FORMS OF THINKING

CONNECTEDNESS
Looking at forms of thinking as well as contents of thinking – or thoughts – is essential if we are to change or improve how we think. The forms of thinking are the ways in which we put thoughts together. If we only use a linear form, we can only get linear thinking. So the widespread practice of writing and making presentations is pretty restrictive. Thoughts put into a line soon become separated, so we lose sight of connections. Using lists, bullet points, flip charts and Power Point presentation formats tends to fix our thinking onto tramlines, and has been brilliantly criticized by Edward de Bono and others. There is a relation between what we can do to put our thoughts together on paper and how we can think. The medium of expression is not neutral.

We can imagine a kind of thought in which every idea is linked to every other in a way specific to each linkage, all at once. This would be impossible on paper. Yet by a very simple step, we can radically improve our situation. This step is just to make use of the two dimensions of surfaces and learn how to read in both horizontal and vertical ways at once. Rich forms of expression such as poetry actually make use of this potential, but it can be put to use by anyone willing to make the experiment of writing and reading in two dimensions.

There is a relation between what we can put onto paper and what we can think. They are not identical, because there are ‘hidden dimensions’ inside our minds that may never become outwardly visible. But the more we can represent outwardly to ourselves, the more deeply we can go into what it means.

If we have just a line to think along, the best we can do is to contrast and correlate two ideas. We do this when we make tables or columns, typically with the ‘lesser’ on one side and the ‘greater’ on the other, or the ‘negative’ and the ‘positive’, or simply the ‘left’ and the ‘right’ and so on.

If we add another dimension we can have a triangle, which gives us three directions or a relation between three ideas. By extension we can go on to consider four ideas coming together. In the fourfold situation we make use of vertical and horizontal plus direction to give four possibilities. This is the limit. All further extensions can only be approximations. In further extensions the difference between one direction and another is less than orthogonal, and gets harder to make sense of, though still possible. If we allow for diagonals we can have up to eight ideas. By interpolation we can then accommodate five, six and seven ideas but they are not so clear.

By having more than one or two directions, we can also consider more than one or two kinds of idea as a correlate. So, we link direction with kind of idea and they amount to much the same thing. This is a subtle point and most important. It implies that what is valuable to ‘think together as one’ are not similar sorts of ideas but very distinctive ones, which can fit together rather like pieces in a jigsaw puzzle. The principle of fit is crucial.

A very traditional example is that of the atomic family unit of father, mother and child. All are of the same nature – human – but represent different kinds of human and concomitant different intentionalities, perceptions, roles, etc. Without such kinds of difference between its terms, the whole loses any holistic meaning.

Another aspect of representation in two-dimensional space is
that of nearness and farness. That is, we can represent *degrees* of relevance. We feel this with words in our natural languages: some words are nearer in meaning and relevance than others. Combining multiple directions with degrees of relevance we can see the usefulness of a *grid system*. If every point on the grid designates an idea, then the basic whole consists of *nine* ideas. At the next degree of relevance, there are then *sixteen* more ideas to be considered; then twenty-five and so on. The grid can also be seen as a nest of cells and each cell to have a definite character in relation to all the others. There is an option of moving between *points*, *directions* and *areas* to identify meanings.

We started with move from dualistic to ‘triangular’ forms of thinking, and went on to imagine ‘square’ and ‘octagonal’ forms of thinking with possible intermediary numbers of directions. These have an important bearing on using grids and degrees of relevance. This is because we can set up a main determining form of thinking. The principle can be illustrated by a form of the *decad* (involving ten ideas) which is based on a *triangular* form. This form dominates the nexus of ideas. It suggests that there are three main axes of meaning. The standard grid in contrast suggests two or four axes; but there can be a refinement by means of altering the shape of the total grid from square to rectangle.

We can also make a change from rectangular to polar ‘co-ordinates’, using circles to build up meaning in a free way. This approach enables us to link ideas linearly but in a *loop*. A ‘loop’ then defines a whole complex with its own integrity. At the same time, we are then free to look at linkages of ideas across the circle, taking different directions. Such a representation is called a *monadic ring* because it is one whole while composed of terms placed in a circle: many and one at once with potential for inner structure.

