

## The Principles of Gestalt

### A note by H Kumar Vyas

#### The gestalt and atomistic theories

The theory of gestalt basically deals with human perception and behaviour while at its core is the concept of configuration. A configuration can be understood as a perceived form which can be either spatial or temporal. The reason why designers, architects and plastic artists are interested in gestalt is that its major application has been in the field of visual design.

Gestalt is not a complete self-sufficient theory but more of a way of looking at the realities of perception and behaviour. Its origin lie with a group of psychologists who broke away from the old fashioned atomistic psychology and its protagonists on the issue of their/views/rigid with regards to the human perception. The atomist approach had been that as in natural sciences, when one wants to know the nature of an organism one begins with the part and progress towards the whole, so is with the human perception. In a dramatic contrast the gestalt psychologist proved that the characteristic quality of the whole depends on the universal interaction among almost all of its parts. They also quoted the example of the central nervous system in the support of this view. Not only that, in case of the central nervous system, one of the functions of whose is the perception

of gestalt, whole is more than the sum of its separate parts and not the sum alone. In case of a perceived form, it may represent itself as a pattern made of several parts, yet it is always seen as a whole and not as a process of linking these parts in a piecemeal fashion. As the characteristic of the system <sup>total</sup> transcends the collective characteristics of its parts the process of understanding should always be from the whole to the parts and not the otherway round.

Gestalt is a German word which does not easily lend to translation. Interestingly, in German language the word gestaltung is invariably used to express an act of design in the modern sense of the term. When used strictly in the context of design, architecture or art, gestalt means organisation of a shape or shapes which eventually results in a visual phenomena of varying complexities. Even though it may seem to have greater application for two dimensional visual forms, today gestalt theory applies equally well in the realm of third dimensional forms and spaces.

Since long it had been accepted by the philosophers and those who had been engaged in creating two or three dimensional figures, forms, shapes, signs and structures that their perception must depend on certain laws, most of them, physical and environmental; but the acceptance

of their existence was more or less intuitive. Systematic and scientific analysis of this particular aspect of human perception began only during the 1920's with the study of gestalt psychology in Germany. Among those who contributed towards these studies, the most pioneering work had been done by Köhler, Koffka, Wertheimer and Metzger.

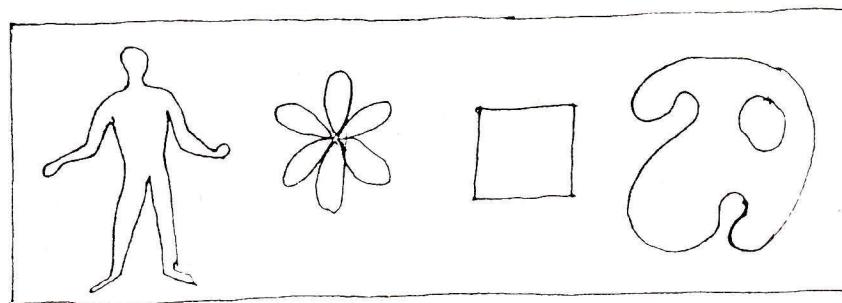
Primary condition for the perception gestalt.

Confining for the time being to the field of visual phenomena, one would understand gestalt as perceived figure which can be either a two or three dimensional sign, shape or form. It is invariably perceived in the context of its environment. Therefore, the basic condition for the perception of gestalt is the sufficient differentiation from its surrounding area. In other words, the figure must have a minimum alienation from its background or ground. At the same time, with the increasing differentiation from the ground, the degree of definition (or contrast) would increase.

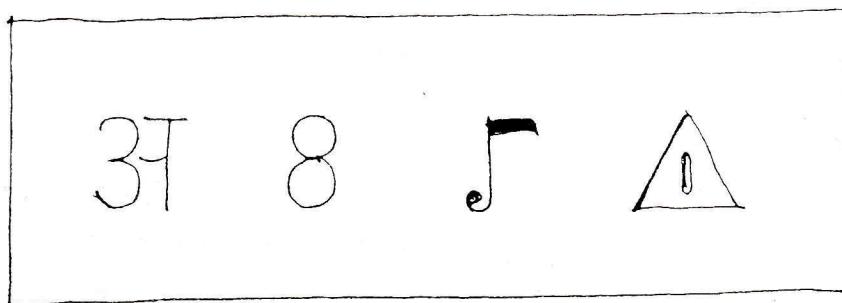
Gestalt categories

Following are major categories of gestalt. For practical purpose a simpler term figure is applied to all of them.

