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Reading *The Oregon Experiment**

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The paper describes an investigation of the pattern language used by Christopher Alexander and his colleagues in the case of Oregon University. This pattern language is considered as a characteristic structural approach to explanation in architecture and as a powerful apparatus for design. Part 1 *of this article is concerned with the development of Alexander's method, part* 2 *with some general features of* The Oregon Experiment, *and part* 3 *with the nature of patterns and their structure as seen through a simple taxonomic hypothesis. Finally, part* 4 *contains some notes on the ability of the Oregon pattern language to express the dynamics of university structures.*

1. FROM THE *NOTES ON THE SYNTHESIS OF FORM* TO *THE OREGON EXPERIMENT*

THE OREGON EXPERIMENT (1975) is one of the parts of the trilogy on pattern languages written by Christopher Alexander and his colleagues of the Center for Environmental Structure at Berkeley (1975–9).

The idea of a pattern language for the design of artificial space represents a new approach to architecture, which, in the author's view, has much in common with what might be called 'the linguistic metaphor' in the description and planning of built environment. This paper is an attempt to investigate, from this point of view, the pattern language used in the case of Oregon University.

Undoubtedly, Christopher Alexander is one of the most influential theorists in the domain of architectural design. His theories, however, have been frequently misunderstood and underestimated, largely because his critics are still affected by the philosophy of the *Notes on the Synthesis of Form* (1963)[1].

Some of the exaggerations of the *Notes* were later realized by Alexander himself. He wrote in the preface of the 1974 edition of the book that it is quite unnecessary to use such a complicated and formal way of getting at the independant diagrams[2].

The *Notes*, being the core from which the theory of pattern language has been developed, represent a revolutionary approach to what we might call today 'a linguistic explanation of architectural phenomena' and, what is more, a socially meaningful version of such an explanation. In fact, Alexander has never tried to introduce an autonomous syntax of artificial environment. Despite the exaggerations, his 'analysis' was not an attempt to identify abstract and geometrical elementary structures of built space but an attempt to isolate fundamental human requirements and to relate them to spatial forms.

The reason for which Alexander's 'semantic syntax' became less 'semantic' than it could be was that he accepted that there is an objective relation between problem and form and that the 'fitness' we are looking for is more or less 'timeless'. Although Alexander has been continuously interested in the social origin of spatial problems, he tried to construct problem-solving 'diagrams' loosely related to the cultural particularities of open societal forms. These diagrams are so elementary, Alexander argued, that they are cleansed of any semantic interpretation which exists in our culture; they become self-adaptable like those in the unselfconscious process. As a result, the ideology of the unselfconscious becomes the leading problem-solving ideology of the selfconscious process and leads to more or less autonomous syntaxes of built space. It was not very strange, therefore, that the method proposed for the 'synthesis' in the *Notes* was largely understood by Alexander's critics as a functionalistic dream leading to a kind of conscious unselfconsciousness.

Corrections of the method of the *Notes* appeared in later publications like 'A city is not a tree' (1966), 'Atoms of environmental structure' (1966–7), *A Pattern Language which Generates Multi-Service Centers* (1967) and 'Major changes in environmental form required by social and psychological demands' (1969)[3]. Alexander accepted there that complex urban forms correspond to 'semi-lattice' structures instead of 'tree-structures'; that the elementary structures of built forms are richer in semantic terms and that 'needs' have to be replaced by 'tendencies' which are in a state of dynamic equilibrium; that 'diagrams' should be replaced by 'patterns' structured within a language; and, finally, that planning is the

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design of a culture—where patterns represent a new cultural institution—and should be supported by major physical and political changes. All these constituted a kind of introduction to the clearer and more practical method which appeared in the trilogy *The Timeless Way of Building, A Pattern Language* and *The Oregon Experiment* (1975–9)[4].

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'[5].

2. *THE OREGON EXPERIMENT*: SOME GENERAL NOTES ON THE 'PRINCIPLES OF IMPLEMENTATION'

In the Introduction of *The Oregon Experiment* the authors write:

> This book is the master plan for the University of Oregon. It also defines a process which can, with *minor* 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 *paradigm* for projects in similar communities all over the world[6] (my emphasis).

This is, of course, an ambitious claim. The Introduction contains, nevertheless, some important summaries of the whole philosophy of the team about both the nature of a pattern language and 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 knowledge 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 variations. 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 pattern language is not the only component of the process developed in *The Oregon Experiment*. It is 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 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 processes 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 patterns ....
> 5. The principle of diagnosis ....
> 6. The principle of coordination[7].

'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, on the biological paradigm, 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'.

Organic order is defined 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'[8] 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 ...'[9].

On the other hand the participation principle is there 'to guide the process of organic growth in a community'[10] because, according to the team, '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 order the team are after'[11].

The idea of 'piecemeal growth' is closely related to the idea of 'organic order'. This idea is also based on what might be called '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[12] (my emphasis and comments).

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 'coordination', deal with the organizational arrangements, which are necessary for the application of the method. The remaining principle is that of 'patterns'. This principle is the most composite and will be dealt with later in this paper.

In the discussion of 'diagnosis' and 'coordination', the team seem to admit that the future development towards organic growth 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'[13].

'Diagnosis' and 'coordination' are expressed in their final summary as more or less normative rules for future action on the built environment of 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 coordination 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[14].

The six 'principles of implementation' constitute a framework for the kind of participation process that the Oregon team understand as necessary for the organic growth of the University. There are, however, two areas where the team's attitude towards these principles may be discussed and, eventually, criticized. These areas are: first, the team's understanding of 'participation' and, second, the predominance of the 'biological paradigm' as regards the other principles.

The team—although claiming that they advocate an intermediate kind of participation between two extremes—accept clearly that 'the essence of the design is created by the users' since even a good design by architects and planners cannot create organic environments.

The problem with such an attitude is that, in some cases, it could exclude a broader interpretation of participation and minimize its value. For example, the view that architects and planners are not capable of creating 'organic' environments cannot incorporate infrastructural design in which designers could design the technical hardware through which user participation could be real and continuous. And there is no doubt that such an infrastructural design is highly sophisticated and that professional designers are the main actors in carrying it out[15].

It is certain that other aspects of participation *are* mentioned in *The Oregon Experiment*, such as the educational character of it, the creativity involved in participatory action, and the reciprocal relation between user and built environment during the process of internalization. It is, however, evident that such aspects do not function as catalysts for a broader understanding of participation by the team. So, rather unnecessarily, the authors of *The Oregon Experiment* return to a hypothetical elementary unit—the 'need'—the communication of which between users and professionals becomes again the main target of participatory processes.

The admiration of the perfection of living organisms is one of the dominant features of *The Oregon Experiment*. Although Alexander and his team accept that environmental systems as artifacts, have other properties which to some extent contradict the 'biological' ones, they seem to believe that both of these families can always exist simultaneously to serve 'organic order' through simulated 'biological' growth. The idea becomes clear when the team distinguish between 'large lump development' and 'piecemeal growth':

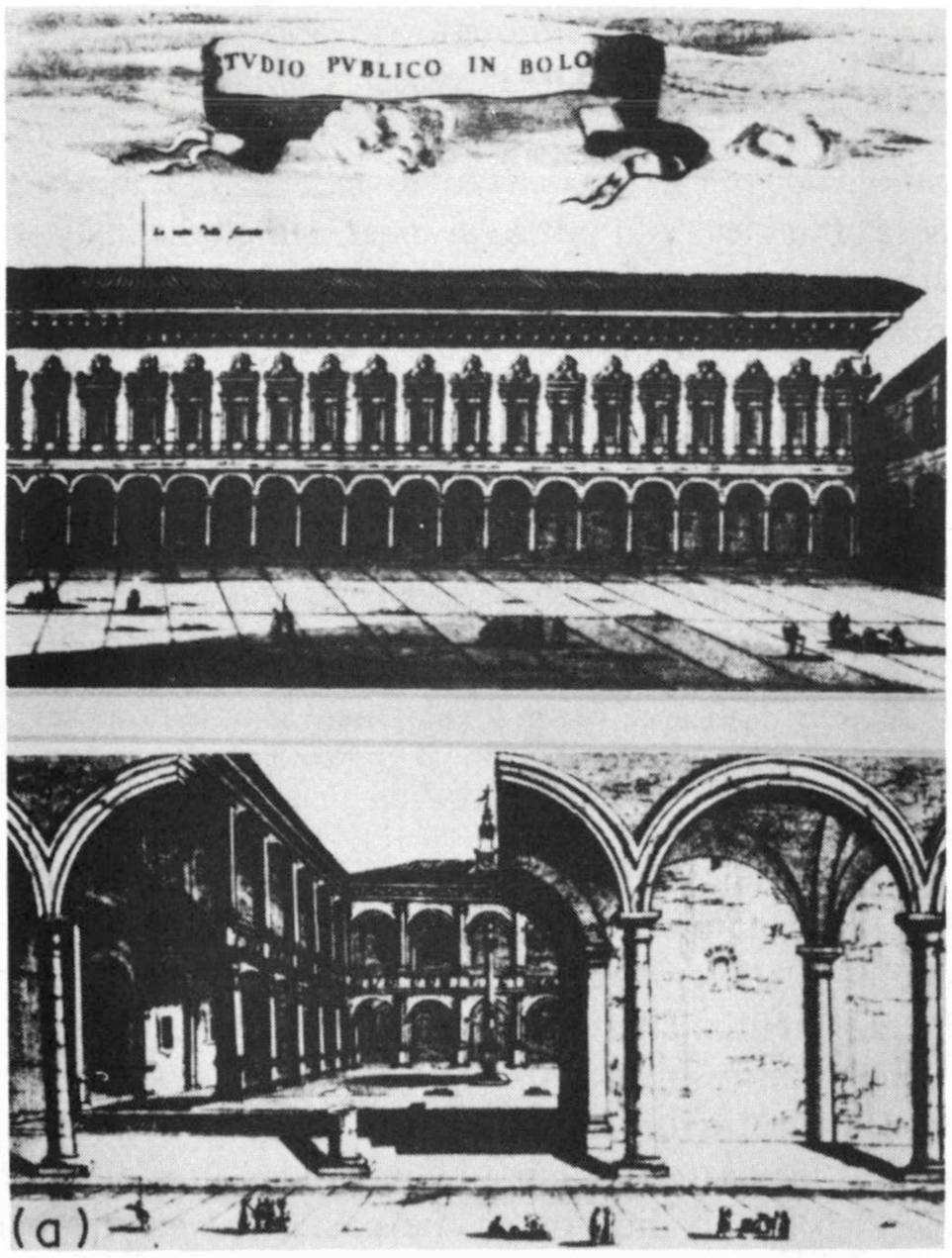
> The basic philosophical difference between the two approaches is this: *Large lump development hinges on a view of the environment which is static and discontinuous*; *piecemeal growth hinges on a view of the environment which is dynamic and continuous*.... Large lump development is based on the idea of *replacement*. Piecemeal growth is based on the idea of *repair*...[16] (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 is integrated within a given mode of production, and also that it did not, in the past, contradict other modes of production; what is *a posteriori* defined as a perfect example of piecemeal growth was sometimes created by 'urban bombs' dropped in the past. On the other hand, the idea of the large monumental building and of environmental symbolism has frequently been nearer to the architecture of universities than the street in Canterbury they mention (Fig. 1)[17].

