

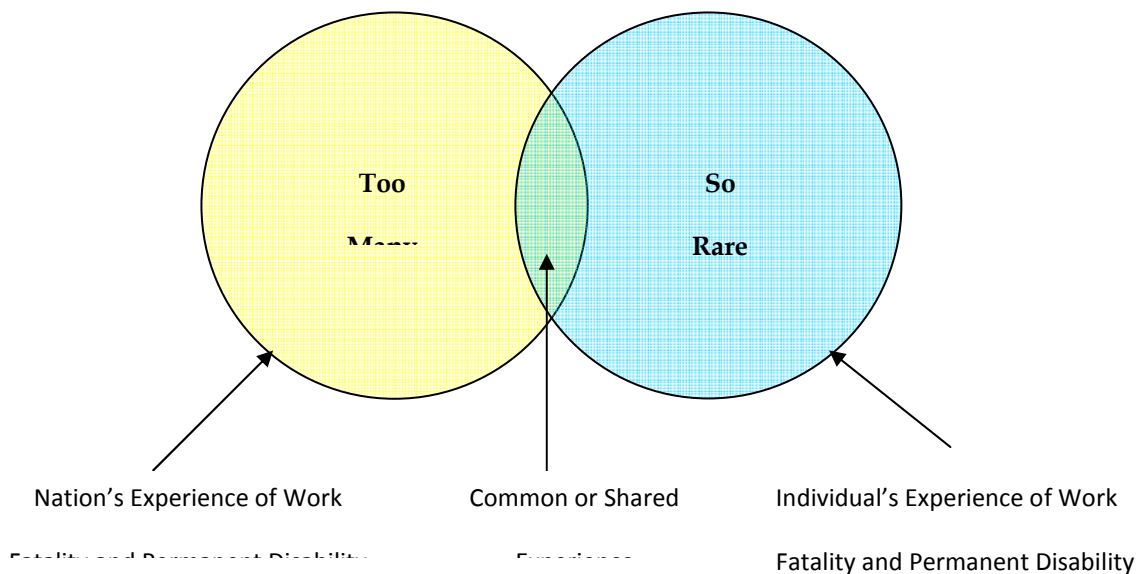
Mandorla

1. INTRODUCTION

A MANDORLA (Italian for almond) is the common area of two overlapping circles.

In safety there are two important Mandorlas. One, the Paradox Mandorla, represents the situation that there are far too many fatalities and permanent disabilities but these occurrences are so rare in an individual's experience that individuals lack both the motivation to make changes and the knowledge of what changes to make.

Figure 1 – Paradox Mandorla

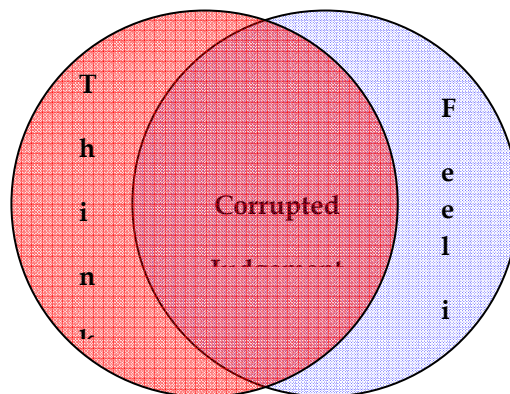


The second, the Judgement Mandorla, represents the thinking and the feeling function, both of which are used to make judgements which lead to action. The thinking function involves the linking up of ideas by means of a concept and/or the use of concepts to integrate new ideas into an already linked up set (constellated, organised group) of ideas. Thinking is concerned with "truth" which is necessary if the physical energies of the world are to be controlled to avoid damaging people. The

feeling function uses sub-emotional feelings via values to make judgements of the form “like or dislike”, “acceptable or not acceptable”, and is essentially concerned with “goodness”.

Feeling corrupts Thinking (eg. by using value laden terms) and Thinking corrupts Feeling (eg. by attempting to rationalise how you feel). Inappropriate judgements come from corrupting one function with the other, or by using the wrong function, (eg. lack of factual information with which to think will lead to a feeling judgement).

Figure 2 - Judgement Mandorla



At present the Paradox Mandorla is very thin and the Judgement Mandorla is very fat. For effective and efficient safety at work The Paradox Mandorla needs to be fat and the Judgement Mandorla needs to be thin.

Thinking Judgements (truth) and Feeling Judgements (goodness) are both necessary, each in their own domain.

