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# Understanding the Visual Language of Design: A Hierarchical Approach to Gestalt Formalism

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# Understanding the Visual Language of Design: A Hierarchical Approach to *Gestalt* Formalism

## Abstract

For nearly a century the *Bauhaus* basic design program has gone in and out of fashion. Its *Gestalt* approach to seeing, ordering and teaching visual design largely remaining unchanged. Today many schools of art, architecture, and environmental design still incorporate its visual design elements and principles into their beginning courses. In those design studios a litany of words often describes visual phenomena and becomes the basis for manipulating or analyzing the visual environment. To the dismay of students, teachers, critics, artists and others who design or communicate about our visual world, this list of descriptors, depending on the user, never repeats in the same order, goes unrelated, or rarely seems to have the same importance. While we begin to comprehend the meanings and applications of visual design when shown examples, two designers might describe the same scene or artwork with elements changing into variables, and their combinations becoming principles or laws.

During the time span that basic design has held sway and its language grown muddled, new ideas about human cognition, general systems theory, and hierarchy theory have emerged. This paper examines a suite of common visual design terms and concepts then organizes them by applying a systems approach using hierarchy theory. Then, having reviewed *Gestalt* formalism, a proposed model redirects *Gestalt* focus on form and applies it directly to recognizing and reordering elements of visual design into color, texture, form and mass/space.

## Excursus

This paper comes about for several reasons and since its topic is rather esoteric, it important to give some background. Several years of guiding landscape design courses, required me to develop a semantic and systematic method for teaching visual design. I did this to aid the students' understanding by structuring visual properties that are normally difficult to verbalize. That these properties are so hard to verbalize becomes evident in the terminology used in discussions and descriptions by visual designers. There always seems to be a list of design adjectives followed by etc. The order and relationship of their lists never coincides nor are they structured in any repeatable, logical way.

## Language: Verbal and Visual

Words as part of a verbal language offer a translation of a complementary way of knowing about what is seen. According to Jon Lang (1987) people and social milieu communicate by speech, writing and design forms. So, if one is to communicate, there needs to be rules and structure, so abstract concepts found in visual phenomena find consensus. General semanticist, S. I. Hayakawa (1944 p.10) notes, "Vision shares with speech the distinction of being the most important means by which apprehend reality." Here we are concerned about design and understanding it as a human language in which grammar is simply another way of denoting meaning shaped by context (Bateson 1979).

Systems thinker, Gregory Bateson states, "Things can only enter the world of communication and meaning by their names, qualities, or attributes." Verbal language deals mainly with names, visual language mostly with qualities and attributes. Visual rules would make it a linguistic, complementary way of knowing about reality. Gardner (1982, pp. 32-33) notes anthropologist Levi-Strauss indicated "...the principal feature of all minds is to classify..." "Individuals devise concepts and comparisons ...because they satisfy cognitive constraints (they are good to 'think with')." "

Furthermore, Lancelot Law Whyte (1969, p. 1) understands language and observer are interwoven in a system,

"As humans, we belong to that component of nature given to organizing and structuring. We not only physically organize ourselves and our environment, but we also organize our perceptions of the physical world into abstract structures. When we

project these abstractions back onto the physical world, their usefulness leads us to surmise that they reflect to some degree a structure possessing independent existence.“

Whyte, an early systems theorist, implies that what we make of reality and then communicate about it says something about us as well.

A language consists of a set of recognizable, mutually agreed upon symbols that convey meaning, though done differently for verbal and visual languages. These symbols can change in meaning as the observer or receiver understands them in various contexts. A verbal language is a complex system of discursive symbolism in which Gardner (1982, p. 51) states,

“one notes the meaning of each term, combines them according to accepted rules of syntax and arrives at a commonly shared meaning.[as opposed to].Presentational symbolism [occurs when] an idea could be gleaned from a picture. [They] present themselves and must be apprehended as a whole, moreover, primarily through shades of meaning, nuances, connotations and feelings.”

