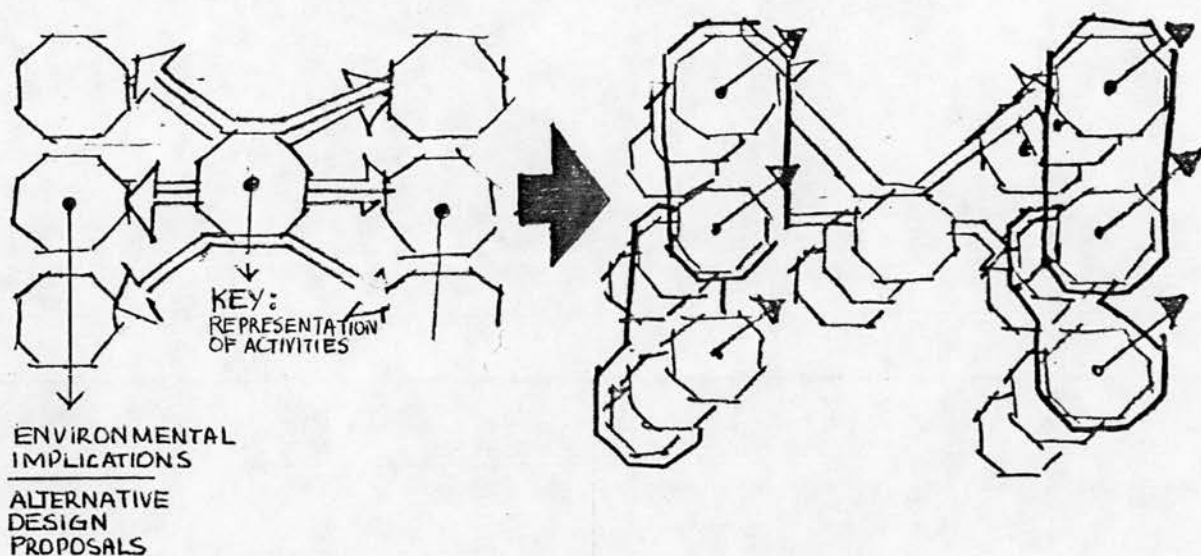
It is obvious that the design practice does largely follow the above logic and that Bullock, Dickens, and Steadman's model is an honest and elaborated contribution to a kind of 'normal science' of architectural or urban decision-making, which is based on the logic of alternatives. The following views do not criticize the model as such but the whole logic of the paradigm of alternatives. Yet, they are not sufficient to
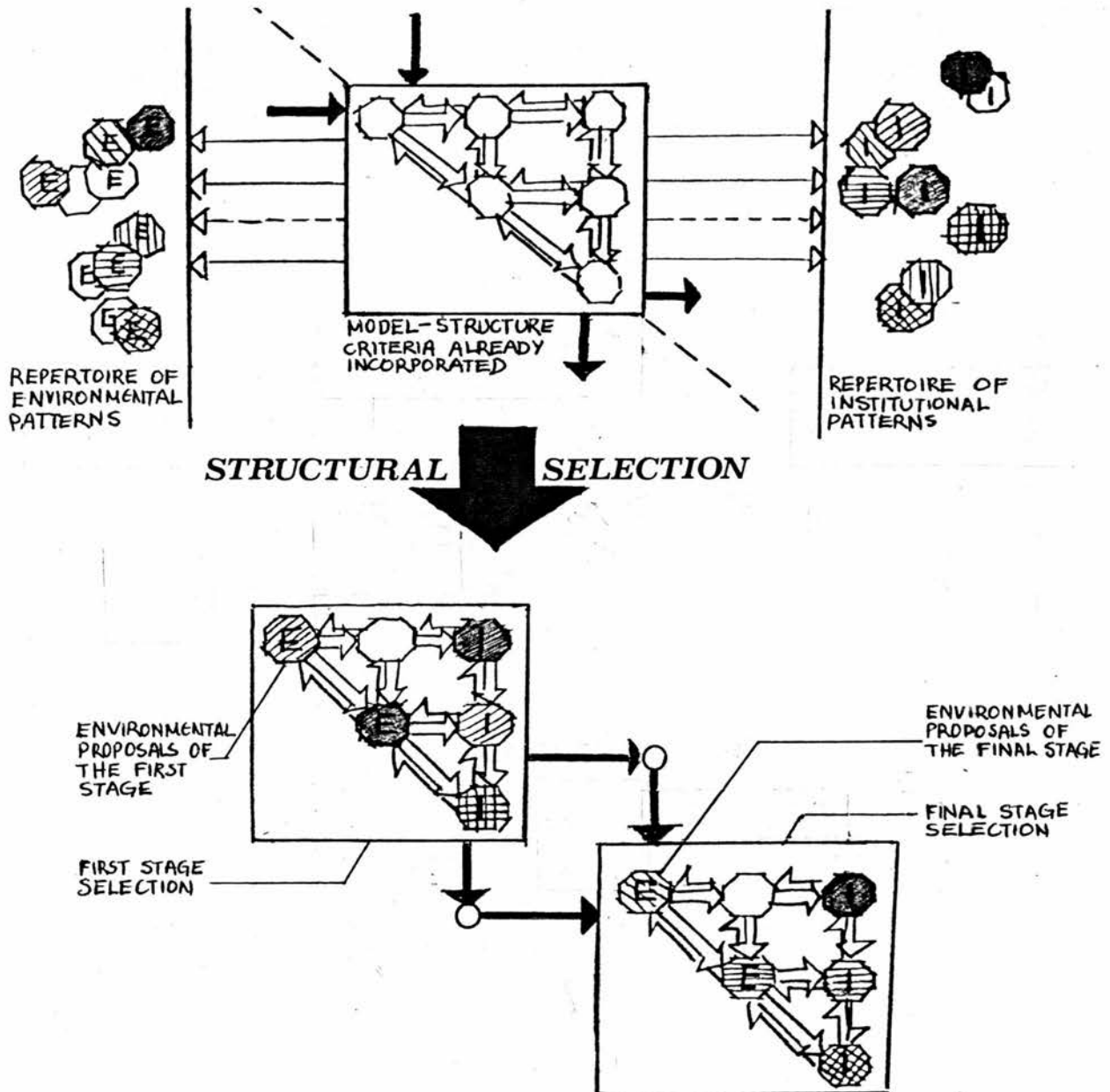
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18. Ibid., p. 150.

propose an equally operational technique *except* in a highly speculative and subjective manner.

The logic of alternatives is a concept central to systemic thinking and it is contrasted to the structural transformational logic as regards one particular point. This point does not concern the possibility of transferring the logic of alternatives into the logic of transformations; alternatives may be also generically produced and a transformational logic does not deny the possibility of including alternative routes. Where they *are* contrasted *to* each other is in operational terms. The systemic logic of alternatives, *sufficiently* aided by its simplified computability, excludes the necessity of a generic understanding. In our case, we *do not* have to understand a university structure in transformational terms. We simply have the models to estimate alternative proposals. And this would be perfectly acceptable if these models were comprehensive enough to integrate and outline the position of the alternatives within the comprehensive corpus of the models. In the end, as Piaget stressed, any structural logic has to be expressed through some formulas.[19] There is no objection that prototypes, for example, are subject to alternative formulations or that Alexander's patterns are, in the end,   selected   as in any formal language. The problem is that there must be some room for a generative understanding; and this must happen either within the alternatives and the process in which these alternatives are produced or, better, within the general model itself. Bullock,

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19. J. PIAGET (1968), Structuralism, op. cit.

Dickens, and Steadman have chosen the first way. They cannot influence the alternatives - even those concerned with the environmental image of the universities - and they do not intend to do so (see diagram).

REPERTOIRE OF
ENVIRONMENTAL
PATTERNS

MODEL-STRUCTURE
CRITERIA ALREADY
INCORPORATED

REPERTOIRE OF
INSTITUTIONAL
PATTERNS

STRUCTURAL   SELECTION

ENVIRONMENTAL
PROPOSALS OF
THE FIRST
STAGE

FIRST STAGE
SELECTION

ENVIRONMENTAL
PROPOSALS OF
THE FINAL STAGE

FINAL STAGE
SELECTION

1. SELECTION BASED ON THE STRUCTURE OF A REPERTOIRE WHICH FOLLOWS A PRE-STRUCTURED MODEL ("PATTERN LANGUAGE").
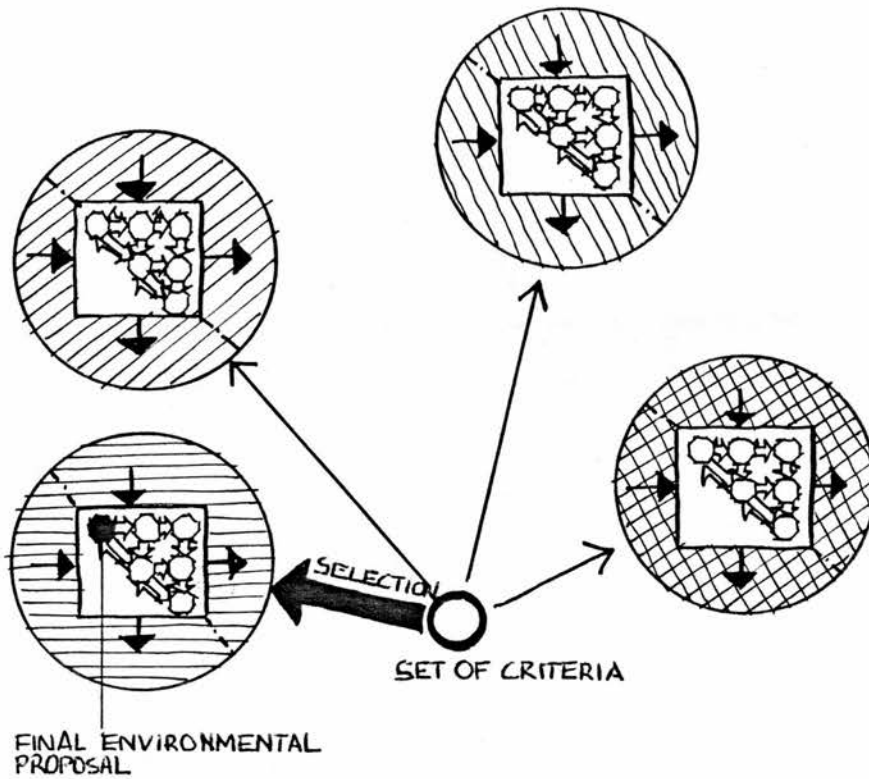
2. OPERATIONAL SELECTION (THROUGH EMPIRICAL PRACTICE) AMONG STRUCTURED PROTOTYPES WHICH BELONG TO A REPERTOIRE
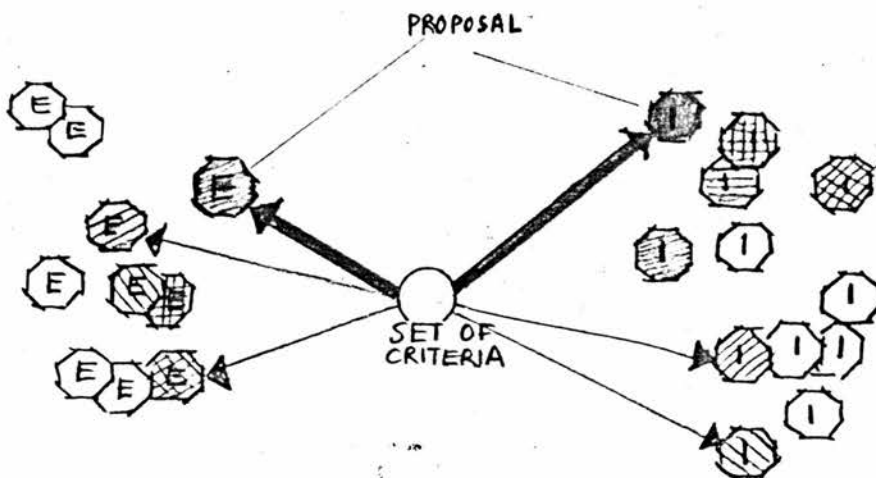
3. COMPUTERIZED SELECTION ("ACTIVITY MODELS")

What happens, therefore, in the case of the model we are discussing? There are some alternative policies of institutional nature (academic or educational). Obviously, the language of 'when', 'where', 'who' etc. cannot deal with who decides about such policies. There are also some alternative environmental images borrowed from the existing prototypes of urban formations or the already constructed university campuses. The architects and planners provide a list of alternatives concerning such images. However, the activity language of the model is unable to construct even one of these alternatives (such a construction is either mathematically impossible, or it is empirically unacceptable). The core of the problem is that these levels (institutional, activity and environmental) exist independently from each other; each one of them has its own transformational logic and its own language of practice. Although Bullock, Dickens, and Steadman's model provides some means to connect the surface of such structural images, it has also two main disadvantages.

The first disadvantage is that the model does not provide any method of connecting the transformations which appear at these three levels. Some institutional transformations, for instance, take place quite rapidly because of internal contradictions. Alternatively, other transformations, which appear at the environmental level, are caused by a tendency to produce 'perfect architecture' of symbolic value, or others do not take place at all because of the inertia and non-flexibility of the built environment.

The second disadvantage of the model is that, even as an autonomous description at the activity level, it does not provide any means of explaining the transformations of activities themselves. This happens partly because such transformations depend upon institutional or environmental ones, but mainly because of the assumptions and the over-simplified language of the model. A reference, for example,(even in a systemic way of thinking) to the relationships or to the contradictions among the activities which the model describes would constitute a step towards the explanation of the transformations of the activities. However, a coherent answer to this question would require a new attitude towards the whole issue of description.

Still within the context of transformations, there are some other issues. The model seems to have some power in explaining the 'anomalies' which occur diachronically between the different images of university structures (in fact, this is the fundamental purpose it prescribes). Such a power is implied by the process of testing alternative academic or environmental solutions by translating them in an activity language. However, such work needs a definition of what 'correct' or 'normal' is, since, as previously mentioned, the model does not deal with the explanation of such 'anomalies'. Therefore, although it seems possible to identify 'anomalies' (such as, for example, non-correspondance between an inter-departmental course scheme and a decentralized locational pattern) it is difficult to 'measure' them. The only way of doing this is by using a series of alternative prototypes which,

for instance, would provide information about the nature of 'normal', 'A-type abnormal', 'B-type abnormal' etc. The degree of subjectivity and arbitrariness, which is likely to be involved in such a method, particularly at the level of the institutional prototypes, leads us to a final question: what is the ideological background of the activity models and what are the limitations of 'advocacy planning' introduced by them?

The model is an example of a way of thinking which isolates a particular area, outlines some possible connections with other areas (either in a descriptive or in a practical sense) and develops the technical details, which describe the area in such a way that makes it possible to serve the prescribed connections with the other prescribed areas. Obviously, the most important question about this is whether such a decomposition is possible. The search for such a possibility in the social sciences is highly ideological. It is not secure to claim that isolations of this kind are objective, especially since technical development of the methods which deal with such decompositions is concerned with a 'lower' level (like the level of activity) and depends on a higher institutional level. The less conceptually autonomous this technical development becomes, the more dependant on the ideological context of the higher levels it is. In fact, there is nothing wrong in dealing with a particular descriptor of representing a structure, provided, however, that the language of this descriptor is adequate to incorporate the structure

as a whole by translating the fundamental characteristics of
the structure (such as contradictions, transformational rules
etc.) into the context of the descriptor. This means that it
should be possible, in the case of university structures, to
identify problems of^{an} ideological character (such as alienation,
for instance) even at the level of activities ('activity bar-
rierization' in the case of the problem of alienation).
It is a basic argument of this study that to deal with
particular descriptors of a structure does not mean that we
lose the fundamental characteristics of the structure,
regardless of how complicated it is to identify these
characteristics. If we accept the opposite, we open the door
to the ideological manipulation of the 'lower' representations
of a structure. This would be a step towards what is generally
accepted as 'technocracy'.

Unfortunately, 'technocracy' is a controversial concept
and, moreover, it rarely describes a conscious process. The
theorists, which produce activity models, for instance, would
quite reasonably claim that such models might be technocratic
only in the case they are abused and that such models are
indeed socially meaningful in the case they succeed in promoting
the environmental expression of socially acceptable academic
patterns.

I would not disagree with such an argument provided
that there are enough guarantees to secure a coherent use of
such models (similar to the processes 1 and 2 of the previous

diagram. On the other hand, the exaggerated use of the technocratic danger could easily lead towards what Habermas describes as a 'life-style of protest', usually 'mixed with exaggerated generalizations that can turn into sentiment directed against science and technology as such'?[20] Fortunately enough, I think, the activity models for university planning seem to belong mostly to the category that Habermas calls 'decisionistic model' than to that of the more controversial and dangerous 'technocratic model'.[21] They "rationalize choice as such by means of calculated strategies and automatic decision procedures"[22] rather than assuming "an immanent necessity of technical progress, which owes its appearance of being an independent, self-regulating process only to the way in which social interests operate in it" or presupposing "a continuum of rationality in the treatment of technical and practical problems, which cannot in fact exist"[23]. Although these decisionistic models express, to Habermas, "the assertion of the objective necessity disclosed by the specialists over the leaders' decisions" it is through their criticism that we can proceed towards what Habermas calls 'expanded decisionistic model', which incorporates "the new stage of rationalization into the decisionistic model". It is also through the criticism of such models that we can reach the final stage of 'pragmatistic

20. J. HABERMAS, Toward a Rational Society, Heinemann 1972
    (© 1968), p. 33.

21. Ibid., p. 63.

22. Ibid., p. 63

23. Ibid., p. 64 (see note 4 of Habermas's text, Ibid., p. 125).

models' in which the separation between experts and policy-makers is replaced by a critical interaction.[24]

1.2.2 'THE UNIVERSITY IN AN URBAN ENVIRONMENT': A COMPREHENSIVE APPROACH

This is a study by the Joint Unit for Planning Research (University College London and London School of Economics)[25], which criticizes the locational decisions made in the '50s and '60s by the University Grants Committee. The criticism is supported by a case study of Bedford College, University of London. The criticism as a whole is used as a means to prove the advantages of the urban universities.

There are two main reasons I am discussing this study here. First, it deals with a fundamental problem of universities; that is, their relationship with the urban forms and with the eventual possibility of considering universities as autonomous structures, independent from the city. Second, the study is itself interesting as a descriptive approach, because it is highly comprehensive and multi-dimensional. It is probably a consequence of this comprehensiveness that the first question about the autonomous character of universities becomes

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24. Ibid., pp. 65-66.

25. P. COWAN (ed.), The University in an Urban Environment, Heinemann 1973.

important for the study. I am going to support briefly these theses here, discussing this study only within a terminological context.

Both the broadness of the urban nature of universities as well as the large spectrum of criteria which is necessary in order to study this nature, constitute the central arguments of the work by the Joint Unit. First, they take the view that,

> "the logic of viewing university and community requirements as independent crumbles. When we begin to conceive of a university as a more open institution we realize how much its separation from the community, both conceptually and physically, has both precluded awareness of the possibility of certain solutions to existing problems and has created problems of its own." *26*

Second, they attempt to explain the general background of the decisions on university location taken by the U.G.C. by using concepts like 'pat e rnalism' and 'economics'. Although their criticism (because of the very subject of the study) concerns only the locational characteristics of the universities, which appear at the environmental level, their work can be seen as a 'descriptive theory', because first, it deals with university structures in a holistic way and second, it refers to the transformations of these structures.

What we are interested in is found mainly in the second chapter ('Concepts of the University'). The team describe two distinct attitudes to universities; the attitudes which they call 'conservative' and 'radical'. The components of this

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26. Ibid., p. 150.

description are identified as "academic autonomy and certain kinds of physical, administrative, and institutional arrangements"[27]. Accordingly, the two versions are: For the 'conservative': (a) ancient, (b) autonomous, (c) collegiate, (d) dedicated to education rather than training (e) national rather than provincial and (f) exclusive to a carefully selected group of students. For the 'radical': (a) comparatively modern, (b) urban, (c) the servant of the manpower needs of modern society, (d) largely non-residential, (e) giving a rather vocational kind of education, (f) geared to a mass rather than a highly selected entry and (g) local rather than national.[28]

Whatever objections one can have against these descriptive bases, it is clear that all of them deal with the consequences of the basic antithesis between 'autonomous' and 'integrated' university on the organizational and administrative characteristics of the university. The study goes further to identify what this background means for the activity description of a university. They do this by dealing with the notion of 'academic community': they support the view that this notion has been continuously promoted by the 'conservative' attitude.

> "... the group has to be such that everyone involved can fully identify himself with it, intellectually and emotionally from the professor to the newest first-year student."[29]

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27. Ibid., p. 15.
28. Ibid., p. 15.
29. Ibid., p. 17 (quoting K. WILKIES, Community and Identity in Higher Education, 1968, p. 37).

They also identify two critical issues included in this
version; a first one concerned with the activity descriptor (namely,
the population of a university - "an optimum number of students
beyond which a university cannot be a socially coherent unit")
and a second one concerned with the institutional descriptor
(namely, the social control - "within such an academic community
it becomes far less easy for the activists to fabricate a
convincing picture of class-antagonisms, with revolutionary
student-workers ranged against faculty-exploiters"[30]).

Continuing its explanatory task, the study examines some
implications of such distinct 'ideologies of university education'
for locational decisions as well as for those policies which,in
turn,influence locational decisions by requiring a kind of
'symbolic physical expression' from them.

The central explanatory apparatus to move from the
'upper' to the 'lower' descriptive images of a university is
always the concept of 'academic community'. Thus, according
to the study, the U.G.C. decisions have repeatedly promoted
the establishment of such academic communities. They have done
so, in two ways: first by creating what the Unit call
'comprehensive urban campuses', and second by choosing
'beautiful cities'[31] to locate the new universities. What the
study advocates is that, whatever the practical reasons set up
by the U.G.C. (such as (a) that the need to develop universities

30. Ibid. (Cowan), p. 18 (quoting B. FORD, What is a University?,
    New Statesman , 24/Oct. 1969).

31. Ibid. (Cowan), p. 27.

mainly in the largest conurbations had diminished, (b) that the cost of urban land is high and (c) that there is a need for large sites for the comprehensive campuses), these locational preferences are mostly to be attributed to strong ideological influences. As they write, "the idea of a university in England is ... either Oxford or Cambridge or a successful imitation of them"[32]. This, according to the authors, explains partly why the idea of a university in England is mainly 'conservative'.

The problem of the relationship between university and city has been central in many studies about the environmental and institutional problems of universities published during the last years. Especially interesting are those by the Carnegie Commission on Higher Education in the U.S.A. ('The Campus and the City', and 'The University and the City'[33]). These studies extract their conclusions from a series of case studies. Here, we can find some of the conclusions developed by the Joint Unit's work and, also, a series of practical proposals concerned with a more organic connection between universities and urban institutions.

In both these studies, however, the central point is the same: universities have been and must be connected with or integrated in the city. The American experience seems to be identical to the British one as the Joint Unit describe it.

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32. Ibid., p. 27.

33. The Carnegie Commission on Higher Education, The Campus and the City, McGraw-Hill 1972; G. NASH (with R. PRICE and D. WALDORF), The University and the City, McGraw-Hill 1973.

Their version of the conservatism of universities, as it has been practically translated into autonomous campuses, is something like this:

"The university was born in the city - Salerno,
Bologna, Paris, Prague. But American practice
generally has been to establish campuses in small
towns and rural areas - this practice reflected the
models of Oxford and Cambridge, the Puritan aversion
to the 'evils'of the city, the 'booster'inclinations
of small towns, and the choice of agriculturally
oriented state legislatures in placing state
colleges and universities outside the big cities.
....
This dominant American practice has resulted (1) in
a deficit in student places in some metropolitan
centres and (2) in a lack of widespread campus
experience in dealing with city problems until
very recent times."[34]

The main interest of the study by the Carnegie Commission is to improve the performance of existing urban universities and colleges in order to make them able to deal with urban and community problems. The eventual strategies to do this are described below.

"First and foremost, the college should become
involved as an educator ...
The second major area ... is their role as
neighbor and citizen ... to rebuild and revitalize
their neighborhoods.
The third ... role ... is to provide services.
Traditionally this has meant to do research.
The fourth way ... is by serving as a model or
example for the rest of society."[35]

For the Commission (and especially for George Nash) this is in fact an ideal model-structure.The Joint Unit's view, that "the logic of viewing university and community requirements as independent crumbles", is here translated into a series of

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34. Ibid. (1972), p. 1.
35. Ibid. (1973), pp. 2-3.

relationships, which are essential for this necessary integration of universities and cities.

The work carried out by the Carnegie Committee is predominantly normative, although it is based on an empirical descriptive approach through case studies. These case studies "outline the methods in which institutions of higher educations can become involved (in the city) and include both good and bad examples of such involvement"[36].