The use of the wrong function or the simultaneous use of both corrupts judgement and renders it counter productive. The large Mandorla represents the large amount of corrupted judgement which exists at present.

2. THE CIRCLES

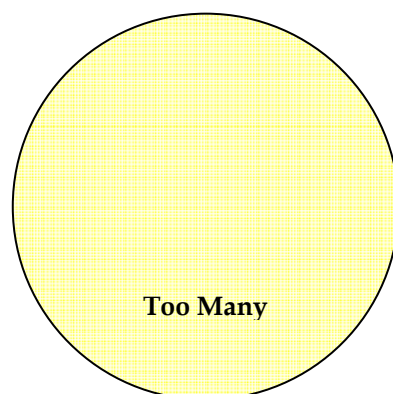
In order to understand a Mandorla it is necessary to first understand each of the circles which overlap to create the Mandorla. In considering the circles it is important to consider the content of that circle only and not allow aspects of the other circle to intrude into the consideration. The intrusion of one circle into the other is the territory of the Mandorla and will be discussed in Section 3.

2.1 The Safety Paradox Circles

The paradox is the apparent conflict between there being collectively far too much damage to people from work and there being individually far too little to provide motivation and knowledge for effective action to be taken. Consider the component parts.

National Experience Circle (Left)

Figure 3 – Left Paradox Circle



**Nation's Experience of Work Fatality
and Permanent Disability**

The left circle, helping create the Paradox Mandorla, is the Quantity of Damage to people from work.

The Industry Commission (1995) has provided the fullest description in its report to all Australian Governments on Work, Health and Safety. Its overall conclusions have been quoted but its detail has been ignored.

The cost of damage to people from work was greater than the contribution to gross domestic produce of the Mining Industry or the combined Agricultural, Forestry and Fishery industries, five times the cost of injurious and fatal car crashes, twice Defence expenditure, more than any State Government Budget and twice that of Queensland's. 82% of the total cost came from 13% of occurrences. 80.5% of the cost came from permanent disability and 1.5% from traumatic fatality.

Each day 137 people are permanently disabled from work in Australia, seven days a week, fifty two weeks of the year. Of the 50,000 people permanently disabled each year – 20,000 do not work again and 30,000 work reduced hours or with reduced skill. Identify a community, find out its population and calculate how long to permanently disable that population.

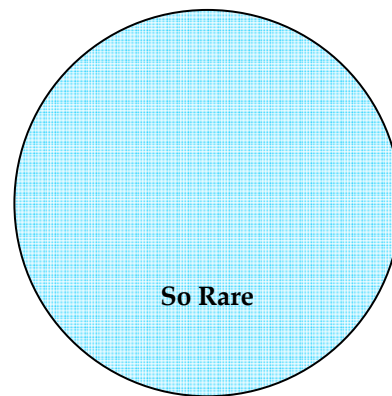
Fatalities are more difficult to estimate because of the effects of chemicals, asbestos and the like. The range is from 4.2 to 8.5 deaths per day or 1,550 to 3,100 per year.

Both deaths and permanent disabilities come from single traumatic energy exchanges, repeated damaging energy exchanges or continuous damaging energy exchanges. With the latter two, the personal damage develops progressively and is often relatively irreparable when identified.

The personal damage comes from a wide variety of energies and an even larger variety of mechanisms of damage.

Individual Experience Circle (Right)

Figure 4 – Right Paradox Circle



Individual's Experience of Work Fatality and Permanent Disability

The right circle, helping create the Paradox Mandorla, is the individual experience of damage to people from work. The number of person years for a fatality or for a permanent disability gives some idea of the majority experience.

The Australian National Institute of Occupational Health and Safety estimates a traumatic fatality rate of 5.5 persons per 100,000 person work years. This is one death every 18,200 person years.

The people who die from progressive damage have often left work and lost work contact before they die. Their death is often only vaguely known to the workplace.

New South Wales is the only state in Australia which publishes figures for permanent disabilities. In 1998-99 fatalities occurred once in 39,400 person years according to NSW compensation figures. In 1992-93, the year for which the Industry Commission made its estimates, NSW compensation recorded one permanent disability per 588 person years. By 1998-99 it was one per 300 person years.

Work fatalities are rare events and permanent disabilities are relatively rare events. The majority of people at work will have minimal experience of either fatality or permanent disability. The majority of individuals will not be motivated by their own experience to expend a significant effort to reduce work fatality and permanent disability. Those who are motivated by their own experience to expend effort will have a limited knowledge of what needs to be controlled and how to do so.