Yet one must not expect a presentational, visual language to be a direct analog of the verbal as does Nelson Goodman (1968). He is concerned with “notationality“- a reproducible set of symbols that will provide meaning. Garner (1982, p. 57) says, visual language does not have notationality because ,

“[A]rtrforms such as painting, and sculpture violate all criteria of notationality. One cannot ascertain what the constituent elements are (there are no equivalents to words or notes in paintings), or how they might conceivably be combined, or what the elements of the work or the work as a whole stand for or represent.“

Words appear to have concrete meaning and be attached to specific objects. Harries-Jones (1994, p. 68) in tracing the importance of Bateson’s ideas on cybernetics and epistemology describes how Bateson keyed on an idea of Korybski (1941) –“the map is not the territory”. “[In this well-known statement, Korzybski] meant that words are neither outside objects, nor are they inner feelings; instead all language can be considered as names for relations we construct between the objective and verbal world. All order, therefore, is constructed through some form of mapping process.” Harries-Jones (1994, p. 76) goes on to describe what Bateson thought about visual pattern,

“Observation of immanent pattern requires more than a visual investigation. It must also include another mode of inquiry alongside it. . . . Bateson agrees with general systems theorists: the pattern of mind has also to include itself. Without an account of the observer’s relation to the observed, no explanation of pattern in nature could be valid.”

Cognitive and higher order mental processes may subtly change what we think and then say we see, because visual phenomena translated into words result in restructuring. The useful side of words is they allow us to communicate with others not re-inventing the description each time.

## The Problem

The question is whether one can delimit a set of constructs to be used to detect basic repeatable elements interwoven in a complex visual world. For example, do these constructs function hierarchically, decomposing in to logical types? Finding it so would allow the user to represent visual complexity (Whyte 1969) and then to communicate it in the most efficient way.

The theory of *Gestalt* psychology has been a major influence in environmental design. It posits that the brain immediately organizes inputs and that much of what humans perceive is in the visual mode. Other approaches to perception, namely transactionalist (experiential) (Ittleson et al 1976) and ecological (Gibson 1979) have questioned these *Gestalt* concepts. Though Kepes (1944, p.68), a leading exponent of *Gestalt* design did not rule out other approaches:

“One does not see every aspect of visible things and events; one selects and arranges the visual stimulations according to one’s attitude toward [them]. To the same degree that the knowledge of the environment and the habits and attitudes toward the environment change, the visual habits of representation will also change..“

In order to provide structure as a learning aid for my students, I first began with a simple two-dimensional matrix trying to relate each descriptive term one to another. It did not work; there was no simple, one to one correspondence. Certain things appeared to be fundamentally irreducible, (what I call elements). Others did, but

still depended on elements for their coming into being, while still others described combinations of elements.

## **An Overview of *Gestalt* Concepts**

The rise of *Gestalt* theories in Germany influenced architects of the *Bauhaus* and abstract visual artists. Its attractions, the concepts of form, isomorphism, field forces and 'laws' of structure, may have been of most interest to visual artists who tend to have a developed sense of visual structure that is imposed on a scene. In this respect, a visually-oriented artist is not unlike a scientist in a system of observer and observed. The artist and the scientist in this system are both interested in humanly-scaled phenomena as noted by Allen and Starr (1982, p. 26),

“The artist focuses his attention on the inconsistencies between expectations and what unfolds. The inconsistencies then draw attention to what has been taken for granted or what it is to be human; the apparent contradictions focus on human scale.....Both the artist and the scientist are conscious of the human scale, but the artist celebrates it while the scientist tries to eliminate its effect.“

*Form* is a basic concept in visual organization revealing itself as an identifiable entity. *Isomorphism*, as such, will not be used in the hierarchical approach. It is the hypothesized neurological analog that requires the mind to spontaneously create (see) form. Forms are entities seen as figures against backgrounds. They are analogous to Bateson's (1979) “news of a difference that makes a difference.“ Arnheim (1954) in effect sees isomorphism as a precognitive 'hotwire' in the physiological processes of the brain. The last basic concept is that of *field forces*, more complex than that of *form*, because it is not a physiological effect. It is situational (contextual), dealing with the relationships, direction and magnitude, between two or more forms. According to Lang (1987, p. 89) “It is governed by the principle of *Pragnanz* and takes the most stable form under the circumstances.“ Though not normally described as such in *Gestalt* theory, *Pragnanz* occurs differently in different observers and is compatible with both the Transactional and Ecological views of perception.

Apparently elements are combined according to these *Gestalt* laws to bring about wholistic entity that is stable and harmonious in a completed design, but the lists of elements are long and seem to lack a repeatable coherence (Table 1). The objective here in reviewing formal visual elements is to re-explain the *Gestalt* approach depicted in complex visual relationships by relating elements hierarchically.