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 participation—and especially the idea of infrastructural design—can be damaged.

On the other hand, the attempt of the team to persuade university authorities and the building industry that 'piecemeal growth' should be preferred is not entirely convincing; and not because the calculations they present are wrong. In some cases at least, it is not clear at all that university authorities and the contractors who build large monumental buildings are really interested in saving money. The problems of use-value, exchange value, urban land-use and circulation of surplus value are so broad that they cannot be solved only through a logic which advocates the advantages of low-cost buildings[18].

There is no doubt that the belief in the biological paradigm can be considered as a heritage of the *Notes* together with Alexander's initial admiration of scientific analysis. It is clear, however, that although 'organic' forms remain as dominant features in the pattern language of *The Oregon Experiment*, the method itself is strongly influenced by a participatory ideology. The background of this ideology is evident in terms of social beliefs, no matter how objective or timeless the method attempts to appear. Regardless



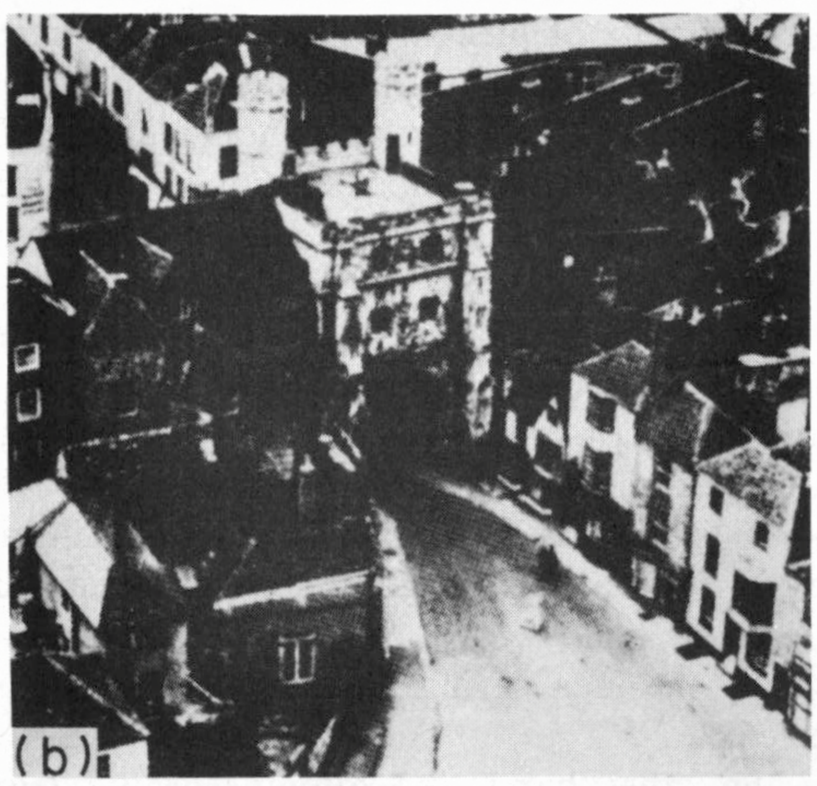


Fig. 1. (a) Archiginnasio, Bologna; (b) street in Canterbury [17].

of the fact that, in the end, this background constitutes one of the main advantages of *The Oregon Experiment*, the very idea of a pattern language has itself a great capacity for further elaboration towards a meaningful description of artificial space and, therefore, towards the practice on it.

3. THE 'PATTERNS' OF *THE OREGON EXPERIMENT*

(a) *Two general notes*

Although in *The Oregon Experiment* patterns are mentioned simply as 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[19].

According to this definition, it is not difficult to conclude that some principles—such as 'organic order', 'piecemeal growth', and 'participation'—are in fact general patterns which are excluded from the list because of their global character and significance and because there is no question about their general validity.

This is the first sign of an internal structure in the pattern language. In this language, 'organic order', 'piecemeal growth', 'participation', 'diagnosis' and 'coordination'—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, as opposed to the other patterns which, in general, are subject to alteration, 'until (they) properly reflect the communal situation (of the people) and their communal needs'[20].

The set of the basic principles—and, especially, of the first four, since 'coordination' simply concludes them—constitutes an ideological background for planning and prescribes *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 'communicative 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 to this structure, there are some indications of it in the way these principles follow each other in the text. It has already been mentioned that the 'pattern of the patterns of the patterns' is in fact 'organic order' and that this signifies the biological model on which the Oregon experiment is based.

The set of patterns proposed to initiate the 'correction' or 'repair' procedure for the Eugene Campus of the Oregon University is undoubtedly the core of the team's idea about what a university is. There is an attempt at the 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 centralized budget...') but the development of very specific patterns, especially designed for a university, does not justify the attempt. The pattern language becomes a specific pattern language suitable for the description and planning of universities. The main corpus of the patterns selected for *The Oregon Experiment* do not belong to *A Pattern Language.* They are new very specialized patterns, invented to outline this particular language more clearly.

Of course, the team promote the idea of specialized pattern languages for particular users or, mainly, for communities advocating that

> ...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[21].

The term 'community' here, as a generator of a pattern-dialect, has a serious epistemological importance for architecture. The team seem to use this term in the *ad hoc* 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, the latter is clearer than the former, although they do not seem to identify the essential difference between the two.

The particular 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 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 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 achronic and not particularly useful. *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 regardless of how reasonable such imperatives are.

(b) *The patterns in particular*

The list of patterns which, according to the team, are sufficient to describe a university structure contains 55 patterns in all. Thirty-seven of them are considered as 'general' and of 'large scale' and the remaining 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'[22].

Although the definition of patterns in *A Pattern Language* and *The Oregon Experiment* is clear, the analytical description of them promotes a variety of eventual interpretations of the concept as well as significant differentiations in the character of patterns.

The basic translation of the term 'pattern' is that patterns represent prototypic structures which are given as solutions to problems defined mostly at the same prototypic level. To understand this better it is useful to consider a simple taxonomic hypothesis of artificial environment presented through the model of the following diagram. In this model, there appear three possible substances of artificial environment (physical space, activities, institutions; or—more precisely—physical space, physical space + activities, physical space + activities + institutions; or—better—physical space, activities in space, institutions concerning space and activities in it), as well as three levels of depth which signify different degrees of structural analysis of built space or/and different degrees of internalization of it by the user (surface, prototypic, deep level) (Fig. 2)[23].

So, patterns in general belong to the intermediate prototypic level as regards the description of problems and the solutions they suggest (Fig. 3).

Because it belongs to the abstract prototypic level, a pattern can produce a set of possible alternative solutions at the surface levels of physical environment and 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'[24]).

To be sure that this reproduction will be successful, the team introduce a second interpretation of a pattern, which is much nearer to Alexander's initial concept of 'diagram' (Fig. 4).

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 . . . plans'[25].

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' etc.) and some highly abstracted syntagms ('organic growth' etc.) which function as criteria of

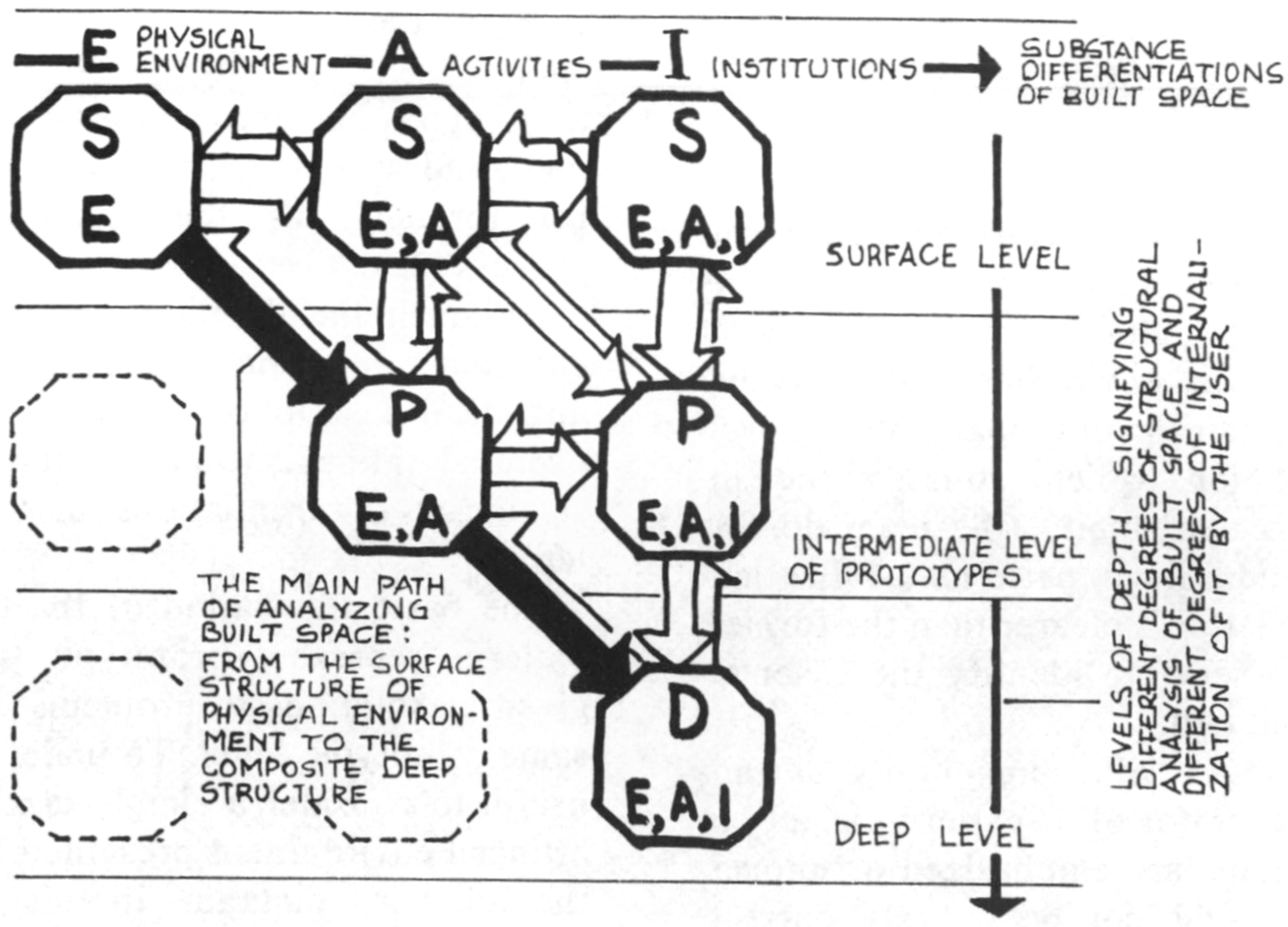


Fig. 2. A simple taxonomic model of artificial environment.