There are two ways through which this normative thinking is expressed; either through direct proposals of administrative character (mainly in 'The Campus and the City') or indirectly, through describing the reactions or certain academics to the above ideal university model-structure.
Such reactions are included in George Nash's Epilogue titled 'Background' in 'The University and the City'.[37] It is interesting to have a brief look at this 'background'. As Nash writes, in terms of the reaction of academics,

> "at least four separate positions have been taken,
> and they do not necessarily conflict with each
> other. They are:
> 1 Involvement should be increased.
> 2 Special types of institutions of higher educa-
>   tion should be created to deal with special
>   types of urban problems.
> 3 Institutions of higher education have too many
>   major problems, as they are presently consti-
>   tuted, to permit them to deal effectively with

36. Ibid. (1973), p. 143; the case studies refer to the following: University of Chicago, Southern Illinois University, University of California (Los Angeles), Lake College (San Antonio Texas), Morgan State College (Baltimore, Maryland), Northeastern University (Boston), Columbia University and Wayne State University (Detroit).

37. Ibid. (1973), pp. 143-151.

the problems of cities. They should put their
own houses in order first.

4   There are limits to the possible involvements of
     colleges and universities in dealing with the
     urban crisis - especially when it comes to
     rendering services." [38]

Some characteristic views advocating the above alternative

solutions are mentioned by Nash. For example, for the first

(increased involvement),

> "... Traditional notions about scholarly detach-
> ment, the meaning of 'objectivity', the necessity
> for a disconnection between academic thought and
> social action, old ideas about how the human
> learns, the retreat from the streets of the city
> into the superblock campuses, the ways talent may
> or should be used - all of these and more deserve
> an intensive, fresh look ... The university can
> no longer avoid the risks of taking positions on
> the conduct and goals which it has chosen to wheel
> and deal. Indeed it has no choice about this. So
> long as it chooses to wheel and deal in the
> maintenance and extension of its own power, it
> takes risks - whether it consciously supports and
> approves the status quo or not. The twilight of
> an older academic era cannot be conjured away.
> The sun has set. No critique of the American
> university can go far in the absence of a confront-
> ation with the society in which the academic
> institution is a power partner (Birenbaum, 1968,
> pp. 70-71)." [39]

For the second (special institutions):

> "Kerr commented that many academicians consider
> urban and community problems too low-ranking to
> be worthy of interest, while they concentrate
> instead on national and international problems. He
> pointed out that involvement of these urban-grant
> universities in their cities would inevitably lead
> to controversy:
> 'When you deal with urban problems, you deal with
> urban controversies and with urban politics. And
> so, for this university to work effectively, there
> will have to be a considerable amount of public
> understanding - especially understanding of the

38. Ibid., pp. 143-144.

39. Ibid., p. 145.

distinction between service based on application of knowledge and positions taken because of partisan politics'(Kerr, 1968)."[40]

Consequently, there are aspects like this:

"Gerald Leinwand, chairman of the department of Education at the Bernard M. Baruch College of the City University of New York, argues for the creation of colleges of public education and service, writing in Urban Review (published by the Center for Urban Education) in 1969. Such colleges would replace the traditional teachers' colleges. They would be single-purpose institutions training professionals for public service only and would provide education for all who want to enter public service - professional and subprofessional alike. Public education and service colleges would have close ties to their communities, serving them as the communities wanted to be served. Such institutions would build their educational process around field experience in an urban setting. They would also be open to all who wish to enter."[41]

For the third case (internal reform):

"The university fails, says Rossman[42], not because it does research on the wrong things or because it is afraid to get involved, but because it does a poor job of teaching and is a poor place for people to spend time. The university does not provide a creative environment and is thus a poor educator."[43]

Finally, for the fourth case (limited involvement):

"The person who is accused of suggesting that universities retreat to the ivory tower is Jacques Barzun, historian, university administrator, and commentator on higher education. His critics misread his book The American University (1968) when they claim that it is against involvement. What

40. Ibid., pp. 146-147.

41. Ibid., p. 147.

42. Former student leader of the Free Speech Movement on the Berkeley Campus in 1964.

43. Ibid. (1973), pp. 147-148 (quoting M. ROSSMAN, On Learning and Social Change, National Student Association).

Barzun says is that the university as we know it
today is a delicate institution of recent creation
whose central purpose is education. Service
obligations cannot be permitted to disrupt this
central function. One of Barzun's principal themes
is that the services a university must render to
its own students and faculty simply to be able to
continue the process of education have put a
tremendous strain on the university. It cannot be
all things to all men. The faculty must devote
its primary allegiance to teaching and to students."*44*

The critical component in both the study by the Joint

Unit and the work carried out by the Carnegie Commission, is

their involvement in the institutional problems of the univer-

sities. There are of course many studies which deal with

universities considered as institutions. Nevertheless, what

these two studies seem to have, at least partly, achieved is a

coherent and holistic image of universities in which the

environmental representation plays a basic role. Despite their

empiricist approach and their inadequacies in dealing with the

transformational potential of universities and the role which

internal antagonisms play in the identification of this

potential, both studies are nearer to what Habermas called

'pragmatistic models' than to the 'decisionistic' or

'technocratic' ones *45*.

Although our paradigm would eventually require an

explanation of universities different than that carried out

in the studies mentioned here, there is no reason to deny

their comprehensiveness. The Joint Unit's study, for instance,

44. Ibid. (NASH, 1973), p. 149.

45. See chapter 1.2.1 of this part (J. HABERMAS, Toward a
    Rational Society, Heinemann 1972, © 1968).

is comprehensive for reasons of the following kind.

The study, in every step of describing universities, is supported by and also reflects the basic dualism between 'conservative' and 'radical' views. This dualism, although it does not reach the point of constituting a leading contradiction within the institutional background of the State-university complex, explains to some extent the dynamics of attitudes towards university structures and justifies the criticism versus the U.G.C. locational decisions.

Second, the study imposes the problem of the structural autonomy and structural identity of a university and illustrates, at an activity level, the imperative of dealing with universities at an urban scale (through the case study of Bedford College).

Third, the study deals with the production of the environmental prototypes of universities and the planning procedure for this production in a broader sense:

> "the university expansion in central sites provides a unique opportunity for urban renewal."[46]

It also introduces (though not clearly) a barrier-logic. To do this, it borrows Alexander's argument that, unfortunately,

> "there are obvious advantages to a planner in treating the university and the city separately. If they can be distinguished conceptually, for planners it is easy to design a w a l l e d town containing all university functions and require-

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46. P. COWAN (ed.)(1973), op. cit., p. 39.

ments rather than trying to integrate certain
functions and services with those of the city and
foster inter-dependance." (my emphasis)[47]

Concerning such issues, the Carnegie Commission's work is
less ambitious than the Joint Unit's one. Yet, it provides us,
especially in the final chapter ("the University and the City"),
with a meaningful collection of alternative views concerned
with the city-university interaction. An environmental and
activity question is investigated institutionally, leading to
comprehensive proposals; comprehensive because they interpret
contradictions and show routes for their resolution, a resolution
which could promote the transformation of the university
structure. Such contradictions deal either with the
internal institutional state of universities (Rossman's view
of the poverty of university education) or with the city-
university environmental and institutional state (Birenbaum's
view of the power confrontation between university and society,
Leinwand's view of the fundamental antagonism between knowledge
as such and urban training institutions, or Barzun's theory
of the central educational purpose of a university and its
public and urban involvement). These contradictions are to be
resolved either by completely changing the character of the
university (making it more open in Birenbaum's view and more
efficient in Rossman's view) or by reinforcing its separatism
and identity and even producing new institutional structures
(Leinwand's 'service-colleges').

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47. Ibid., p. 50 (quoting C. ALEXANDER, A City is not a Tree,
    op. cit.).

In this chapter, I did not attempt to minimize the value of the activity models by comparing them with general and eventually less practically important theories. I simply tried to outline the identity of all these approaches and to study this identity through the concepts introduced in the first part of this study. It is obvious that even pure 'decisionistic' models as the activity ones, have an important role to play in coherently understanding the artificial space in general and the universities in particular.

CHAPTER II,1.3
THE 'OREGON EXPERIMENT'

1.3.1   THE DEVELOPMENT OF CH.ALEXANDER'S WORK

Christopher Alexander is undoubtedly one of the most influential theorists in the domain of architectural design. However, his theories have been frequently misunderstood and underestimated, largely because most of his critics are still affected by the philosophy of his first ambitious work 'Notes on the Synthesis of Form' (1963)[1] . J. Dreyfus wrote quite

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1. C. ALEXANDER, Notes on the Synthesis of Form, Harvard University Press 1970 (⊖ 1964). Some of the ideas developed in the "Notes" had already appeared in a previous book with Serge Chermayeff (C. ALEXANDER and S. CHERMAYEFF, Community and Privacy, Penguin 1966, ⊚ 1963).

rightly at that time that the method presented in the 'Notes on the Synthesis of Form' is very near to a kind of 'myth for scientific creation'[2]. It is a mistake, he wrote, to relate the 'requirements' to the real needs. Requirements are subject to technical increase by the economic system of a mode of production and, therefore, the designer is obliged to classify the requirements, starting from an existing cultural reality. He cannot find the 'real needs'[3].

It is generally accepted now that most of the arguments presented in the 'Notes' are in fact exaggerations either in terms of their complexity or in terms of what they try to interpret or propose. Alexander himself realized such disadvantages concerning both the complexity of his method as well as the notion of 'requirement' itself. He wrote in the preface of a recent (1974) edition of the 'Notes':

> "... But once the book was written I discovered that it is quite unnecessary to use such a c o m p l i c a t e d and f o r m a l way of getting at the independant diagrams."[4] (my emphasis)

This important remark reflects all the development of Alexander's thinking, as this development has been expressed mainly in the 'Pattern Language'. The attempt to produce a pattern language for the built space gave, in my view, an answer both to the questions of systemic complexity and exaggerated

2. J. DREYFUS , Christopher Alexander ou le mythe de la creation scientifique, La Vie Urbaine,2/1971,pp.140-148.

3. See also the discussion on alienation in the first part of this study (Ch. 2.4) and especially Mandel's view (E. MANDEL (1970), op. cit.).

4. C. ALEXANDER (1964), op. cit., edition of 1974, preface.

functionalism of the 'Notes' as well as to the question of
independent and objective 'needs'. Needs have been abandoned
and the important notion of 'diagram', firstly mentioned in
the 'Notes', has been developed towards the prototypic 'pattern',
full of semantic pluralism and cultural context.

In EAR/3 we discussed the development of Alexander's
thinking (and I repeated that discussion in the first part of this
study [5]) as being perhaps the most clear example of the
transformation of a purely systemic thinking to a syntagmatic
structuralist one.

Unfortunately, some of Alexander's critics did not take
this development seriously into account. So, they seem to be
either suspicious or incapable of seeing beyond the 'Pattern
Language' and the 'Oregon Experiment'. Peter Smith ,for
example, wrote about Alexander's concept of participation:

> "Paradoxically a writer who seems to come down
> heavily on the side of the community as against
> the individual is Cristopher Alexander[6]... But
> if 'well-formed building' can only come about by
> 'collective experience' then it would seem ipso
> facto that an architect on his own is functionally
> incapable of designing good architecture."[7]

Here, Smith does not refer to the nature of a pattern
language which can be collectively internalized and interpreted.
As such, a pattern language does not exclude the role of the
architect, neither means automatically that architects cannot

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5. Ch. I,2.1.

6. The term "paradoxically" refers to the fact that the States is a
   country supposedly dedicated to the freedom of the individual.

7. P. SMITH, Architecture and the Human Dimension,
   Godwin 1979, pp. 199-200.

use it as an apparatus, in which they can incorporate the data they need from the community.

The 'Oregon Experiment' being an application of the 'Pattern Language' and reflecting the philosophy of the 'Timeless Way of Building' is a collective work and represents a twelve-year experience in dealing with patterns. As Rabeneck wrote recently,

> "the pattern language ... is a major statement
> about how to overcome what is probably the key
> problem in the social act of building."[8]

For this study here, the 'Oregon Experiment' is an extremely important example for the following reasons. First, it reflects a general philosophy which has much in common with our linguistic paradigm and, moreover, extends this philosophy to the real practice. Second, it incorporates organically a participatory problem-solving strategy not only as such but as a basic component of a collective 'language'. Third, it refers to the planning of a university, being probably the first attempt towards an aim which would be described here as a principal future goal of applying the linguistic paradigm.

What I am going to experiment with here is a translation of the pattern language, which was used in the case of Oregon, through the concepts developed in the first part of this study. I hope that this will be both a criticism of my paradigm as well as a review of the method developed by Alexander's team.

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8. A. RABENECK, Book review in A.D. 1/79, p. 19.

Before doing this, however, I feel it is necessary first, to explore some important steps which appear in Alexander's thinking and are previous to the pattern language[9] and second, to outline in general the method proposed by the authors for the 'Oregon Experiment'.

a.   'Notes on the Synthesis of Form'

I believe that the 'Notes on the Synthesis of Form', although strongly criticized for their functionalistic attitude towards design, constitute the basic core, from which the whole theory of patterns has been developed. On the other hand, the 'Notes' represent a revolutionary approach to the understanding and describing artificial space, which is closely related to what I have called linguistic paradigm. The evolution of Alexander's theory towards the 'pattern language' does not represent, in fact, a change in philosophy or general principles but mainly a turn towards an approach more meaningful than the 'synthesis' in the 'Notes'.

Alexander has never tried to introduce an autonomous syntax of space. His 'analysis' is not an attempt to identify eventual geometrical or abstract deep elementary space structures but an attempt to isolate the fundamental human requirements. His basic 'diagrams' are semantically equipped by the fact that they express the sub-sets which the designers themselves use.

9. See C. JENCKS (1973), op. cit., p. 351 .

Alexander argued in the 'Notes' that today the design problem is predominantly a cultural problem. His analysis of what happened in closed societal systems is characteristic.

> "The unselfconscious process has a structure that makes it homeostatic (self-organizing) and that it, therefore, consistently produces well-fitting forms, even in the face of change. In other words, in this process each failure is corrected as soon as it occurs, and therefore, restricts the change to one subsystem at a time, keeping the other subsystems stable by the force of tradition, which resists to needless change. So, tradition and immediate action provide a process of solving particular problems at a rate which is faster than the rate at which the culture changes." *10*

What happens in the selfconscious process? The designer -- the main actor here - in order to manipulate his items, gives them shapes and names according to functional categories, which provide <u>no structural correspondance between the problem and the means to solve it</u>. Such categories are, for instance, acoustics, circulation, accomodation etc; even 'neighbourhood' is considered by Alexander as an inadequate mental component of the residential planning problem. The reason of the inadequacy of such categories is that such concepts simply <u>happen</u> to be part of architectural usage; they do not constitute a fundamental relationship to any particular problem under investigation.

That 'happen' constitutes the main core of the description of the 'selfconscious process' in Alexander's 'Notes'. Alexander seems to accept a philosophy which argues that there

10. C. ALEXANDER (1964), op. cit., p. 38.

is an objective relationship between problem and form; that the fitness we are looking for is somewhere hidden and our main task is to discover it.He does not seem to be really interested in the social origin and explanation of this 'happen'. It is not surprising, therefore, that Alexander tried to construct the objective problem-solving'diagrams! These 'diagrams' should be connected with 'requirements' and 'human needs', should be loosely related to any cultural particularity of open societal forms and would produce their semantics by themselves. They are so elementary, Alexander argued, that they are cleaned from any semantic interpretation, which exists in our culture. So, the 'diagrams' become self-adaptable like those in the unself-conscious process.

Thus, in the 'Notes' Alexander 'discovered' a semantic syntax of the artificial environment. The problem is that he eliminated the semantic component of such a syntax. The ideology of the unselfconscious became the leading problem-solving ideology of the selfconscious process and led to a merely syntactic and abstract attitude towards the elementary deep structures of the built space.

Therefore,it was not very strange that the method proposed for the synthesis was mainly understood as a functionalistic dream leading towards a kind of conscious unselfconsciousness.

But a main consequence of that artificially attained objectivity (which, nevertheless, was originated by a correctly identified problem) was that it influenced the whole method

presented in the 'Notes'. Alexander accepted a syntax which was semantic only in terms of intentions and not in terms of the structure of it. It remained a 'composition' and not a transformational syntax from the elementary to the complex and from the institutional deep to the environmental surface level. So, it was also not surprising that it was this method that was mostly attacked by Alexander's critics and it was the first that was abandoned by Alexander himself.

b. 'a City Is Not a Tree'

The first correction of the method of the 'Notes' appeared in ' A City is not a Tree' (1966)[11] . Alexander realized there some of the over-simplifications of the synthesis proposed in the 'Notes', especially those which were unsuitable for urban complexes. He wrote that he himself was mistaken in the way all the past urban designers have been, that is, he accepted that complex urban forms correspond to tree-structures instead of 'semi-lattice' structures.

Yet, this was a quantitative correction only. At a time when Jacobs's thoughts for 'organized complexity' had prepared the ground for new ideas,[12] Alexander introduced the concept

11. C. ALEXANDER, A City Is Not a Tree, in: G. BELL and J. TYRWHITT (eds.), Human Identity in the Urban Environment, Penguin 1972 (taken from Design, No 206, Febr. 1966).

12. J. JACOBS, The Death and Life of Great American Cities, Penguin 1974 (© 1961). Jane Jacobs refers to W. Wearer's (1958) stages of development in the history of scientific thought : (a) ability to deal with problems of simplicity; (b) ability to deal with problems of disorganized complexity; and (c) ability to deal with problems of organized complexity, that is, problems which involve dealing simultaneously with a sizeable number of factors which are interrelated into an organic whole (Ibid., pp. 442 - 445).

of 'natural' and 'artificial' order. Natural corresponds to a semi-lattice, artificial to a tree-structure. In the 'City', Alexander seemed to remain very near to his belief in objectified elementary structures, stressing that the distinction, in terms of overlapping, between tree and semi-lattice is enough to distinguish between artificial and natural.

Alexander and his team, even later in the 'pattern language', were subject to the attraction of this biological approach. Although their prototypic 'pattern language' is highly structured, more meaningful, manipulable and more human, the references to the biological, deterministic and, in the end, functionalistic and 'objectified' analogy are still powerful. Alexander's metaphor remained predominantly biological and less operationally linguistic. Here is an example from the 'Oregon Experiment'. What for the Carnegie Commission   is the naturally evolved but

> "puritan aversion to the 'evils' of the city, the 'booster' inclinations of small towns ..."[13]

for Alexander could be a search for perfection.At least,this is what one might conclude from the example of Cambridge:

> "The University of Cambridge is a perfect example of organic order ... Each college is a system of residential courts, each college has its entrance on the street ... But while each college repeats the same system, each one has its own unique character ... Cambridge is a perfect example of organic order. At each level there is a perfect balance and harmony of parts."[14]

13. The Carnegie Commission on Higher Education (1972), op. cit., p. 1.
14. C. ALEXANDER, M. SILVERSTEIN, S. ANGEL, S. ISHIKAWA, D. ABRAMS, The Oregon Experiment, Oxford University Press 1975, pp. 11-12.

Perfection is explained through the dynamics of the biological metaphor:

> "Where did this order come from? Of course it was not planned; there was no master plan. And yet, the regularity, the order, is far too profound to have happened purely by chance. Somehow, the combination of tacit, culture-defined agreements, and traditional approaches to well-known problems, insured that even when people were working separately, they were still ... sharing the same principles."[15]

And, to make things clearer:

> "We propose to solve the problem (of 'piecemeal growth' towards 'organic order') in a way that is almost perfectly analogous to the way in which it is solved in nature ... When an organism grows how is it that the millions of different cells that are growing at various places throughout the organism manage to form a unified whole, with as much order in the overall structure of the organism, as in the small parts which make it up?... Essentially, the problem is solved by a process of diagnosis and local repair ..."[16] (authors' emphasis)

The belief in the biological metaphor, that is, in the eternal structural Order, is perhaps the most important problem in Alexander's thinking. This heritage of the abstracted mathematical thinking of the 'Notes' was transformed in the 'City', it remains clear throughout the 'Pattern language' and the 'Oregon Experiment' and it becomes almost a dogma. This dogma is in fact contradictory with the very idea of the shared 'patterns'. The contradiction is clear in some parts of the 'Oregon Experiment' where the social character of 'diagnosis' is emphasized:

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15. Ibid., p. 12.
16. Ibid., pp. 147-148.

"The principle is diagnosis: The well being of the
whole will be protected by an annual diagnosis ...
With the diagnosis constantly in front of them,
there is a good chance that people will pay more
attention to their environment, see what it is not
working properly, and invent projects to repair the
defects." [17]

It seems to me that the participatory interpretation of
'diagnosis', which is stressed in the 'Oregon Experiment',
does not exclude cases which an a posteriori observer would
realize as non-organic (at least within the context of organic
perfection adopted for Cambridge). The problem is that, for
Alexander (still from the time of 'a City is not a Tree'),
organic perfection means a particular prototypic structure and
not only a diagnosis-repair process. To conclude that the
former is a natural consequence of the latter is in my view
the main danger of the biological metaphor. Alexander concludes
it from the beginning to the end. The image of a university
in the 'Oregon Experiment' is the image of a decentralized,
human, and of low density university, which reflects a
particular preference for some patterns. The pattern language is
not only a means but also an imperative which aims at specific
purposes (namely those of the unselfconscious culture, which
remain well preserved in the mind of Alexander and his
colleagues). Such prefabricated structures illustrate, of
course, environmental values, which tend to disappear and, also,
are really valuable for the architectural education of the
people. We have to admit, however, that they exclude a large

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17. Ibid., pp. 159 and 161.

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number of possibilities of those which a participatory pattern language is able to offer.

c. 'a Pattern-Language'

The notion of the 'pattern language' took its first concrete form after the creation of the 'Center for Environmental Structure' at Berkeley and the publication of works like 'Atoms of Environmental Structure' (1966-67), 'A Pattern Language which Generates Multi-Service Centers' (1967) and 'Major Changes in Environmental Form Required by Social and Psychological Demands' (1969)[18]. All these constitute a kind of introduction to the more clarified and more practical conclusions, which appeared in the trilogy 'The Timeless Way of Building', 'A Pattern Language' and 'The Oregon Experiment' (1975-1979)[19].

18. C. ALEXANDER and B. POYNER, The Atoms of Environmental Structure, (1967) in: G. T. MOORE (ed.), Emerging Methods in Environmental Design and Planning, M.I.T. Press 1970; C. ALEXANDER, S. ISHIKAWA, M. SILVERSTEIN, A Pattern Language which Generates Multi-Service Centers, Center for Env. Structure, 1967; C. ALEXANDER, Major Changes in Environmental Form Required by Social and Psychological Demands, ARCH+ 2/1969, H. 7, pp. 29-35.

19. C. ALEXANDER, I. FIKSDAHL-KING, S. ISHIKAWA, M. JACOBSON, M. SILVERSTEIN, A Pattern Language, Oxford University Press 1975; C. ALEXANDER et al., The Oregon Experiment, op. cit. Volume I of the trilogy (The Timeless Way of Building, to be published in October 1979) "lays the foundation of the series. It presents a new theory of architecture, building and planning which has, as its core, that age-old process by which the people of a society have always pulled the order of their world from their own being— it forms, in essence, the basis for a new traditional post-industrial architecture, created by people" (C. ALEXANDER et al., The Oregon Experiment, op. cit., jacket back page).

The 'Atoms' was an extention of the 'Notes' concerning not only the method but also the elementary structures of the built forms. In the 'Atoms' a richer semantic interpretation of these structures was realized as important; 'needs' were replaced by 'tendencies' and the tendencies constituted the dynamic expression of the needs; they could be tested and were more objective.

It is in the 'Atoms' that, also, the concept of internal antagonisms appear for the first time in order to translate the development of the environmental structures. Alexander again presents a strict view writing that a good environment is that in which conflicts between tendencies are avoided. Although he accepts the important role of these conflicts for a piecemeal growth of the structure (by resolving systems of interacting forces) he does not seem to accept that an environment can be in a dynamic equilibrium of contradictions. He does not refer to concepts like the multiple semantic pluralism of the built space, which originates in such conflicts nor was he ready to accept Venturi's institutionalization of contradiction and conflict in architecture (published at almost the same time)[20].