Judgement Circles

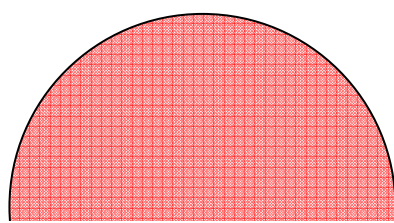
This section is based on the author's experience which he recently found was consistent with Carl Jung's (1971) assessment of Personality Types. Jung identified two attitudes, Extraversion and Introversion and four functions set in two opposing pairs, Thinking and Feeling and Sensation and Intuition. In crude terms Extraversion and Introversion are whether the person's focus is generally turned outwards or inwards.

One pair of opposites, Sensation and Intuition, label the functions we use to perceive the world. Sensation involves the perception of the conscious world, Intuition the perception of the unconscious world.

We are here concerned with the Thinking and Feeling functions which we use to make judgements. All four functions are of importance and ability to use all four is desirable.

2.2.1 Thinking Circle (Left) - Description

Figure 5 – Left Judgement Circle



The following is heavily based on Jung's (1971) one page definition of "thinking" and his thirteen line definition of "apperception".

Thinking

Thinking is the psychological function which uses concepts to connect ideas in accordance with the laws of reason and of logic. Thinking is an activity which joins new ideas with similar already existing ideas so that they are grasped, understood and become clearer.

Active thinking is an act of will where a person, of their own accord and from their own motives, consciously applies their mind to understand a new idea and to actively absorb that idea into a group of ideas already formed together.

Passive thinking is an occurrence where new ideas force themselves on consciousness either from without (through the senses) or from within (from the unconscious). The new ideas compel the application of the mind and thereby lead to understanding.

In active thinking, also known as “directed thinking”, ideas are submitted to a voluntary act of judgement.

In passive thinking, also known as “undirected thinking”, or “intuitive thinking”, concepts which link ideas together establish themselves of their own accord.

The distinguishing feature of thinking is the linking up of ideas by a concept. This requires an act of judgement. It does not matter whether that act was intentional or not.

The capacity for active thinking is called “intellect”.

The capacity for passive thinking is called “intellectual intuition”.

Active thinking is a rational process because it arranges ideas under concepts with a rational pattern of which the person is conscious.

[A concept is an abstract idea or an idea or mental picture of a group or class of objects formed by combining all their aspects.]

Passive thinking is an irrational process because it arranges and judges ideas by patterns of which the person is not conscious. The person therefore is unable to see that the thought is consistent with reason. Later the person may recognise that the intuitive act of judgement is consistent with reason although it first arose by a process that appeared irrational.

Thinking governed by feeling is not intuitive thinking but is thinking which depends on feeling. The thinking does not follow its own logical principle but is subordinated to the principle of feeling. The laws of logic and of reason are only apparently present. They are actually suspended in favour of the aims of feeling.

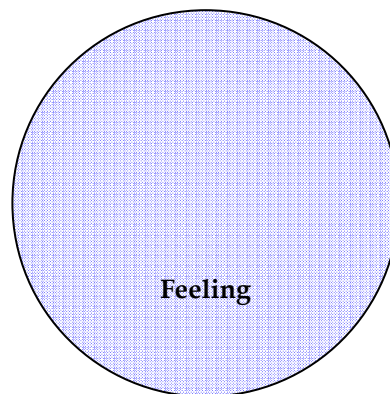
According to Jolande Jacobi (1968), who worked with Jung, thinking operates on the “true - false” continuum.

Briggs and Briggs (1980) state

“Thinking is essentially impersonal. Its goal is objective truth, independent of the personality and wishes of the thinker or any one else. so long as the problems are impersonal like those involved in building a bridge or interpreting a statute, proposed solutions can and should be judged from the standpoint ‘true - false’ and thinking is the better instrument”.

2.2.2 Feeling Circle (Right) – Description

Figure 6 – Right Judgement Circle



The following is heavily based on Jung’s (1971) three page definition of “feeling” and his almost one page definition of “affect”.

Feeling is the psychological process that takes place between the ego and a given content of the conscious mind which imparts to that part of the mind’s content a definite value in the sense of acceptance or rejection (“like” or “dislike”).

Feeling is an entirely subjective process which can be completely independent of external stimuli, even though it combines (allies itself) with every sensation.