The triangle, square, rectangle and circle represent different ways of arranging ideas. They have an overall form that very much influences how the component ideas are seen in relation to each other, because they determine the set of directions along which the ideas are ‘read’. When such grids or patterns are extended, they allow for ‘nests’ of forms to be depicted. In the decad, for example, there is one main triangle, three subsidiary triangles and nine small triangles: it is *fractal*. The monadic circle can be extended to allow for smaller circles in place of the single components (strangely reminiscent of Ptolemaic circles in early astronomy) or for additional concentric circles. In this way we can extrapolate to *networks* such as those that exist in the brain. The basic ‘neural unit’ consists of *six* cells and is based on a triangular grid (as suggested in the form of the decad we showed). The rectangular grid gives emphasis to one direction (longest side) and is used for looking at structure of process.
GAMES OF MEANING

Two-dimensional forms of representation can help us think in patterns that create a design as they evolve. They can also enable two or more people to engage in a common enterprise of understanding. Where there is more than one person, there have to be rules of interaction. The rules set procedures for the moves made in the course of the game. For example, that each person takes turns, just as in household board games. Each person’s move is in response to what has gone before, particularly the move of the previous player and anticipates the game to come. In this sense it is just like conversation. But unlike most conversations the players use a common space on display to represent what they mean and to carry the imprint of what they have expressed. There can be forms of conversation just as there can be forms of thinking.

In games of meaning, the random throw of dice is replaced by an insight. Taking the decadic form as an example, one player puts an idea on one of the ten places available. The next player puts another idea on another location. By doing this, she is saying that there is a relation between the two ideas (they are in the same game play) but the remaining empty spaces suggest that there is something more that can be said. The initial player takes another turn and places a third idea on a third position. Now the directionality of the triangular grid begins to take stronger effect. The 'angle' between the ideas and their relative nearness are significant. So the game continues until the last position is occupied. As the game proceeds, it can become more ever more challenging because the possible meanings of the empty spaces are more and more determined by their surrounding ideas. There is a tension between the meaning of the single idea and where it is being placed in relation to other ideas.

The formal game is also being played on another level where each player challenges the interpretations of the other. This is especially true when the players are free to invent or research new ideas that have a big effect on how the other ideas can be understood. But it is also the case when the players use an agreed set of ideas, even a set of just ten ideas. Then the game can, for example, change so that it is possible not only to place a new idea but also displace an old one. The basic moves are then place, displace and remove.

In an extreme case of a meaning game the 'ideas' are replaced by stones and there is no visible grid at all. When played by a group this Stone Game (devised by Leslie Schwing and Janet Young) entails each person in turn placing, moving or removing a stone. The illustration shows the result of such a game, the markings being allowed as part of the play and drawn in by players as long as these lines do not form obvious circles, triangles, squares, etc. The shapes of the assemblies and also the drawn lines provide some equivalent to the grid lines in a board game. In one version, the stones are one by one removed until only the markings are left.

Meaning games can be played in both competitive and co-operative manner and are best when the two are combined so that there is mutual challenge and appreciation. It is possible to see that meaning is found at least on three levels: of the individual piece, of the local cluster or group and of the whole array.

MULTI-TERM SYSTEMS

The various ways of representing the 'togetherness' of ideas reflect corresponding inner sense of 'degrees of togetherness'. It is widely recognized that there are limits to what we can embrace at any one time, descriptions ranging from two to seven distinct ideas. Our grasp of a situation may be measurable in terms of the number of distinct
aspects we can bear in mind all at once. However, the mental grasp we exercise must include the kind of representation we are using, and because of this we can extend our comprehension (seeing together).

Multi-term systems are measures of the degree of understanding we have. The first degree is just to see that there is a whole and to ‘taste’ what it is like; to have just one ‘idea’. The second is to be able to distinguish between two main aspects of the whole, which fit and transpose into each other without losing their distinctness. In this case, there are two ‘ideas’. The third is to have three ideas. The fourth is to have four ideas, and so on. We should remember that ‘ideas’ include ‘direction’ in the sense of evaluation or judgment

The requirement throughout is that each idea in a multi-term system has a distinctive character that can ‘fit’ to the characters of the other ideas. The scheme of such systems, called systematics and developed by John Bennett from ancient and modern thinking, defines a system as ‘a set of independent but mutually relevant terms’.

Every system implies subordinate and super ordinate expressions of itself; as in the decad (10-term), where there are three levels of triangular form, each echoing the others. The overall picture is of self-similarity. Once we have a sense of a triangular relation of ideas we can detect similar patterns in other regions or on different scales.

There are ‘classical’ descriptions of the systems that are heuristic in effect because they guide experiment and play. Each system has its own characteristic type of term, e.g. ‘poles’ for the dyad.