However, in the 'Pattern Language which Generates Multi-Service Centers' the concept of 'pattern' takes a more concrete form replacing the 'diagrams'. In general, the

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20. R. VENTURI (1967), op. cit.

description of 'patterns' is the following; a pattern is an arrangement of parts in the environment, which is needed to solve a recurrent social, psychological or technical problem. A pattern consists of three parts: 'if','then', 'problems'. This means that, under certain conditions ('if'), a problem may be solved through a given environmental arrangement ('then'). All the patterns are structured within a language, which the designer has to internalize in order to create good forms. The patterns and the language as a whole are to be continuously corrected and subject to cultural changes as well. The patterns are hierarchised within this language, which takes the form of a semi-lattice. From each pattern different built forms may be reached according to the particularities of a given problem and, also, to the voluntary variations initiated by the designer .

Finally, the idea of the 'pattern language' is extended in the 'Major Changes in Environmental Form, Required by Social and Psychological Demands' (1969),it is applied to the urban scale and corresponds more coherently to future cultural changes. In the 'Major Changes' (a personal article as opposed to the collective form of the 'Patterns') planning is the design of a culture; a pattern is defined there, as a new cultural institution. In short, such a design is based on the pattern language but it is also supported by the physical and political changes which are necessary in order to provide a setting for such a new institution. Here, Alexander returns to the discussion about 'needs', 'require-

ments', and 'tendencies' using certain definitions of fundamental human needs, namely those by Leighton, Haslow and Erickson[21]. Patterns are also clarified as regards their parts; they now consist of a brief summary of the pattern, a brief summary of the problem and a collection of hypotheses to test the validity of the pattern .

The pattern language was developed from 1967 to 'The Oregon Experiment' (1975) and was also elaborated in terms of details and simplifications, which were necessary to make it more coherent and practical. The important development, however, from the time in which the 'pattern language' initially appeared, was that the team at the Center for Environmental Structure understood and elaborated the social character of such a language. Instead of being an apparatus for good design by trained designers, it is now understood as a means of educating users and of initiating their participation. This development transformed the whole method from what Jencks calls 'parametric design' into a "mode of action for getting things done on a practical city scale"[22]. In fact, Jencks's criticism, although positive about the application of the pattern language to a barriada settlement of Peru ("The results were unique and radical ... they incorporated ... traditional requirements ... without being historicist or condescending ..."[23]) could not prescribe the development of the pattern language to a user language.

21. C. ALEXANDER (1969), Major Changes etc., op. cit. p. 31.
22. C. JENCKS (1973), op. cit., p. 357.
23. Ibid., p. 357.

There are many questions about the 'pattern language',
especially when we do not see it as a generative Chomskian-type
parametric design[24] but as a syntagmatic approach to the
description and planning of the artificial environment. Some
of these questions have been already discussed previously
especially with reference to the 'Notes' and the 'City'. I
prefer to continue this discussion by attempting at the same
time to 'translate' the pattern language used for the 'Oregon
Experiment' through the concepts developed in our linguistic
paradigm. It is necessary, however, to outline first the
method adopted in the 'Experiment' by Alexander's team.

1.3.2   THE 'OREGON EXPERIMENT';AN OUTLINE AND DISCUSSION

> "This book is the master plan for the University
> of Oregon. It also defines a process which can,
> with m i n o r modifications, be adopted as a
> master plan by any community,anywhere in the world...
> If the experiment takes hold, we hope that it will
> be a p a r a d i g m for projects in similar
> communities all over the world."[25] (my emphasis)

This is, in fact, an ambitious introduction. It
contains, nevertheless, some important summaries of the whole
philosophy of the team about both the nature of a pattern

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24. The comparison is due to Jencks (Ibid., p. 357).
25. C. ALEXANDER et al. (1975), The Oregon etc., op. cit., p. 1.

language as well as the identity of a university. The fact
that a book, which outlines a process, is _itself_ the master
plan illustrates the attitude of the team towards the dynamic
and social character of a design, which is based on the
learning of a language. That this process can be supposedly
applied, with minor modifications, to every community in the
world, reflects Alexander's belief in the unity of architecture
and also in the hypothesis that a method is, in the end,
invulnerable to historical or geographical conditions. It
also reflects the belief that universities are simply kinds of
communities, which are easily comparable with every community
in the world. Finally, the style of writing itself reflects
the attitude adopted by the team towards the use of this
'master plan'; the whole book is easy to read, over-simplified
and full of repetitions and emphases. It is, in fact, a
book for the user .

The question of what a university is, is answered within
the 'community' context although some limitations are accepted:

> "However, we must emphasize at once that we are
> dealing here with a very special kind of community.
> Unlike most communities, it has a single owner
> (The State of Oregon), and a single, centralised
> budget. This situation is not only unusual, it
> is even opposite to the ideas which are actually
> needed to make the way of building which we call
> the timeless way, appear in society. However, we
> believe that a modified version of this way of
> building is possible, even under these restric-
> tions ... "[26]

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26. Ibid., p. 3.

And, to outline in a paradigmatic comparative manner

the nature of the university, they write:

> "The process will apply, i n f u l l, to any
> other community where there is a single owner, and
> a single, centralized budget. This means that it
> will apply, for example, to a kibbutz, a hospital,
> a corporate industrial plant, a farm, a cooperative
> factory, any settlement where the concept of
> private property has been abolished, and any
> benevolent institution run by a government for the
> welfare of its citizens."[27] (my emphasis)

Such communities, however, are not the really ideal

communities,

> "... where people own their houses, common land and
> workshops, and where there is no centralized
> budget."[28]

The supposed general validity of the method is not

simply an oversimplification made for the readers - users.

It is a general utopian philosophy which cannot be accepted as

it is.   It has, I believe, important consequences on the

whole structure of the pattern language and I will discuss it

in the end of this chapter as an overall problem in the team's

thinking.

The pattern language is not the only component of the

process developed in the 'Oregon Experiment'. It is merely

one of the six proposed 'principles of implementation', which

also constitute the main chapters of the book.

> "We recommend that the University of Oregon, and
> any other community or institution which has a

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27. Ibid., p. 4.
28. Ibid., p. 4.

single owner, and a centralized budget, adopt these
six principles to replace its conventional master
planning and conventional budgetary procedures, to
provide the administrative resources which will
guarantee people the right to design their own
places, and to set in motion the democratic pro-
cesses which will ensure their flexible
continuation ...
1. The principle of organic order ...
2. The principle of participation ...
3. The principle of piecemeal growth ...
4. The principle of p a t t e r n s ...
5. The principle of diagnosis ...
6. The principle of coordination ..." [29] (my emphasis)

'Organic order', achieved through 'piecemeal growth',

underlines Alexander's past as a lover of biological perfection

and becomes a kind of super-pattern, with which all the

components of the 'pattern language' do not seem to disagree.

Although 'diagnosis' and 'coordination' are based according

to the text also on the biological paradigm, in my view

they constitute together with 'participation' the new element

in the philosophy of patterns ; that is, the social significance

of the pattern language and its dynamic survival through

participatory processes. But it is important to have a closer

look at these 'principles of implementation'.

    a.   organic order

The analysis of the 'organic order' principle starts

with a polemic against traditional master plans, because they

"can create a totality, but not a whole. (They)
can create totalitarian order but not organic
order." [30]

29. Ibid., pp. 5-6.
30. Ibid., p. 10.

It continues with a clearly expressed admiration for the
University of Cambridge (see also Chapter 1.3.1), which is
considered as the representative example of an organically
ordered university. There are also some morphological
remarks about deviations from the ideal organic order:

> "Nowadays, the process of growth and development
> almost never seems to manage to create this subtle
> balance between the importance of the individual
> parts, and the coherence of the environment as a
> whole. One or the other way dominates ... In some
> cases the parts take control, and the whole is lost,
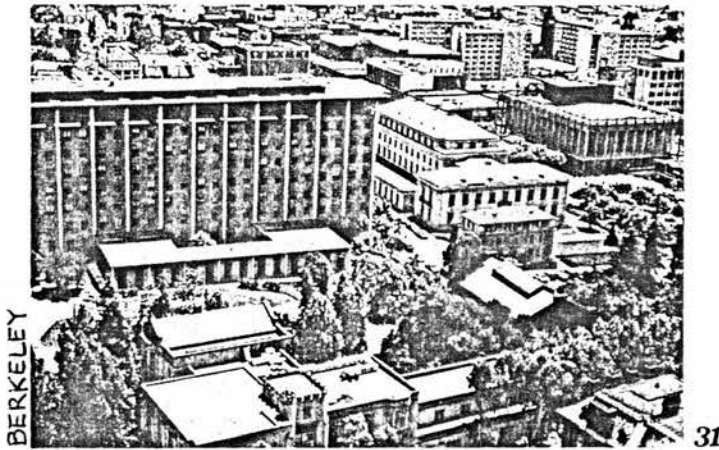
31

> ... in other cases the whole is made to take control,
> and the integrity of the parts is lost."

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31. Ibid., p. 13.
32. Ibid., p. 14.

Organic order is defined, therefore, either as a prototypic structure of a particular kind, in which there

"is a perfect balance between the needs of the parts, and the needs of the whole,"[33]

or as a process towards such a structure. This means that

"planning and construction will be guided by a process which allows the whole to emerge gradually from local acts ... (the process) enables the community to draw its order, not from a fixed map of the future, but from a communal pattern language; the process shall be administered, on behalf of the community, by a single planning board ... the director of planning shall have a staff ... to guide community action."[34]

b.   participation

The 'participation' principle is there "to guide the process of organic (order through piecemeal) growth in a community"[35]. This is clear enough. However, it is clearer to the team that

"no matter how well architects and planners plan, or how carefully they design, they cannot by themselves create environments that have the variety and the o r d e r we are after."[36]
(my emphasis)

Unfortunately, 'The Timeless Way of Building' is not yet available [37] and it is difficult, therefore, to have a

33. Ibid., p. 14.
34. Ibid., pp. 26-27.
35. Ibid., p. 38.
36. Ibid., p. 38,
37. August 1979.

theoretical background which would explain this extreme

thesis. Such an attitude excludes a broader interpretation

of participation, (for instance, an infrastructural design

for continuous participation) and minimizes the value of

participation. Such a thesis does not take into account the

problem-solving origin of participation and instead of con-

necting it, for example, with a process leading to a gradual

abolition of barriers,[38] it relates it directly to the achievement

of 'organic order'. This 'order' seems to have become for

the team a very important concept indeed. It is beyond

criticism.

There is no doubt that other kinds of participation

are mentioned in the 'Oregon Experiment'. It is the final

choice of the team, however, which does not really reflect

an eventual broader understanding of this concept.

> "(participation) can mean any process by which
> the users of an environment help to shape it. The
> most modest kind of participation is the kind
> where the user helps to shape a building by acting
> as a client for an architect. The fullest kind of
> participation is the kind where users actually
> build their buildings for themselves ... we advo-
> cate an intermediate kind of participation (for
> the Oregon University), in which the buildings
> are designed by the users and then built by
> architects and contractors ... the essence of the
> design is created by the users."[39]

A broader understanding of participation is hidden here

behind the reasons for which the team proposed this particular

kind of design participation. The first reason is concerned

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38. See part I of this study (Ch. 2.4).

39. Ibid. (The Oregon etc.), p. 40.

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with the educational character of participation, the creativity

involved in it, and the process of internalization of the

built environment.

> "(people) need a chance to identify with the part
> of the environment ...; they want some sense of
> ownership, some sense of territory ... The first
> reason to encourage participation, then, is that
> it allows people to become involved in their
> community, because it gives them some sense of
> ownership, and some degree of c o n t r o l
> (over the environment)." **40** (my emphasis)

Although this reason does not reflect the team's prefer-

ence for design participation, the second reason clearly does:

> "At the University, there are countless stories of
> frustrated scientists trying to describe the nature
> of a laboratory to an architect. The scientists
> always seem unable to communicate their n e e d s
> to the architect ... To some degree this difficulty
> can be overcome by the use of the patterns from
> A Pattern Language ... But there are countless
> needs and subtleties that are not defined by these
> patterns." **41** (my emphasis)

So, for another time, participation becomes an apparatus

for the ideal built form, through the parameters which define

such a form; that is, the needs. This attitude, however, is

contradictory to the previously mentioned acceptance of

participation as a means for the development of a common

language for the users. Unnecessarily, in my view, they

attempt to find refuge to a hypothetical elementary unit

(the 'need') the importance of which was previously minimized

in the discussion of the same principle ('creative control

of the environment').

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40. Ibid., pp. 41-42.
41. Ibid., p. 44.

After successfully defending participation against the pseudo-problem that "participation will create chaos because in design and planning people don't know what they are doing" (the answer is that the people can learn a collective 'pattern language') the team is in real trouble in answering the following pseudo-question.

> "Most students, and many faculty stay at the university for less than five years; there is, therefore, no reason why they should design the places in the university since, after five years, the actual users will no longer be the same people as the users who made the designs."[42]

It is in fact the individualistic conception of participation that makes the above question difficult to answer . If participation is understood, for instance, as a broader infrastructural procedure (that is, as a procedure, where institutional, activity, and environmental infrastructures guarantee a continuous interaction between the users and the artificial environment) this question does not have any meaning. The team, however, is again obliged to go back to the dogma. They start from a reasonable reference to the statistical nature of needs, which unfortunately turns to a kind of behaviourism:

> "In other words, there is no way of avoiding the fact that university buildings will be designed by people different from the ones who end up using it in later years. The only question is: How different shall they be? It seems clear that we should choose people who are as similar as possible in their needs and habits as the people who will ultimately use the building ... on the housing market, personal and individual houses are always worth more than mass-produced houses. When you

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42. Ibid., p. 45.

buy such a house, it fits you better, not because
you are the person who created it, but simply
because a <u>particular person</u> created it."[43]
(authors' emphasis)

Thus, the team are again contradicting the idea of
creative ownership and control and presume that <u>personal</u>
<u>creation</u> is always more valuable, obviously because it
corresponds better to their ideal organic image.

After explaining the really captivating example of
design participation in the case the School of Music (captiva-
ting, however, in the sense that the users <u>can</u> produce a
project if they are helped by the architects and not as regards
what this project means or will mean in the future), the team
outline the principle of 'participation' in a summarized
form. The important point in this summary is that, in the end
this summary <u>is</u> a proposal of an <u>institutional infrastructure</u>
for design participation. Detailed regulations are included,
they are analysed later (in 'diagnosis' and 'coordination')
and a simulated process is presented including even application
forms:

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43. Ibid., p. 48.
44. Ibid., pp. 165 and 173.

In fact, the last principle of 'coordination' represents precisely the administrative framework within which the whole design procedure can take place:

"The principle of coordination is the last of the
six principles we propose. In a way, this sixth
principle summarizes the other five principles
and gives the final details of administration
required to grow an organic environment."[45]

c.   piecemeal growth

The idea of 'piecemeal growth' is closely related to the idea of 'organic order', and it is also based on the biological paradigm:

"... we shall argue that piecemeal growth, like
participation, is essential to the creation of
organic order ... Any living system
(organism or environment) must repair
itself constantly in order to maintain its balance
and coordination, its quality as a whole ... In
the case of the environment, the process of growth
and repair ... is far more complex (than in the
case of an organism). Repair not only has to
conserve a pre-ordained
order ... but must also adapt continuously to
changing uses and activities at every level of
scale." (my emphasis and comments)[46]

According to the team's biological paradigm, the environmental systems, being artefacts, have all the properties of organisms plus other properties, which to some extent contradict the biological ones. Alexander and his team do

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45. Ibid., p. 169.
46. Ibid., p. 67-68.

not seem to stress this contradiction. In fact they seem to believe that both families of properties can or, moreover, must exist simultaneously to serve the 'order' through biologically simulated growth. The idea becomes clearer later when they write about two distinct and opposite kinds of development of university buildings; the 'large lump development' and their own 'piecemeal growth'.

> "In large lump development, the environment grows
> in massive chunks ..., 'finished' buildings ...
> assumed to have a certain finite lifetime ...
> The fundamental assumption is that it is better
> to be in a new building than in an old building."[47]

To clarify the difference, they write:

> "The basic philosophical difference between the two
> approaches is this: Large lump development hinges
> on a view of the environment which is static and
> discontinuous; piecemeal growth hinges on a view
> of the environment which is dynamic and continous
> ... Large Lump development is based on the idea
> of replacement. Piecemeal growth is based on the
> idea of repair ..."[48] (authors' emphasis)

There is no question, of course, that what the team describe as 'piecemeal growth' has quite obvious advantages over what they understand as 'large lump development'. The problem is that they refuse to explore the institutional origin of these two types of growth and to understand that large lump development (or 'urban bombs', as Jencks described it [49]) is integrated within a given mode of production and, moreover, it is not contradictory with other modes of production. What is

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47. Ibid., p. 75.
48. Ibid., pp. 76-77.
49. C. JENCKS (1977), op. cit.

a posteriori realized as a perfect example of piecemeal growth
is usually created by 'urban bombs' dropped in the past. The
idea of the large monumental building has always been nearer
to the architecture of universities than the street in
Canterbury they mention:
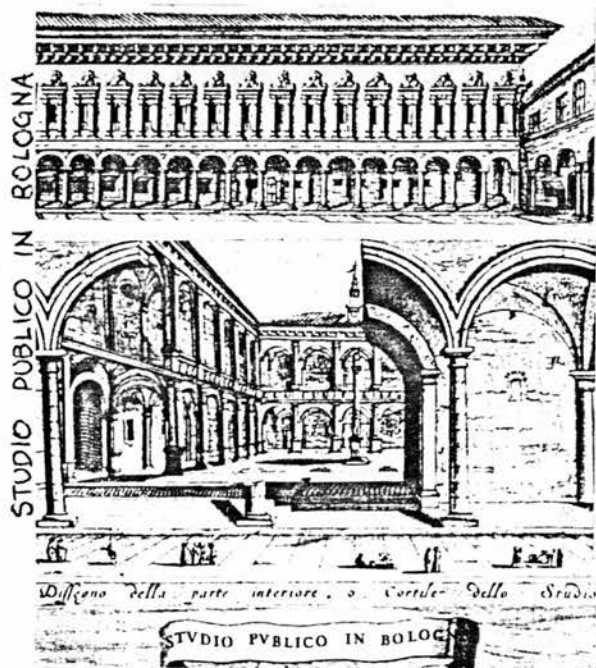
50
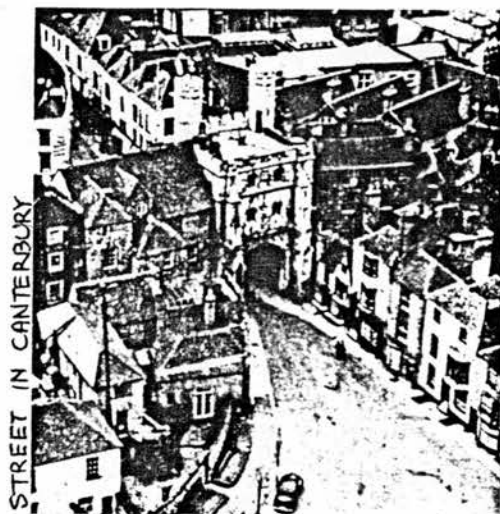
51

As a consequence of this, the ideology of organic order
and participation is not enough to initiate in institutional
terms the 'piecemeal growth' they advocate. Piecemeal growth
becomes unrealistic if it is based only upon the dogma of
the 'small human scale'. In such a way, large buildings are
considered only as evils and the very idea of infrastructural
design and participation can be seriously damaged.

They attempt, however, to reach a more comprehensive
explanation of piecemeal growth when they write about 'slums':

50. Comune di Bologna (ed.), Bologna Centro Storico, op. cit.,
    p . 240.
51. C. ALEXANDER et al. (1975), The Oregon etc., op. cit., p. 69.

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"Parts of cities have gradually become slums for
somewhat similar reasons. The money goes into
huge development projects, in the areas where land
is cheap; old parts of the city are left to decay
... If the present policy of large lump development
continues ... it will almost certainly make parts
of the University of Oregon a slum by 1990."[52]

Here is the reason for which the team hope that 'piece-

meal growth' can be acceptable and successful: as opposed to

the 'myth' that large buildings save cost,

"small buildings cost no more, per net usable
square foot, than large buildings. In fact, we
have found that cost of construction generally
increases with size and height of buildings."[53]

It is certain that any contractor   agrees with this.

Not because this   argument is itself so obvious   but

because 'large lump development' is more capable of using

money for environmental symbolism. And it is clear that such

a symbolism is desirable by universities and institutions

of a similar nature.

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52. Ibid.,p.82.

53. Ibid., p. 84.
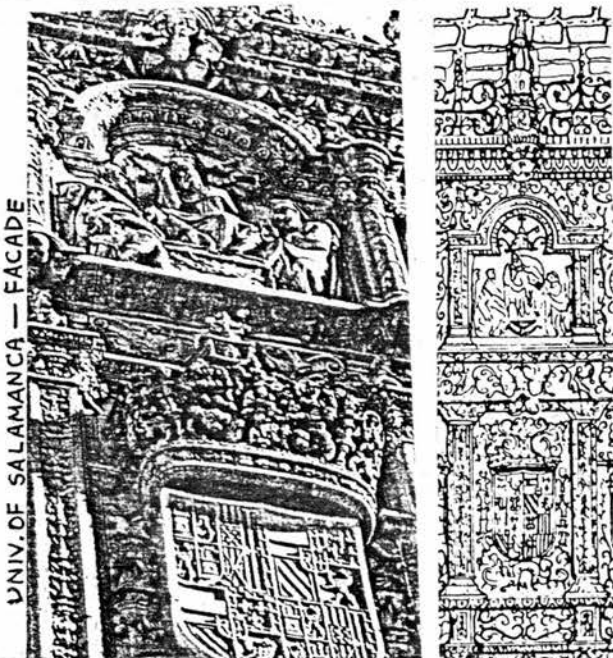
54. J. A. VILLAR, La Universidad de Salamanca; Arte y
    Tradiciones, Universidad de Salamanca 1973, p. 46.
    Saint-Joseph Hospital,Tacoma, Washington,by Goldberg and
    Associates, A.A./183,p.101

In fact, the attempt of the team to persuade the university authorities and the building industry that they should prefer piecemeal growth is not completely convincing. They forget problems like the internal contradiction between the alleged autonomy and the dependence of universities on the State and on private industries as well (or on the latter through the former). In the end, it is not clear at all that universities and the contractors, who build the large lump-style buildings, are really interested in saving money. The problems of use-value, exchange value, urban land-use and, mainly, circulation of surplus value are so broad that they cannot be answered only through this logic which advocates the value of low-cost buildings.[55]

Here is the summary of the 'piecemeal growth' principle as presented by the team in a purely financial but also speculative language:

> "The principle of piecemeal growth: The construction undertaken in each budgetary period will be weighted overwhelmingly toward small projects.

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55. See D. HARVEY, Social Justice and the City, Arnold 1975
(© 1973), especially Ch. 6 (Urbanism and the City) pp. 283-284:
"Class and rank differentiation and patterns of mutual respect
and support, are carefully interwined in the life of the con-
temporary metropolis. Similarly, the physical structure of the
city reflects the peculiar combination of each with each. The
symbolic downtown centre with its emphasis on prestige and status,
the fashionable neighbourhoods, the areas of public housing,
the cosy architecture of the working class or ethnic neighbourhood
within which reciprocity can flourish, the areas of residential
and commercial blight as exchange value becomes the criterion of
use in the hands of speculators and commercial operators - these
are all tangible representations of the various modes of
economic and social integration present in contemporary
society".

To this end, in any given budgetary period,
equal sums shall be spent on large, medium and
small building projects, so as to guarantee the
numerical predominance of very small building
increments; when funds come from outside the
community, as they do at the University of Oregon,
the government which supplies these funds m u s t
support this principle, by earmarking funds for
large, medium and small projects in equal pro-
portions; in the small project category, the govern-
ment must release its funds as lump sums, without
regard for the specific details of individual
projects." *56* (my emphasis)

d.   the other principles

There are three other principles which together with

'organic order', 'participation' and 'piecemeal growth'

constitute the basis for the environmental development of

Oregon University. The last two, 'diagnosis' and 'co-

ordination', deal with the organizational arrangements,

which are necessary for the application of the method. The

remaining principle is that of 'patterns'. This is obviously

the most interesting of all and I shall deal with it in the

general discussion of the model, later in Chapter 1.3.3.

Here I shall continue and close the analysis of 'diagnosis'

and 'coordination'.

'Diagnosis' is a kind of antilogue to the theses

developed by the team about 'participation'. In 'participation'

56. C. ALEXANDER et al. (1975), The Oregon etc., op. cit.,
    pp. 92-93.

they implied that only the users can form a good environment, because

> "architects and planners ... cannot by themselves
> create environments that have the variety and the
> order (the team) are after."[57]

Additionally, the users can produce a good environment because they participate creatively and this gives them some

> "sense of ownership, and some degree of control
> over the environment."[58]

The users know their own needs and they can provide a good fit between needs and environment, as opposed to professional planners and designers[59].