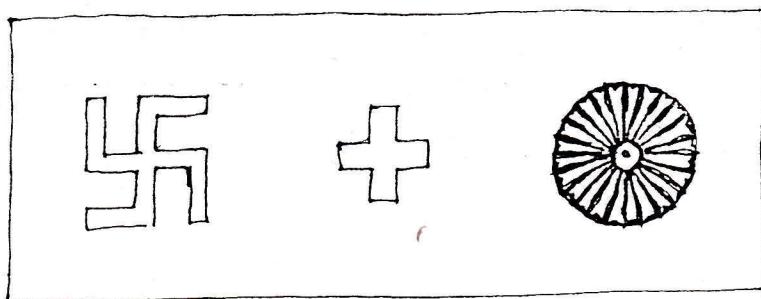
1. Independent forms: Known and unknown visual forms which represent the natural and physical world.



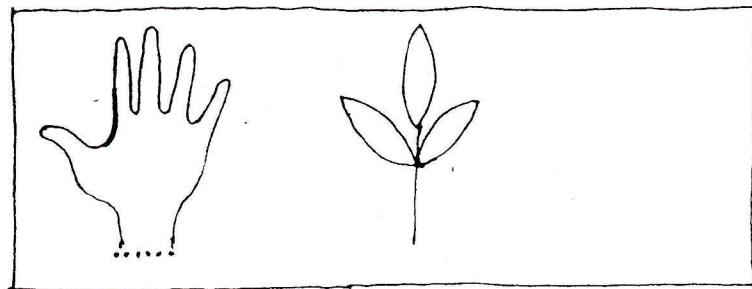
2. Signs: Letters, numbers, ciphers, traffic signs, musical notes etc.



3. Symbols



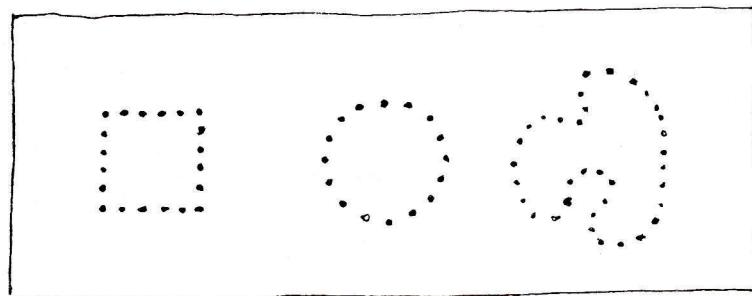
4. Part of a shape or a wellknit collection (or system) of shapes. Some parts have important role to play as they effectively represent the total shape or concept.



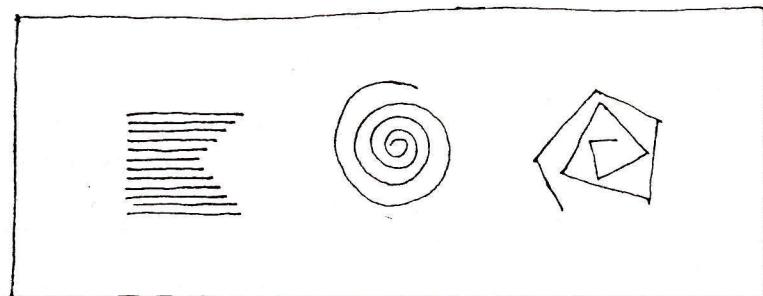
**Construction of a gestalt.**

A figure (form, shape, sign or symbol) can be constructed by any of the following methods:

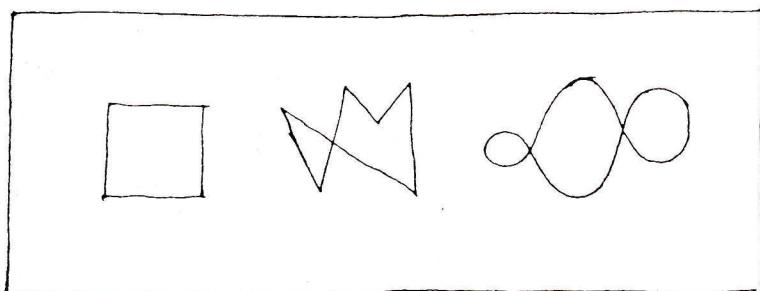
1. The points minimally defining the contour or edges of a figure.



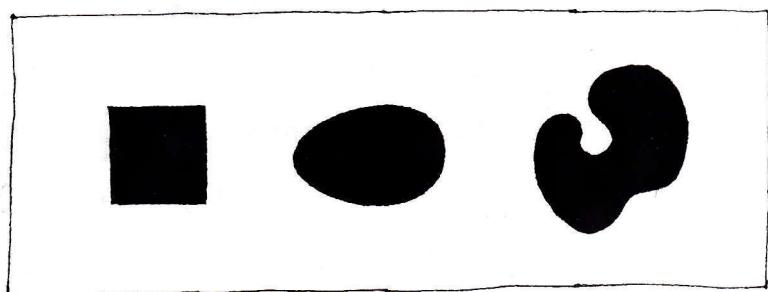
2. Line or lineanzug (chain of lines) which would define a figure which is mostly of open nature.



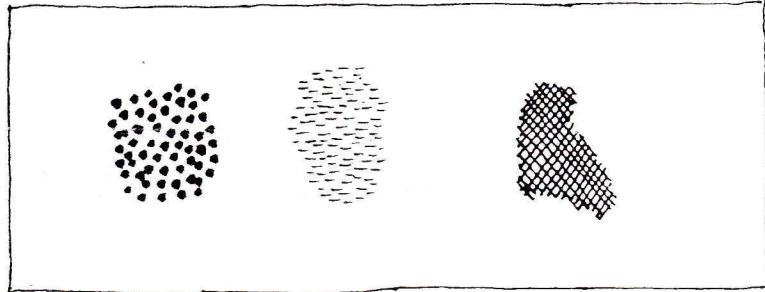
3. Lineanzug and planes contained by it



4. A homogenous plane. This kind of shape is characterized by its exact well defined contour.



5. By means of texture.



Here texture is understood as a plane which is generated by distinct visible elements. The edges distinguishing this kind of shape from its background are not precise enough and become more and more imprecise when the size of the elements is increased.

## The Principles of Gestalt Perception

Before discussing the principles of gestalt perception it is necessary to understand a simple yet startling discovery made by the psychologists when analysing the behaviour of the human eye.

It was noticed that this is a typical physical phenomena common to all. The psychologists found that from the endless varieties of objects, which make the visual world, the eye basically prefers those which have comparatively simple shapes.

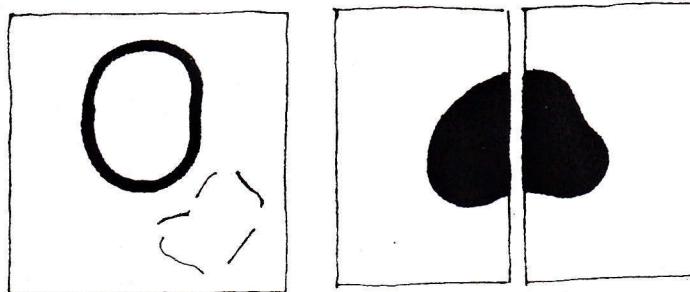
Man always seems to prefer shapes which are easier to see and describe ('easy-on-eye'). On further investigation it was found that the human eye more often than not modifies or mentally "edits" visual complex phenomena in order to perceive, understand and remember.

The gestalt psychologists have identified certain basic principles which explain and guide the perception of gestalt. Many a time more than one principle come into play to result in perception of a definite nature. In such cases one principle is always found to have dominance over the others.