Bateson also utilized *Gestalt* theory hierarchically to understand the basis for observing and reporting on pattern. Furthermore according to Harries-Jones (1995, p. 51, 53) Bateson thought, “[Pattern] has no location in the object observed; instead its existence results from a relationship of comparison or contrast between two objects. “ As well, Bateson declares, “[A *gestalt* consists of positive and non-existent information]... non-existent cues are a universal ingredient to *gestalten* ... *gestalten* may be spatially or temporally delimited.”

## **An Overview of Hierarchy Theory**

General systems theory is the name that early investigators used to describe the interdependence and relationships of discrete features and organization by thinking differently about science and scientific paradigms. It has been applied within and across many fields such as economics (Boulding, 1985), psychology (Bertalanffy, 1968), ecology (Odum, 1973), architecture (Alexander, 1964), environmental design (Herbert, 1972), and chemistry (Prigogine, 1977) to name a few.

Hierarchy theory is a type of general systems theory. Connecting *Gestalt* and hierarchy theory, Harries-Jones (1995, p. 71) says, “As they [General systems theorists] put it, constructs [are] based on innate or learned categories, the coincidence of different senses, previous experience, learning processes, naming... all of which largely determine what we actually ‘see’ or perceive.” Based on the work of a range of interdisciplinary theorists; hierarchy theory deals with levels of organization. It attempts to understand the role of the observer within a system of discrete phenomena and contexts (Ahl and Allen, 1996). Simply put, hierarchy is a tool to structure complexity. In using it, a number of levels decompose in to smaller sub-levels and simultaneously compose to higher levels. However, levels are not mere aggregations but wholistic units and perceived as such

Table 1. Elements cited from several basic design texts and websites, their basis, and the terms used.

<i>Citation</i>	<i>Basis</i>			<i>Terms Used</i>						
<b>Robinson (1940)</b>	Factors	Mass	Texture	Color						
<b>Donis (1974)</b>	Elements	Line	Color	Shape	Direction	Texture	Scale	Dimension	Motion	
<b>Bell (1993)</b>	Elements	Point	Line	Plane	Solid/Volume	Open/Volume				
<b>Lauer &amp; Pentak (2000)</b>	Elements	Line	Volume/Shape	Texture	Motion	Value	Color			
<b>Skaalid (1999)</b>	Elements	Line	Shape	Texture	Color	Space				
<b>Bartel (2000)</b>	Elements	Color	Line	Shape	Value	Texture	Volume			
<b>Kipperman &amp; McKinistry (2000)</b>	Elements	Line	Shape	Form	Space	Value	Texture	Color		
<b>Jirousek (1995)</b>	Elements	Point	Line	Form, Shape & Space	Movement	Color	Pattern	Texture		
<b>Pederson (2008)</b>	Elements	Line	Shape	Form	Value	Color	Texture	Space		

by the observer, hence we have the connection to *Gestalt*. Hierarchy theory is especially useful in defining interfaces between two levels. Levels and their relationships are governed by rules. Mesarovic and Macko (in Whyte, 1969, pp. 33-35) describe several which are of potential use in the ordering of visual language.

1. **They take note of descriptors:** “For each level there is a set of relevant features, variables, laws, and principles in terms of which the system's behavior is described.”
2. **They describe interrelationships:** “For such a hierarchy to be effective it is necessary that the description on any level be considered independent of the description at other levels.”
3. **They position the observer in the system:** “Selection of the strata (levels) in which a given system is described depends upon the observer, his knowledge and interest in the operation of the system....stratification is an interpretation of the system.”
4. **They delimit the inter-relationships between descriptors:** “Each stratum (level) has its own set of terms, concepts and principles and what is considered as a system and its objects (descriptors) are different on each stratum. Furthermore, there is a hierarchy of objects and languages in which they are described.” John Platt has also noted that, “In general, the internal language of a system [level] is never the same as its exchange language to the environment [next level up] or to other systems [on the same level].” (Whyte 1969, p. 207-8)
5. **Relationships between levels control the flow between levels:** “By moving up the hierarchy, the description becomes broader and refers and refers to larger subsystems.”