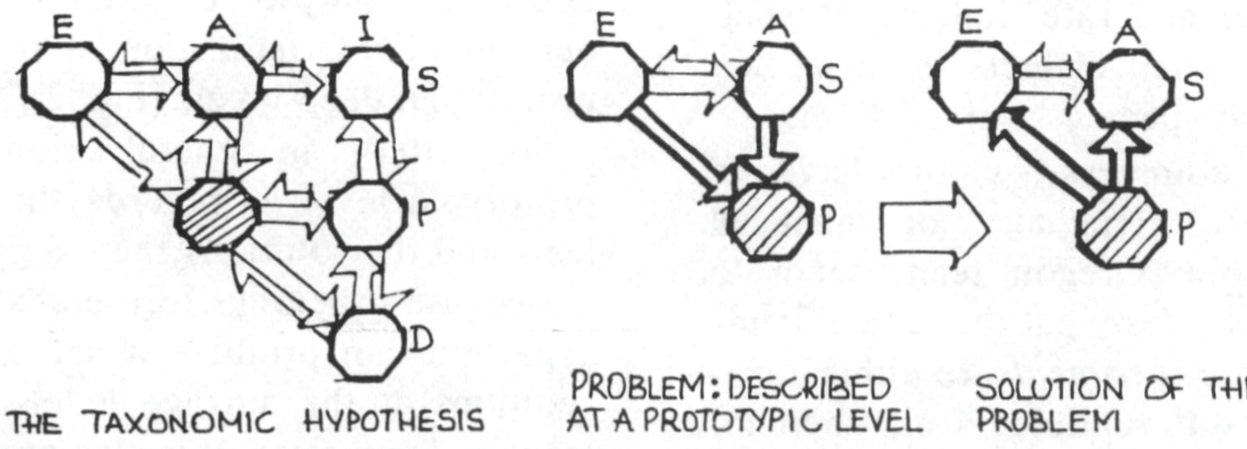


Fig. 3. The general character of patterns according to the taxonomic model.

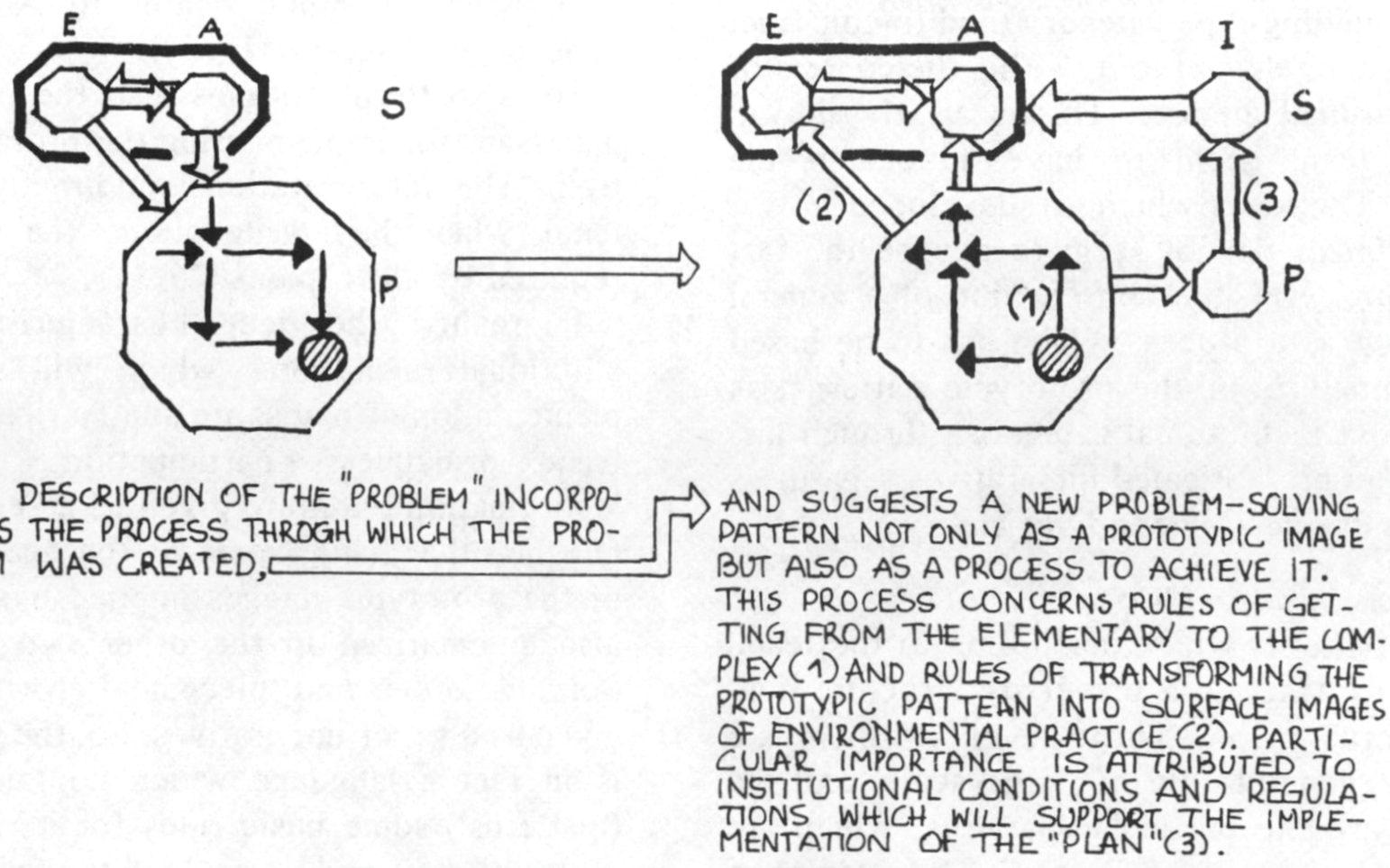


Fig. 4. A second interpretation of patterns.

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 as well as the explanation of their problem origin.

Although the prototypic character of patterns has been emphasized already, the patterns appear to be more complex and diversified than the general definition of 'prototype' would imply. Studying the 32 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 are answered in *A Pattern Language*. For example, the whole set of patterns in *A Pattern Language* ('a network used as a sequence') is hierarchized in terms of scale. Moreover, it is hierarchized in terms of a hypothetical design procedure (a 'sequence'). There are also some thoughts about an overall *super-surface* use of the pattern language ('The *poetry* of the language'[26]). Nevertheless, it is essential to discuss these questions as they occur in the language of *The Oregon Experiment*.

To make this discussion simpler it is useful to classify the Oregon patterns by using the simple taxonomic hypothesis stated above. The taxonomic criteria are enriched here and are expressed 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) (Fig. 5).

The classification of the Oregon patterns according to the criteria incorporated in the four axes is presented in Figs. 6 and 7[27].

The above taxonomy can be presented in a more

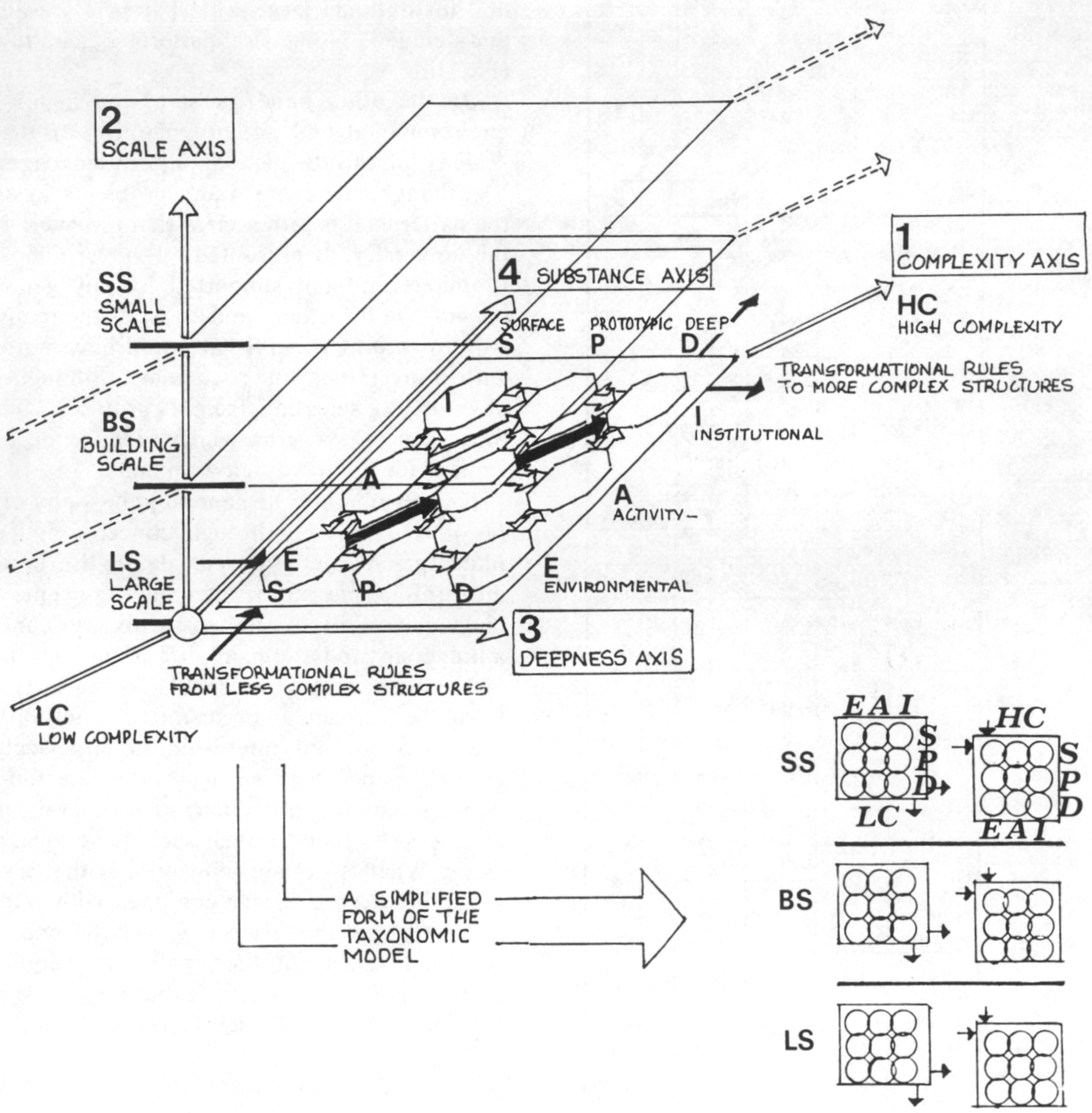


Fig. 5. Taxonomic criteria for classifying the patterns of *The Oregon Experiment*.

structured form as in Fig. 7 (the patterns which, according to the team, are specific for universities are in italics).