### 1.0 The Principle of Enclosure

In perception, closed shapes or conglomeration of shapes are preferred for readability over the unclosed shape. As a corollary to this

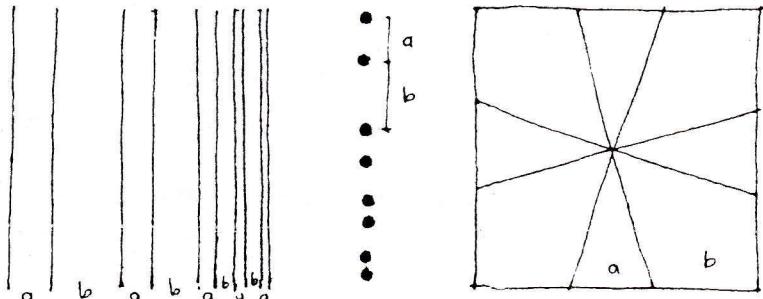
principle, even with an interruption the shape is read as a whole (or a closed shape).



## 2.0 The Principle of Nearness

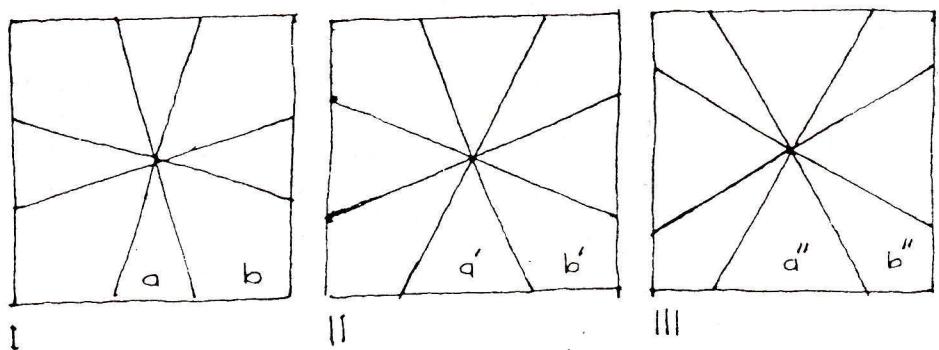
The human eye prefers to group those elements which are nearer or which have smaller distance in between and see the inbetween space as a figure. Conversely, it needs strong effort to group and see the elements other than those preferred to define the figure and the perception thus achieved lasts only till the effort lasts.

2.1



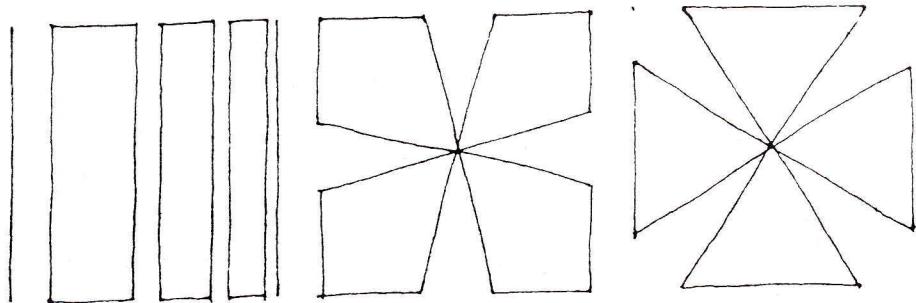
The eye likes to see 'a' in preference to 'b'.

2.2



In the above diagrams area a in diagram I has been enlarged to be a' and a'' in diagrams II & III respectively. In II, both a' and b' are equal and the eye has no preference; hence it is a case of AMBIGUITY. In III, b'' has a definite preference over a''.