## Visual Organization in Hierarchical Levels

A visual language is important to environmental designers so that they can translate between verbal concepts, (i.e. the “naming“ of Bateson (1979)) and the discursive and presentational symbolism of Langer (Gardner 1982). Such a language can address *Gestalten* in which the 20th Century West, (especially those designers of the 'Modern Movement ') saw reality and attempted to interpret and reshape it. Hayakawa in Kepes (1944, p. 10) summarizes:

“The reorganization of our visual habits so that we perceive not isolated 'things' in 'space' but structure, order and the relatedness of events in space-time, is perhaps the most profound kind of revolution possible--a revolution that is long overdue not only in art but all our experience.”

What are the basic descriptors that can be utilized? What can be used as a starting point? Whyte (1969) suggests measurable properties such as, lengths, angles, time, masses, potentials, etc.), but because it is a basic element of *Gestalt* we might begin at one level with form. But how do we know form exists?

## **Color**

Nelson Goodman (1968) points to color and shape as possessing “salient, specific qualities.” In animal camouflage, our reliance on elementary visual entities overpowers our learned knowledge of its form and smears the animal into the background as if it never existed. What separates the nothingness of background? Kepes (1944, p. 31) states, “Exposed to a visual field that in its light quality is to the slightest degree heterogeneous, one organizes that field into two opposing elements; into a figure against a background.” Light represents an input into a stable, unseen system that disturbs and activates it. Without light we would not only see no color we would see no thing; no figure and no ground would appear.

Helmholtz’s trichromatic theory of color vision fits with the three types of color receptors in the human eye that respond to differing light wavelengths in yellow, blue and red. Yet it apparently conflicts with Hering’s opponent process theory in which opposing hues cancel out each other. Ahl and Allen note that both of these seemingly contradictory theories are right if one understands that they occur at different hierarchical levels. Helmholtz at the level of the perceptual eye and Hering’s at that of the cognitive brain. (Ahl and Allen 1996, p. 21)

At a sub-level, color is not a mere aggregation of physical properties. The interference patterns of various juxtaposed colors dilute or attenuate; a final color emerges. The system is driven by the input of light energy that is reflected into the eye. Kepes (1944, p. 29) describes it this way:

“The actual visual elements are not only the focal points of this field; they are the concentrated energy. Color, value, texture, point, line area radiate different amounts of energy and thus each element or quality can encompass a different radius of the picture surface. These fields extend into every dimension and each field has its own unique form.”

Color can be described in terms of hue, value, and intensity, but those descriptors of color, in fact, interact to create the color we see. By their very interaction, hue, value, and intensity become sub-levels in a color hierarchy level.

Colored forms can also interact creating a shape grammar. For example Knight (1989, p. 419-420) notes that a starting shape and a set of rules applied recursively makes a series of related shapes that he calls a language. A color grammar additionally incorporates a third rule that applies to the color field, That rule is,

“a continuous or discontinuous, finite region of space that is filled with one or more non-overlapping colors...formed from lower-level entities called color spots. Fields and spots differ from shapes and lines [in that they] are color defined as well as spatially defined”.

## **Texture**

Texture couples the senses, drawing from our visual and haptic experiences. To be whole, what we see as texture must be confirmed by touch; what we feel as varied surface must be confirmed by vision. Thus humans have a method of sensing that requires cross-comparison. That is why texture must always be considered in relationship and not in isolation. To know something about texture as information, the observer always needs news of a difference between what is seen and what is touched.

Landscape architects, Robinson (1940) and Laurie (1976) among many others point to color and texture as definers of form. Imagine a color juxtaposed with features of the same color of slightly lighter or darker hues perhaps occurring from light falling unevenly on certain areas. The result is a collage of similar sizes and color ranges that, too, becomes differentiated from its background.

## **Form**

To see a form, a visible boundary must emerge as a difference of color or texture set as a figure against a background. When the interior area of a figure formed by color or texture collapses to bare visibility (i.e. slight heterogeneity) we see a point. Furthermore, if that point is activated and moves in one direction it scribes a

line. The line may curve, or go straight; if the line closes up on itself in the same plane, it delimits a two-dimensional surface. When a color or texture reaches a threshold differentiation it from background, we immediately see a surface as a bounded form; color and texture are properties of surfaces Laurie (1976).