- MONAD One term system. Universality
- DYAD Two term system. Polarity
  - Two poles
- TRIAD Three term system. Dynamism
  - Three impulses
- TETRAD Four term system. Order
  - Four sources
- PENTAD Five term system. Significance
  - Five limits
- HEXAD Coalescence
  - Six actions

These six reflect into a further six, as in a mirror or as in a dyad; 12 echoing one, eleven two and so on. Forms mirror and reflect each other.

The multi-term systems are intensive (inner) forms that complement the extensive (outer) forms we can represent on paper. For every outer form there is an inner, and vice versa. The totality, including inner and outer, forms a complex whole that has changing boundaries and shape, which we can call ‘the world’ or even a ‘universe’, a word that means ‘turning into one’ (the logic of the cosmos or wholeness).
PATHWAYS AND BUFFERS

Meaning grids exemplify networks. Our language exists as a nexus of inter-related words and each person has her own network, as each culture also has. As in a neural network, there are pathways well trodden and others more neglected. There are also ‘buffers’ or barriers between certain regions, so it is as if we have different personalities in them. We might have one vocabulary at home and another at work.

Pathways and buffers are also forms of thinking, but here understood as restrictive and habitual. Every kind of creative method is concerned with making new pathways and dissolving buffers. What is at stake is having access in one region to information from another. This applies both to ourselves in our totality and to groups of people. In groups, the other people embody information that is usually difficult to access and process. In a similar way, different regions of ourselves may ‘hide’ important information in them that never surfaces in our ordinary thinking mind. The pathways inside us are paralleled with how we interact with others, or our ways of communication.

New meaning is created when information of one region is combined with information of another. This is the rationale of dialogue. It is also the rationale of psychoanalysis. In general, the more we can understand the process of accessing what is contained in us individually the more we can understand the value of dialogue, and vice versa.

What is usually called ‘insight’ is when information from one place in us comes into play in another place, when we ‘make a connection’. This is felt as unusual, because for the most part there are barriers or buffers in the way. We have to ‘leap over’ or ‘tunnel through’ such barriers. Then a new pathway is made. The barriers are ‘energy barriers’. To leap over them we have to have sufficient energy to do so (which is emotional energy). Such intensive effort is followed by relative ease (over the hill). However, we can also ‘tunnel’ through at lower energy. The conscious use of forms of thinking such as systematics enables this. The essential practice is to look for the same forms in seemingly contrasting regions of experience. Hence the importance of observing what one does, what one feels and what one thinks in relation to each other.

Not every element has to be connected with every other. Making intelligent pathways means embodying patterns capable of self-similarity, so that the form in one region can be seen as the same in another. There is a theory that the brain is capable of ‘transmitting patterns’ from one region to another. This can be seen as ‘understanding’. Similarity, symmetry, reflection and transposition are dynamic forms of making meaning.
TIME-BASED THINKING

The forms of thinking we represent on paper do not exist; they are traces of actions, rather like patterns of light recorded by a camera with prolonged exposure. They are attempts to capture the movement of thoughts that is thinking. The movement of thoughts is governed by feeling, if we regard feeling as the energy of this movement. We experience our thinking as being guided by feeling when we follow hunches or we say that we sense the direction to go.

In representing forms of thinking, we had points, directions and areas. By analogy, the points are like sensations, the directions like feelings and the areas like thoughts. To say they are ‘like’ is also to say that they are different in many important ways. It is to propose that we put together how we see ourselves as psychological beings with how we are seeking to represent thought and thinking. We can expect to be surprised. A new meaning can be created.

The representation of thinking requires some invariants, because otherwise we could not represent variables, change or movement. Invariants are provisional and relative. If we have points as invariants then the lines between them are temporary movements or actions of connection or influence. When the lines connect up around a region there is a loop. A loop can repeat, establishing a relative invariant of movement, and become a ‘point’ on a different scale. This point is an area on the smaller scale. As in the Mae-Wan Ho model shown here, it is living whole and not a mechanism.

‘The quick and the dead’ referred to in the Gospels expresses the difference between thinking as alive and thinking as dead. There are forms of thinking in which the ‘thoughts’ involved do not make any sense if they stay still.

Most people know the realization that what is present and meaningful in a conversation becomes absent and meaningless if we try to write it down. What seems to be ephemeral and insubstantial is only so if we look at it from the standpoint of the fixed, material world. Bones – cartilage – tissue – gland – blood - nerves form an ascending scale of subtlety and speed. A CD disk only delivers its message if it is rotating at high speed.

