5 / HOW THE FIFTEEN PROPERTIES HELP CENTERS COME TO LIFE

Let me therefore now go over, once again, the specific individual roles of the fifteen properties. Having observed the properties, having noticed them, it is important to ask exactly what they are, and to understand them more deeply, in relation to the structure of wholeness, and the structure of centers. Simply put, *I believe that these properties arise because they are the principal ways in which centers can be strengthened by other centers.*[8] They are, if you like, fifteen ways of talking about centers, and the way that the existence and life of centers dominates the existence of life in the world.

1. LEVELS OF SCALE is the way that a strong center is made stronger partly by smaller strong centers contained in it, and partly by its larger strong centers which contain it.

1. Levels of scale

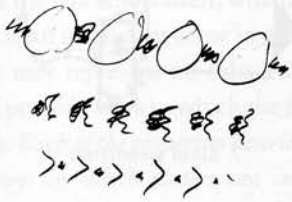
2. STRONG CENTERS defines the way that a strong center requires a special field-like effect, created by other centers, as the primary source of its strength.

2. Strong centers

3. BOUNDARIES is the way in which the field-like effect of a center is strengthened by the creation of a ring-like center, made of smaller centers which surround and intensify the first. The boundary also unites the center with the centers beyond it, thus strengthening it further.

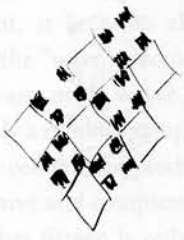
3. Boundaries

4. ALTERNATING REPETITION is the way in which centers are strengthened when they repeat, by the insertion of other centers between the repeating ones.



4. Alternating repetition

5. POSITIVE SPACE is the way that a given center must draw its strength, in part, from the strength of other centers immediately adjacent to it in space.



5. Positive space

The matrix below gives a rough overview of the way the properties are interdependent. When I first identified the fifteen properties this pattern of interdependence seemed very puzzling and troublesome. It meant that the properties are not "atomic" or fully independent features of systems. However, I soon began to think this was significant and important rather than troublesome. The interdependence of the properties seemed to contain a hint of something else, something richer and more complex than the properties themselves — and also more unitary — which somehow lay behind the properties. I began to realize that these fifteen properties were indicators, rough approximations of some deeper structure which looked and felt like "all of them together."

This "deeper" structure had to be an extended thing in space, a "something" which existed across space, and which allowed the fifteen properties to emerge from it. During the late seventies, I began thinking that this "something" must be some kind of field in which centers create wholeness and wholeness intensifies centers.

I finally recognized that it is the field of centers which is primary, not these fifteen properties, and that the properties are simply aspects of the field which help us to understand concretely how the field works.

At that stage I began to formulate the basis for a new view of space based on wholeness, in which these fifteen properties appear naturally and inevitably from the nature of wholeness, and in which it becomes clear how and why life occurs in space, not as an attribute of living organisms, *but as an attribute of space itself.*

THE INTERACTIONS OF THE FIFTEEN PROPERTIES

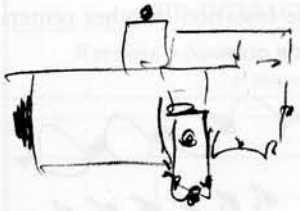
If property A depends on property B or we need property B for a complete understanding of property A then an asterisk appears in cell AB

		PROPERTY B														
		LEVELS OF SCALE	STRONG CENTERS	BOUNDARIES	ALTERNATING REPETITION	POSITIVE SPACE	GOOD SHAPE	LOCAL SYMMETRIES	DEEP INTERLOCK AND AMBIGUITY	CONTRAST	GRADIENTS	ROUGHNESS	ECHOES	THE VOID	SIMPLICITY AND INNER CALM	NOT SEPARATENESS
PROPERTY A	LEVELS OF SCALE		*	*			*			*						
	STRONG CENTERS				*			*		*	*			*		*
	BOUNDARIES		*		*			*	*	*	*					
	ALTERNATING REPETITION		*			*	*		*	*						*
	POSITIVE SPACE	*	*	*			*	*		*		*		*		
	GOOD SHAPE	*	*			*	*		*		*		*		*	
	LOCAL SYMMETRIES	*				*				*				*		
	DEEP INTERLOCK AND AMBIGUITY				*	*				*		*	*			*
	CONTRAST			*		*			*		*			*		*
	GRADIENTS	*	*					*		*		*	*			*
	ROUGHNESS		*			*	*				*				*	*
	ECHOES	*					*	*			*	*				*
	THE VOID	*		*		*		*		*					*	
	SIMPLICITY AND INNER CALM						*	*					*	*		*
	NOT SEPARATENESS			*		*			*		*	*		*	*	

6. GOOD SHAPE is the way that the strength of a given center depends on its actual shape, and the way this effect requires that even the shape, its boundary, and the space around it are made up of strong centers.