There are some simplifications in the above 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 *orders* 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. Second, the patterns as developed in the summarized form of *The Oregon Experiment* are very complex in stuctural terms (although they are clearer as design imperatives). Take as an example, the 'fabric of departments' (Fig. 8)[28].

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'.

(b1) *Two languages*

According to the classification, the surface structure of a university consists of two overlapping sets of patterns; so, it is composed by two overlapping structures, as shown in the example of Fig. 9 (low complexity—large scale).

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 demonstrate 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 (Fig. 10).

On the other hand, most of the highly complex, environmental and activity patterns of the medium scale belong to the general pattern language (Fig. 11).

Although, 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 other hand, most of the really detailed patterns are of general value and have nothing to do with universities in particular, although there is obviously a selection from *A Pattern Language* of those general patterns which seem to be more convenient for university environments.

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.

(b2) *Density, completeness and the university model-structure*

The distribution of the patterns in the levels intro-

	COMPLEXITY		SCALE			DEEPNESS			SUBSTANCE		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	LC	HC	LS	BS	SS	D	P	S	I	A	E
PATTERNS	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	⊕		⊕			⊕			⊕	⊕	
2 Open university	⊕		⊕			⊕			⊕		
3 Student hous. distribution		⊕	⊕				⊕			⊕	⊕
4 University shape+diamet.	⊕		⊕			⊕				⊕	⊕
5 Local transp. area		⊕	⊕					⊕		⊕	⊕
6 Nine per cent parking		⊕		⊕				⊕			⊕
7 Looped local roads		⊕		⊕				⊕			⊕
8 University streets	⊕		⊕	⊕			⊕			⊕	⊕
9 Living learn. circle	⊕		⊕				⊕			⊕	
10 Activity nodes	⊕			⊕	⊕	⊕				⊕	⊕
11 Accessible green		⊕		⊕			⊕	⊕		⊕	⊕
12 Fabric of departments	⊕		⊕			⊕			⊕	⊕	⊕
13 Departments of 400	⊕			⊕			⊕		⊕	⊕	
14 Departmental space	⊕			⊕			⊕				⊕
15 Local administrat.	⊕		⊕				⊕		⊕		
16 Student community		⊕	⊕				⊕		⊕	⊕	
17 Small student unions	⊕		⊕				⊕		⊕	⊕	
18 Building complex	⊕			⊕	⊕		⊕				⊕
19 Circulation realms		⊕	⊕	⊕	⊕			⊕			⊕
20 South facing outdoor space		⊕			⊕			⊕			⊕
21 Positive outdoor space		⊕			⊕	⊕					⊕
22 Wings of light		⊕			⊕	⊕					⊕
23 Parking spaces		⊕		⊕	⊕			⊕			⊕
24 Small parking lots	⊕				⊕		⊕				⊕
25 Bike paths and racks		⊕	⊕	⊕	⊕			⊕		⊕	⊕
26 Local sports	⊕		⊕			⊕				⊕	⊕
27 Classroom distribution		⊕		⊕			⊕			⊕	⊕
28 Departmental hearth	⊕			⊕		⊕				⊕	
29 Faculty-student mixture		⊕		⊕	⊕		⊕		⊕	⊕	
30 Student work place		⊕			⊕		⊕			⊕	⊕
31 Real learning in cafés		⊕			⊕		⊕	⊕		⊕	⊕
32 Arcades		⊕			⊕			⊕			⊕

Fig. 6. Classification of the Oregon patterns.

duced by our taxonomic model can be seen also from a different point of view; that is, density. It is expected that, normally, 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 (Fig. 12).

The existence of such a tree distribution is essential in a pattern language in order to give to users or to 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 that on the left of Fig. 13, our analysis of the Oregon patterns indicated a distribution like that on the right.

Some attributes of this distribution are the following. First, almost half of the patterns belong to the

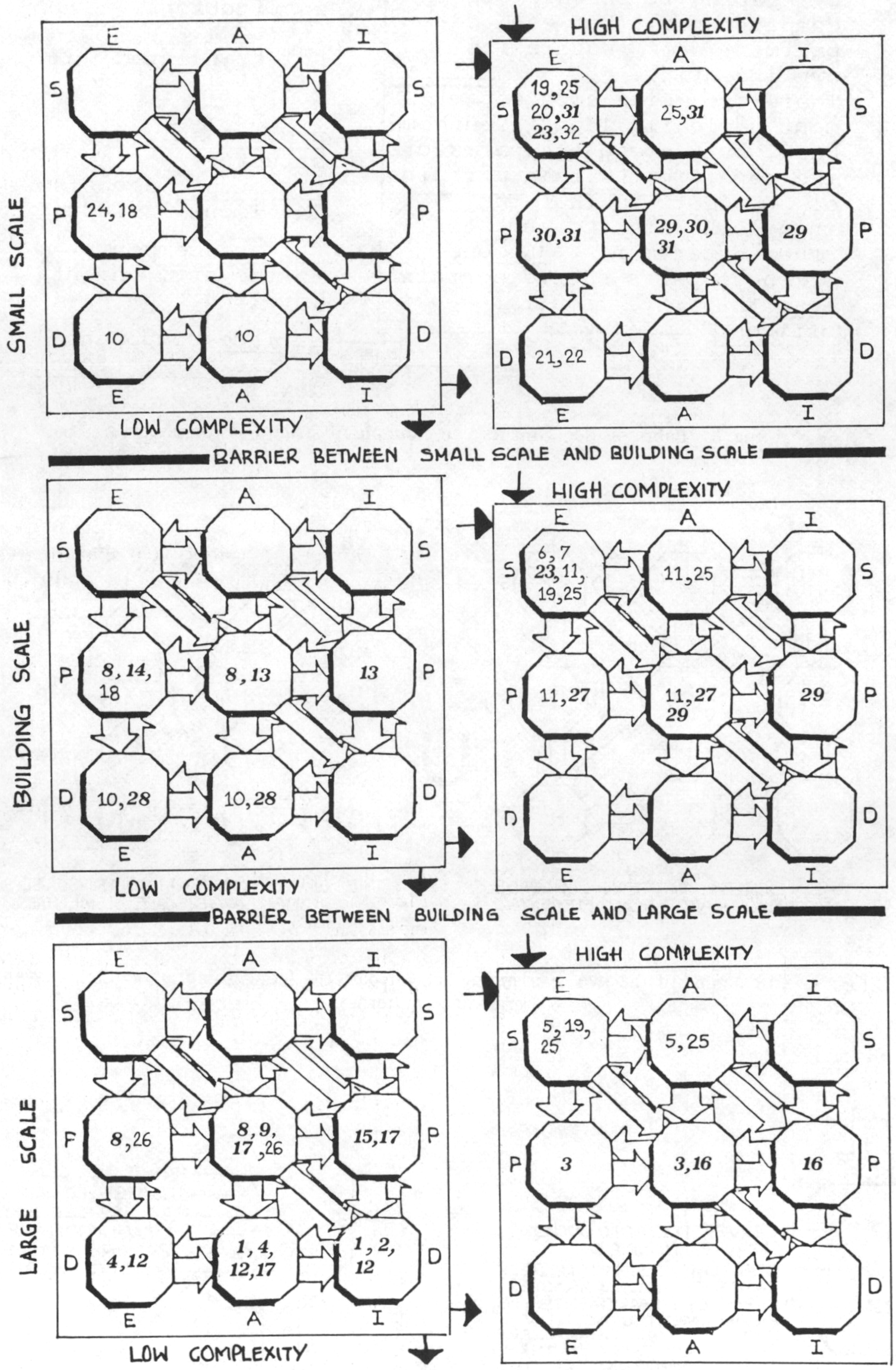


Fig. 7. A structured form of the classification.

area which, in our classificatory model, might be characterized as the area of 'pseudo-levels'. The idea behind this definition is 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 consists of both environmental and activity images interrelated in a coherent representation; deep structures, on the other hand, cannot isolate the institutional characteristics as well (Fig. 14).

Thus, when we deal with 'deep environmental structures' and 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 pur-

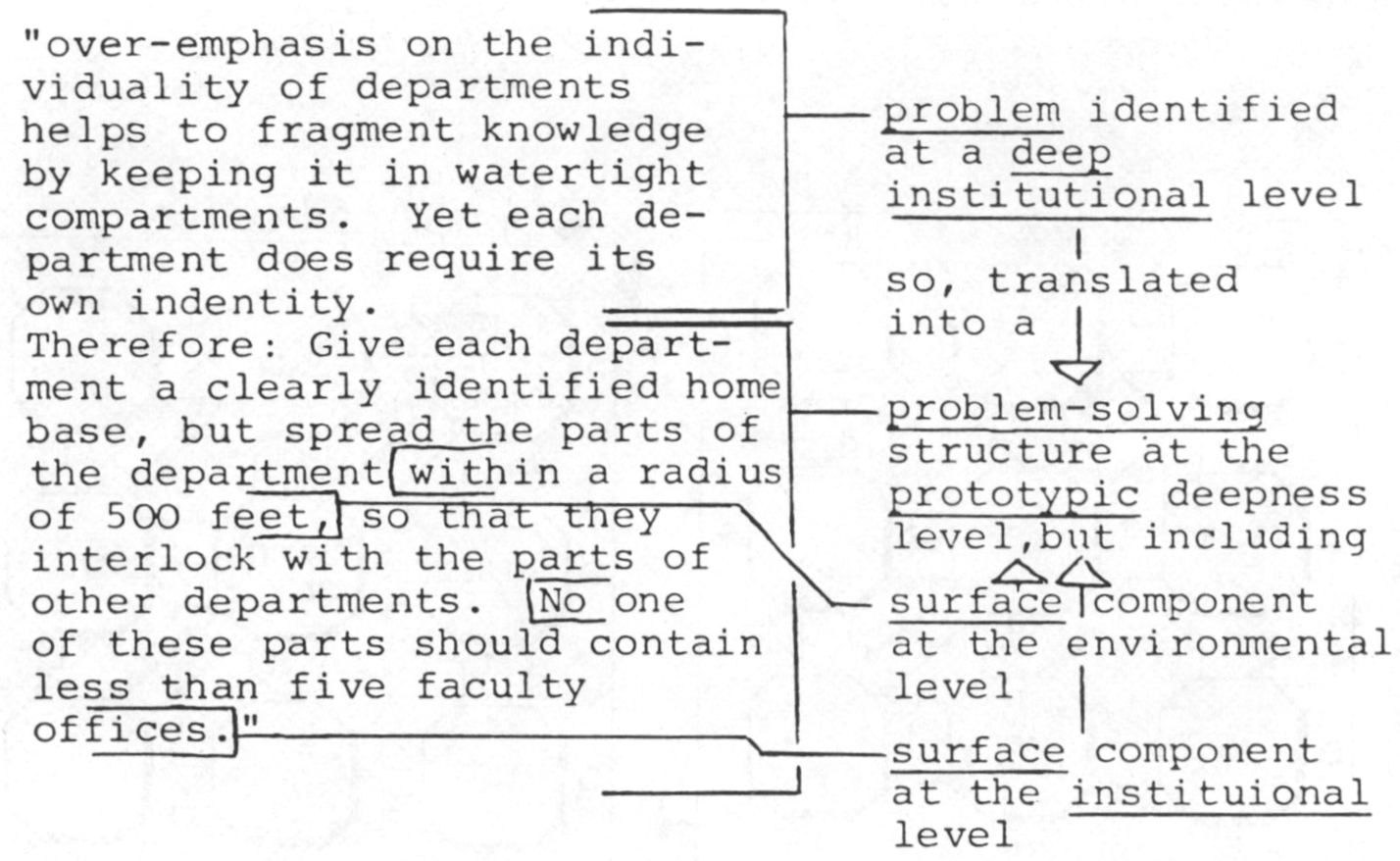


Fig. 8. 'Fabric of departments': an example of structural complexity.