Feeling is a type of judgement, differing from intellectual judgement. Its aim is not to establish conceptual relations as thinking does, but to set up subjective criteria of acceptance or rejection. These value judgements by feeling cover all of the content of consciousness, regardless of what it may be.

When the intensity of feeling increases, it turns to emotion. Emotion involves marked physical sensations from nerve activity and also a peculiar disturbance of the formation of ideas.

Even though the dividing line between emotion and feeling is very fluid there is an important difference. Every feeling can become an emotion by gaining in strength and releasing physical sensations. Emotion is clearly distinguished from feeling by these physical sensations from nerve activity. Feeling for the most part lacks this nerve activity, or the nerve firing is at a low level which can only be detected by delicate instruments. The important practical significance of the difference is that feeling can be a voluntary disposable function while emotion is usually not.

Feeling produces neither more nor less physical sensations from nerve activity than does thinking.

Abstract feeling is different from "simple" concrete feeling. Concrete or "simple" feeling relates to a simple unaggregated content of the conscious mind (a thing). Abstract thinking uses concepts which disregard individual differences between things and uses their "common pattern" to bring them together to give abstract understanding. Abstract feeling eliminates differences between particular contents of the conscious mind it is evaluating and produces a mood or feeling-state which relates to the abstracted commonness of those particular contents. This mood absorbs all the individual evaluations which are thus subordinated to the abstraction.

The more concrete a feeling is, the more subjective and personal is the value bestowed on it. The more abstract a feeling is, the more universal and objective the value will be.

Feeling is a rational function since values are generally assigned by use of the laws of reason, just as in thinking, concepts are generally formed in accordance with the laws of reason.

Thinking organises contents of consciousness under concepts.

Feeling arranges contents of consciousness according to their values.

Passive (undirected) feeling allows itself to be attracted to, or excited by, a particular content of the conscious mind. This content then forces the person's feeling to participate. Passive (undirected) feeling is feeling intuition which can give values to content without the participation of the person or even against their intention.

Active (directed) feeling involves a transfer of value from the person to a particular content of the conscious mind. The transfer entails an intentional valuation of the content in accordance with feeling – not in accordance with intellect.

Naturally the above definitions do not give the essence of feeling and only describe it from the outside. The intellect is incapable of formulating the real notion of feeling in conceptual terms. Thinking belongs to a category having no common factor (incommensurable) with feeling.

Jolande Jacobi (1968) indicates that feeling is concerned with the “agreeable – disagreeable” continuum. Briggs and Briggs (1980) argue that “‘Agreeable’ is too pale a word for the rich personal worth of a feeling evaluation”. In discussing the feeling function they state:

“But the moment the subject is people instead of things or ideas – and some voluntary cooperation from those people is needed – the impersonal approach is less successful. People (even thinkers) do not like to be viewed impersonally and relegated to the status of ‘objects’. Human motives are notably personal. Therefore, in the sympathetic handling of people where personal values are important, feeling is the more effective instrument”.

2.2.3 Thinking Circle (Left) – Application

A person suffers damage to tissue or function, and becomes impaired, as a result of an energy exchange which goes outside tolerable limits.

As a result of this damage, the person's life may be permanently altered (Class I damage), temporarily altered (Class II damage), or inconvenienced (Class III damage).

The damaged tissue or function can result in impairment to the person physically, mentally or emotionally. The person may be impaired in their personal functions as well as their work, family, community, recreational and other functions.

A Damaging Energy Exchange occurs as the climax of one or more sequences of events, which contain factors without whose presence the sequence cannot continue to the damaging climax (Essential Factors). Other factors (Contributory Factors) which, while not essential, make the damaging energy exchange more likely, by making it more likely that one or more of the essential factors will be present. All essential factors are equally important in terms of causation. There is no basis for selecting out any one essential factor and giving it increased importance over other essential factors by nominating it as the 'cause'.

Essential Factors nearly always include Behaviour, Design and Environment factors. The Thinking summary is that Behaviour Factors make an essential contribution to 100% of cases, Design makes an essential contribution to 100% of cases and Environment makes an essential contribution to 100% of cases.

Contributory Factors vary from 1 to 99% contribution. Both Essential and Contributory Factors vary in their controllability. Controllability needs to be considered for short / long term and for specific / widespread application. Controllability includes such considerations as feasibility, implementability, reliability and durability.

The interest of safety is served by identifying as many as possible essential and contributory factors and selecting for action those with the highest controllability.