The visual world is full of forms composed of differing colors and textures, each with an implied line as a boundary. And boundaries just happen to be critical aspects of hierarchies as noted by (Platt 1969 p. 203):

“The boundary surface for one property ...will tend to coincide with the boundary surfaces for many other properties...because the surfaces are *mutually re-enforcing*. I think this somewhat astonishing regularity of nature has not been sufficiently emphasized in perception-philosophy. It is this that makes it useful and possible for use to identify certain sharply defined regions of space as 'objects.' This is what makes a collection of properties a 'thing' rather than a smear of overlapping images.“

Even in an ecological sense as stated by Allen and Starr (1982, p.70), “The meaning and consequence of structural boundaries are more readily observed and so understood more than functional boundaries.“

Once a figure or figures emerge from the background, these objects begin to interact. Kepes (1944, p. 51) describes such a wholistic system like this:

“[T]he optical units organized into spatial configurations become more than the sum of their component parts. These larger wholes form with other groups a still farther-reaching unit, and this process continues until all possible relationships are exhausted. ... The number of units can be increased in so far as they do not interfere, forming further units. But when this point of saturation is reached, there is no further opportunity for plastic organization. A uniformity of surface is produced on new level.“

Kepes, (1944, p. 45) further explains this process by saying:

“Confronted with a complex optical field, one will reduce it to basic interrelationships. Just as in nature there is a tendency to find the most economic surface unity in every formation, so in visual organization there is the tendency to find the most economic spatial unity in the ordering of the optical differences.“

Viewing a painting or a landscape we tend to concentrate, or so it seems, on the objects portrayed by the arrangement of colored fields. However, hierarchical thinking and organization, places greater emphasis on the inter-relationships. Here again Kepes (1944, p. 17) demonstrates such thinking in a *Gestalt* approach to visual hierarchies:

“The forces of visual attraction--a point, a line, an area [surface]--exist in an optical background and act upon an optical field. This optical field is projected on the retinal surface of the eyes as an inseparable background for the distinct visual units. One can not, therefore perceive visual units as isolated entities but relationships...[they] derive their qualities in relationship to their respective backgrounds, ranging from immediate surrounding surface to the optical field as a whole.“

What, however, are the basic relationships that account for such a process? They are the laws of *Gestalt* organization: *proximity*, *similarity*, *closure*, *continuance*, *closedness*, *area*, and *symmetry* (Lang 1987). Form allows an observation to be made at the basic level of structure. We do not organize extracted figures from a background without applying *Gestalt* laws. “Proximity is the simplest condition of organization.“ Kepes (1944, p. 46), In *proximity*, objects that are closer together are grouped (aggregated) into a larger and perhaps more stable structure to provide the simplest interpretation. This can however be modified by *similarity* when if some of the aggregated objects have like, color, shape, and texture. When neither of these laws holds sway, ambiguity is present; then rescanning of objects by the eye creates an unsettling unstable attribute in the observer called tension. *Closure* dictates that even “incomplete“ visual objects will tend to be completed and seen as a whole, based on an implied extension of the parts to create such a whole. As with *similarity*, ambiguity as to what would be the simplest projected whole leads to instability and tension.

Closely related to *similarity*, and *closure*, is *continuance*. It directs observers to understand continuous objects as one. This is most common in the form of implied lines extending between isolated objects in the visual field. Weaker laws are *closedness* and *area*. *Closedness* requires an object to be defined by the line (edge) that surrounds it and an area is seen as a figure if it is small and a field if it is large. As described above, very small areas become points. *Symmetry* imbues a closed area with relatively more importance. These compositional laws obviously have a range of ambiguity, tension and hence instability.

## Mass/Space

As with all levels of a hierarchy, some outside force is required to activate our perception of mass and space. With color, it is light, with texture, it is touch, and with form it is movement/direction either of the eye or the observer. So, moving a two-dimensional planar shape at ninety degrees to its plane one creates a volume or mass.

The emergence of depth appears, according to Knight (1989, p. 421), by overlapping surfaces whose four affects are: "... opacity/transparency and layering and weaving. Depending on the color and its opacity or transparency the relationship creates depth and therefore space, [something] not happening with simply overlaid lines."

Overlap presents a weaker relationship than parallax found in human binocular vision. Parallax gathers information from two slightly different viewpoints letting our cognitive action sort out the differences thus moving our understanding of two-dimensional form to another level, namely that of three-dimensions found in mass. Though not quite the same, physically moving to another place even with one eye closed, also lets us experience form and depth of mass. Space and mass relationships become the essence of enjoying sculpture, architecture and landscape.