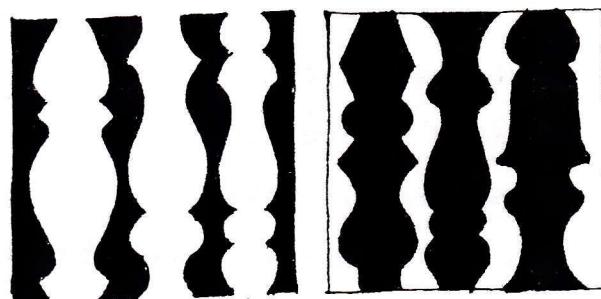
2.3



This example proves the dominance of the Enclosure Principle over the Nearness Principle.

### 3.0 The Principle of Symmetry

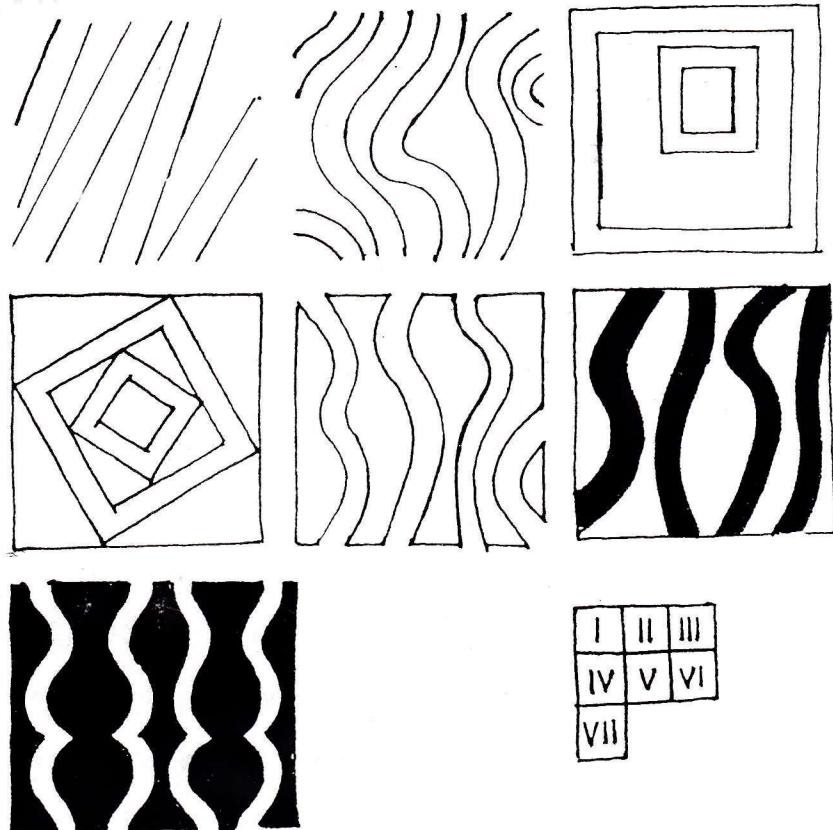
If there are in a space, elements which define symmetrical shapes, the eye would invariably prefer to see the symmetrical shapes in preference to the non-symmetrical ones.



It is easy to see that the Principle of Symmetry has proved dominance over the principles of Nearness and Enclosure.

#### 4.0 The Principle of Even Width

When there are several elements defining shapes the eye tends to 'read' only those shapes with even width in preference to the shapes with uneven width.



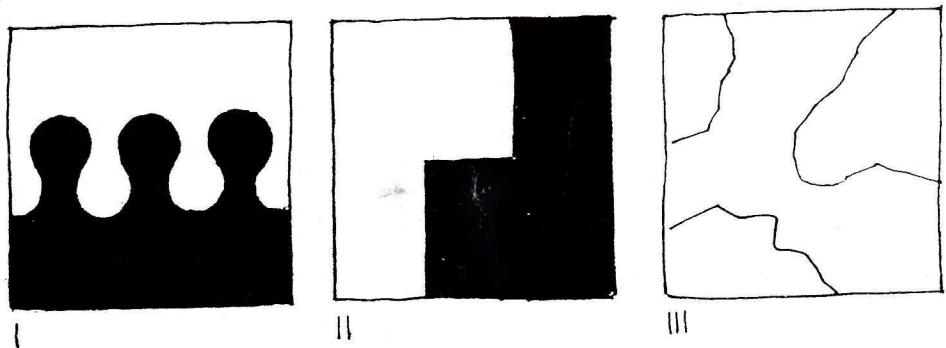
I	II	III
IV	V	VI
VII		

Diagrams V and VI prove the Principle of Even Width taking precedence over the Principle of Enclosure. While diagram VII shows the Even Width Principle taking precedence over the Symmetry and the Enclosure Principles.