Fig. 9. An example of the two overlapping sets of patterns (concerning low-complexity and large-scale patterns).

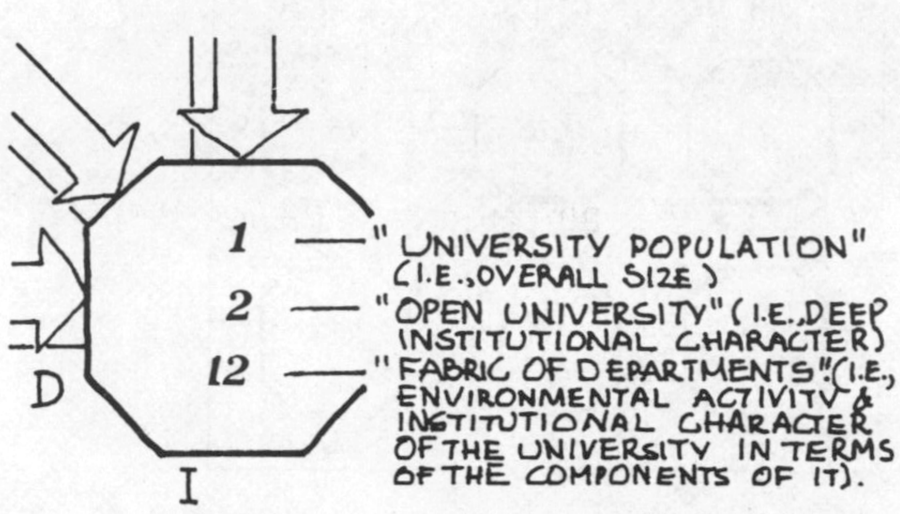


Fig. 10. Elementary, deep, institutional, large-scale patterns.

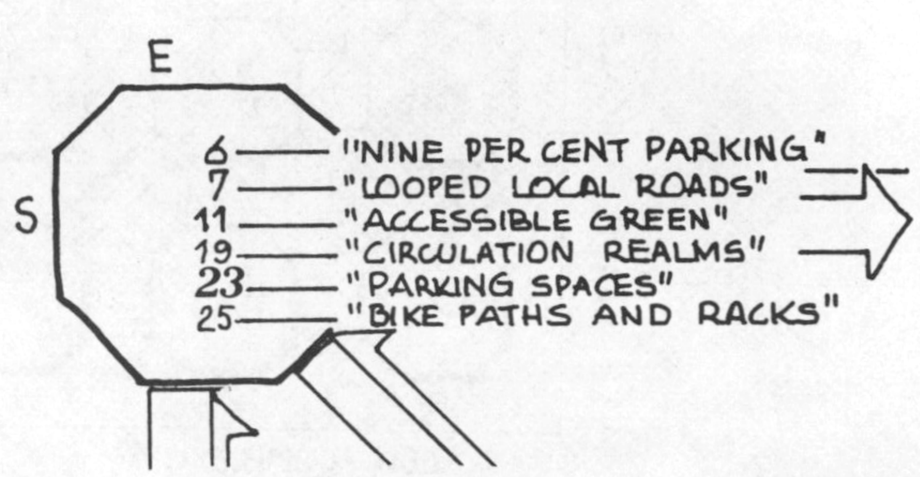


Fig. 11. Complex, surface, environmental, medium-scale patterns.

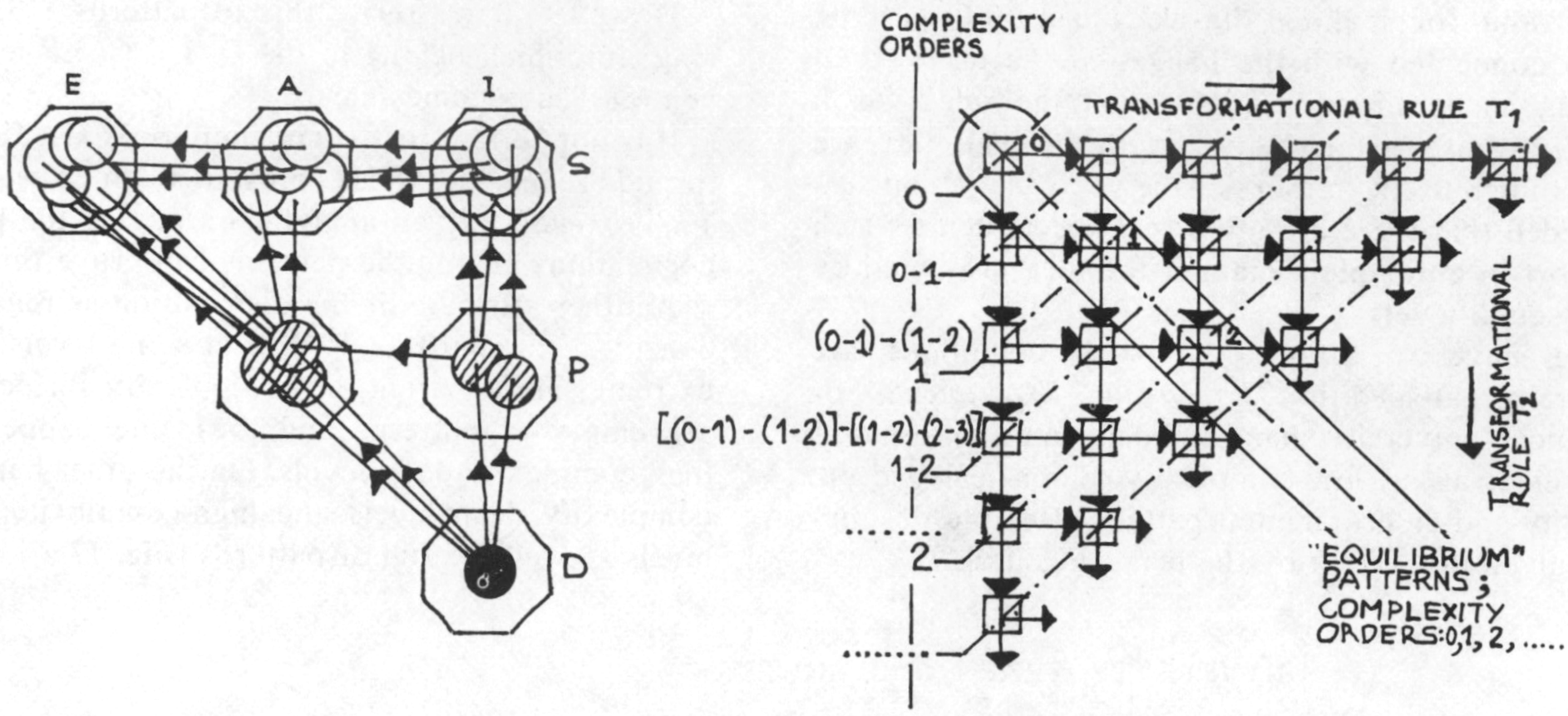


Fig. 12. Surface patterns deriving from deep ones and complex patterns deriving from elementary ones.

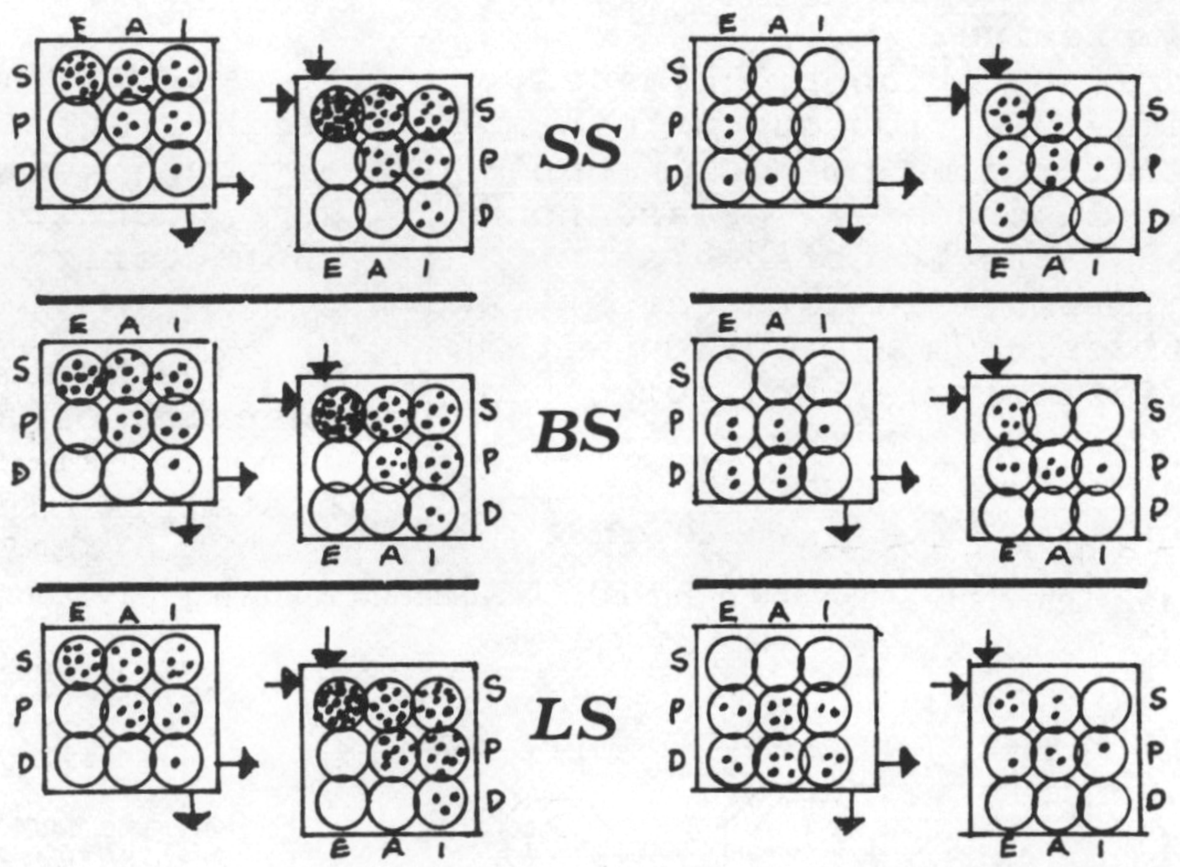


Fig. 13. 'Normal' and existing distribution of patterns in *The Oregon Experiment* according to the taxonomic model (Fig. 5).