In the discussion of 'diagnosis', the team discover that, even so, the future development cannot be predicted. Thus, they

> "propose to solve the problem of global order in
> the university by means of a very simple process
> of diagnosis and repair."[60]

This process is supported, of course, by 'participation' and, predominantly, by 'piecemeal growth'. It is piecemeal growth which will guarantee that repairs are indeed possible.

Diagnosis is to be implemented through the 'pattern language' in the process of 'piecemeal growth':

> "Once a set of patterns have been adopted by the
> university, it is therefore possible to look at
> the environment and mark the places where the
> patterns have broken down ..."[61]

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57. Ibid., p. 38.
58. Ibid., pp. 41-42.
59. Ibid., p. 44.
60. Ibid., p. 150.
61. Ibid., p. 151.

The team give an example of the diagnostic map for a pattern ('positive outdoor space'):
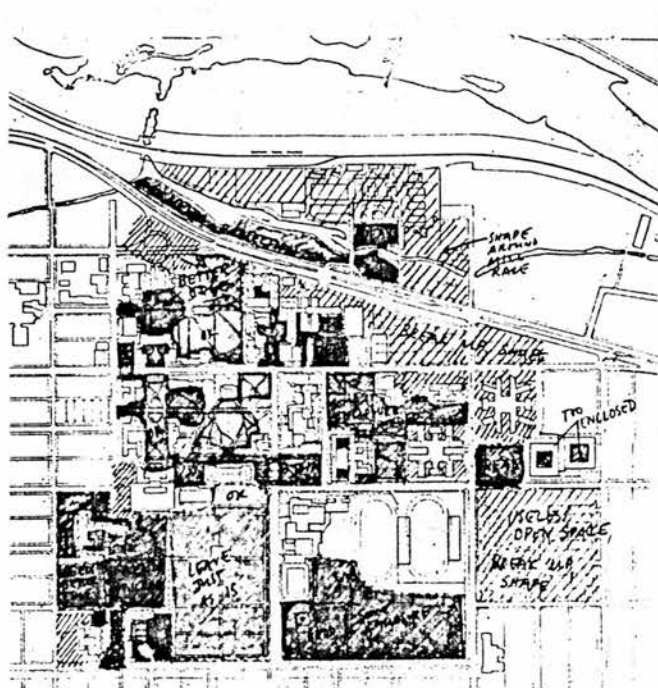
Diagnosis of Positive outdoor space   **62**

They admit, of course, that such maps are not enough as a diagnostic apparatus:

> "... we need a composite map, summarizing the ... pattern-maps. Such a map contains everything we know about the state of the environment ..."**63**

So, they try to give an example of a composite diagnostic map of the northwest corner of the campus:

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62. Ibid., p. 152.
63. Ibid., p. 154.
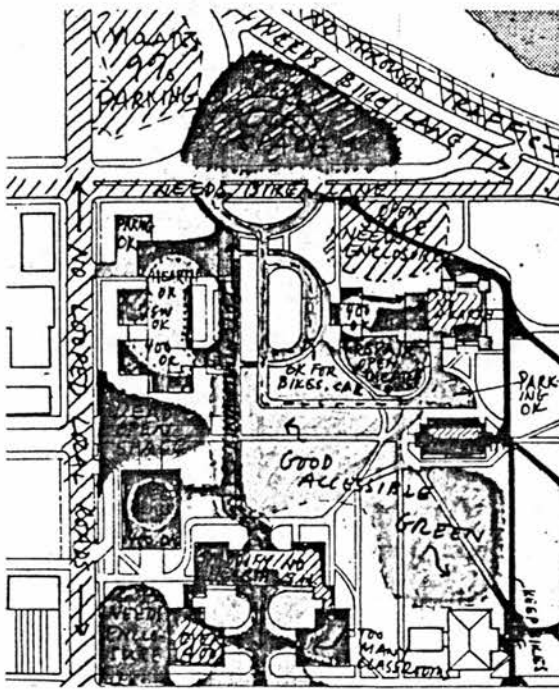
*Section of the University of Oregon,
diagnosis—Northwest corner*   **64**

I think that there are two important points in the way

the team present the idea of 'diagnosis'. The first point is

that they realize that composite maps <u>do not</u> constitute a

complete diagnosis:

> "If we try to derive the composite map strictly
> from the pattern-maps, we shall find that some
> insights for repairing the environment are 'lost'.
> These insights may range from the obvious to the
> profound ... The fact is that there will always be
> such insights: <u>our feelings for the life of the</u>
> <u>environment will always outstrip the current set</u>
> <u>of patterns</u>. And we must be free to a d d these
> intuitions to the diagnostic map." [65] (authors'
> <u>emphasis</u>, my e m p h a s i s)

What happens is this: although, as we have seen (Ch. 1.3.1),

the pattern language is generated by a structural logic, the

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64. Ibid., p. 154.

65. Ibid., p. 156-157.

need for simplicity transformed this logic into a systemic one. Patterns are structured units very similar to what I called 'prototypes' but their use in the 'Oregon Experiment' is more or less linear. They supposedly belong to a structured pattern language (which would indicate the difference between elementary and complex, deep and surface, or small-scale and large-scale) but the way they are used in the process of diagnosis does not guarantee that the patterns of the patterns are taken into account. So, deep (or 'profound' as the team call them) 'insights' have to be found but the process of exploring them is purely instinctive. I shall return to this point later in Chapter 1.3.3.

The second important point, in the idea of 'diagnosis', refers to the internal structure of the prototypic patterns and the different levels of approaching them:

> "John Larner [66], ... points out that the organic character of these towns was not the result of some haphazard 'instinctive sense of form-correlation'. Instead, the towns (the medieval free city-states) emerged from a very definite planning process. The process was built around the existence of 'decrees' and 'laws', similar to our patterns, and a yearly review of the town by a citizens' group, a process similar to our diagnosis ..." [67]

Of course, such a procedure is well known nowadays to any professional architect. 'Laws' and 'decrees' still exist and dominate the image of the built space. Moreover, their

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66. Quoting J. LARNER, Culture and Society in Italy 1290-1420, Ch. Scribner's Sons 1971.

67. Ibid. (ALEXANDER et al.), p. 158.

application is strictly controlled. Such regulations may
produce horrifying images like the following, either because
they have never been analysed in depth or because their deep
institutional structure is well established within a mode of
production.

E₁

I₁ — VERY STRICT BUILDING REGULATIONS WHICH PRE-DEFINE THE SHAPE AND SIZE OF THE BUILDING AND WHICH ARE THE SAME FOR ANY PART OF THE COUNTRY. E.G.:
c = const.
b = const.
d = f(H)
g = f(d)
α = f(e)

THERE IS NO PROCESS OF CORRECTION

CONTINUOUS REPRODUCTION OF THE SAME ENV. IMAGE BY USING THE SAME PROTOTYPES AND VICE-VERSA.

E₂-A₂ — TYPICAL PLAN   TYPICAL ELEVATION

NO POSSIBILITY OF CHANGING THE INSTITUTIONAL STATE

OTHER POSSIBILITIES ARE NOT INVESTIGATED

ONLY A SMALL NUMBER OF DESIGNERS INVESTIGATES THE POSSIBILITY OF PRODUCING DIFFERENT PROTOTYPES

INSTITUTIONAL STATE:
• PRIVATE LAND-OWNERSHIP OF SMALL SIZE PROTECTED BY THE CONSTITUTION
• PRIVATE DEVELOPMENT
• VERY LIMITED INVOLVEMENT OF ARCHITECTS

E₃-A₃-I₃

The patterns and the   diagnosis of their existence are,
therefore, automatically subject to the criticism of the

context of the patterns. Although most of the team's patterns are more or less acceptable , the lack of a structure of them does not give room to an effective criticism. Instead of implementing a linear diagnosis enriched only by instinctive 'insights', one should expect that a diagnosis based upon the exploration of the deep or the institutional would be more essential. There is clear evidence that the team are aware of this question and some information about the grammar of their pattern vocabulary is expected to appear in the future. I shall discuss such an eventual grammar, however, when I will be dealing with the patterns themselves, in the next chapter.

'Diagnosis' and 'coordination' are expressed in their final summary as more or less normative rules for future action on the built environment of the Oregon University. The essence of both (as well as of all the six principles) is summarized as follows:

> "Our point is now transparent. The precise order that emerges as a result of the gradual coordina-tion of hundreds of acts of piecemeal design cannot be known in advance; it can only arise slowly out of a community that is sharing patterns, responding to diagnosis and taking responsibility for its own plans and designs. A precise plan for the University of Oregon cannot be fixed in advance. If it is to be an open organic play, it must grow from the hands of the community itself."[68]

It is quite clear that, in the work for the 'Oregon Experiment', Alexander had already abandoned most of his

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68. Ibid., p. 187.

initial admiration for an eventual scientific analysis of the
artificial space and the design action on it. He
abandoned this admiration in favour of or influenced by a
participatory ideology, the background of which is evident
in terms of social beliefs, regardless of how objective the
method attempts to appear. The point is, nevertheless, that
the very idea of a 'pattern language' has still a great capa-
city for further elaboration towards a meaningful description
of the built space and, therefore, towards the practice on it.

1.3.3   THE 'OREGON EXPERIMENT' IN GENERAL AND THE PATTERNS
          IN PARTICULAR THROUGH THE LINGUISTIC PARADIGM

        a.   patterns,principles,organic order,and problem-origin

        Although in the 'Oregon Experiment' patterns are mentioned
as simply one of the principles introduced for the planning of
the University, it is clear that they constitute the heart of
this 'Experiment'. According to the authors, a pattern is

        "... any general planning principle, which states
        a clear problem, that may occur repeatedly in
        the environment, states the range of contexts in
        which this problem will occur, and gives the
        general features required by all buildings or
        plans which solve this problem." [69]

69. Ibid., p. 101.

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According to this definition, it is not difficult to conclude that some principles - such as 'organic order', 'piecemeal growth', and even 'participation' - are in fact general patterns which are excluded from the list because of their global character and significance.

They are also excluded for another reason: no criticism of them is permitted. While the other components of the pattern language are subject to alteration,

> "until (they) properly reflect the communal situation (of the people) and their communal needs."[70]

there is no question about the general validity of 'organic order' or 'piecemeal growth'.

This is the first sign of an internal structure in the pattern language. In this language, 'organic order', 'piecemeal growth', 'participation', 'diagnosis' and 'co-ordination' - or, better, 'organic order' through 'piecemeal growth' and 'participatory diagnosis and coordination'— constitute the deeper characteristics, which are achronic and based on the biological paradigm:

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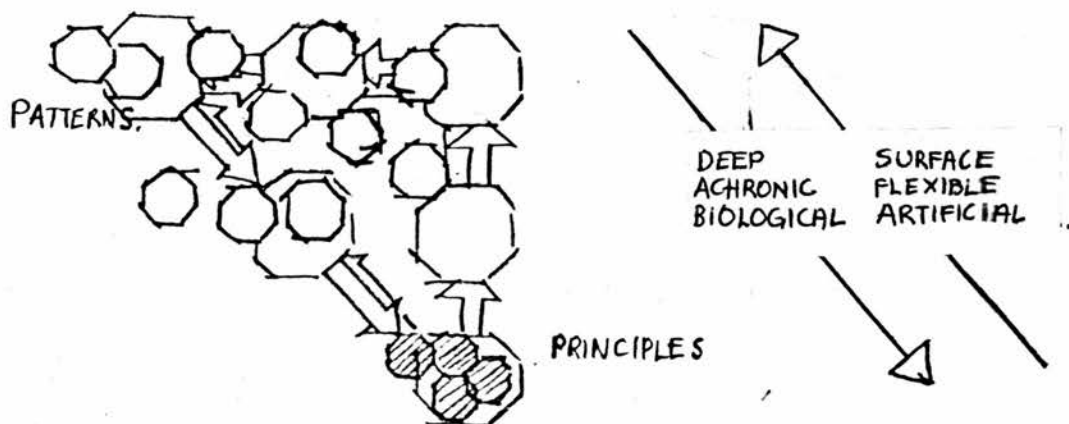
70. Ibid., p. 103.

There is little information about the rest of this
internal structure apart from a general reference to the
'Timeless Way of Building'.

> "The exact definition of 'health' (for the
> community life) or 'wholeness' (for the pattern
> language), and the way in which these very complex
> concepts can be anchored in empirical realities,
> the way that many patterns coalesce to form a
> pattern language, t h e s t r u c t u r e of
> pattern languages ... are given in The Timeless
> Way of Building." [71] (my e m p h a s i s).

It is, however, evident that, even after such elabora-
tions (promised to appear in the 'Timeless Way'), 'organic
order', 'piecemeal growth', etc. will definitely keep their
position at the deepest level.

In terms of our linguistic paradigm, the set of these
basic principles (and especially the first four, as 'coordina-
tion' simply concludes them) constitute an ideological back-
ground for planning. Consequently, they prescribe a system of
social evaluation of an environmental structure. The meaning
of any environmental artefact passes through these concepts,
which in return re-define (through the ideology of biological
perfection) any traditional system of social evaluation. For
instance, there is no 'aesthetics' for the team nor 'com-
municative value', unless filtered through the system which
these fundamental principles constitute.

Yet, the set of these fundamental principles has itself
an internal structure. Although there is no clear reference

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71. Ibid., p. 102.

to this structure, there are some indications of it in the way these principles follow each other in the text. I have already mentioned that, in my view, the 'pattern of the patterns of the patterns' is in fact 'organic order' and that this signifies the biological determinism of the 'Oregon Experiment'. 'Organic order' is there as the ultimate deep, elementary, global, multi-level (and particularly institutional) category, which is established for the environmental artefacts.

It is, however, misleading to concentrate all the discussion of the Oregon paradigm on the predominance of organic order. 'Organic order' as being abstract, eternal, and universal does not have to solve any problem, as opposed to the rest of the language which is well originated from problems and orientated towards planning. Since 1967, when the Center for Environmental Structure was created, the patterns included a large number of definitions of problems and intended to solve them. In the end, of course, all these solutions, even through complex routes, refer to the restoration of organic order. Nevertheless, since 'patterns' derived from Alexander's initial 'diagrams', both their reference to the mother-principle as well as their problem-solving structural synthesis are well explained. We have to admit that this is a fundamental contribution of both the 'Pattern Language' and the 'Oregon Experiment' to a better understanding of the dialectics of simultaneously 'explain' and 'propose'.[72] The dual character of description becomes a

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72. See Ch. 2.4.4 (the formal expression of the alienation-
    -participation modifier) for an example of this logic.

matter of structural analysis:

THE "DIAGRAM"
THE "ANALYSIS"
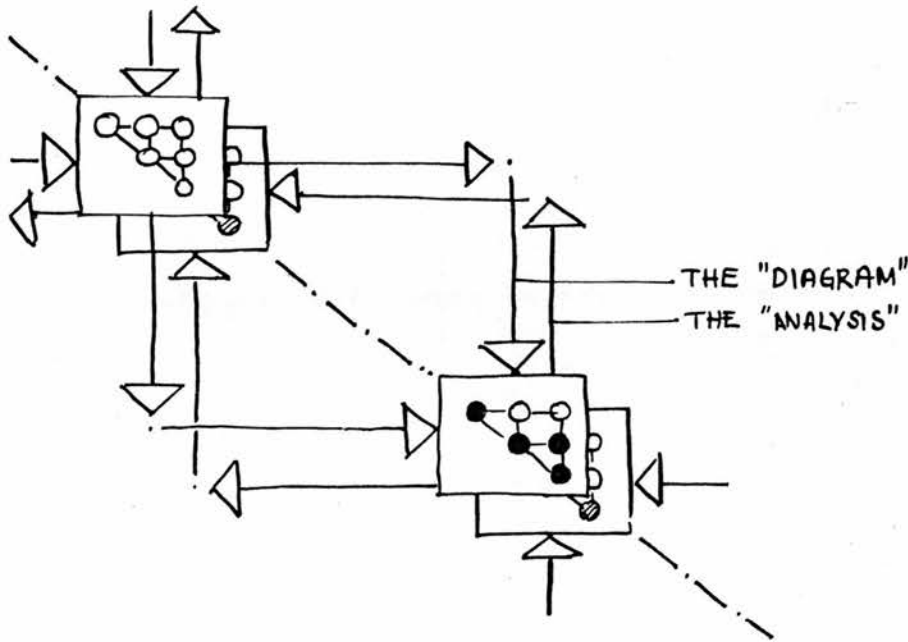
A problem does not only exists at the deep elementary
level but it is also described in terms of a whole 'problematic'
procedure from the deep-elementary to the surface-complex .
It is expected, therefore, that the transformational rules
would also reflect this procedure in a similar manner as we
presented it in the form of the commutative square:

STATE OF EQUILIBRIUM
ORDER N

TRANSFORMATIONAL PROCESS
TOWARDS UNSTABLE INTERMEDIATE
STATES, WHERE THE EFFECTS OF THE
"PROBLEM" ARE NOT PRESENT

T_a

RULES WHICH DECREASE
THE EFFECTS OF THE
"PROBLEM"

T_b

STATE OF EQUILIBRIUM
ORDER N+1

RULES WHICH INCREASE
THE EFFECTS OF THE
"PROBLEM"

TRANSFORMATIONAL PROCESS
TOWARDS UNSTABLE INTERMEDIATE
STATES, WHERE THE EFFECTS OF
THE "PROBLEM" ARE PRESENT

The diagonal is what for Alexander is defined as organic order or, in a transformational sense, "the set of logical orders the state of which is a state of organic equilibrium". The question concerns the universality, stability and even the existence of this diagonal [73]:
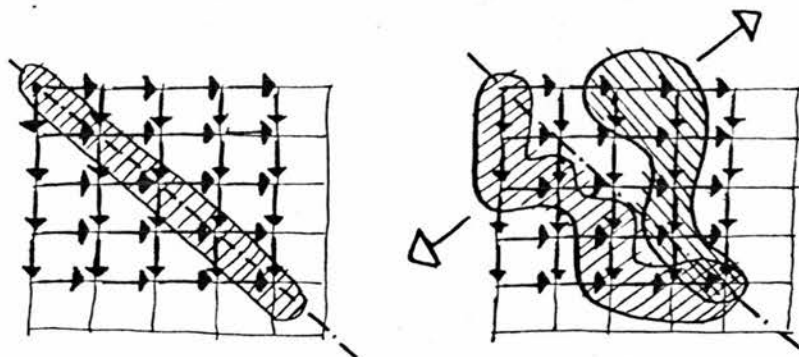
This means that a procedure towards the solution of a problem may well establish different 'diagrams' from the elementary to the complex by using areas of the repertoire of intermediate order structures where the effect of some rules is exaggerated. It is very inflexible, for example, to understand a procedure towards the abolition of very complex urban barriers as a series of consecutive de-barrierized intermediate structures. Sometimes complicated infrastructural policies are necessary, so that the whole image of the 'synthesis' can be much more elaborated than what the 'normal' diagonal indicates.

The philosophy of organic order exaggerates, in my view, the importance of this diagonal of biologically 'normal'

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73. This discussion constitutes an important contribution of the "Oregon Experiment" to the paradigm of the present study.

structures. Furthermore, it eliminates the importance of the
notion of problem. This philosophy cannot incorporate, for
instance, problems which appear historically but the solution
of which is well outside organic order. Ambiguity of form,
for instance, as a pattern which can solve the problem of the
inhuman purism of the built forms cannot be explained through
this logic of the diagonal. In fact, such a pattern represents
a 'diagram', which in Alexander's view would be inorganic and
illogical:
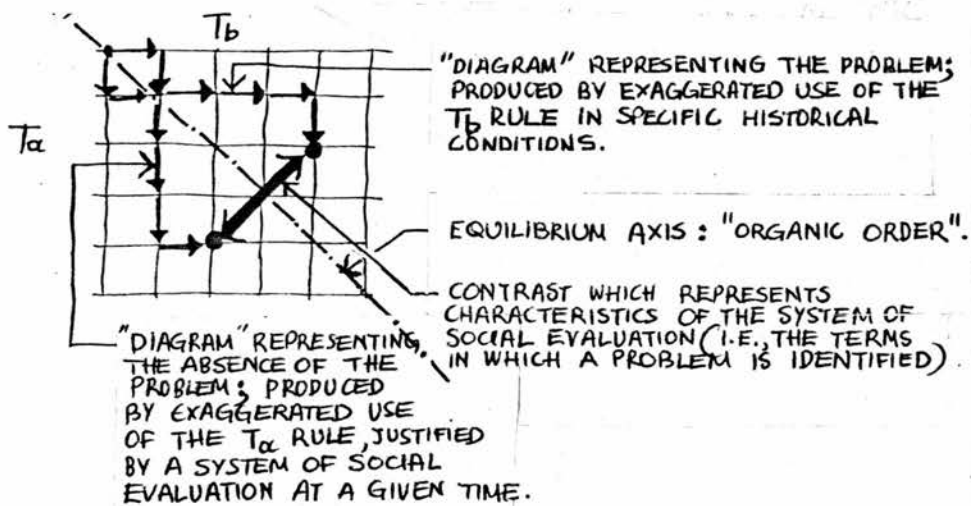
The above diagonal, that is the "set of structures
which are in a state of dynamic equilibrium", is only one way
of understanding organic order in transformational terms.
This way refers to the chain from the complex to the elementary
and vice-versa. The other way is to understand organic order
and the problem-solving procedure which is related to it, in
terms of the deepness chain:
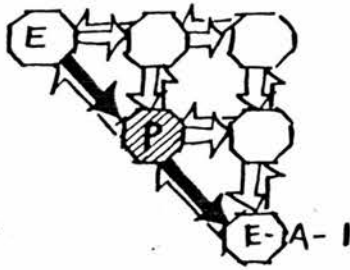
Therefore, the other version of Alexander's 'analysis' is that we proceed from the surface-environmental to the deep-environmental-activity-institutional. In such a version, 'synthesis' and 'diagrams' signify the reverse route.

The 'patterns' have modified and simplified this process stating that the analysis of the problem and the synthesis should concentrate on the prototypic intermediate level of patterns.
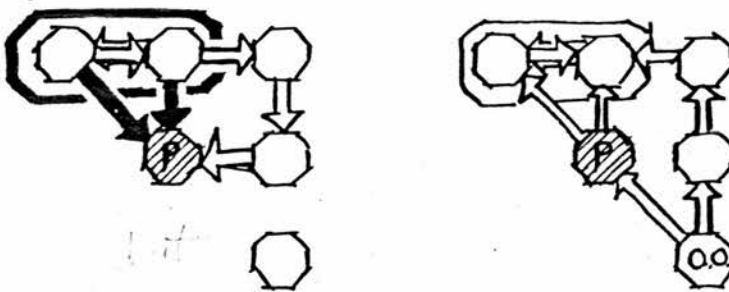
That is, the analysis identifies patterns which <u>should</u> exist mainly by abstracting an existing environmental surface structure. The analysis does the same by using other routes; for example, by explaining, at a prototypic level, the inability of existing regulations to correct the built environment.

The 'diagram' or synthesis is a complex dynamic procedure the rules of which, however, are pre-defined and generated by

the philosophy of organic order and the way it is structured

through the four other principles:

ORGANIC ORDER   DIAGNOSIS

COORDINATION   PIECEMEAL GROWTH

PARTICIPATION   PATTERNS
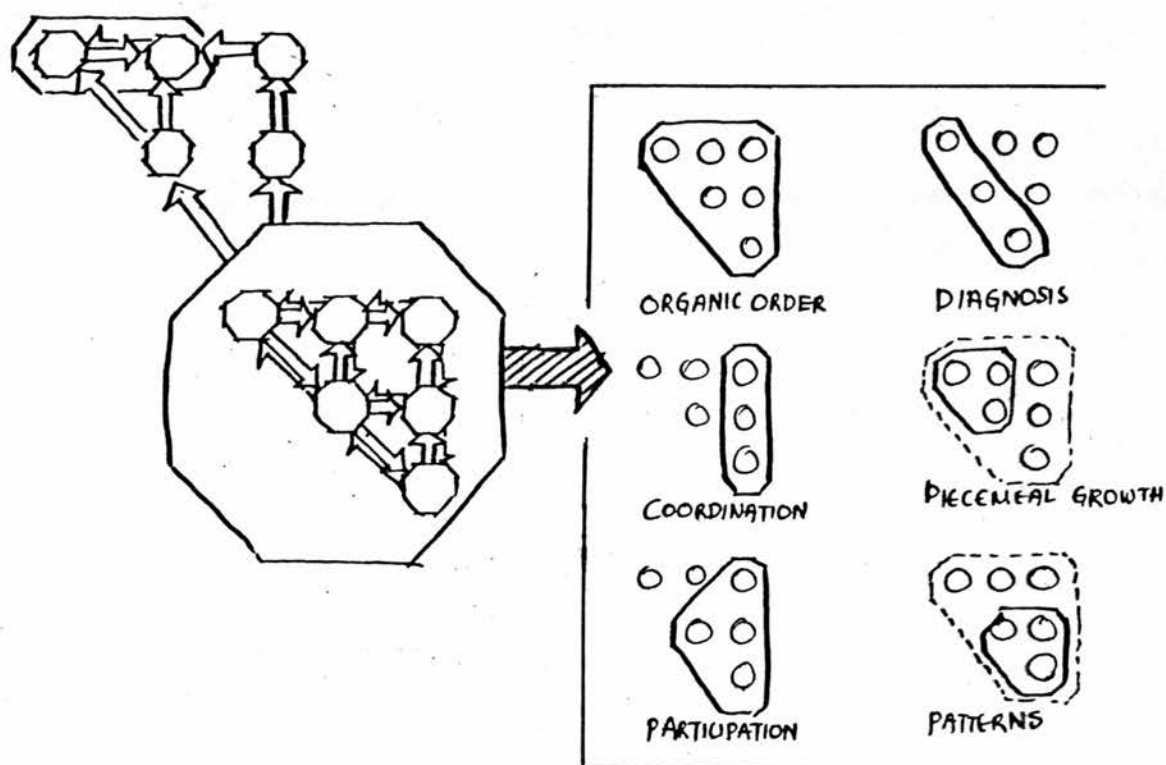
So, the team provide the users and professionals both

with a set of rules which constitute the deep structure of

the whole synthesis (regardless of how such rules are applied

to particular situations) as well as with a central idea

about the vocabulary that the design will follow. This idea

is so central that it definitely belongs to what we under-

stand as deep environmental-activity-institutional structure.