6. Good shape

7. LOCAL SYMMETRIES is the way that the intensity of a given center is increased by the extent to which other smaller centers which it contains are themselves arranged in locally symmetrical groups.

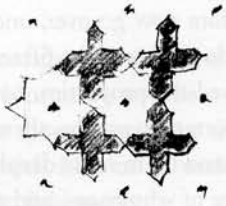


7. Local symmetries

8. DEEP INTERLOCK AND AMBIGUITY is the way in which the intensity of a given center can be increased when it is attached to nearby strong centers, through a third set of strong centers that ambiguously belong to both.

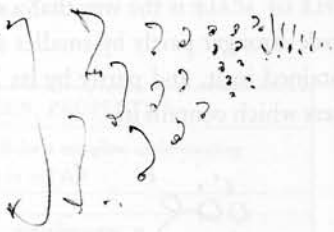
8. Deep interlock and ambiguity

9. CONTRAST is the way that a center is strengthened by the sharpness of the distinction between its character and the character of surrounding centers.



9. Contrast

10. GRADIENTS is the way in which a center is strengthened by a graded series of different-sized centers which then "point" to the new center and intensify its field effect.

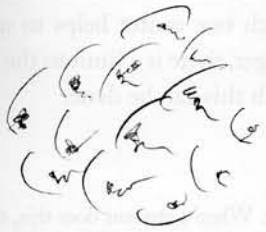


10. Gradients

11. ROUGHNESS is the way that the field effect of a given center draws its strength, necessarily, from irregularities in the sizes, shapes and arrangements of other nearby centers.

11. Roughness

12. ECHOES is the way that the strength of a given center depends on similarities of angle and orientation and systems of centers forming characteristic angles thus forming larger centers, among the centers it contains.

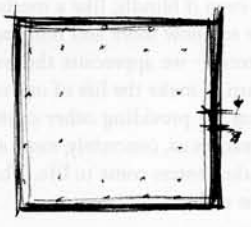


12. Echoes

13. THE VOID is the way that the intensity of every center depends on the existence of a still place — an empty center — somewhere in its field.

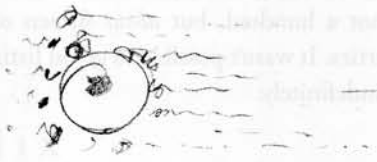
13. The void

14. SIMPLICITY AND INNER CALM is the way the strength of a center depends on its simplicity — on the process of reducing the *number* of different centers which exist in it, while increasing the *strength* of these centers to make them weigh more.



14. Simplicity and inner calm

15. NOT-SEPARATENESS is the way the life and strength of a center depends on the extent to which that center is merged smoothly — sometimes even indistinguishably — with the centers that form its surroundings.



15. Not-separateness

The fifteen properties are not independent. They overlap. In many cases we need one of them to understand the definition of another one. This is because it is the field of centers itself which is primary, not these fifteen properties. The properties are simply aspects of the field which help us to understand concretely how the field works.

However, even though the properties do not have primary significance and it is the field of centers, or the wholeness itself, which is primary, still there is an important sense in which the fifteen ways may represent an exhaustive description of all possible ways in which the field of centers works. *Each of the properties describes one of the possible ways in which centers can intensify each other.* Each one defines one type of spatial relationship between two or more centers, and then shows how the mutual intensification works in the framework of this relationship.

In effect, the fifteen properties are the glue, through which space is able to be unified. The fifteen properties provide the ways that centers can intensify each other. Through the intensity of centers, space becomes coherent. As it becomes coherent, it becomes alive. The fifteen properties are the "ways" it comes to life.[9]

Are there any other ways? Is this catalogue of fifteen merely a random sample of the possible ways in which centers can produce a field? Or is this an exhaustive and complete list?