According to Robinson (1940, p. 62), "Mass is composed of forms; form is built upon line or direction and both are bounded by silhouette." This is especially seen when a mass is backlit and its depth dissipates to a uniform darkened surface. Robinson continues, "Thus mass and form, line and silhouette must be consider together,"

In the three dimensions of normal spatial reality, humans move through space and around mass. In moving through space that movement assumes form, but movement also brings new energy and information to the visual system (Gibson 1979). Adding new energy or information to the system by parallax or movement brings about the emergence of a third dimension from what was originally a one or two-dimensional 'figure' form against a background or field. As with any hierarchically arranged system, stability occurs when the constituent levels and their relationships are also stable. Moving about in a landscape or adding new light sources informs and disturbs the system, sending it into a dynamic reconstitution of forms. The system itself does not change, merely our attention to forms, their detail and scale. Kepes (1944, p. 52) describes the process leading again to a stable visual system, "The ultimate aim of plastic organization is a structure of movement that dictates the direction and the progression toward ever new spatial relationships until the experience achieves its fullest spatial saturation."

## Difference

In the previous discussion, notice how the visual elements as described change into a new element and concomitant level based on some detectable difference. According to Bateson, "What an organism senses in its immediate environment is a signal which its sensory receptors recode, converting direct signals into a transform of the difference. The transform of the difference permits the context of learning to be taken into account." (Harries-Jones 1995, p. 113) Two inputs are required to activate this news of a difference. They come from contrasts in our cognitive capabilities and learning and the other from the actualities of perception. In the perception of color, light is the outside influence. In texture, it is the redundancy of the sense of touch. In seeing form, Gestalt Laws precipitate point, line and plane, perhaps as innate or cognitive learning. Three dimensions of a mass appear when the redundancy of two eyes set slightly apart give the added difference of parallax. As we experience a mass we understand it as an object in space, yet defining and expressing space. Harries-Jones (1995, p. 204) reading of Bateson bring a difference from two processes:

"In the first instance (in time), we subjectively perceive difference and differences that make a difference. In the second instance, a perception of change in the pattern of differences becomes the distinction on which precepts and premises are constructed. Through this 'product of difference, the 'given' distinction enters into an aesthetic sensibility. Making visible these differences requires investigation of what sort of 'product' of interactions we sense through our aesthetic sensibility."

## Conclusion

The connection between general systems theory and visual elements might seem unusual or even tenuous. But

moving our thinking (and seeing) to a higher more integrated level and using more general precepts of cybernetics and hierarchy theory allow us a certain distance from our perception and cognition of form. Again Bateson (Harries-Jones, 1995, p. 209) is on point with this idea saying,

“... acceptance of order, creativity, and resolution of paradox occur not simply as circular functions of a cybernetic homeostat. They can also come about through better awareness of the processes by which the unity of a more inclusive field is being split and torn,”

Most humans will be able to agree on the lower order visual elements, but as we invest more energy and thought in deciphering information of a complex visual field, the more discrimination and judgment will be called for by the observer (Figure 1). Unstable configurations of forms and ambiguity-induced tension (e.g. Bateson's “split and torn” fields) invite arbitrary and human-imposed structure. Aesthetician, Nelson Goodman (1968, p. 241) declares,

“...We have to read the painting [landscape?] as well as the poem and that aesthetic experience is dynamic rather than static. It involves making delicate discriminations and discerning subtle relationships, identifying symbol systems and characters within these systems and what these characters denote and exemplify, interpreting works and reorganizing the world in terms of works and works in terms of the world.“

The structure, as it then exists, becomes meaning applied to a dynamical system. By bringing the human viewer into a hierarchical system, symbols can be discerned. It is there that the visual field becomes a language. Again Goodman (1968, p. 241) states,

“effective representation and description require invention. They are creative. They inform each other; and they form, relate, and distinguish objects. That nature imitates art is too timid a dictum. Nature is product of art [visual language] and discourse [verbal language]”

Yet, visual is not the same as verbal. Translation of a visual into a verbal may begin like Gregory Bateson's (1979, p. 42) dictum regarding description (translation) in general, “Division [translation/structuring] of the perceived world into parts and wholes is convenient and may be necessary, but no necessity determines how it shall be done.“ Echoed differently by Gerard (1969) “You have to structure it (nature) to be able to do something about it; but...you mustn't take it [the structure] too seriously.” There is a real possibility that in the translation from visual to verbal something may get lost.