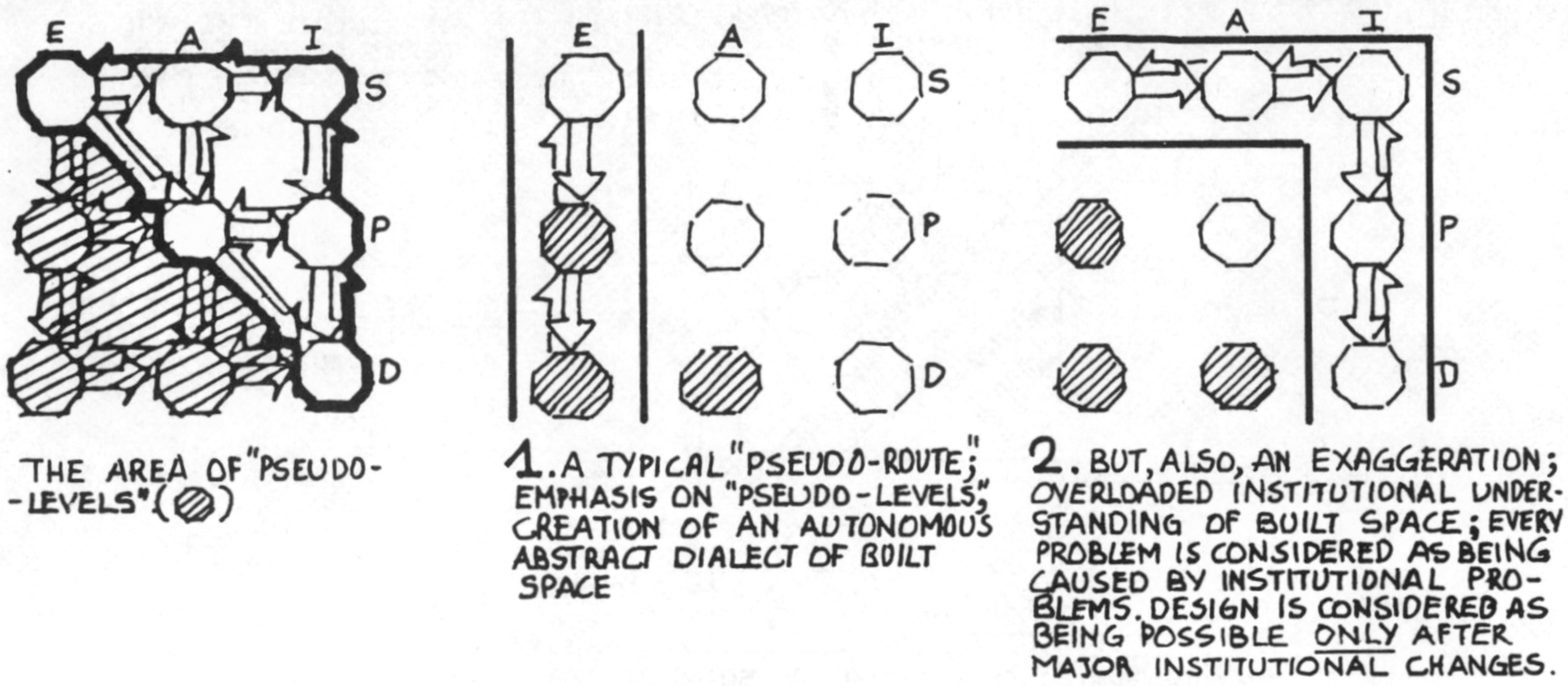


Fig. 14. The area of 'pseudo-levels' and typical 'pseudo-routes' in the process of analysing artificial space.

poses and for making the vocabulary of patterns more connected with the images of the users, such 'hiding' is permitted provided that the rules which connect those 'pseudo-levels' with the real ones, are well known to the 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 generally satisfied in *The Oregon Experiment.* For instance, 'university shape and diameter' (pattern 4) is classified as a low-complexity, large-scale, deep, activity-and-environmental pattern after the description given in the text by the team (Fig. 15)[29].

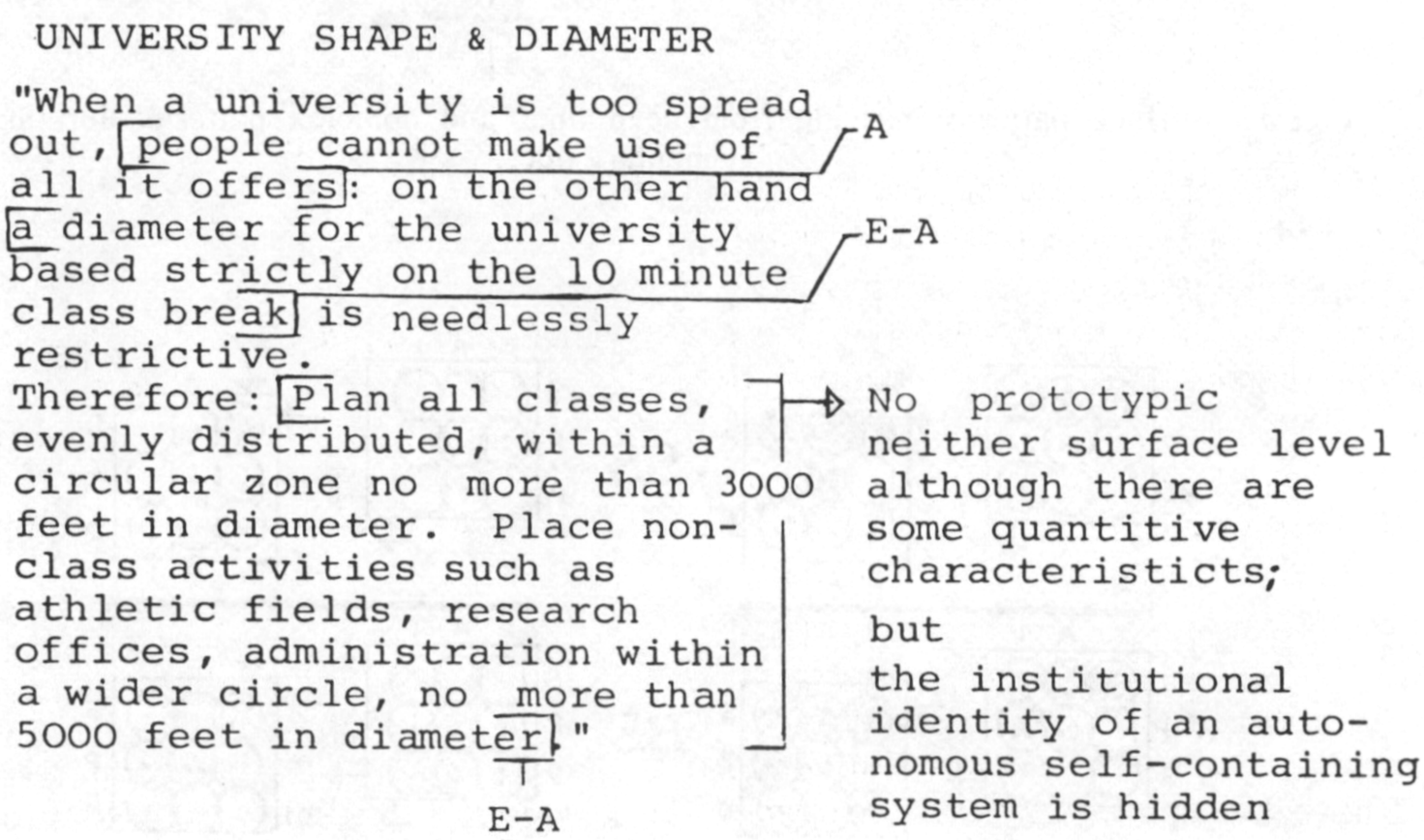


Fig. 15. 'University shape and diameter': classification following the taxonomic model.

However, if we relate this to patterns 1, 2 and 12 (Fig. 16) which belong to the D, I, LC, LS level, the central idea becomes clear.

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.

Another attribute of the distribution as regards the density of the patterns is that, at some levels, certain extremes are apparent: low-complexity surface levels are empty of patterns and the same happens with high-complexity deep levels. On the other hand, low-complexity deep levels and high-complexity surface levels as well are full of patterns (Fig. 17).