The identification of the problems does not proceed

beyond the intermediate prototypic level except in some

very special cases, where new patterns have to be introduced but only

> "on the basis of explicitly stated observations and experiments." [74]

The team, however, do   not exclude the possibility that, after a reasonable time and when the whole process is perfectly internalized by the community, the analysis will proceed to deeper levels:

> "it is essential that the set of patterns be continually improved. This happens naturally when the community understands the tentative nature of patterns, and takes an open minded, experimental attitude toward them" [75]

Until now, we discussed the formulation of problems in terms of the structural analysis and the synthesis suggested for the solution of them. We also discussed the dominant position that the concept of 'organic order' keeps in such processes. There are, however, some other aspects, in which the exploration of the 'Oregon Experiment' through our linguistic paradigm is especially interested. Such aspects concern the following.

First, the patterns themselves as prototypes and moreover, the structure of the patterns as regards university planning.

Second, the dynamics of university structures and, mainly, the logic of understanding these dynamics, as this logic

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74. Ibid. (ALEXANDER et al.), p. 141.

75. Ibid., p. 141.

is expressed in the 'Oregon Experiment'. Our question here is to what extent this logic is based upon the exploration of contradictions which are included in a university structure and which serve as potential for the transformation of it.

There are some questions, finally, about the whole ideological background of the pattern language as it is applied to the Oregon Experiment. The answer to such questions deals again with the problem of the biological paradigm but it also refers to some aspects of the problem of participatory strategies and of the nature of a 'modified' description in general. Unfortunately, it is not possible to discuss here all these aspects of the 'Oregon Experiment' to the extent they deserve it. So, I shall proceed to a rather brief account of these questions and of some eventual directions for further research (especially concerned with the patterns).

b.   the general character of patterns

The set of patterns, proposed to initiate the 'correction' or 'repair' procedure for the Eugene Campus of the Oregon University[76], is undoubtedly the core of the team's idea about what a University is. There is an attempt at the

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76. "The University of Oregon has about 15.000 students and
    3.300 faculty and staff (1973). It occupies a site on the
    outskirts of Eugene, a small town with about 84.000 inhabitants.
    The University was founded in the mid-nineteenth century. For
    most of its life it has had a few thousand students; only
    during the last 10 years have there been more than 10.000
    students" (Ibid., pp. 1-2).

beginning of the book to minimize the particularity of a university ("... the process will apply in full to any other community where there is a single contralized budget...") but the development of very specific patterns, especially designed for a university does not justify the attempt. The pattern language becomes, in fact, a pattern dialect for university description and planning. Not only are few of the patterns included in the 'Pattern Language' are selected for the 'Oregon Experiment' but also new very specialized ones are invented in order to outline this dialect more clearly. This selection is sincere, characteristic, and very convincing. Moreover, it constitutes a worked example of evidence against attitudes like the 'unity of architecture'.

First, the team mention the need of a dialect for a community in general:

> "... We imagine that every community which hopes
> to adopt a c o m m o n pattern language will
> find it easiest to start with the second volume of
> this series: A Pattern Language. Of course
> n o t a l l of its 250 patterns will apply:
> many may be inappropriate, some may be wrong."[77]
> (my e m p h a s i s).

Second, they define some way of constructing such a dialect:

> "... the 250 patterns (of the 'Pattern Language')
> ... are independent; that is, they make sense one
> at a time; any collection of them makes sense ..."[78]

Although this is an exaggeration (as we shall see, some patterns are 'global' and some others are very deep as op-

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77. Ibid., p. 103.
78. Ibid., pp. 103-104.

posed to surface ones) the patterns can be considered as in-
dependent, especially because they are orientated towards the
solution of supposedly independent problems. So, if not all,
at least some collections of them make sense, although these
collections contain structured lexical items rather than
independent units. So,

> "... it is possible to add any number of other,
> newly invented patterns to such a collection, and
> it will still make sense. This is, in fact, how
> we propose that a community should start to
> develop a pattern language for itself."[79]

The term 'community' here, as a <u>generator</u> of a pattern-
dialect, has a serious epistemological importance for architecture.
The team seem to use this term in the <u>ad hoc</u> interpretation
of it (that is, any set of persons who live in an environment,
conceivable as a unity under a certain institutional state) as well
as in the interpretation which stresses the institutional image
of a community   (the team do this when selecting the
additional patterns of the language). For them it is the latter
which is clearer   than the former, although they don't seem
to identify the essential difference between the two:

> "Let us now take the University of Oregon, as an
> example (although it is not just an example). When
> we look through A Pattern Language, we find that
> about 200 of the 250 patterns are relevant to
> t h e university community (mixture of the two in-
> terpretations). About 160 of these 200 deal with
> building interiors, rooms, gardens, and building
> construction. These 160 patterns are very
> important indeed but, since they do not deal with
> global problems which affect everyone, it seems
> better not to adopt them formally, but instead,
> to treat them as patterns which every user group

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79. Ibid., p. 104.

might use or not use, according to their own
instincts, when they design their projects
(that is they are still relevant for communities
in general). However, 37 of these 200 patterns
relevant to the university (now, the institutional
image becomes predominant) are so large in scale
that individual projects will not be able to
complete them - and they will only appear at all
if many different individual projects help to
create them, in cooperation (a different basis
for 'dialects' appear; that is, 'not very large
scale'). For this, of course, there must be
university-wide agreement about these patterns.
These 37 patterns must therefore be formally con-
sidered by the planning board, adopted on behalf
of the university community, and then, in some
fashion, backed by incentives so that individual
projects help to make them appear. They are:

LOCAL TRANSPORT AREA	SHIELDED PARKING
NETWORK OF LEARNING	PATHS AND GOALS
IDENTIFIABLE	BIKE PATHS AND RACKS
NEIGHBORHOOD	PATH SHAPE
FOUR STORY LIMIT	PEDESTRIAN DENSITY
ACCESS TO WATER	PUBLIC OUTDOOR ROOM
MINI BUSES	OFFICE CONNECTIONS
PROMENADE	NUMBER OF STORYS
ACTIVITY NODES	BUILDING COMPLEX
LOOPED LOCAL ROADS	SITE REPAIR
T JUNCTIONS	TREE PLACES
PATH NETWORK	SOUTH FACING OUTDOORS
BOARD CROSSING	CONNECTED BUILDINGS
QUIET BACKS	MAIN GATEWAYS
ACCESSIBLE GREEN	MAIN ENTRANCE
SMALL PUBLIC SQUARES	FAMILY OF ENTRANCES
DEGREES OF PUBLICNESS	WINGS OF LIGHT
LOCAL SPORTS	POSITIVE OUTDOOR SPACE
SMALL PARKING LOTS	ARCADES "80

(my emphasis, my comments in parentheses)

But the real evidence of a pre-fabricated understanding

of a university as an institution comes immediately after

mentioning the above 37 patterns:

"This list of 37 patterns is extremely general: It
deals with problems of density, buildings, open
space, roads, and paths. It does not deal with
the s p e c i f i c problems that a university
confronts. And yet, of course, these special
university problems are as vital to the well

80. Ibid., p. 105.

being of the environment as the more general
ones. It just happens that A Pattern Language
does not deal with them, precisely because they are
too special, too detailed, too local to be included
there."[81] (my e m p h a s i s).

This is not entirely true and it is important that it

is not. Some of the patterns which are proposed for univer-

sity structures are indeed special and detailed as the team

present them. However, some others(like 'open university',

'university population' or 'university shape and diameter')

are very general as regards their scale and deepness but also

very special as regards their reference to a particular

institution. Nevertheless, the team conclude as follows:

"We (that is, the team of professionals) have,
therefore, derived 18 special patterns to solve
those more specific problems which are peculiar
to universities. Every particular community will
always need to do the same to supplement the
general patterns from A Pattern Language. The
patterns are:

UNIVERSITY POPULATION	LOCAL ADMINISTRATION
OPEN UNIVERSITY	STUDENT COMMUNITY
STUDENT HOUSING DISTRI- BUTION	SMALL STUDENT UNIONS
UNIVERSITY SHAPE AND DIAMETER	PARKING SPACES
UNIVERSITY STREETS	CLASSROOM DISTRIBUTION
LIVING LEARNING CIRCLE	FACULTY STUDENT MIX
FABRIC OF DEPARTMENTS	STUDENT WORKPLACE
DEPARTMENTS OF 400	REAL LEARNING IN CAFES
DEPARTMENT SPACE	DEPARTMENT HEARTH "[82]

(my comment in parenthesis)

An important conclusion from the above 'discussion' with

the team is that the ad hoc character of a community can indeed

function as a generator of a 'pattern-dialect', in which some

lexical items are emphasized or idiomatically coloured. It would not

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81. Ibid., pp. 105-106.

82. Ibid., p. 106.

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be entirely correct, however, to call such constructions 'languages'. Specific 'pattern-languages' seem to correspond better to institutional categories than to the communities to which they are addressed. 'Home', 'university', 'city' or 'classroom', for example can function as generators of languages (with their own sets of lexical items) as opposed to ad hoc communities, the members of which can either generate dialects of such languages or incorporate such dialects in their own general dialect of the built space.

A pattern language for a university cannot have the broadness of a general language of the artificial environment. Although the Oregon team seem to advocate the opposite, it is clear that the lexical items they use for the 'Oregon Experiment' are either completely new or severely differentiated from their initial form in the general pattern language. There is nothing like 'open university', for instance, in the understanding of a city and, even if it is, the degree of abstraction, which is necessary in order to obtain a common deep meaning, is so high that this meaning becomes achronical and not particularly useful.

I think that, as regards this question, the 'Oregon Experiment' shows that it is necessary to understand a building-type category (and to construct a pattern language relevant to it) within the context of its own institutional identity. This is clearly shown, although the team seem to have advocated the reverse route. The ideas, which are developed in the 'Oregon Experiment', do not seem to oppose the fact that, in the long term, the construction of a General Pattern Language

is a process which has to be based more on the analysis of the
prototypic patterns,as they derive from institutional categories
through history,and less on prefabricated imperatives regard-
less of how reasonable such imperatives are.It is essential,
however to discuss the patterns themselves in order,first,to present
evidence   for the above arguments and,second,to explore
how a university is described in terms of such a particular
pattern language.

c.   the patterns in detail

c1. the nature of the patterns

The list of patterns which, according to the team, are
sufficient to describe a university structure contains 55
patterns in all.   37 of them are considered as 'general' and of
'large scale' and the rest 18 are the particular patterns,
which are 'special to the University of Oregon'. The attempt
of the team is to form a 'single coherent list', by integrating
the two categories. Moreover, they choose a shorter list
of 32 patterns (14 + 18) in order

> "to show the rough scope and content of this
> list (the complete one), and what the University
> gains by adopting this list formally, as the
> backbone of its planning process."[83]

It is difficult to discuss here all the patterns in
detail.   The information we need about these patterns can

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83. Ibid., p. 107.

be presented through a simple taxonomy of them. This taxonomy is based on the characteristics of a semantic syntax, as such a syntax was developed in the first part of this study.

According to the team,

"(a pattern is) a statement of some general planning principle ... which states a clear problem that may occur repeatedly in the environment, states the range of contexts in which this problem will occur, and gives the g e n e r a l f e a t u r e s required by all b u i l d i n g s o r p l a n s which solve the problem."[84] (my emphasis)

According to this definition a pattern has a large spectrum of interpretations. This spectrum appears, in fact, in the analytical description of each one pattern of those adopted for the 'Oregon Experiment'.

First, a pattern represents a prototypic structure, which is given as a solution to a problem defined at the same prototypic level:

PROBLEM   SOLUTION OF
               THE PROBLEM
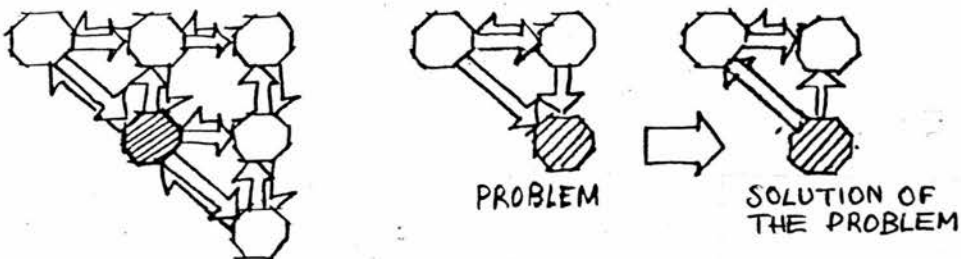
Because it belongs to the abstract prototypic level, a pattern can produce a set of possible alternative solutions at the surface levels of the physical environment

84. Ibid., pp. 101-102; see also, C. ALEXANDER et al. A Pattern Language, op. cit.

and the activities. It is also expected , of course, that
all these alternatives correspond to the prototypic pattern.
This is clear in the team's definition of the pattern ("the
general features required by all buildings").

To secure, however, that this reproduction will be
successful, the team introduce a second interpretation of a
pattern, which is much nearer to the initial Alexander's
concept of 'diagram':

THE DESCRIPTION OF THE "PROBLEM"
INCORPORATES THE PROCEDURE
THROUGH WHICH THE PROBLEM HAS
BEEN CREATED

AND SUGGESTS A NEW PROBLEM-
-SOLVING PATTERN NOT ONLY AS
A PROTOTYPIC IMAGE BUT ALSO
AS A PROCESS TO ACHIEVE IT.
THIS PROCESS CONCERNS BOTH
RULES OF GETTING FROM THE
ELEMENTARY TO THE COMPLEX (1) AS WELL
AS RULES OF GETTING FROM THE
PROTOTYPE TO THE SURFACE (2).
PARTICULAR IMPORTANCE IS ATTRIBUTED
TO INSTITUTIONAL CONDITIONS AND
REGULATIONS WHICH SUPPORT
THE IMPLEMENTATION OF THE "PLAN"(3).

So, a 'pattern' outlines also the process which is
necessary for implementing the prototype introduced by it.
This interpretation is indirectly implied by the team, when
they write about "the general features required by all ....
p l a n s".

In reality, the deep characteristics of the institutional
regulations, which will support the implementation of plans,

are summarized in some of the basic principles ('participation', 'diagnosis' and 'coordination') and are given as a set of imperatives. On the other hand, some of the deep characteristics of the prototypic images implied by the patterns are also summarized in the other two basic principles ('organic order' and 'piecemeal growth') and are also given as a set of imperatives. So, the pattern language is in fact a language which contains lexical items ('patterns') some basic rules for its grammar ('participation' erc.) and some highly abstracted syntagms ('organic growth' etc.) which function as criteria of correctness in order to evaluate the numerous syntagms which may be produced by the 'patterns'. Finally, the patterns are, in fact, composite lexical items and not atoms. They contain the rules of their development and the explanation of their problem origin as well.

c2. a taxonomy of the patterns

Although the prototypic character of patterns has been already emphasized, in reality they appear to be more complex and diversified than the general definition of 'prototype' would imply. Studying the thirty-two patterns approved for the 'Oregon Experiment', we find no relation between, for instance, 'open university' and 'real learning in cafés' as far as scale and deepness is concerned. On the other hand, we can discover that, because of their generality and deepness, some of the patterns prescribe situations which appear in other patterns at a surface level.

There is no doubt that most of these questions should be answered in the 'Timeless Way of Building'. There is also no doubt that some of them are answered in the 'Pattern Language'. For example, the total set of the patterns in the 'Pattern Language' ('a network used as a sequence'[85]) is hierarchized in terms of scale. Moreover, it is hierarchized in terms of a hypotherical design procedure (a 'sequence'). There are also some thoughts about an overall super-surface use of the pattern language ('The poetry of the language')[86]. It is essential, however, to discuss all these questions as they occur in the language of the 'Oregon Experiment'. I shall proceed towards a taxonomy of the Oregon patterns, according to the general characteristics of the semantic syntax of our linguistic paradigm.
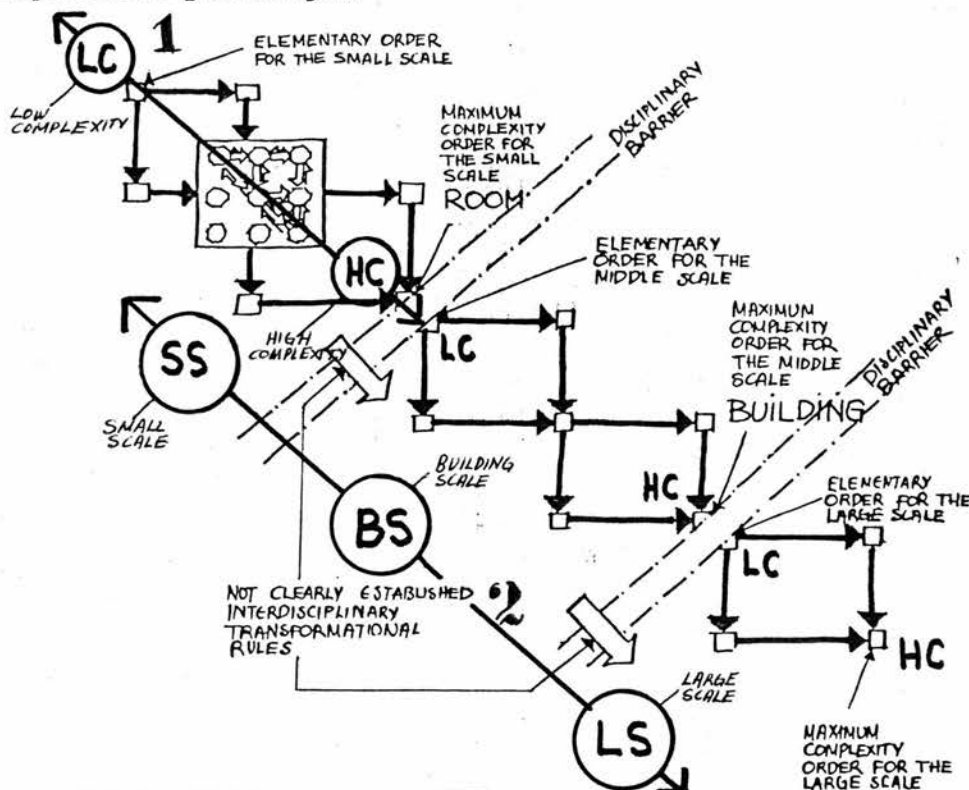
85. C. ALEXANDER et al., A Pattern Language, op. cit.,
    p. XVIII.
86. Ibid., Introduction.
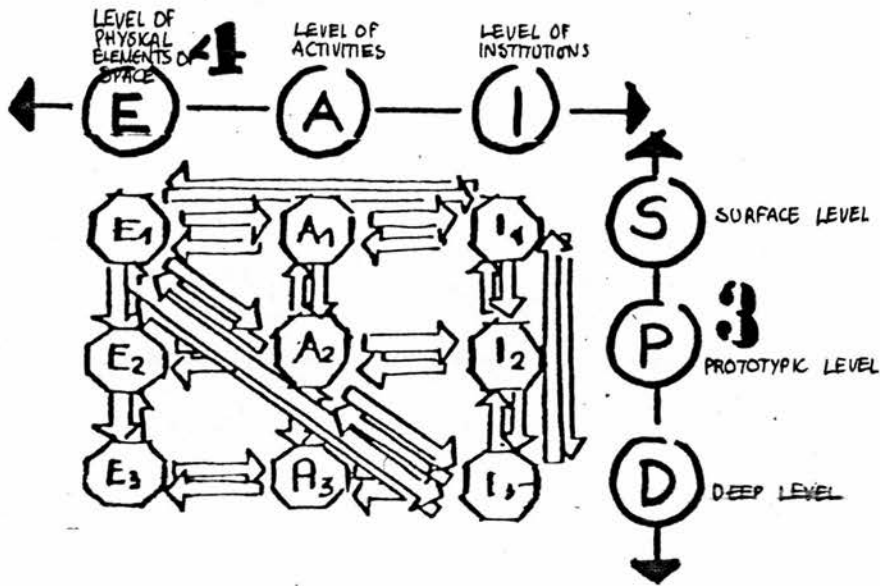
In the above diagrams ∴ (initially developed in Ch.I, 2.4.4)it is possible to identify some criteria for a taxonomy of the Oregon patterns. To make this taxonomy simpler, I shall express these criteria in the form of four linear axes, where: 1 stands for 'complexity axis' containing 'low complexity' (LC) and 'high complexity' (HC); 2 stands for 'scale axis' containing 'small scale' (SS), 'building scale' (BS), and 'large scale' (LS); 3 stands for 'deepness axis' containing 'surface level' (S), 'prototypic level' (P), and 'deep level' (D); and, finally, 4 stands for 'substance or descriptive axis' containing 'environmental description' (E), 'activity description' (A), and 'institutional description' (I).

It is essential to note that such a taxonomy does not give sufficient information about the university model-structure as the Oregon team understand this structure. It is important to re-compose the classified patterns according to the structure of the linguistic paradigm as this structure is expressed by all

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the characteristics of the above diagrams. This is not an easy task and I shall only attempt to give some rules and to illustrate some examples of such a re-composition.