The hypothesis is that certain thoughts are only accessible at certain speeds. By extrapolation, this leads to the idea that another class of ‘thoughts’ is only accessible at certain accelerations. Since we have associated direction and energy of movement with feeling, this translates into the proposition that certain understandings are only possible when in a higher emotional state (what is ‘higher’ goes from velocity to acceleration). By further extrapolation, certain ‘thoughts’ are only possible with the acceleration of acceleration, to which Arthur Young gave the term ‘control’, and which we will call will.

Just as we can move from the ‘habitual plane of thinking’ by moving into ‘smaller’ or ‘larger’ thoughts, so we can change the ‘habitual tempo’ of our thinking by moving into faster or slower rates, as described by Claxton as ‘hare’ and ‘tortoise’. This may be cultivated by our method known as ILM (immediate learning method) that uses music and sound. The faster tempo is referred to by Edward Matchett as ‘creating meaning in time t’. It is a time for birth and death. New thoughts can be created and old ones eliminated. To think differently, it is essential to leave behind old thoughts, or at least assimilate them into new loops.
EMPTINESS

A loop of thinking delineates an emptiness or void. The absence of thought is the most powerful form of thought. This is implicit in a question. A simple way of starting with emptiness is to take a shape and see what it evokes. The circle elicits questions. Is it inside me, or is it outside me? If it is inside me, where is it in me? Let me put everything that comes to mind around the circle. When I do this, how big is the circle? Can I become aware of a flux coming into and out of the circumference? Or is it a porthole through which I am looking? If so, what is it that I am seeing? The triangle evokes something different. There is a base and an apex. Is the apex a source that spreads downwards? If the apex is the Holy Ghost then what are the gifts expressed along the bottom? If the apex is my attention then what is happening in the base line of my body? Can I ‘rotate’ my awareness through three directions? Can I feel what is at the centre, where all three conjoin? The square is different again. There is above and below. What are the four corners? What is it like to move within the square?

Any basic shape can be explored in this way. The content is provided by what is accessible at the moment. It is the emptiness contained by the shape that gives it power. The shape is an operator. The operation is made on what is available. The shape brings into play emptiness by creating or ‘seeing’ a gap in what is being thought. The primitive form of this is inherent in the question; ‘What is being left out of my thought right now?’ Abstractly, what is left out is infinite in relation to what is included but, as an operator, the question evokes a finite content.

A general method is to consider any shape as making a distinction, so that what is within it is thought, defined and known and what is not is unconscious, confused and unknown. Our raw existence is ‘outside’ the known, and the boundary of the enclosure is an active interface. The points of the shape are centres of condensation; and as these form so they address each other until a new thought emerges as their union.

The forms of thinking can be represented as nested sets of emptiness, as in the calculus of Spencer Brown. The formalism shows two spaces contained in a space, besides another space and all then contained in another space. If there is a thought it can be placed in the deepest space and then seen at different levels. Thinking can arise out of any thought. Such representations appear familiar as abstract art (where the seeding thought appears as colour).

A loop shows a sequence of thinking in which the consequence is the origin of the beginning. It is tautological and empty. There cannot be more in thinking than there is. This actually means that thinking proceeds by the elimination of the content of experience. Just take a rich description of something and take away features one by one until there is nothing left. As this is approached, what is left becomes more highly structured to ‘fill’ the space of the description. This was literal in Descartes’ world of extension that had to have vortices to explain anything. As content is eliminated, form has to develop.

CANCELLATION

A complete idea has at least a contradiction in it such that it cancels itself out. This means that most accepted ideas are incomplete fragments, because they appear to
assert something. Such an idea is ‘freewill’, which is held in contrast with deterministic mechanicality; whereas will can only be understood as the union of both, that is as a nothing. What is truly indicated in an idea is non-existent.

There are degrees or kinds of opposition, from the merely different (A and B), through the negative (A and –A) to inversion (A and 1/A) and perhaps further, as in the notion of ‘inside-out’. They yield different images of their nature as in: A + -A = 0 and A.1/A = 1. To attain a true idea, the given appearance of the idea needs to be contrasted in these ways to discover the axis of its cancellation. The imperative condition for a true idea is that it asserts something and denies it at one and the same time, and it is precisely in the way that it does this that the meaning of the idea is contained. Simone Weil writes: “The contradictions the mind comes up against - these are the only realities: they are the criterion of the real. There is no contradiction in what is imaginary. Contradiction is the test of necessity.” Also, “All true good carries with it conditions which are contradictory and as a consequence is impossible. He who keeps his attention really fixed on this impossibility and acts will do what is good. In the same way all truth contains a contradiction.”