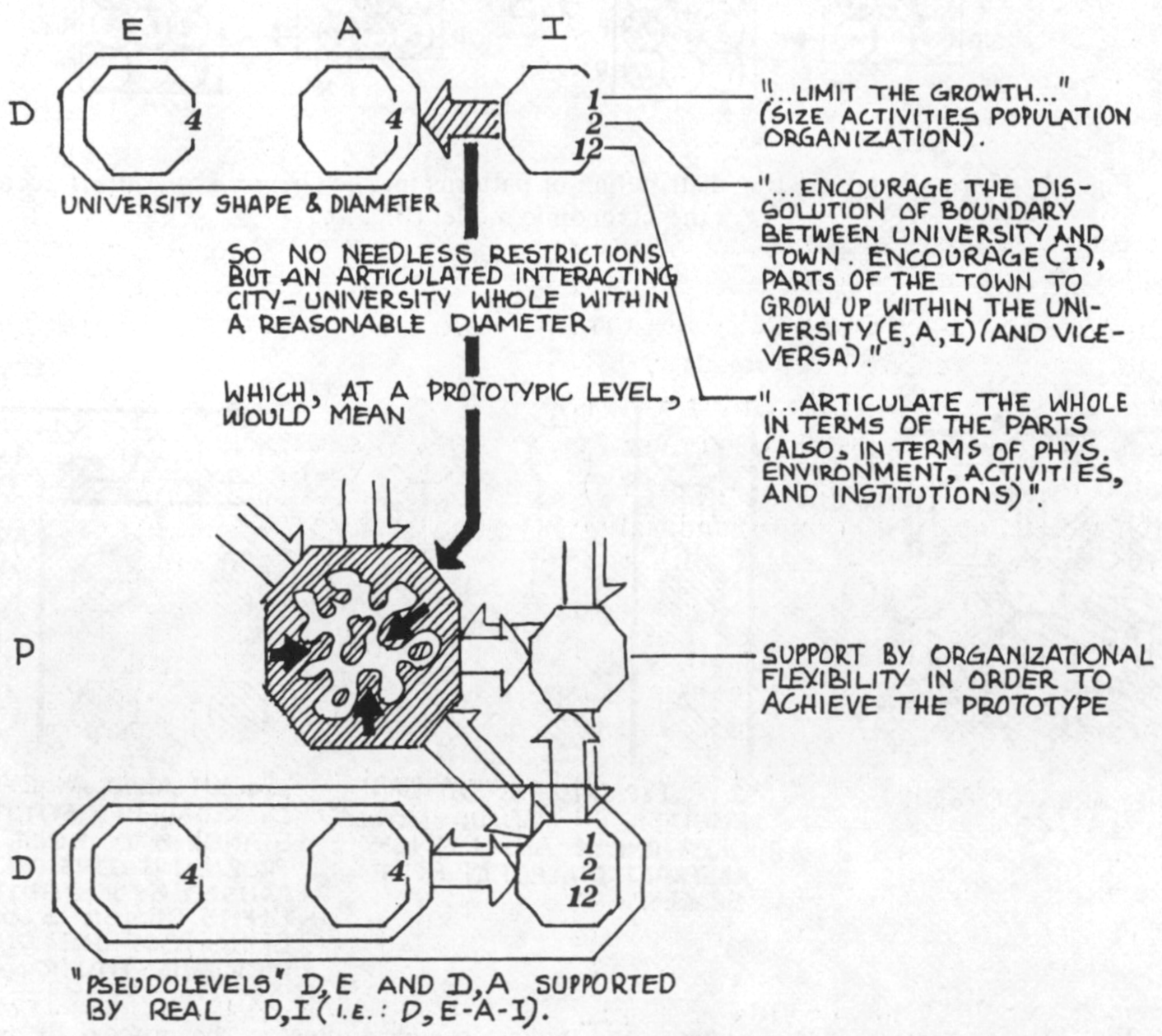


Fig. 16. Pattern 4 'supported' by patterns 1, 2 and 12.

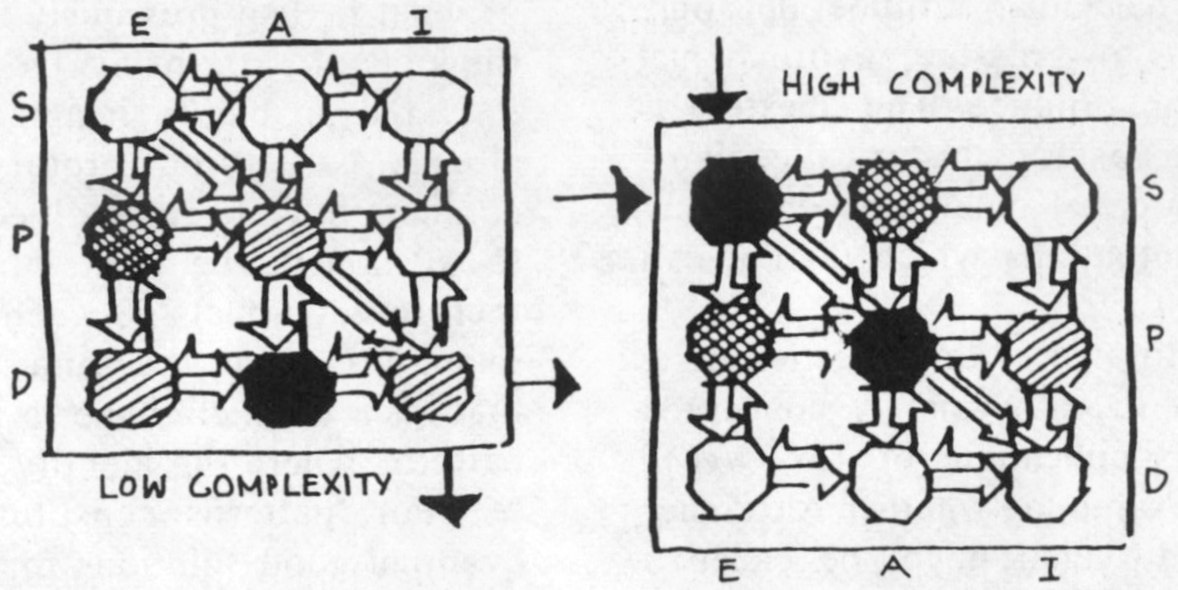


Fig. 17. Density of patterns (low-complexity deep patterns and high-complexity surface patterns).

In fact, *The Oregon Experiment* follows *one* simplified general path from the deep-elementary to the surface-complex, and so it emphasizes the 'syntagmatic' character of the language it implies. There are, of course, patterns of low complexity which belong to upper levels, like 'university streets'. There are also patterns of high complexity which belong to deeper levels, like 'positive outdoor space'. Quite understandably, however, the general tendency of the team is to express the deeper patterns in a general elementary form and the surface examples with the complexity which is justified by their surface position.

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: the distribution does not describe this model-structure.

Some general aspects of this ideal model-structure are clearly integrated within the fundamental principles and predominantly in what has been called 'organic order through piecemeal growth'. More than that, some of the deep, large-scale, elementary patterns enrich this general image. This enrichment is especially promoted by concepts like 'university population' (pattern 1), 'open university' (pattern 2), 'university shape and diameter' (pattern 4) and 'fabric of departments' (pattern 12). So, (see Figs. 7–9) 'organic order' can be grown through piecemeal operations up to a limit (patterns 1, 4) within a complex urban-university interacting system (pattern 2) but following some basic internal principles concerned with the parts of the universities (pattern 12). The team seem, therefore, to be strongly opposed to the 'urban bombs', which establish completely predesigned autonomous campuses of a very large or very small scale, and the parts of which have no particular identity. 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 few examples of new 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 has been extended to a highly analytical list of patterns, regardless of how personal or one-sided these patterns eventually are.

For a structural study of universities, it is essential to explore 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'. Investigating the potential of each pattern to 'radiate' its content to the other patterns—that is, to patterns which are more or less complex, more or less deep and, eventually, of different substance or scale—is definitely a field for further research on *The Oregon Experiment* and the 'pattern language'.

4. SOME FINAL NOTES ON *THE OREGON EXPERIMENT*

Although the quasi-vernacular, human and participatory model-structure of a university—or of an urban form—is not at all repulsive, we have to realize

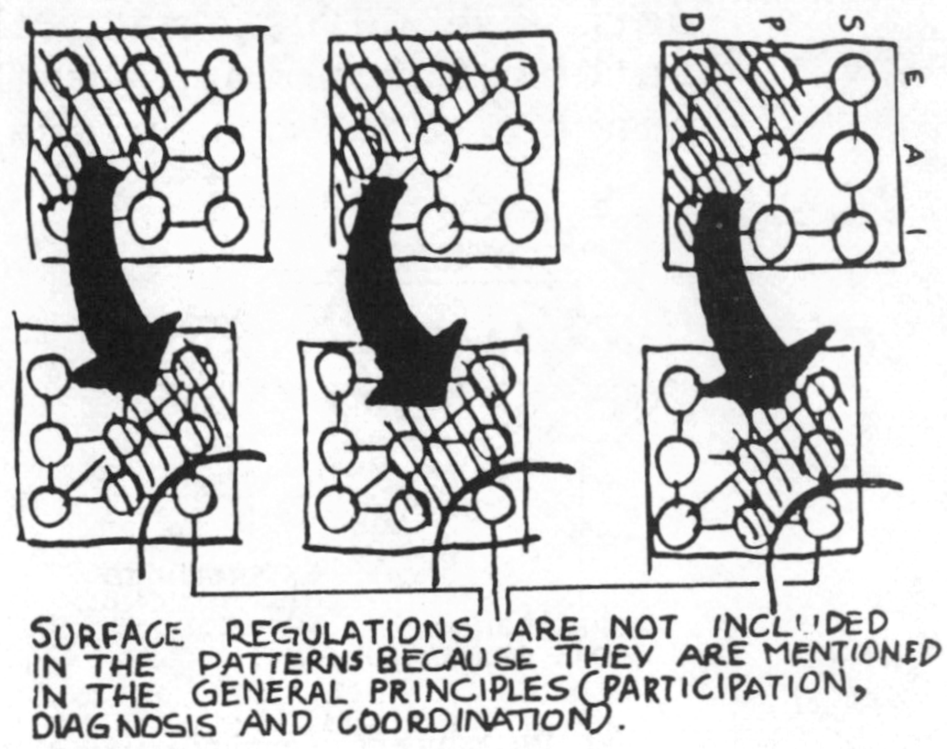


Fig. 18. Density of patterns in general.

that it is based on a particular attitude not only towards society, but also towards the environmental artifacts that society can produce. The question is whether this attitude is a result of historical explanation of contemporary societal conditions or an abstract ideal describing situations which do not exit nowadays and *must* exist.

There is no intention to answer this question here. Nevertheless, since this paper is mainly concerned with the methodological implications of *The Oregon Experiment*, it is worth examining whether Alexander and his team proceed to what might be called a 'contradictional understanding' of university transformations. Such an understanding seems to be essential for a realistic explanation of the societal conditions in which most contemporary universities are planned and grow.

Of course, Alexander is not unfamiliar with an understanding of structures based upon contradictions and antagonisms. 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. Following 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*. The second difficulty derives from the obvious differentiation between problems and proposals in terms of deepness, complexity or substance.