The classification of the Oregon patterns according to the criteria incorporated in the four axes is presented in the following diagrams:

PATTERNS		COMPLEXITY		SCALE			DEEPNESS			SUBSTANCE		
		(1) LC	(2) HC	(3) LS	(4) BS	(5) SS	(6) D	(7) P	(8) S	(9) I	(10) A	(11) E
No.	Description	Simple patterns	Complex patterns	University as a whole or depts. rel.	Department or parts of it related	Parts only	Deep level, general information only	Prototypes, diagrammatic but specific	Very detailed description	Institutional desc. rules, regulations, etc.	Population-activity description	Environmental description
1	University population	X		X			X			X	X	
2	Open university	X		X			X			X		
3	Student hous. distribution		X	X							X	X
4	University shape+diamet.	X		X			X				X	
5	Local transp. area		X		X				X		X	X
6	Nine per cent parking		X		X				X			X
7	Looped local roads		X		X				X		X	
8	University streets	X			X		X			X	X	
9	Living learn. circle	X			X				X		X	
10	Activity nodes	X			X	X	X				X	X

→

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
11	Accessible green		X		X			X	X		X	X
(12)	Fabric of departments	X		X			X			X	X	
(13)	Departments of 400	X		X			X			X	X	
(14)	Departmental space	X					X			X		
(15)	Local administrat.	X		X						X		
(16)	Student community	X							X		X	
(17)	Small student unions	X					X			X	X	
18	Building complex	X		X		X						X
19	Circulation realms		X	X				X				X
20	South facing outdoor space		X					X				X
21	Positive outdoor space	X			X	X						X
22	Wings of light				X	X						X
(23)	Parking spaces		X		X		X					X
24	Small parking lots	X			X		X					
25	Bike paths and racks	X	X	X	X					X	X	
26	Local sports	X		X			X				X	X
(27)	Classroom distribution			X				X			X	X
(28)	Departmental hearth	X			X		X				X	X
(29)	Faculty-student mixture		X		X			X		X	X	
(30)	Student work place	X			X		X				X	
(31)	Real learning in cafés		X			X		X			X	X
32	Arcades		X		X		X					X

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The above taxonomy can be directly transferred to the
basic diagrams   of our linguistic paradigm, as follows
(circled are the patterns which, according to the team, are
specific for universities):

---

87. Classification based on the description of the patterns
    of the "Oregon Experiment", pp. 108-135.

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SMALL SCALE

E A I
S   S

P 24,18   P

D 10 10 D
E A I

LOW COMPLEXITY

HIGH COMPLEXITY

E A I
S 19,25, 20, 31, 23 32   25,31   S

P 30,31   29, 30, 31   29   P

D 21,22   D
E A I
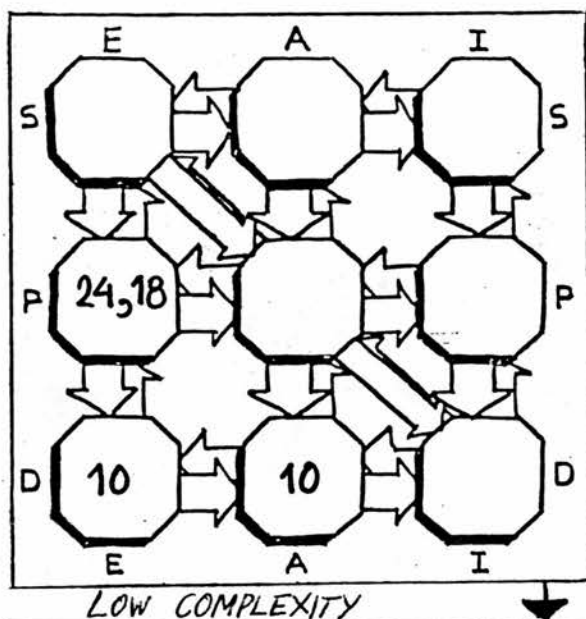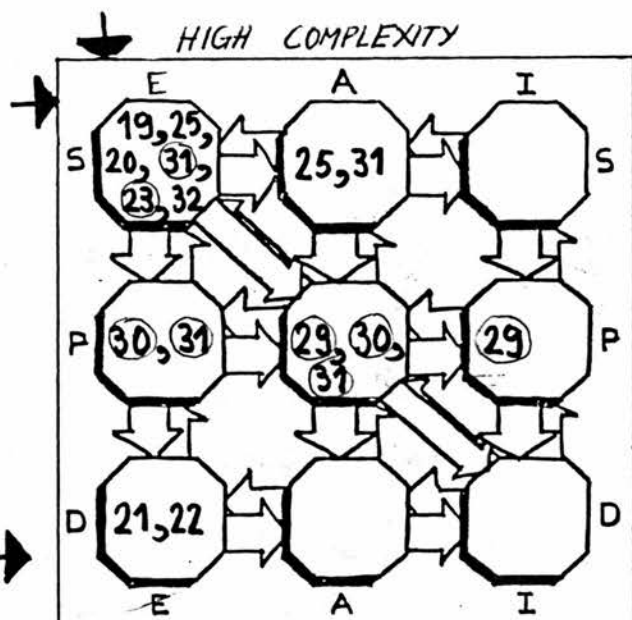
INTERDISCIPLINARY BARRIER : BUILDING SC. ▮ SMALL SC. (DEPT. ▮ BUILD. UNIT)

BUILDING SCALE

E A I
S   S

P 8,14 18   8,13   13   P

D 10,28   10,28   D
E A I

LOW COMPLEXITY

HIGH COMPLEXITY

E A I
S 6,7,23 11,19, 25   11,25   S

P 11,27   11,27, 29   29   P

D   D
E A I
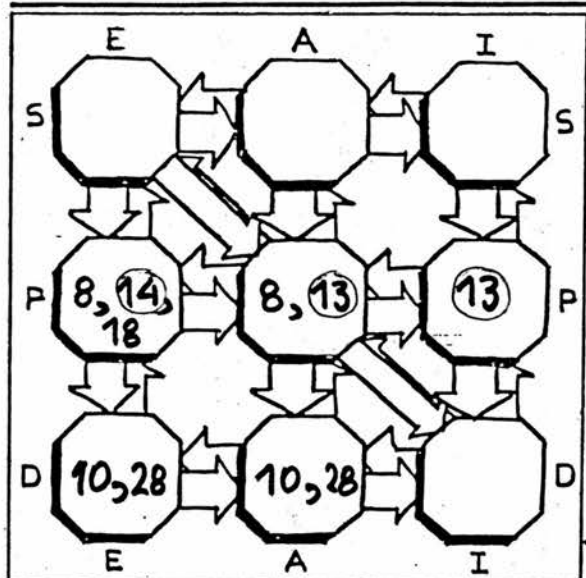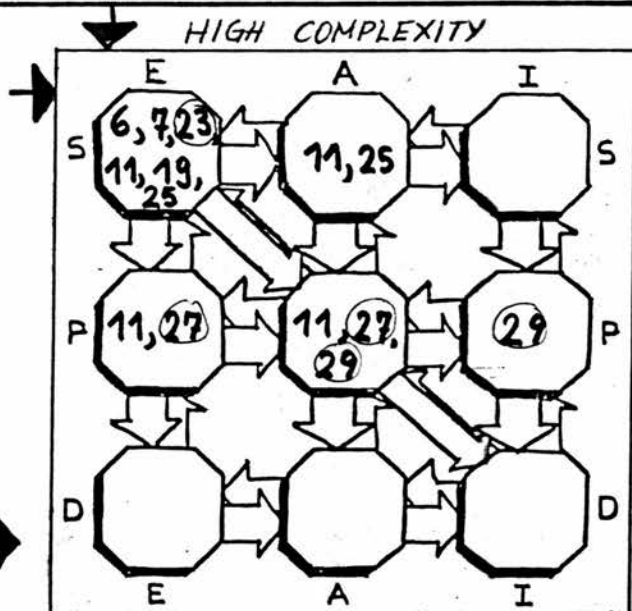
INTERDISCIPLINARY BARRIER : LARGE SC. ▮ BUILDING SC. (UNIVERSITY ▮ DEPT.)

LARGE SCALE

E A I
S   S

P 8,26   8,9, 17,26   15,17   P

D 4,12   1,4, 12,17   1,2, 12   D
E A I

LOW COMPLEXITY

HIGH COMPLEXITY

E A I
S 5,19, 25   5,25   S

P 3   3,16   16   P

D   D
E A I

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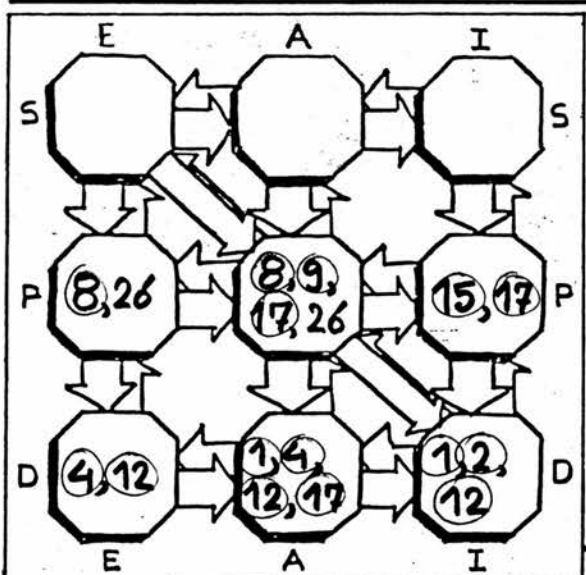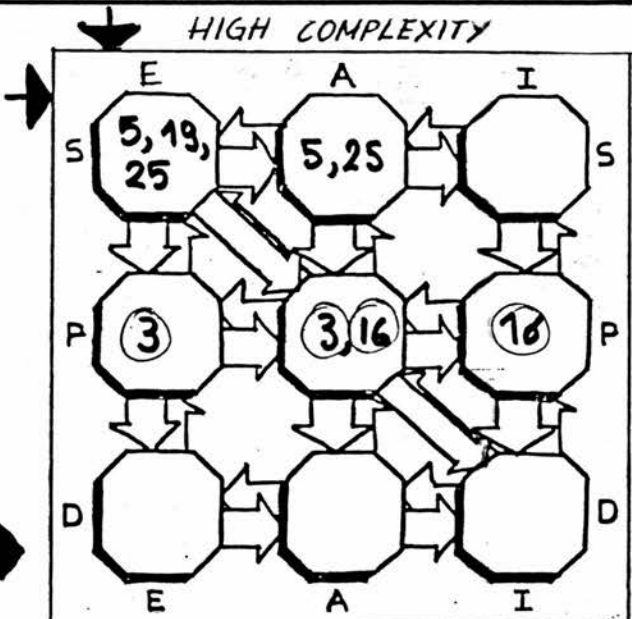
The method presented in the 'Oregon Experiment' is a method for <u>planning</u>. There are two aspects, however, through which this planning method presents a <u>descriptive</u> image of a university. The first aspect concerns the dominant idea of an 'organically grown university' as this idea is transformed to the model-structure of the ideal university, towards which the whole of the planning process is orientated.
The second aspect concerns the detailed description which every pattern contains, either in terms of identifying particular problems of universities or in terms of giving examples of good solutions to these problems.

To what extent the previous analysis and classification of the patterns help in structuring all the above descriptive aspects of the language used in the Oregon Experiment, is a question which cannot be apparently answered by the information available through the patterns themselves and through this simple classification. What is needed is a further elaboration of this simplified surface structure, a structure which implies the Oregon team's conception of the ideal university. I shall give some examples of an elaboration of this kind; first, however, it is necessary to make some comments on the classification itself.

There are some crucial over-simplifications in this classification of the patterns. First, the complexity and deepness chains are presented as equally discontinuous as the substance and disciplinary ones. Although, in the end, it is possible to accept that there are distinct <u>orders</u> of complexity

and clear deepness levels, their eventual number and overlappings
are far more complex than simplifications of the kind (low -
high complexity' and 'surface - prototype - deep level', which
are included in the classification. This is one reason for
which there is a certain degree of ambiguity in classifying
some patterns. Second, the patterns themselves, as developed
in the 'Oregon Experiment'[88], are not clear in structural terms
(although they are very clear as design imperatives). Take an
example, the 'fabric of departments' (no. ⑫):

"over-emphasis on the indi-
viduality of departments
helps to fragment knowledge
by keeping it in watertight
compartments. Yet each de-
partment does require its
own indentity.
Therefore: Give each depart-
ment a clearly identified home
base, but spread the parts of
the department within a radius
of 500 feet, so that they
interlock with the parts of
other departments. No one
of these parts should contain
less than five faculty
offices."[89]

— problem identified
at a deep
institutional level
|
so, translated
into a |
▽
— problem-solving
structure at the
prototypic deepness
level, but including
surface component
at the environmental
level |
— surface component
at the instituional
level

    This lack of clarity does not constitute, of course,
a problem which derives from the planning directives proposed
by the team. It is merely a problem which derives from our
intention to match these   directives by using our paradigm.
Yet, it is not a problem included in the paradigm, since most

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88. There is a further analysis of the patterns in the "Pattern
    Language" which, however, does not alter such ambiguities.
89. C. ALEXANDER et al. (1975), The Oregon etc., op. cit., p. 116.

of the elementary descriptive and planning syntagms developed
by the team are explainable through the paradigm. The dif-
ference is a matter of complexity and, eventually, of different
catalysts.

c3. elaboration of the taxonomy I:general features

Now, what is the possible further elaboration of the
previously developed classification? Such an elaboration
tries to identify the model-structure of a university, as
the Oregon team expresses it through the 'pattern language'.
The surface of this model-structure has been already
presented in the previous diagram,where the patterns
used in the 'Oregon Experiment' have been classified according
to the characteristic chains of our linguistic paradigm.
To make this surface structure clearer, it is necessary to
replace the numbers of the patterns by their analytical
description and the examples which support this description .

3.1 two
languages

This surface structure consists of two overlapping sets
of patterns; so, it is composed by two overlapping structures,
as   shown in the following example (low complexity −
large scale):
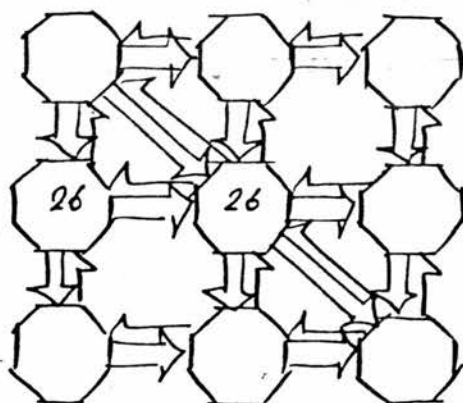
THE GENERAL PATTERN
LANGUAGE STRUCTURED FOR
LARGE SCALE ELEMENTARY
PATTERNS
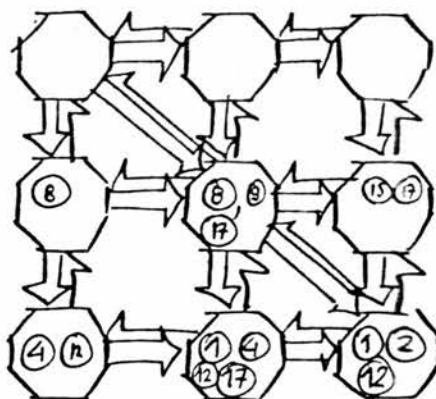
THE UNIVERSITY-ORIENTATED
PATTERN LANGUAGE STRUCTURED
FOR LARGE SCALE ELEMENTARY
PATTERNS

This raises an interesting question about the distribution of these patterns in the whole of the surface structure presented by the model. Such an elaboration will prove, I think, that the argument, according to which the patterns proposed for universities are 'specific and detailed' is not entirely correct. It is characteristic that the fundamental elementary, deep and institutional large-scale patterns are all 'specific and detailed'. No general patterns belong to that level:

"UNIVERSITY POPULATION" (I.E., OVERALL SIZE)
"OPEN UNIVERSITY" (I.E., DEEP INSTITUTIONAL CHARACTER)
"FABRIC OF DEPARTMENTS" (I.E., THE INSTITUTIONAL, ACTIVITY AND ENVIRONMENTAL STRUCTURE OF THE UNIVERSITY IN TERMS OF ITS COMPONENTS)
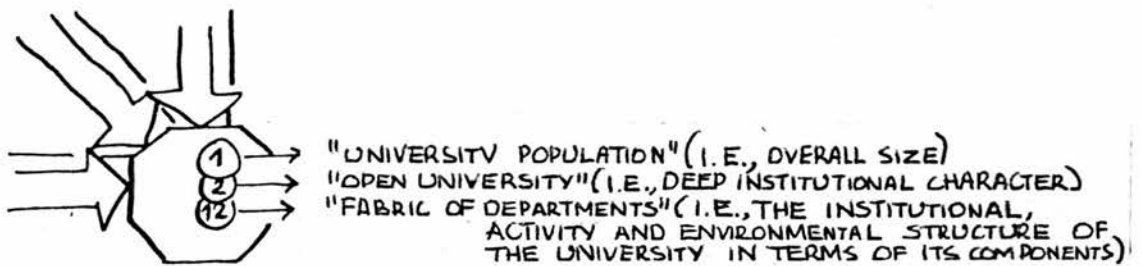
On the other hand, most of the highly complex, environmental and activity patterns of the medium scale belong to the general pattern language:

6 → "NINE PER CENT PARKING"
7 → "LOOPED LOCAL ROADS"
11 → "ACCESSIBLE GREEN"
19 → "CIRCULATION REALMS"
23 → "PARKING SPACES"
25 → "BIKE PATHS AND RACKS"
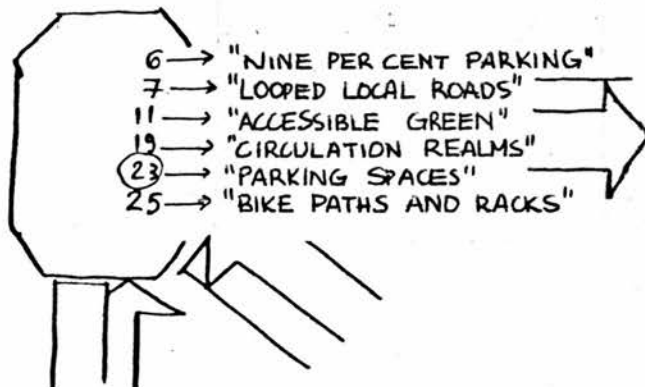
Although, as mentioned, there are many problems in classifying the patterns, it is rather clear that the overall image of the university, as presented by the 'specific' patterns, is unique and not supported by any general urban images. On the contrary, most of the really detailed patterns are of general value and have nothing to do with universities in particular.

If we remember the general philosophy of the team (as it is expressed through concepts and principles like 'organic order', piecemeal growth', 'human scale', etc.) this is not surprising. Such concepts and principles have little to offer to the overall conception of a university and are mainly translated into prototypes of the intermediate and small scale (mostly borrowed from the vernacular or historical tradition). In fact, the team are not interested in large scale general patterns, since they strongly advocate the idea that nobody can prescribe them; such general patterns are to emerge in time through successive local and small steps. What is certain, however, is that instead of a general pattern language equipped with 'very specific university patterns', we have, in the end, a general pattern language of the small scale, equipped with certain specific and detailed (but only as regards their specific institutional origin) large-scale patterns.

This remark could easily lead to an interesting discussion concerning the unity of architecture. For instance, a question which has to be answered in such a discussion deals with the identity of those detailed patterns, which would be generated by the general patterns especially designed for university

institutions. To some extent, the above question signifies
the internal difficulty of environmental thinking to bridge
the gaps between the well established disciplines of urbanism,
architecture and small scale design (mentioned in Ch. I,2.4.4,
c3).   Within the context of such a difficulty it is not
surprising that different prototypic images are used for each
discipline. Such difficulties, however, are also connected
with the transformational rules included in each discipline.
This matter will be discussed later in this chapter.

3.2 densi-   The distribution of the patterns in the particular
ty and
complete- levels which our linguistic paradigm has introduced, can
ness
be seen also from   different point of view; that is, from
the point of view of density. It is normally expected that
deeper patterns are less in number than surface ones. The
reason is that a variety of alternative surface structures
may derive from only one deeper structure. The same also
happens in terms of complexity (always within a disciplinary
area); that is, a variety of complex structures may derive
from only one simpler structure:
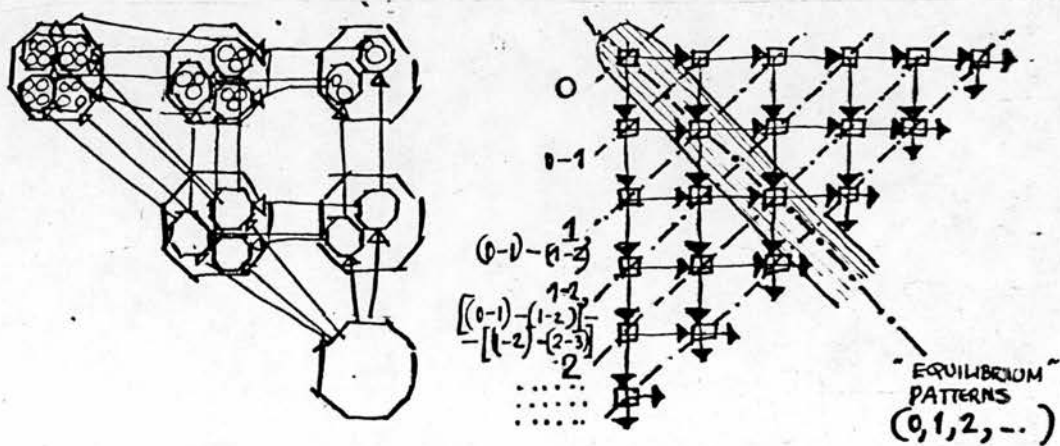
The existence of such tree distributions is essential
in a pattern language in order to give to the users or to
the professionals all the possible richness of information,
which is necessary in order to understand the meaning of a
deep structure. Such a distribution is only partially
present in the ' Oregon Experiment'.This means that instead
of getting a distribution like the following,
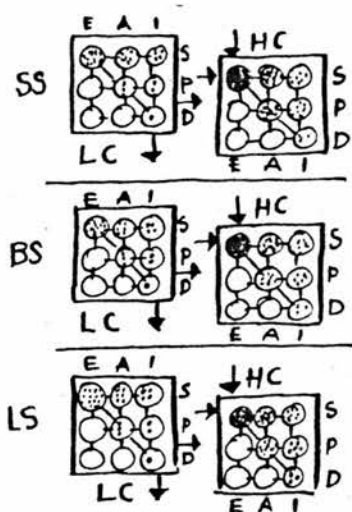
our analysis of the patterns of the 'Oregon Experiment'
indicated a distribution of the kind indicated below:

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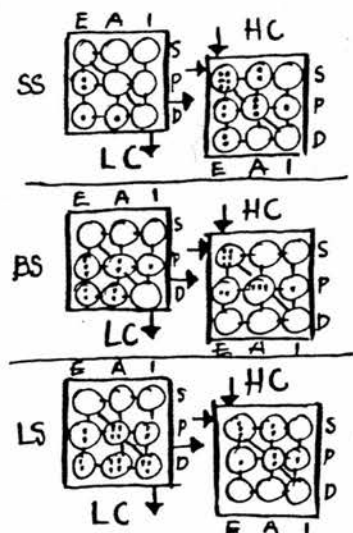
Some attributes of this distribution are the following: first, almost half of the patterns belong to the area, which in our linguistic paradigm has been characterized as the area of 'pseudo-levels':

S
P
D
　E　A　I
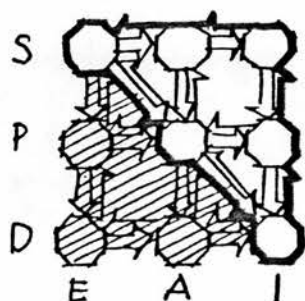
The philosophy behind the 'pseudo-levels' was that when we move from the surface to the deep it is in fact impossible to separate the substance or descriptive characteristics and to classify them into categories like environmental, activity or institutional. Prototypes consist of both environmental and activity images interrelated in a coherent representation; deep structures, on the other hand, cannot isolate the institutional characteristics as well.