#### 5.0 The Principle of Ambiguity

Many gestalts are ambiguous to perceive. This happens mostly with some two dimensional objects. Whenever an easy and quick readability is necessary

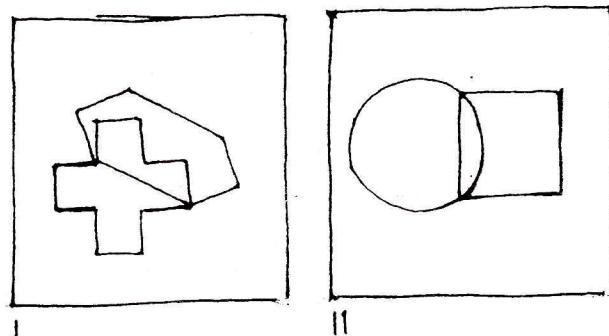
ambiguous shapes or structures are not desirable. In terms of information theory they lead to interrupted information. All the same a very interesting and valid field exist in the world of visual design which employ ambiguously perceived gestalts to great advantage. The phenomenon is peculiar to almost every culture of the world and has become a major source of pattern and decorative motifs. Ambiguity always arises when both ground and figure of a two dimensional gestalt are of equal importance to the eye.



In diagram I the ambiguity arises not so much from the equal importance of the figure and ground but more from the congruence between the area of two similar shapes; each shape in order to be perceived on its own must alternate in importance with the other. Similarly diagram II has ambiguity because each gestalt comprises area of equal visual importance. Diagram III represents a map wherein areas showing land and sea are not enough differentiated to avoid the ambiguity.

### 6.0 The Principle of Simple Shape or Contour

When the perception is a matter of choice between a simple and a complex shape the simple shape will eventually dominate.

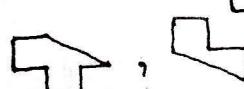


The eye reads the figure in diagram I as the one

made up of

and

, and not of



and



. Similarly

in diagram II we see the figure made up

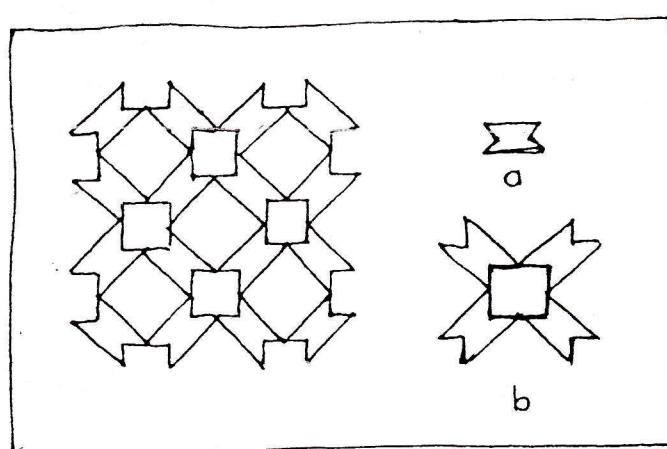
of

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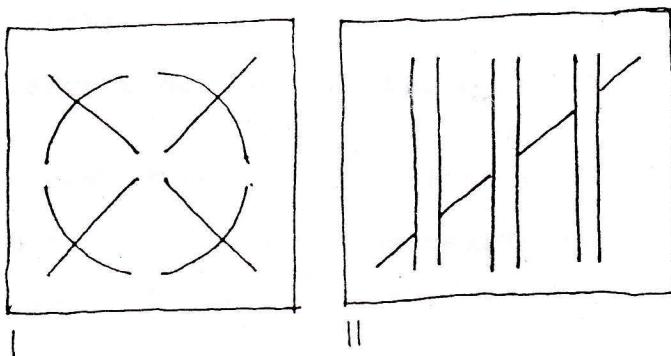


The pattern in the above diagram is constructed by means of only one kind of 'spool' shaped

figure 'a'. But initially the eye prefers to see the square developed by the close placing of four spools as shown at 'b'.