The number fifteen is only rough. At various stages in the evolution of this theory, I have

had a catalog of twelve, fourteen, thirteen, fifteen, sixteen. The precise number fifteen is not significant. But I do believe that the order of magnitude of the number is significant. Throughout my efforts to define these properties, it was always clear that there were not five, and not a hundred, but *about* fifteen of these properties. It wasn't possible to go on listing new ones indefinitely.

There is no certainty that this list is exhaustive. On the other hand, if you try to think up other effects which are combinatorially different from these, you will find it is not very easy. When we focus on the mathematical ways in which centers can be built out of other centers, or the ways in which one center helps to make other centers stronger, there is a limit to the number of ways in which this can be done.

NOTES

1. These properties may be thought of as an elaboration of the observations, recorded more informally in THE TIMELESS WAY OF BUILDING (New York: Oxford University Press, 1979), chapter 23. It was the content of that chapter, written in 1975, which stirred in me the need to start the observations that are recorded here.

2. Christopher Alexander and Susan Carey, "Subsymmetries," PERCEPTION AND PSYCHOPHYSICS 4 (1968): 2, 73–77; Christopher Alexander and Bill Huggins, "On Changing the Way People See," PERCEPTUAL AND MOTOR SKILLS 19 (1964): 235–53. The experiments are also discussed further in appendix 2.

3. Toward the end of Book 2 (chapter 14), we shall see that almost everything about life in buildings can, in the end, be understood through symmetries, and that, indeed, there may be a way in which the concept of wholeness, and the field of centers, when understood dynamically, can be understood completely in terms of a sequential unfolding of symmetries.

4. Evidently there is a deep connection between the presence of local symmetries in a field and the occurrence of a center. In empirical studies of wholeness symmetry has always played a role. Symmetry is one of the powerful ways that space is made whole. When a part of space is symmetrical it is internally coherent.

5. For the case of a crystal, Humphries argues that there is more structure in the grid with slight irregularities, because it still has the grid structure, but some additional differentiations and other structures as well. Humphries in ASPECTS OF FORM, ed. L. L.Whyte 1951 (Bloomington, Indiana University Press, 1961).

6. Soetsu Yanagi, THE UNKNOWN CRAFTSMAN (Tokyo: Kodansha International Ltd, 1972).

7. In physics and biology, "homology."

8. See chapter 4.

9. It is vital for the reader to understand that, even though they are so important, the fifteen properties are not essential in themselves. What matters in the end is the life of the *centers*. The importance of the properties is simply that they help you to understand the way that centers come to life. I often give students the task of making small drawings in which they illustrate the fifteen properties one by one. When a student does this, there are two kinds of things that can happen. In one case, A, the property is present in the drawing so that, formally, one may say that the property exists there. But in the case A, nothing really happens. Life does not enter the drawing because the student has not really understood the meaning of the property. Life and feeling are not increased: so the essential inner meaning of the property has not been understood.

In another case, B, the student uses the property in such a way that *because* of it the drawing gets more life. Thus the property is useful, active, powerful, in helping to bring life and feeling into that drawing. In this case, B, I say that the student has understood the property.

What is the real difference between these two cases, A and B? It hinges on the fact that a drawing gets life when the centers in the drawing have life; when there are many living centers, instead of a few only; and when the centers have a deep intensity of life in them. So, in a drawing which has life and feeling, it has it because the centers in it are alive. What all this means is that the property itself is not important. What is important is only the fact that centers must be created, densely, and that they must be given life.

That is what I mean by saying that, really, the properties are not so important, and can be "thrown away" — and that what really matters is the person's ability to see the centers, to make more and more centers, and to make them come to life. But I do not want to undervalue the properties. It takes years — perhaps three, five, ten years — to learn the process of making centers, and to know what it means to make a center come to life. In the meantime, the properties are a very useful tool; they are a way of focusing our attention on the centers. By following the properties, even if blindly, like a mechanical tool, we gradually come to know more and more and more about the life of centers — we appreciate the way that centers interact, we learn to make the life of one center more intense, by adding, or providing other centers — and the property thus teaches us, concretely, more and more about how we can make centers come to life. That is the whole ball game in the end.