The essence of thought is will, which is attained through self-contradiction. There can be no such thing as an agent; there is only relation in which contradiction can be realized.

The bare form of form is given by $a|\bar{a}$ or $\bar{a}|a$.

That is all that appears in Mondrian’s ‘Ocean’, but imagine each line as a unique type of inversion or ‘crossing’. The self-cancellation of thought cannot be realized through the absenting of thought, as in some approaches to meditation. Otherwise, there would be no art or science.

**DIALOGUE**

The ultimate forms of thinking are not abstractions of frustrated thinkers but the essence of any conversation. In following through the phenomena of dialogue, there comes into view the multiplicity of ways by which one act of speech stands with another, and that are barely indicated by concepts of agreement and disagreement. We question, reject, invite, develop, echo, reflect, twist and continue. In the understanding of dialogue, the ‘object’ is the form of the coming together of utterances.

**LANDSCAPE**

So in the patterns of the world, the landscape in which we imagine we exist, from our room to the stars. Language is the land and we can listen to the origin of thinking as we walk the hills and valleys, because listening and complete passivity is the deepest form of thinking.
THE HIDDEN PATTERN

Array A – has no apparent order

Apply a set of operators F (such as questions)

$F_1(A) = a_1, \ F_2(A) = a_2$, etc.

The linkages $a_x$ are subsets of A and create a new order

System $S = [a_1, a_2, \ldots]$ 

The operators F articulate the system S.

S is the hidden pattern in A and F is the hyparxis of S

The connections of the hidden pattern are not in the plane of the representation. They only exist under the operation. To have a system, the connections must be both complete and overlapping (have elements in common).

$F(A) = S$ leads to $F'(S) = S'$ and so on. This is a dialogue. The array A represents the content of the conversation and the systems S, etc. are then the acts of conversation (‘turning together’). The array can be laid out in the sequence of occurrence, when the systems will be structured in terms of meaning. In any dialogue, there will be many systems of meaning, in which people share idiosyncratically.

Thinking is an operation on an array of thoughts.

This can be inverted, so that from systems (as hypotheses or beliefs) it is possible to arrive at the underlying array that is their basis. In physics, this is the reduction of phenomena to particles.

A complex representation as in an N-gram indicates a high degree of coherence. An axiom of coherence is symmetry. Also, a small number of systems [S] can encompass all relations. Such pure coherence is rare in actual situations. They correspond with the ideal cases used in the evolution of modern physics – such as frictionless interactions. There is an essential difference between theory and practice, but theory as seeing can influence what actually happens.

Bohm calls the hidden patterns implicate to contrast them with occurrences in space and time, or things as they appear, which are explicate. In ordinary life, a sense
of the implicate order can be associated with such things as synchronicity, the influence of unseen spirits, or the guidance of a higher intelligence.

**FABRIC OF REALITY**

An image is a reflection of a hidden pattern. There is a drive to ‘see through’ the veil of experience to its source. We can watch a movie with this attitude as a training. If there is sufficient attention, or the grace given to see, then there appears another reality. Science, art and mysticism are ways to exercise this drive. Reports suggest that people can access a ‘sea’ of pure meaning, or an absolute array of dimensionless points, each reflecting the others. The latter is called *Indra’s Net.*

In the ultimate substrate, there is no observer. In order to see the hidden pattern, we must disappear. Observation and representation break the pattern, because they are products of it. The actual phenomena of our experience subsists as a set of minute impulses, each of which is an ‘I’. There is no space or time, no things or experiences, only a correlation of random sparks of meaning. Meaning is the material in which mind and matter are not distinguished.

**THE COSMOS AS MIRROR**

The mirror is a secret. There can be no seeing of anything, except as in a mirror. There is no underlying substrate because everything reflects everything else. In order to think, we have to re-present, to have the ‘same’ again but in a reflection. When we have the reflection and that which is reflected together, we can think. It is only through lies that we can have truth. It is only by distortion that we can see clearly. It is only by investing meaning that we can see what precedes this investment – the given.

**ATTENTION**

To see simply what is given is to be enlightened, because nothing is needed. To cease interpretation is to become wise. The end of thinking is love, because it is love that gives rise to it. This love is not an emotion but a precision of experience, to know exactly what is known. It is to give attention, so that what is given may be perfected. The discipline is not to add anything to what is seen.