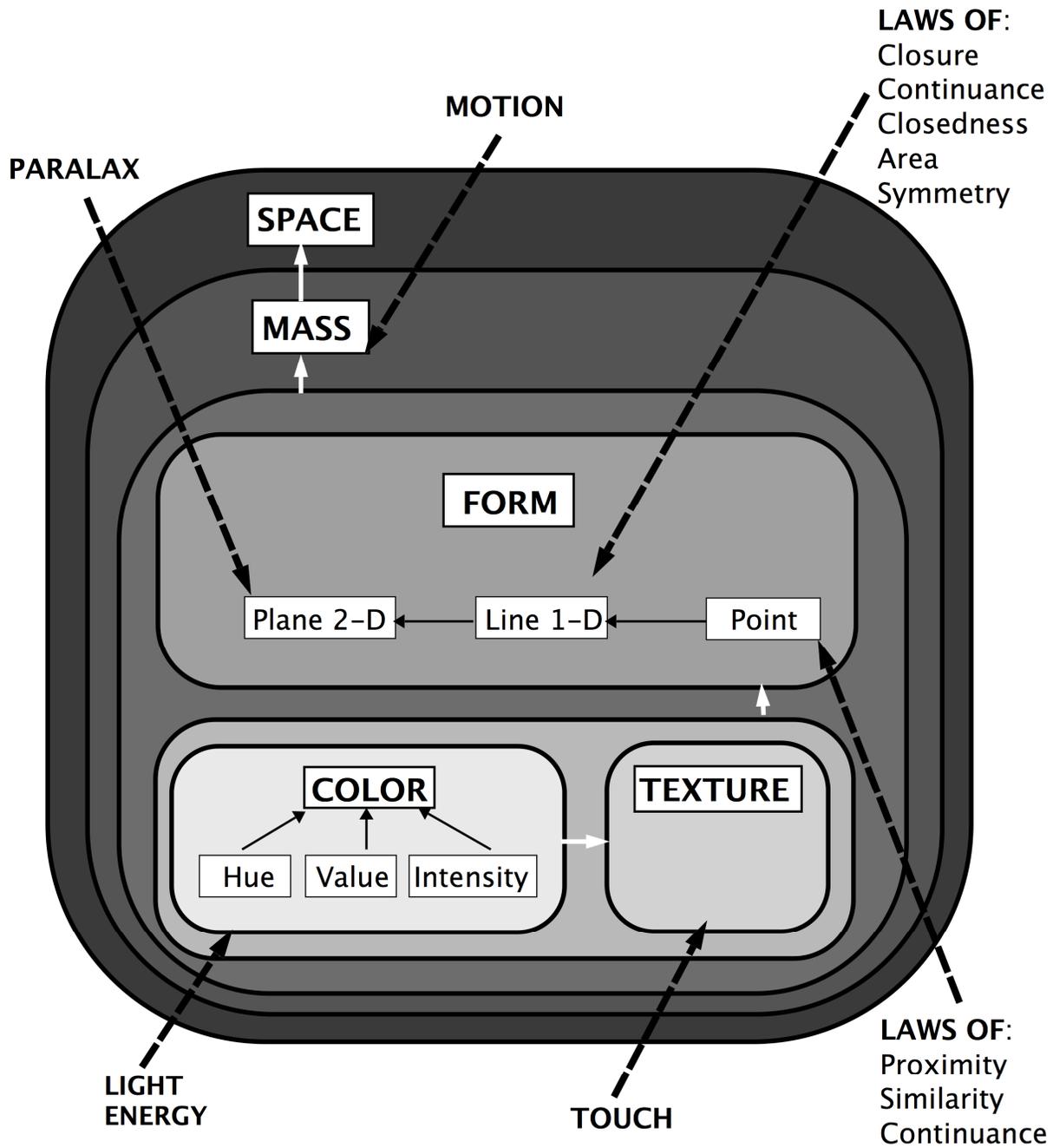


Figure 1. A proposed model of hierarchical relationships among visual elements activated by outside inputs or disturbances.

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