#### 7.0 The Principle of Continuous Shape

Independent of the previous experience the eye always tries to correct and complete an incomplete shape. This tendency is strong enough to overcome any resistance including a psychological resistance. For instance depending on the context, circles not absolutely round are read as round, imprecise right angles are read as right angles and discontinuous lines are read as continuous lines.

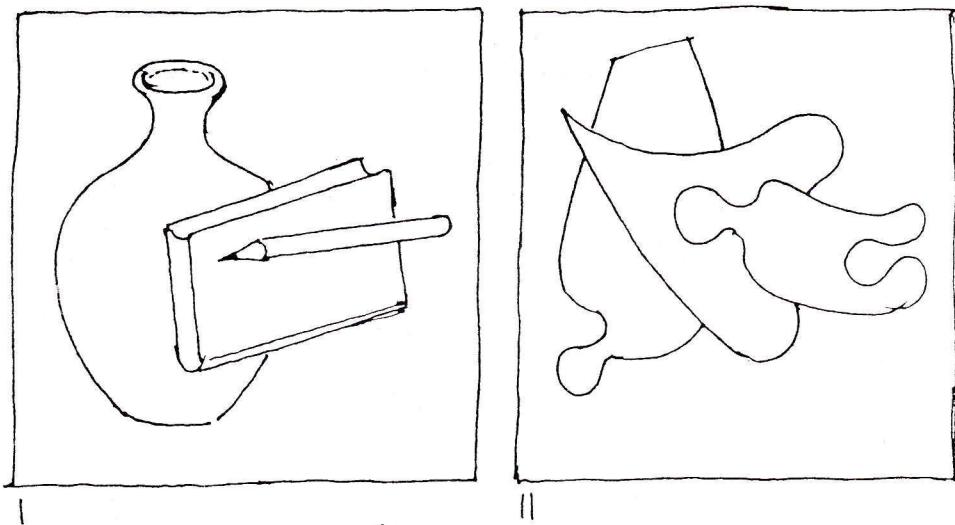


In diagram I the eye does not read the figure as made from four independent parts each comprising of an arc and a straight line across it but as a complete circle with a cross on it, like this:

Similarly the four oblique lines in diagram II read as one continuous line hidden behind 3 strips.

This principle establishes an important human propensity and faculty, that of 'forming objects' and of seeing the continuity of simple shapes

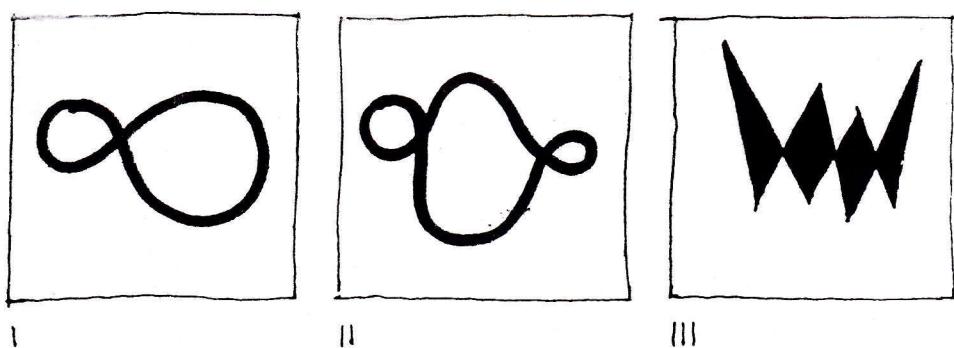
which may be partially concealed by other shapes.  
This faculty is congenital and is known to exist even among the infants.