Thus, when we deal with 'deep environmental structures' and we describe them in terms of environmental elements only, we hide some aspects of them, which are inevitably incorporated in the deep meaning of such structures. However, for practical purposes and for making the vocabulary of patterns more connected with the images of the users, such a 'hiding' is justifiable, provided that the rules which connect those 'pseudo-levels' with the real ones, are well known to the

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authors of the vocabulary and also provided that there are
other real lexical items, which support in a complete manner
the idea presented by the pseudo-levels. We have to admit
that such conditions are usually satisfied in the 'Oregon
Experiment'. For instance pattern ④ ('university shape
and diameter') is classified as a low-complexity ,large-scale,
deep,activity-and-environmental pattern after the description
given in the text by the team   (there are some ambiguities
about the deepness position of this pattern but the same
happens with all the patterns) :

UNIVERSITY SHAPE & DIAMETER

"When a university is too spread
out, [people cannot make use of   — A
all it offers]: on the other hand
[a diameter for the university   — E-A
based strictly on the 10 minute
class break] is needlessly
restrictive.
Therefore: [Plan all classes,   ⊢→ No prototypic
evenly distributed, within a   neither surface level
circular zone no more than 3000   although there are
feet in diameter. Place non-   some quantitive ·
class activities such as   characteristicts;
athletic fields, research
offices, administration within   but
a wider circle, no more than   the institutional
5000 feet in diameter]." **90**   identity of an auto-
                                      nomous self-containing
                                      system is hidden

E ,A

However, if we relate pattern ④ to patterns ①, ②, ⑫,
which belong to the D, I, LC, LS level, the central idea
becomes clear:

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90. Ibid., p. 110.
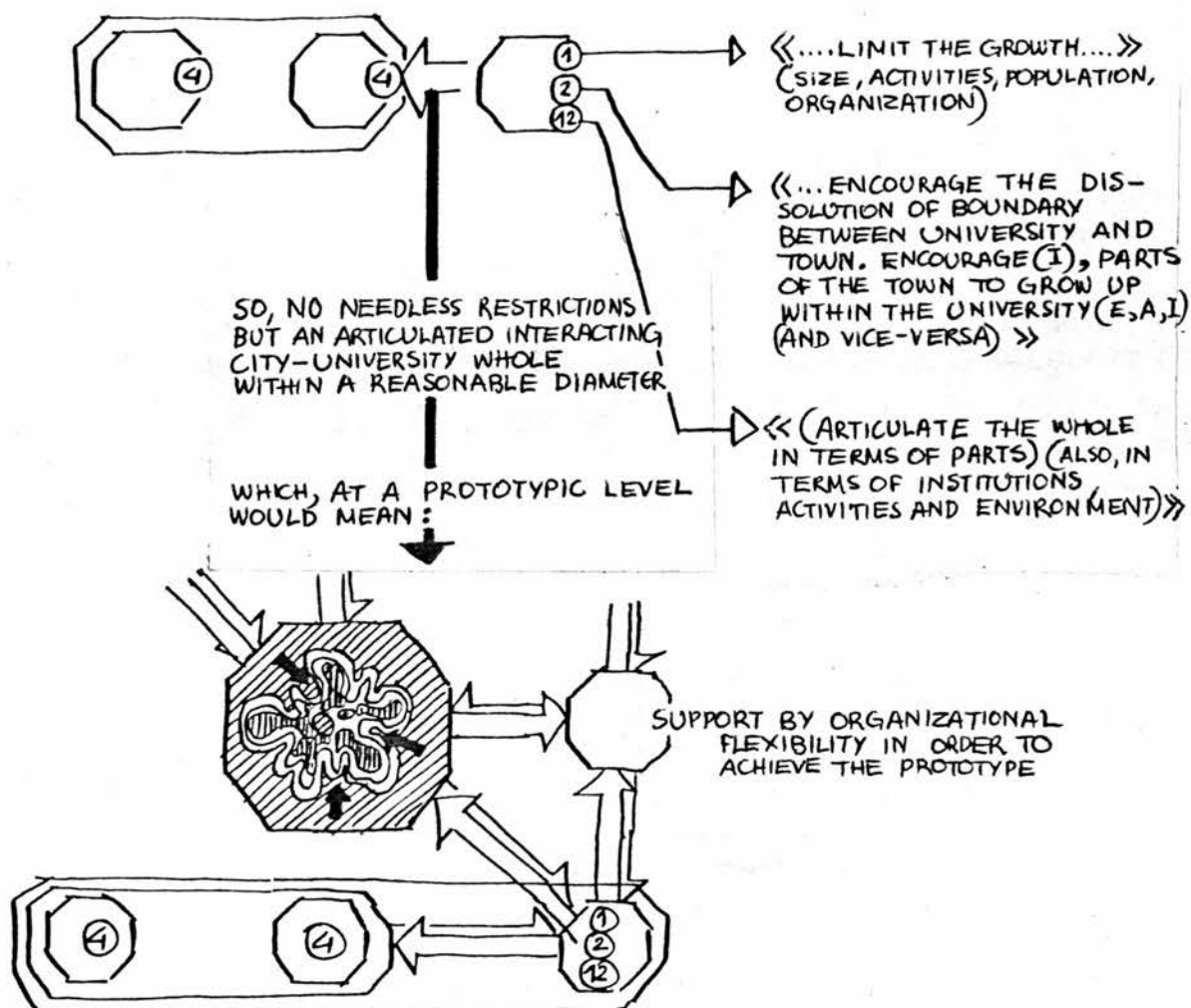
It is not certain that such 'supports' exist for every
'pseudo-level' of those presented in the 'Oregon Experiment'.
Only an analytical study of the possible correlations among
the patterns can prove this.

3 densi-
and
mplifi-
tion of
e chains

A second attribute of the distribution as regards the
density of the patterns is that, at some levels, some extremes
are apparent. Namely, low complexity surface levels are
empty of patterns and the same happens with high complexity

deep levels. On the contrary, low complexity deep levels and
high complexity surface levels as well are crowded with patterns:

and, in general:

SURFACE REGULATIONS ARE
NOT INCLUDED IN THE PATTERNS
BECAUSE THEY HAVE BEEN TRANFERRED
INTO THE GENERAL PRINCIPLES
(PARTICIPATION, DIAGNOSIS, COORDINATION).
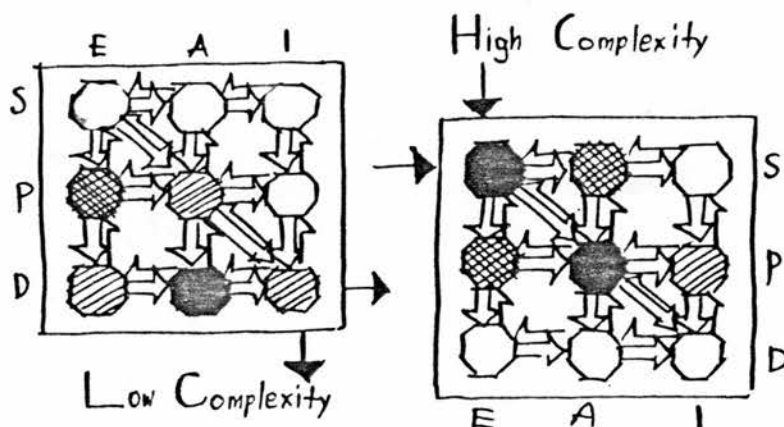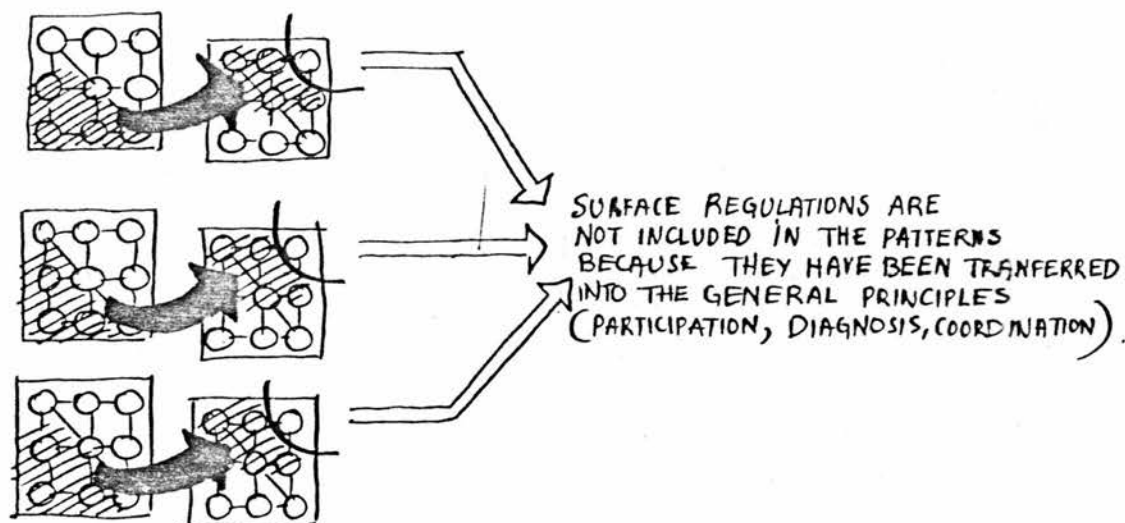
In the first part of this study, I have discussed why
this happens (see Chapter 2.5). In fact, the 'Oregon
Experiment' follows a simplified general path from the
elementary deep to the surface complex, emphasizing the
syntagmatic character of the language it implies. These are,
of course, patterns of low complexity which belong to upper
levels, like 'university streets' (⑧):

"... Concentrate the major functions of the
university - the offices, labs, lecture halls,
sports, student quarters - along university
streets; streets that are public and essentially
pedestrian, 20 to 30 feet wide, with all the
university activity opening off them; always
locate new buildings to amplify and extend the
university streets."[91]
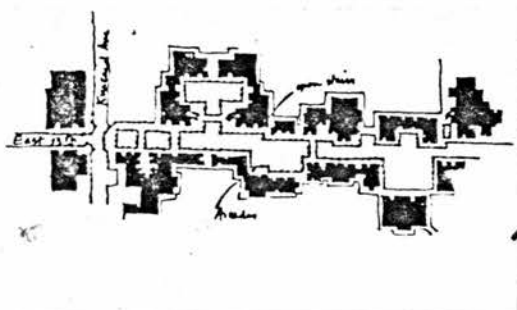
There are also patterns of high complexity which belong
to deeper levels, like 'positive outdoor space' (21).

POSITIVE OUTDOOR SPACE

Outdoor spaces which are merely
'left-over' between buildings
will, in general, not be used.
Therefore: Always place build-
ings, arcades, trees and walls,   no prescribed
so that the outdoor spaces they   prototypes but
form are convex in plan. But   highly complex
never enclose an outdoor space   meaning
on all sides - instead connect
outdoor spaces to one another
so that it is possible to see
and walk from one to the next in
more than one way.[92]

Quite understandably, however, the general tendency

of the team is to have the deeper patterns in a general

elementary form and the surface examples in all the

complexity which is justified by their surface position.

_____

91. Ibid., p. 114.
92. Ibid., pp. 123-124.

This remark could lead to a further elaboration of our linguistic paradigm towards a composite representation of the chains. To some extent, this has been attempted in the diagrams of Ch.I,2.4.4 , but, for reasons of simplification, in the rest of the study the chains appear separated from each other.

c4. elaboration of the taxonomy II: the university model-structure

A further investigation of the 'Oregon Experiment' can only be based on the discussion of the real meaning of the proposed patterns. To understand the deeper meaning of the proposed university model-structure, we have to explore how this meaning appears in the deeper elementary levels and how it is transformed into surface,complex,environmental images through the whole set of patterns and through the general principles as well. The previous study of the distribution of the patterns can give only an idea of the means which are used for presenting this model-structure. However, this distribution does not describe this model-structure.

Some general aspects of this ideal model-structure are clearly integrated, I believe, within the fundamental principles and predominantly in what has been called 'organic order through piecemeal growth'. I have stressed this previously. What is new, is that some of the deep, large scale,elementary patterns enrich this very general image.

This enrichment is especially promoted by concepts like
'university population' (①), 'open university' (②),
'university shape and diameter' (④) and 'fabric of
departments' (⑫). So, 'organic order' can be grown
through piecemeal operations but up to a limit (①, ④)
within a complex urban-university interacting system (②)
but following some basic internal principles concerned with
the parts of the universities (⑫). The team seem, therefore,
to be strongly opposed to the 'urban bombs', which establish
completely pre-designed autonomous campuses of a very large
or very small scale, and the parts of which have no particular
identity.

I think that, in the end, any analysis of the 'Oregon
Experiment' would lead towards a similar general idea of a
university. Although we have to admit that there are only
few examples of universities which follow such principles,
this idea (mainly based on the model of the old urban
universities) seems attractive, especially if it is
achieved through the eventual participatory processes described
in the 'Oregon Experiment'. However, the important contribution
of this experiment is that this idea has not remained
only a very general model-structure of a university but it
has been extended to a very analytical list of patterns
regardless of how personal or one-sided these patterns
eventually are.

For a structural study of universities, the exploration
of the paths, through which the prototype of the old, urban,

human and 'organic' university is translated into design
considerations like 'arcades' or 'real learning in cafés',
is essential. Within the limits of this study, however, this
detailed prototypic analysis can be only suggested as a field
of further research. Nevertheless, it is possible to discuss
here some eventual forms of such a research.

The exploration of 'which pattern comes from which' is
essential in order to understand the transformational rules
included in the chain from the elementary to the complex
structures and in the chain from the deep institutional to the
surface environmental structures as well. A major conclusion
expected from such an analysis refers to the completeness of
the pattern language in terms of its lexical items and in
terms of the rules, which generate each item from another.

The 'which comes from which' analysis of the patterns
can be based either on an ad hoc investigation of them or on
a comparative study, which would follow the main paths included
in our paradigm.   The content of the patterns themselves,
is rich enough to show their connections in spite of their
alleged 'autonomy'.
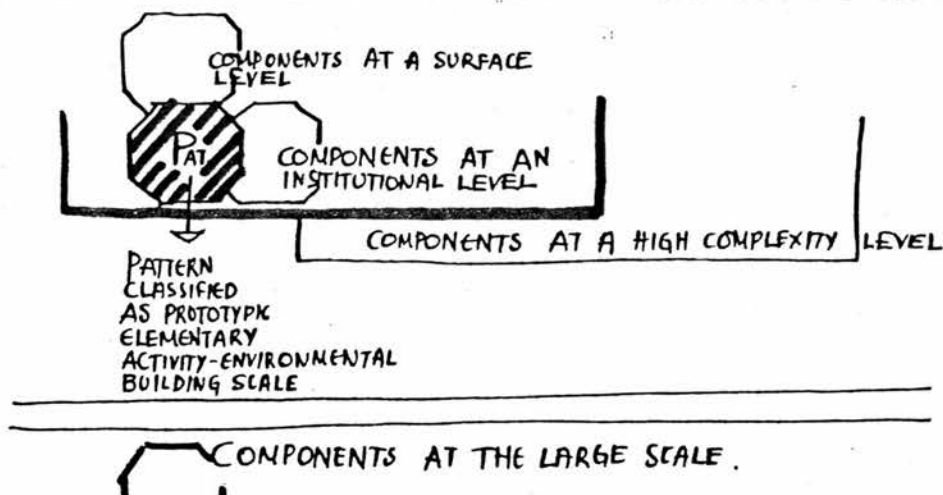
In general, the patterns, precisely because of their loose and free formulation, radiate their content to most of the levels included in our paradigm.
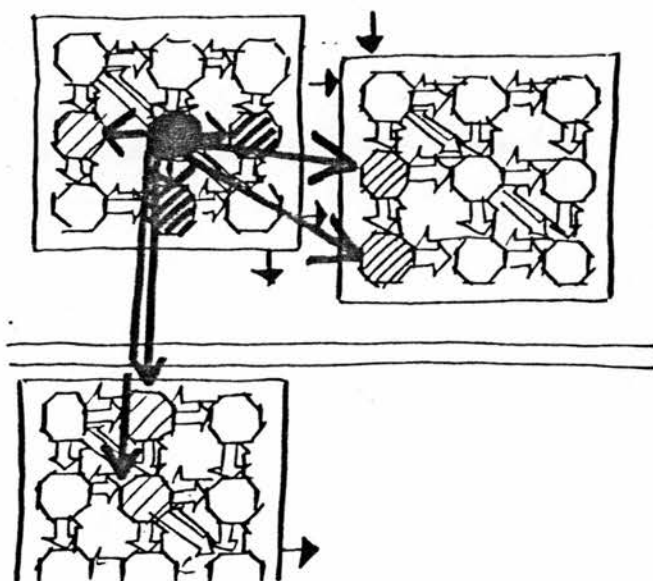
Thus, by decomposing the patterns we can find their mappings at different levels and we can then study the levels themselves in terms of their coherence. When we decompose the patterns, we have to be careful not to cancel them. We are not looking for combinations of phrases included in the patterns but for mappings of them and for combinations of these mappings, always within a structural logic. A complete decomposition of the patterns would be disastrous for the investigation of the pattern language as understood and proposed by the team. The patterns are already structured prototypic images and we have to deal with them as such.

The purpose of such a mapping is to facilitate the understanding of the structure of the patterns as this structure is analysed in a set of overlapping partial structures:

A

B
1

2

3

C
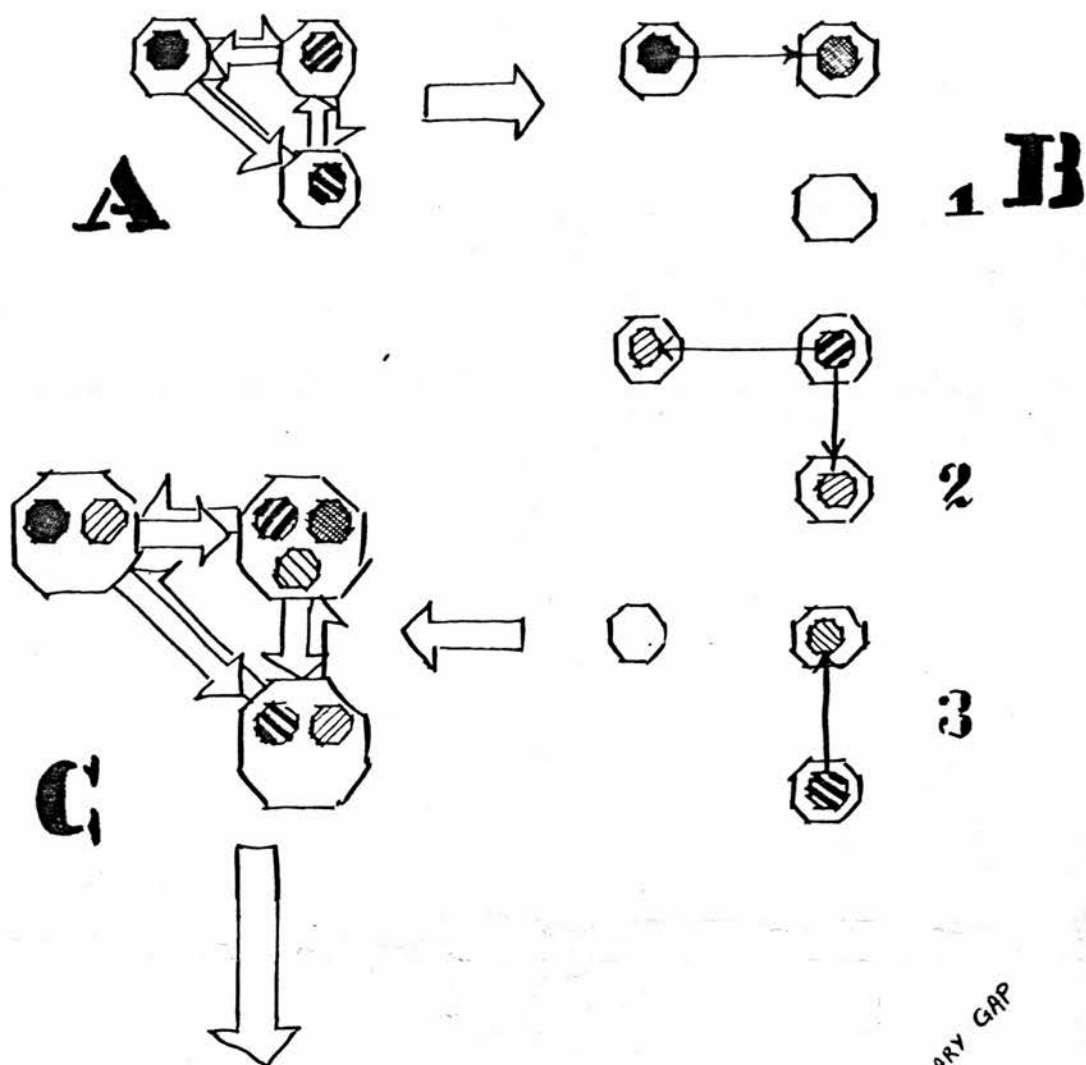
SOME EXAMPLES OF
POSSIBLE CONCLUSIONS   D

BRIDGING INTERDISCIPLINARY GAP

T , T' , T'' , ...

E

(A) SET OF MAPPINGS OF PATTERNS $T_A, T_A', T_A'' \ldots$
(B) $\gg$ $T_B, T_B', T_B'', \ldots$

$T, T', T'', \ldots$
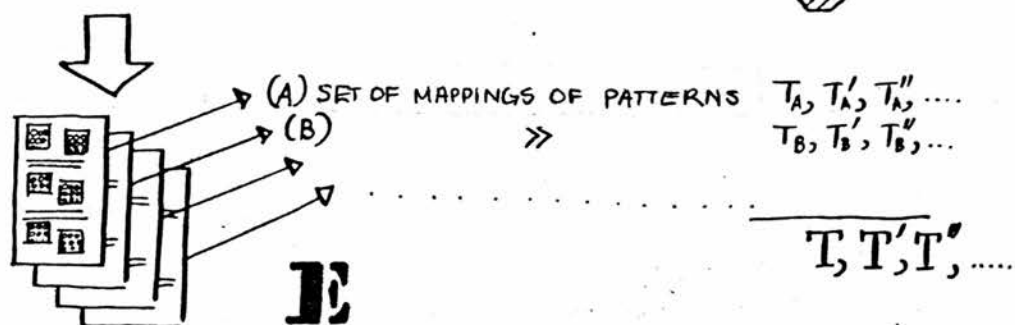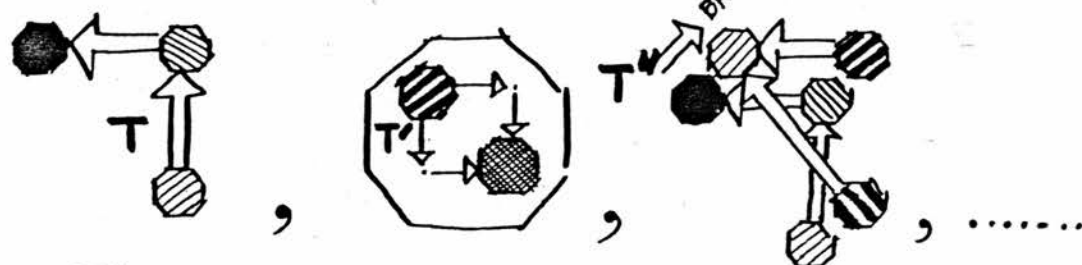
Apart from the ad hoc investigation of 'which pattern comes from which' through a process similar to the previous one, a study of the patterns can also follow some of the basic paths of our paradigm starting from the elementary, deep, large, and institutional towards the complex, surface, small, and environmental. This would be a hypothetical tree structure obviously equipped with a large number of new side-product patterns, which, eventually, would not be included in the initial list. The comparative study of the side-products and of the original patterns would give an idea, first, of the completeness of the pattern vocabulary of the 'Oregon Experiment' and, second, for the structure of this vocabulary. Such a method, however, would be highly subjective, since it has to be based on a purely hypothetical model-structure of a university.

d. other aspects of the linguistic paradigm in the 'Oregon Experiment'

The model of the ideal university, as the Oregon team conceived and expressed it through the patterns and their hidden structure, is not the only conclusion from this experiment. I have already discussed (Ch. 1.3.2) some more general aspects of the 'Oregon Experiment' and I have presented some questions to answer. Here, I shall summarize these questions in two main areas and I shall discuss them in brief.

The first area concerns the degree to which the Oregon pattern language is in fact a 'modified' description of a university; that is, a description with a clear problem-origin and an ideological context. Although we can accept that,in general,this language constitutes a modified description of a university,   we have to identify the manner in which the problem-origin of the language is translated into the basic components of it;   that is, into the patterns and the rules of structuring them.

The second area of questions, which lead to a further investigation of the 'Oregon Experiment', deals with the general logic which governs the transformations of university structures. The 'Oregon Experiment' as a whole does not provide us with a static image of a future university. The idea of piecemeal growth towards organic order by following self-regulated participatory processes emphasizes the dynamic nature of universities as the Oregon team understand it.   To what extent, however, university dynamics is conceived by the team as a process based on contradictions is another question. This question can be only partially answered, because most of the information needed for such an answer is apparently included in the meaning of the patterns themselves and in their structure.

It is rather premature to answer such questions by taking only the 'Oregon Experiment' into account. It is expected that the 'Timeless Way of Building' will give more concrete and structured material for such answers. The

'Oregon Experiment', nevertheless, is undoubtedly a 'modified'
description of universities. That is, every pattern and
every general principle of it has a clear ideological origin.
I have repeatedly noted in this chapter that the principles as
a whole indicate this ideological origin. The problem is that
they indicate this origin at a less deeper level than one
should expect and that, in the end, the ideology promoted by
the principles is itself idealistic, achronic or indeed timeless.
Alexander and his colleagues appear in the 'Oregon Experiment'
to be apriorists despite all the discussion concerning
participation and despite the expectations for a gradual
evolvement of the university through piecemeal operations
by the users. The team believe in one specific image of a
university, namely in an 'order they are after'; they also
believe that such an order is hidden and has to be somehow
discovered; they are, finally, convinced that professionals can
do nothing about discovering this order. In short, they are
after a return to an environment organically produced by the
users as in the case of vernacular architecture. Unfortunately,
they have also to invent a vernacular societal structure to
achieve it. Unfortunately too, other aspects of participation
are not sufficiently emphasized in the 'Oregon Experiment'.
Participants are considered as an ideal 'universitas' cleared
from any antagonisms; in the end, institutional difficulties
of the centralized organization of a university are not taken
into account.

This idealism has its consequences for the proposed
principles and patterns. Although the deep elementary

structures to which patterns and principles correspond are
<u>modified</u> and orientated towards planning, they promote
'organic order' and biological perfection. Although it is not
entirely fair to claim something like this without having
analysed all the patterns and their structure in detail, it
is more or less evident that the patterns reflect the
philosophy of vernacular architecture. They reflect it,
however, in different ways, according to the ideal images
that the members of the team have in their minds. The deep
meaning of these images is different for the large scale
compared with the small building scale. And we have to admit
that it is mainly *at the building* scale where the contribution
of the team is more important, although this contribution
concerns architectural prototypes in general rather than
universities in particular.

Although the vernacular, human, participatory and
piecemeal growth image of a university or of an urban formation
is not repulsive, we have to realize that it is based upon
a particular attitude towards not only society but also the
environmental artefacts that society can produce. The
question to be answered (I believe by the 'Timeless Way of
Building') is whether this attitude is a result of a historical
explanation of the contemporary societal conditions or an
abstract ideal, which does not occur nowadays and <u>has</u> to occur.