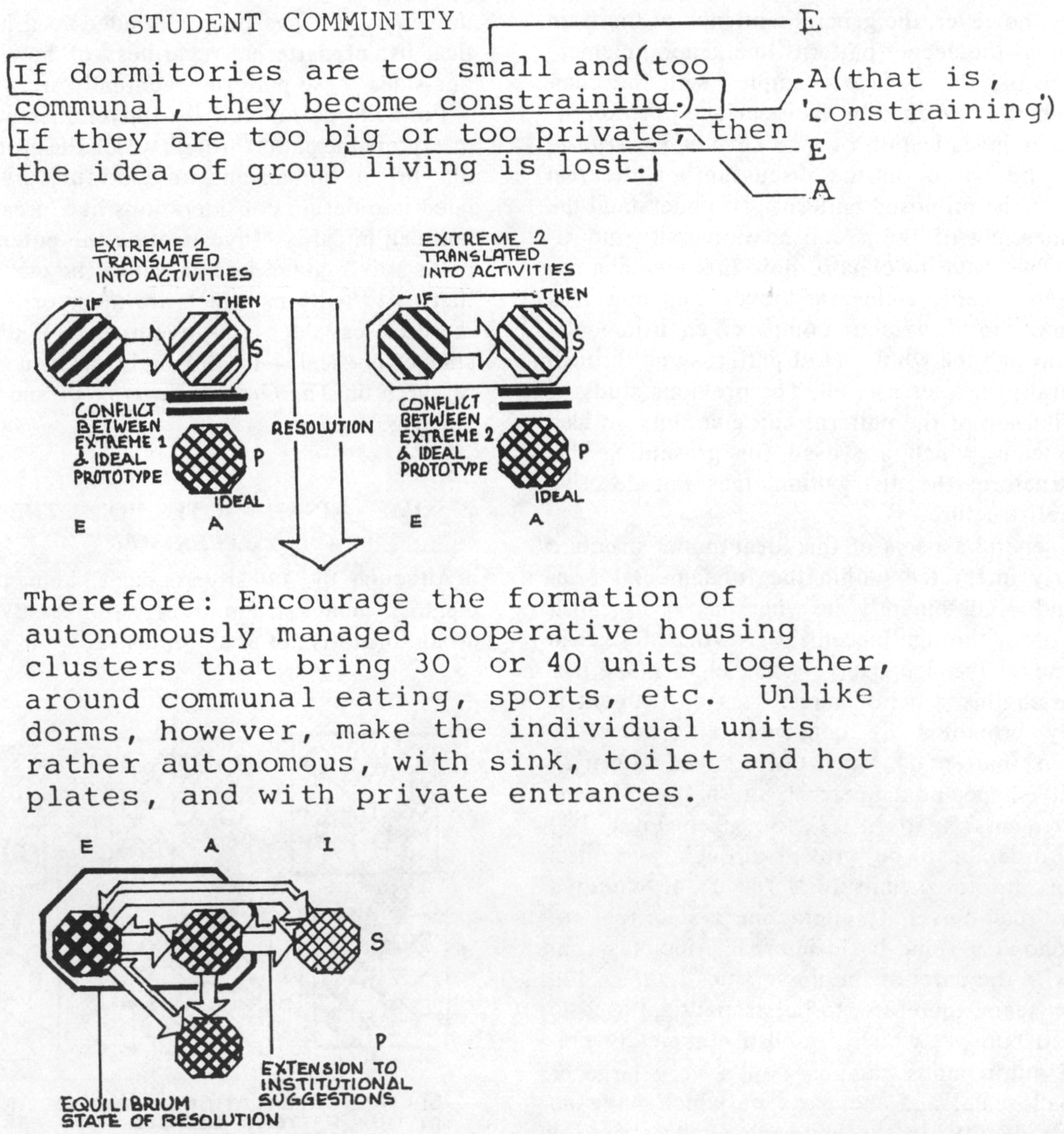


Fig. 19. 'Student community': an example of contradictions included in the formulation of pattern.

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 pattern. In this sense, even if an internal conflict or an 'anomaly' between different substances of a university is apparent—for example, 'anomalies' between the physical environment of a university and the activities taking place in it—, 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 we might call '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 example seen through our model (Fig. 19 pattern 16)[30].

The example shows that the prototypic image, which is promoted by a pattern, is conceived as a middle road between apparent extremes. The whole set of patterns is indeed a set of equilibrium-images, where conflicts are supposedly avoided (Fig. 20).

Although most of the 'problems' stated in the patterns follow the previously explained logic, there are also certain clearer references to contradictions of general character. 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 example in Fig. 21 (pattern 2)[31].

The pattern language of *The Oregon Experiment*—as it is restricted to design proposals which are 'cleaned' of conflicts and represent prototypic images in a state of equilibrium—excludes a number of eventual prototypes and strategies in which the exploitation of the transformational potential of con-

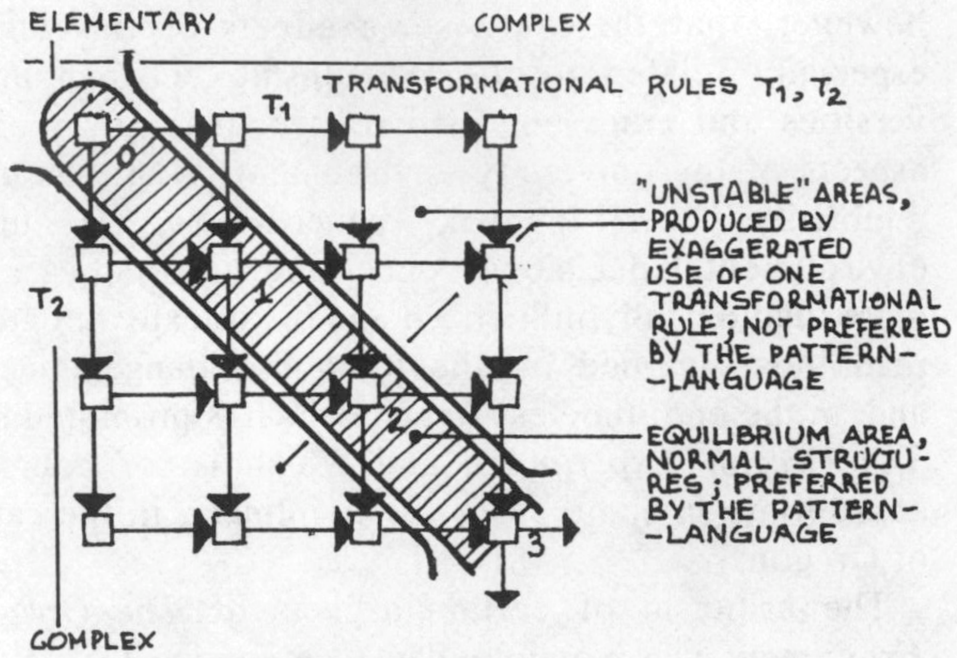


Fig. 20. The area preferred by the patterns of *The Oregon Experiment.*

tradictions would lead to solutions equally effective and imaginative. On the other hand, some basic problems, the contradictional understanding of which might eventually lead to different ideal images of a university, are not mentioned in *The Oregon Experiment.* 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 personnel of a mode of production, and their natural role as centres of societal guidance, a role that universities have continuously played.

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 universities. It has been shown through history,

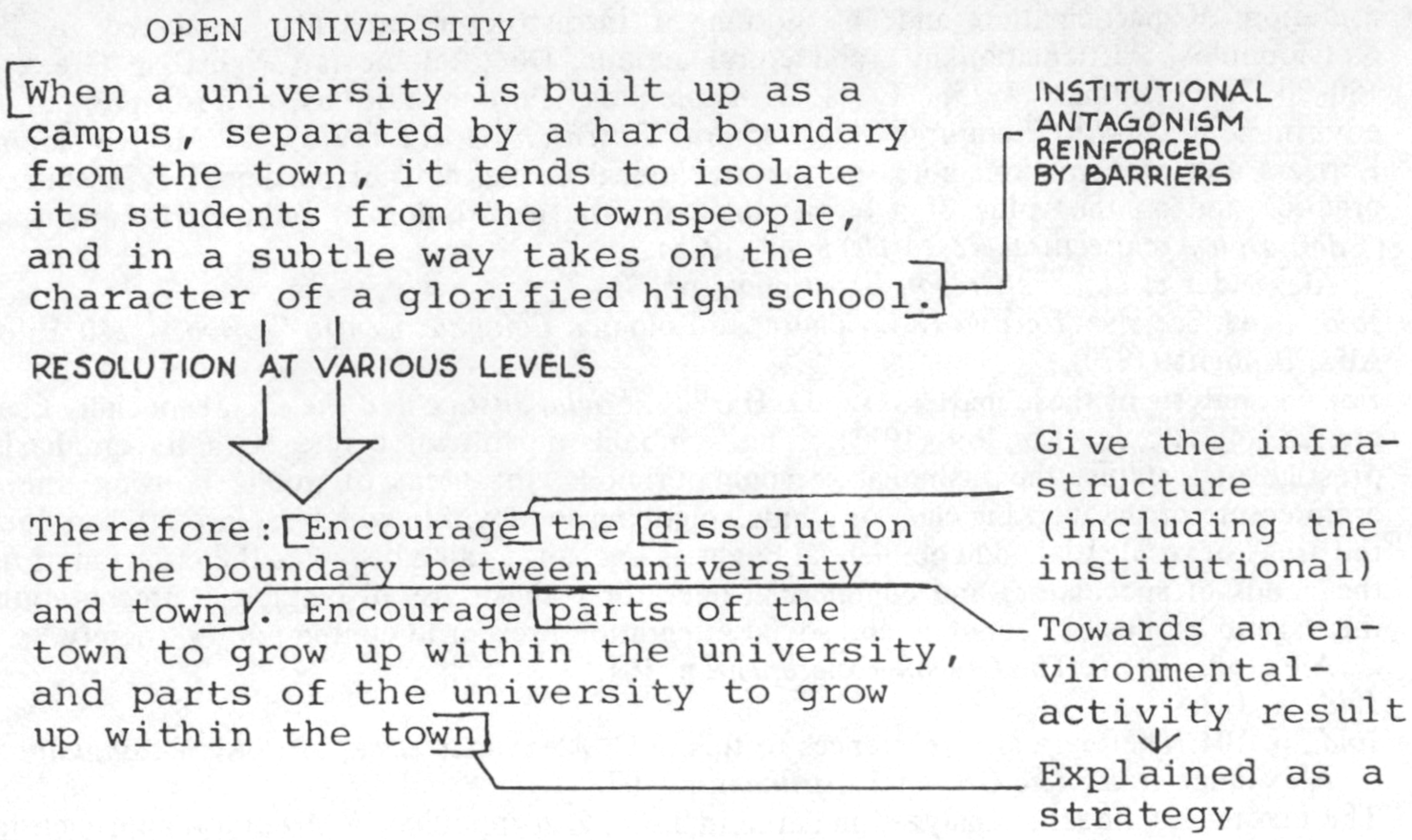


Fig. 21. 'Open university': the presence of contradictions of general character.

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 undoubtedly been 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*, and which is, of course, appropriate in some cases as, eventually, in the case of Oregon.

The criticism of certain aspects of *The Oregon Experiment* was not intended to minimize the value of the pioneering work carried out by Alexander and his colleagues. Many critics agree about the power of the pattern language as a tool for understanding and planning the artificial space and as a 'wonderful' apparatus for architectural education. From the point of view of this paper, 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. *The Oregon Experiment* shows clearly, in the end, that there are some basic advantages in accepting a logic which is based on the linguistic paradigm for explaining artificial space.

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20. *Ibid.*, p. 103.
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