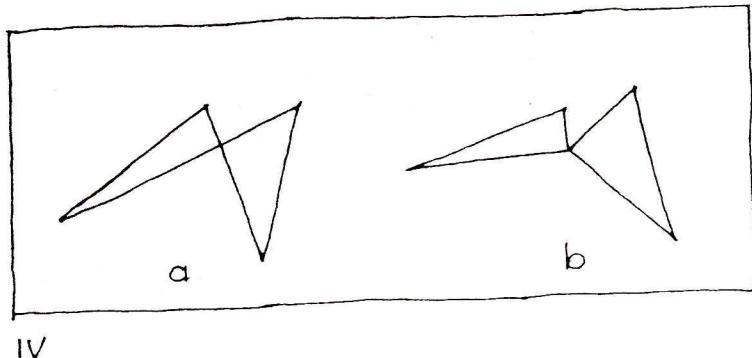
As can be seen from diagrams III and IV the principle applies equally effectively with the known as well as unknown shapes.

#### 8.0 The Principle of Self-intersecting Linienzug

The shapes generated by self-intersecting linienzug are not read as separate shapes but as part of a single gestalt.



Each of the three diagrams above represent one complete gestalt and only at a second glance is seen to have consisted of more than one part.



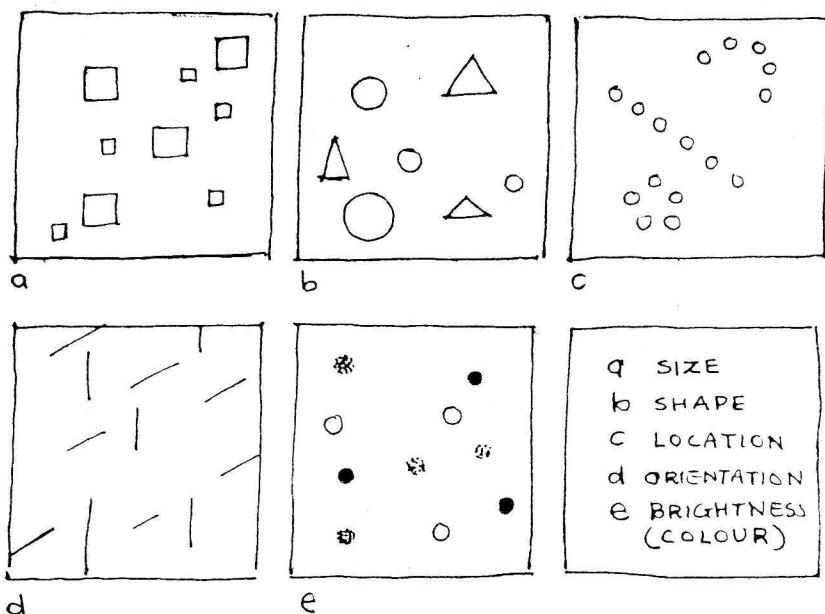
IV

The diagram IV proves that if the linienzug is disturbed at its intersection (as shown at 'b') the gestalt (a) is immediately divided into as many gestalts as there are intersections.

#### 9.0 The Principle of Similarity

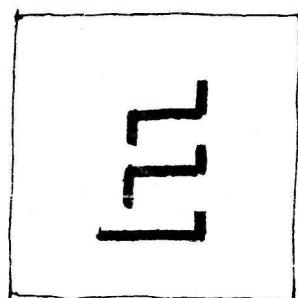
The eye has a tendency to group together the shapes which are either exactly the same or have similar character. As a rule the grouping results from the similarity of

- a. size
- b. shape
- c. location
- d. orientation
- e. brightness (grey value) or colour



#### 10. The Principle of Association

All the nine principles of gestalt described above are independent of any previous experience of the observer. However there are gestalts whose perception is strictly based on previous experience.



Only an experienced eye would readily see the letter E in the diagram.

#### Optical illusion

The relevance of optical illusion in design needs to be carefully understood. As a means of initial visual interest in order to captivate attention and lead to the main message, it has an obvious

yet limited role in communication design. In our daily perception it tends to be treated more as magic than of any real function. The reason being, it thrives on certain aberration of visual perception and its application would constantly need a well-tested means of evaluation to judge the extent of communication.