This discussion leads us to the second area of questions
concerned with the 'Oregon Experiment'. Is it reasonable

to expect a contradictional understanding of university

transformations within the context of such ideal forms and of

such ideal procedures to achieve them?

In principal, the answer is positive. The internal

antagonisms in a university, however they appear (as 'normal

anomalies' or 'leading contradictions') can be exploited in order

to facilitate the development of the university towards the

'organic order' of the future. The question is whether or not

such a tendency is present in the pattern language of the

'Oregon Experiment'.

Alexander himself is not unfamiliar within an under-

standing of structures based upon contradictions and

antagonisms. As I mentioned previously (Ch. 1.3.1,c), in

the 'Atoms of Environmental Structure' he realized the

conflicts between interacting 'tendencies' at the deep

elementary level of what he had previously identified as

'needs'. Since the logic of patterns evolved at almost the

same time, it is reasonable to imagine that patterns represent

already structured prototypic forms, where such conflicts have

been resolved. The patterns represent, to Alexander, the atoms

of a good environment and, therefore, conflicts between

tendencies are avoided in them. If we follow the arguments

developed in the 'Atoms', we can understand this attitude

quite clearly. Strictly within the same logic, we have to

expect that such conflicts have to appear in that part of

the patterns, where the identity of the problem is presented.

For, 'patterns' constitute, according to this logic, eventual

good solutions for bad situations which are described as
'problems'. Conflicts should be apparent in the 'problem'
part of the pattern and should be resolved in the 'therefore'
part of them.

In fact, this happens to some extent in the 'Oregon
Experiment'. There are, however, some difficulties in recognizing
it. The first difficulty derives from the over-simplified
language used in the 'Oregon Experiment'[93]. The second dif-
ficulty derives from the obvious differentiation between
problems and proposals in terms of deepness, complexity or
substance. Normally, the conflict which is hidden in the
'problem' is deeper, more elementary and more institutional
than the resolution presented in the 'therefore' part of the
patterns. This is shown in the following example of pattern
① as seen through the model of our linguistic paradigm:

PATTERN ① : UNIVERSITY POPULATION
PROBLEM:
If a University is too small, it
suffers from lack of variety;if it
is too large,it no longer works as
a human organization;if it grows
too fast,it breaks down because it
doesn't have the chance to absorb
or to adjust to change.
PROPOSAL:
Therefore:Limit the growth of any
university to a rate of 2% per year,
and limit the absolute size of any
university to 25,000 students.

93. As mentioned, most of the patterns are better analysed in the
    "Pattern Language" and the Oregon files.

94. Ibid. (Oregon), p. 108.

In this sense, even if an internal conflict or an 'anomaly' between different descriptive images of a university is apparent, it is difficult to identify the way of resolving it.

Contradictions in the 'problem' part of the patterns usually appear in the form of 'if ¬ then' and are mapped on extreme cases. Such contradictions belong mostly to what I have called 'normal anomalies': "if something happens at the environmental level, then this happens at the activity level (first extreme); if ... then (...) (second extreme); so, follow the middle (design consideration based on the conflict between activities and environment)". This is shown in the following example of pattern ⑯ seen through our model.

(⑯) STUDENT COMMUNITY

[If dormitories are too small and (too communal, they become constraining.)
If they are too big or too private, then the idea of group living is lost.]

E
A (that is, 'constraining')
E
A

EXTREME 1

IF   THEN (TRANSLATION INTO ACTIVITIES)

CONFLICT BETWEEN EXTREME A & PROTOTYPIC, IDEAL

EXTREME 2

IF   THEN (TRANSLATION INTO ACTIVITIES)

CONFLICT BETWEEN EXTREME 2 & PROTOTYPIC, IDEAL

RESOLUTION

Therefore: Encourage the formation of
autonomously managed cooperative housing
clusters that bring 30 or 40 units together,
around communal eating, sports, etc. Unlike
dorms, however, make the individual units
rather autonomous, with sink, toilet and hot
plates, and with private entrances.[95]
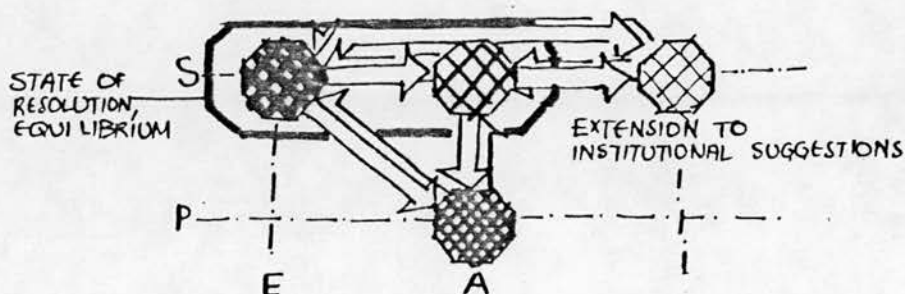
The example shows that the prototypic image, which is

promoted by a pattern, is conceived as a middle road between

apparent   extremes and that it is not perceived in an

abstract way.   The whole set of the patterns is indeed (as

previously mentioned in Ch.II,1.3.3)a set of equilibrium images,

where conflicts are supposedly avoided:
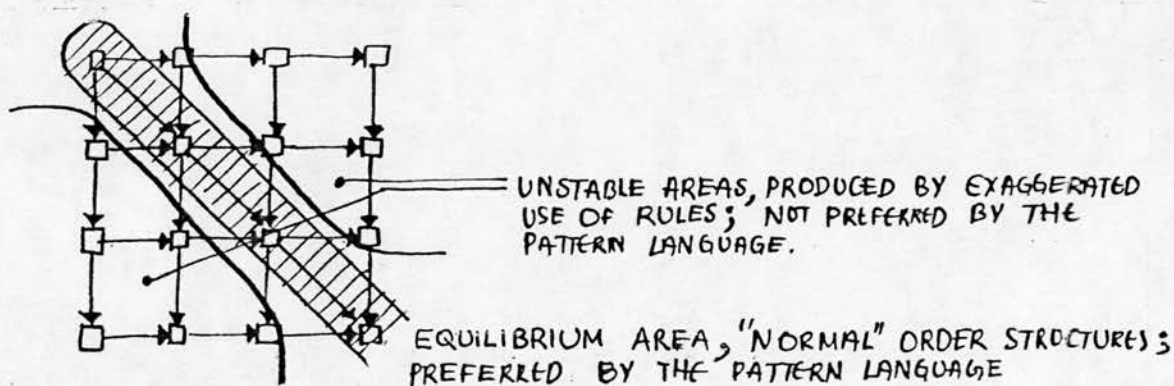
As Rabeneck wrote, the pattern language is

"scrupulous in pointing out that the patterns offered
are no more than hypotheses",[96]

in which varying degrees of faith are held by the authors.   So,

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95. Ibid., p. 119.

96. A. RABENECK, Book review in A.D. 1/79, p. 19.

if new conflicts arise in the 'ideal' situations described by the proposals, the users will be free to add or transform certain or all the patterns to suit their new circumstances. They have of course to invent new ideal prototypic images to repeat the same procedure. How they can invent them is a question which should not be answered before the appearance of the 'Timeless Way of Building'. However, a reference to the way, in which internal antagonisms should be realized in order to lead to new prototypes, is something that one should expect from the 'Timeless Way'.

Although most of the 'problems' stated in the patterns follow the previously explained logic, there are also certain clearer references to leading contradictions. As expected, such references are mostly included in the larger and institutional patterns. However, some of them are also presented in activity images, reminders of the conflicts between 'tendencies' which continue to influence Alexander's thinking. Consider the following example (pattern ②).

(②) OPEN UNIVERSITY

When a university is built up as a campus, separated by a hard boundary from the town, it tends to isolate its students from the townspeople, and in a subtle way takes on the character of a glorified high school.

INSTITUTIONAL ANTAGONISM REINFORCED BY BARRIERS

RESOLUTION (AT VARIOUS LEVELS)

Therefore: Encourage the dissolution of the boundary between university and town. Encourage parts of the town to grow up within the university, and parts of the university to grow up within the town [97]

Give the infra-structure (including the institutional)

Towards an en-vironmental-activity result

Explained as a strategy

97. C. ALEXANDER et al. (1975), The Oregon etc., op. cit., pp. 108-109.

Antagomisms are also present at an activity level as in the case of pattern 7 .

(7) LOOPED LOCAL ROADS

[Through traffic] destroys the [tran-   Antagonism
quility and the safety of   between
pedestrian areas] .This is especially   activities
true in university districts, where   (both essential)
the creation of quiet precincts is
crucial to the work.

RESOLUTION
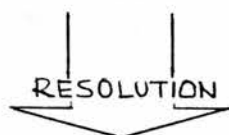
Therefore: To bring the traffic and
the pedestrian world [into the right-
balance] ,[make the local roads that   Equilibrium
serve the area form a system of   pattern
loops or cul-de-sacs, so that
through traffic is impossible] . *98*   Explained as a
                                         strategy at an
                                         environmental level

The pattern language which is proposed for the

'Oregon Experiment', as it is restricted to some simplified

prototypic equilibrium images, excludes a large number of

eventual prototypes and strategies, in which the exploitation

of the transformational potential of contradictions would be

more effective and imaginative. However, it is not fair to

criticize this language for this fact. Where it has to be

criticized, in my view, is at the level of the very basic

patterns which the pattern language does not include, and the

_____

98. Ibid., pp. 112-113.

contradictional understanding of which could lead to quite different 'ideal' images of a university. There is no reference, for instance, to problems which derive from the contradiction between the alleged academic autonomy and the financial dependence of universities on the State. There is also no reference to more specific problems, which derive from antagonisms between teaching and research (or at least from the antagonistic aspects of this relationship). Finally, there is no reference to a more general antagonism of contemporary universities, which covers and explains the others; that is, the antagonism between the role of universities as ideological State apparatuses reproducing the essential personel-of a mode of production and their natural role as centers of societal guidance, a role that universities have been continuously playing.

Such general aspects of universities might be easily considered as too general or too questionable to have any effect on the activities and the environment of the universities. It has been shown through history, however, that there are some effects of this kind, especially related to the relationship between universities and cities and also related to the symbolic aspects of the university environment. What has been undoubtedly shown, nevertheless, is that environmental decisions concerning universities are more ideologically influenced and historically affected than those implied by the tranquil, balanced, ideal and, in the end, timeless image, which is promoted by the 'Oregon Experiment'.

The criticism on some aspects of the 'Oregon Experiment'
is not intended to minimize the pioneering value of the work
carried out by Alexander and his colleagues. Many critics
agree about the value of the pattern language as a tool for
understanding and planning the artificial space and as a
'wonderful' apparatus for architectural education. Within
the context of this study, however, the pattern language and the
'Oregon Experiment' are valuable for another reason: they
constitute the only worked example of a semantically meaningful
language of   built space based on the idea of prototypic
structures and their analysis. I have advocated the same
idea throughout the present study and I think that the 'Oregon
Experiment' shows, in the end, clearly that there are some
basic advantages in accepting a logic, which is based on the
linguistic paradigm for explaining   artificial space.

GENERAL SUMMARY AND CONCLUSIONS

1. SUMMARY

This study was an attempt to investigate the artificial
space in general and universities in particular, through the
paradigm of structural linguistics and semantic syntax.

The paradigm which structural linguistics follows, was
modified according to the particularities of the artificial
space; namely, the semantic pluralism of the built environment
and the strongly operational character of explanation in
architecture.

The possibility of establishing a 'modified', problem-
originated and problem-solving orientated structural description
of built space was investigated through an example. The
example referred to the problem of alienation . The study
analysed the specific aspects of understanding this problem
with regard to artificial environment.
It also analysed the participatory strategies proposed
to face the problem of alienation. Finally, the study tried
to indicate the particular form that a 'modified' description
of space can take under the influence of the alienation-
participation bipolar.

All these constituted the first part of the study.
This part dealt with artificial space in general, but it
showed at the same time that a modified description of
artificial space, orientated to the solution of problems, has
to take into account the individual characteristics of the
building-type which is under consideration.

In its second part, the study explored the possibility of applying a paradigm equipped with the properties stated above to a building category which has a clear institutional identity: that is, the universities. The reason why universities were preferred, as opposed to other building categories, was that they usually combine a complete normal city image with particularities and symbolic exaggerations, implied by their institutional identity. .

Instead of examining universities as such, however, the study found it more effective to investigate existing descriptive and planning theories about universities. There were three main purposes served by this kind of inquiry. First, to test the coherence and comprehensiveness of such theories by using the modified linguistic paradigm as a filter. Second, to test the validity of the paradigm itself concerning its capacity of being 'translated' into the terms of such theories as well as of being eventually modified by their context.
Finally, to explore the value of a structural approach to built space in general (by comparing it to other approaches with more or less structural characteristics) as well as to answer through this approach and through the comparison with others, some of the specific questions with which universities are faced. Such answers are expected either directly (through the discussion in this study) or indirectly through the eventual production of a structural descriptive theory, orientated towards a specific institutional category (such as universities).

2. CHARACTER

This study is mainly taxonomic. That is, it is interested in exploring where things belong rather than in finding particular solutions of particular problems. This happens, first, because of the large variety of concepts introduced in architecture by the linguistic metaphor and, second, because of the very nature of a paradigm. A paradigm is understood basically as a 'model of models' and it would be far beyond the limits of such a study to answer questions concerned with both the model of models and the models themselves. The fact that some of these models are elaborated in more detail in this study, is due to the particular importance attributed to some basic questions as well as to the inevitable involvement of 'meaning' in problems initially intended for a mere taxonomic analysis.

A valuable consequence of a taxonomic study, however, is that hidden areas of problems and, eventually, of answers to them can be illustrated and can acquire a significance not previously attributed to them. This is, in fact, a contribution to the 'meaning' of such problems, which is perhaps more operational than solving them in conventional terms. In this sense, the taxonomy implied by the linguistic paradigm enriched the meaning of the two major areas where it has been applied, that is, the problem of alienation and the study of universities.

3. ASSUMPTIONS AND CONCLUSIONS

The assumptions, on which the present study has been based, belong to two domains. The first domain refers to the dynamic nature of description and the second to the semantic component of a linguistic syntax and to the broader notion of 'meaning' as well.

The major conclusions refer also to the above domains as these domains are transformed for built space. There are also conclusions concerned with the two areas where the paradigm has been tested; that is, the problem of alienation in the artificial environment and the description and planning of universities. Here, I shall repeat very briefly these conclusions, following the structure of the study.

I. On the nature of description and the linguistic paradigm.

Description, especially in the social sciences and the sciences of the artificial in particular, is equipped with 'behinds' and 'beyonds'; that is, it has a historical origin and is orientated towards practice.

Comprehensiveness is a fundamental attribute of description and is understood both in terms of the descriptors used to construct 'descriptive theories' as well as in terms of the coherence between 'behinds', 'beyonds' and the descriptive corpus of a theory.

Metaphors and 'scientific borrowing' are current practices in the social sciences and architecture in particular. Metaphors become operational when the borrowed paradigms,first preserve their structural cohesion and,second,are modified to be adapted to the nature of problems and the ideological context of their solution.

Structural views oppose systemic ones in terms of their ability to combine simplicity with comprehensiveness of explanation. They are based on the logic of transformations from lower to higher orders of deepness and/or complexity, as opposed to the logic of systemic views, which is based on elements and their relationships.

Syntactic views oppose 'syntagmatic' views in terms of the involvement of meaning in syntax. Autonomous syntaxes accept that meaning emerges through rules of mapping, while semantic syntaxes accept that meaning is included even at the deepest and most elementary levels. Syntactic views are subject to abstract and achronic interpretations as opposed to syntagmatic views which are capable of historically meaningful manipulations. Even syntagmatic views, however, have to achieve an optimal level of abstraction in order to correspond to particular conditions and to solve particular problems. Otherwise, they are in danger of becoming achronic and academic.

The concept of meaning in the domain of artificial environment is broader than in language and corresponds better

to the concepts of 'pragmatic value' and 'social evaluation'.
Inevitably, more semantic bases than that of communication
are included. The structure of the system of social evaluation
and the predominances in it characterize particular periods in
the history of   artificial environment. Architectural
 prototypes represent pre-structured systems, which occur at
an intermediate level of abstraction. Such prototypes reflect
the structure of the system of social evaluation of the time,
in which they are produced.

The core of the operational modifications of the
linguistic paradigm in architecture consists of the conscious
manipulation of such semantic bases in order to reflect the
system of social evaluation of the time, the ideological
intentions and the problem-solving nature of practice, as
well as the institutional characteristics and particularities
of the building category with which practice is concerned.

The necessity of such modifications as well as the
'semantic pluralism' of   built space indicate the limits
of applying a pure linguistic metaphor to the domain of
artificial environment.

The operational modifications of the linguistic paradigm
concern the following: first, the identity and formal structure
of the semantic bases, which constitute the system of social
evaluation of   built space. Second, the catalytic effect
on the structure of such bases, caused by a problem and an
ideologically influenced practice to solve it. Such catalytic

effects apply equally to the deep elementary structure of
artificial environment and to the rules which transform this
structure into higher orders.

The semantic bases, which constitute a hypothetical
formal background for the modification of the linguistic
paradigm in this study, refer to the differentiation of
substance of the environmental structures and correspond to
three levels of approach: the purely environmental, concerned
with the physical image of   built space, the activity and
the institutional. Combined with the deepness chain, the set
of these three levels constructs a formal basis for under-
standing the semantic pluralism of   built environment.
It is, in fact, this formal basis that represents the main
model through which the linguistic metaphor to architecture is
understood in this study.

Deepness and substance chains tend to coincide as we
move from surface to depth and from the physical to the
institutional image of   built space. Deep environmental,
activity and institutional images are understood as one coherent
image, as opposed to surface images, which are distinct and
different from each other.

Alienation is an example of a problem, which is strong
enough to cause modifications of the linguistic paradigm of the
kind mentioned before. On the one hand, it influences the
structure of the formal basis of environmental semantics and,
on the other, it influences the elementary deep structure of
    built space   and the rules which transform this deep
structure into higher orders . Alienation is understood as a
problem according to the following interpretations: first, as

a cause for creating barriers between the producer of
artificial space and the product itself. Second, as a cause
for creating physical, activity and institutional barriers
in the use of the artificial environment. Third, as a cause
for eliminating the potential semantic pluralism of   built
space and, therefore, for creating barriers between the user and
his environment. Consequently, alienation modifies
our understanding of the elementary deep structure
of   artificial environment ; that is, this deep
structure becomes a barrier-structure. It also modifies
our understanding of the rules for transforming this elementary
deep structure into higher orders (these rules are of two kinds:
rules which eliminate the problem through a problem-solving
strategy and rules which increase the problem). Such rules
reflect the 'explain-propose' bipolar of a problem-solving
orientated description. Finally, alienation modifies our
understanding of the formal basis, which is used to illustrate
the semantic pluralism of the artificial space. The structure
of this basis also becomes a barrier-structure; that is, the
natural routes from the surface to the deep and from the
environmental to the institutional are either eliminated or
disorientated.

Participation has been considered as a disalienation
process. User participation in design only, however constitutes a
narrow interpretation of this. The taxonomic elaboration of
the modified linguistic paradigm illustrates a broader
interpretation of participation as a disalienation process.
Such an interpretation extends participation to infrastructural

strategies, which are used for a gradual abolition of alienation.
Such strategies include cases like controlled development of
participation to avoid eventual dangers of co-optation or to
enrich an eventual partial understanding of   built space.
Alienatory effects and participatory disalienation strategies
refer both to users and professionals. The barriers between
disciplines like urbanism and architecture, for instance,
indicate the nature of such problems as regards professional
expertise.

The dynamics of   artificial space, finally, refers
both to mental transformational processes which are used to
understand and describe   built space as well as to real
transformations of it, which take place diachronically.
An eventual understanding of such transformations through a
logic which accepts that contradictions constitute the core
of the transformational potential refers to both of the above
processes. As regards mental processes, contradictions and
antagonisms are introduced in our paradigm as an overall logic
by the modified transformational rules of 'increase problem -
eliminate problem', which are expressed in the form of com-
mutative square. As regards real processes, contradictions
and antagonisms appear either between images of different
substance (in this case they are called 'normal anomalies')
or within an image. The most essential of the latter, mainly
those of institutional character, are called 'leading contra-
dictions'. Both 'normal anomalies' and 'leading contradictions'

reflect the potential for transformation of an environmental structure, either through design action (as in the case of 'normal anomalies') or through overall changes, mainly promoted by transformations of the institutional framework of   built space.

II. On universities

Universities constitute a category of built forms which have many similarities with urban forms of the same scale on the one hand, and certain particular characteristics on the other. This dual identity of universities outlines the value of studying them through the linguistic paradigm. Universities represent the built space in general, but they also exaggerate and emphasize the physical, activity and institutional features of the urban forms. Their environment is symbolically overloaded, their activity patterns are clearer and more scheduled and their institutional character is distinct and plays a certain role in societal guidance.

The historical studies of universities usually emphasize the institutional properties and transformations of them. The history of the first period of the student university at medieval Bologna, as written by H. Rashdall and J.K. Hyde, indicates the role of internal antagonisms during the first crucial transformation of this type of university towards dependence on the State. It also indicates the nature of the

institutionalization process that the built environment of these universities followed, and the role of this institutionalization in the transformation of the student universities.

The activity models of university planning are typical examples of 'decisionistic' models, and are based on the logic of alternatives and on the clear distinction between the environmental, activity and institutional image of universities. The activity models serve as an apparatus to test environmental and institutional alternative policies and are not structurally connected with the image of a university at those two levels. These models promote a 'mapping' logic and are not interested in constructing comprehensive model-structures for universities. Moreover, they are based on questionable assumptions about the activities themselves, since they can hardly integrate non-scheduled activities. Yet, within the decisionist logic of the activity models, there is enough room for a more comprehensive understanding of universities as the study for 'the University in an Urban Environment' has shown.

The 'Oregon Experiment' by Ch. Alexander and his colleagues at the Center for Environmental Structure at Berkeley is a unique example of applying a structural language of   artificial space to university planning. This language has much in common with our linguistic paradigm. It is problem-originated and planning-orientated, it corresponds to the logic of semantic rather than to the logic of autonomous syntax, it is comprehensive containing all the substance, deepness and

complexity levels, and makes extensive use of pre-structured
prototypes ('patterns'). However, the paradigm behind the
'Oregon Experiment' is still deterministic, since it accepts
a kind of biological order as an ultimate target of planning,
and since it does not make use of alternative strategies for
design other than those which contain structures which are in
a state of equilibrium.

The 'Oregon Experiment' seen through the modified
linguistic paradigm also illustrates some more general features
of this paradigm. First, it illustrates the fact that
particular environments, which correspond to particular
institutions, may generate dialects for describing and planning
these environments. Second, it illustrates the fact that such
environments and institutions may produce both particular
structures of a system of social evaluation and also model-
structures through which they may be investigated. The Oregon
team's model-structure of a university is rather different than
that which a contradictional understanding of universities
would imply. However, the 'Oregon Experiment' shows the way
for further research on describing and planning universities
through the logic of the linguistic metaphor. Moreover, it
discovers, through this logic, many hidden environmental qualities,
which are lost in conventional design.

A linguistic analysis of   architectural space by no means
exists   within the context of an eventual 'normal science'

of architectural description. The growing interest in this field of research does not alter the experimental and highly speculative character of such an analysis. In fact, many approaches declared as syntactic or syntagmatic have much in common with others, which although not 'officially' accepted as such, follow a similar logic, or at least, are subject to such an analysis.

There is a lot to be done in the direction of developing a paradigm for   built space and 'scientific borrowing' is an inevitable step in such a process. Within the context of the linguistic metaphor, what has not yet been sufficiently worked out is the prototypic analysis of   artificial environment. Highly structured architectural prototypes have still much to offer to our understanding of   built space, either through the study of themselves or through the study of the theories, which have been built in order to interpret these prototypes.

This thesis was an attempt to propose a way of explaining the architectural phenomena and,therefore, of acting on them. To what extent studies of this nature satisfy or try to satisfy a real existing demand in our understanding of   artificial environment is a question that the study itself cannot answer exept in highly ideological terms. Although it is obvious that I advocate such attempts,it is up to the reader to decide whether our empiric   knowledge of our environment on the one side and the arguments developed in this study on the other justify such a task.

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A B B R E V I A T I O N S

A.A.- L' architecture d'aujourd'hui

A.D.- Architectural Design

A.I.P.Journal- Journal of the American Institute of Planners

E.A.R.- Edinburgh Architecture Research

J.A.R.- Journal of Architectural Research