The sequence(s) of events and the damaging energy exchange are collectively called a Damaging Occurrence.

A Damaging Occurrence is the logical outcome of –

- the system of work
- the energy used or stored within the system of work, and
- the characteristics of the human (behaviour), machine (design) and environment

interacting within that system.

The damage to tissue or function can be the result of a single energy exchange (Type A), repeated energy exchanges (Type B), or continuous energy exchanges (Type C). With both Type B and Type C damaging energy exchanges no damage is manifest in the short term. By the time the damage is apparent, damage to tissue or function may be permanent.

The damaging energy exchange occurs during or as a result of a Task Activity.

What happens in the task activity depends on the Management Chain and the Information Chain.

The Management Chain extends from the community whose members can be damaged from work to –

- The Government, political and bureaucratic, whose role is to manage on behalf of the community to
- Industry Associations and Unions who represent the interests of their members (and interest in reducing Class I damage) to
- Boards of Directors / Owners to
- Chief Executive Officers and through the company structure to
- The person in charge of the task activity to
- The person performing the task.

Each level of the Management Chain is better able (efficiently and economically) to do some things than are other levels of the Chain. To the extent that any level of the Chain does not do what it is best able to do, safety will be adversely affected unless some other levels of the Chain undertake more activity (less efficiently and economically) to compensate for the shortfall at the other level.

Identification of essential and contributory factors in the 'action replay' part of the damaging occurrence predominantly identifies factors operating during the task activity. The Management Chain can then be searched for essential and contributory factors which lead to the existence and presence of the 'action replay' factors.

Both the 'action replay' factors and the Management Chain factors can then be used to explore the Information Chain for essential and contributory factors leading to the presence of the factors previously identified.

The Information Chain extends from phenomena involved in damaging occurrences to

- an individual's veridical (true saying) understanding of the phenomena, to
- a wider understanding of the phenomena, to
- responsible outsiders (academic, professional, governmental) understanding, to
- responsible insiders (within organisational structure), to
- understanding by those involved in the task activity.

The Triple Energy Model shows how the above is predominantly concerned with the energies of the world i.e.

Communication Energy (low levels of energy) interacting with the sensory system, and involving

- information detection
 - information processing, and
 - decision making
- by the human, machine or environment.

Control Energy, generally larger but still modest amounts of energy, which maintains the potential damaging energy under control e.g. grip of footwear on a walking surface, movement of a steering wheel, and grip of tyres on a road.

Damaging Energy can manifest itself through Type A, type B and Type C exchanges with the most common Class I damaging energy sources being gravitational, human (muscular), and machine energy (including vehicles).

The above is a brief summary of a system which can be used to provide a 'thinking' understanding of how people become damaged from work. The system in full requires clearly defined terminology, concepts and models which seek truth in accordance with the laws of nature so that

- energies can be managed to give effective communication and control
- the potential damaging energy exchange is avoided or modified
- only acceptable levels of personal damage occur to an individual.

A damaging occurrence can be identified and described in terms of essential and contributory factors. The identification of these factors should not be dependant on the personality or wishes of the thinker or anyone else, but will depend on their veridical knowledge of phenomena involved in damaging occurrences and on the organisational ecology within which they work.

2.2.4 Feeling Circle (Right) - Application

This paper reached the end of 2.2.3 in 2003. Now more than two years later (October 2005) I am brave enough to attempt to describe the right circle of the Judgement Mandorla. My difficulty has been that I have been searching for the “correct” descriptions of feeling about damaged people and of the overall work damage to people. There is none. Refer back to 2.2.2.

Feeling is an entirely subjective process which can be completely independent of external “stimuli”.

Feeling can be related to external stimuli. You may develop feelings to a piece of music, a film, an object of art, or to a person or to what a person is doing. As a feeling becomes stronger it intensifies into an emotion which is not “voluntarily disposable”.

If a person does not directly perceive the object of the feeling by either of the two perceptual functions, sensation or intuition they will have to create some form of mental construct, possibly through imagination. They can then feel about their mental construct. If a person tells you of something outside your knowledge or experience you are dependant on their description, and your perception and interpretation of their description.

Imagine you are a rotating metal disc detached from a machine, fly across the room and strike a man in the lower face, severely damaging his jaw. Some years later you again see the man with his jaw strongly deformed and lacking in function.

A woman slips when water has been spilt on ceramic tiles in a kitchen. As she falls her head strikes a cupboard, snapping her head forward. She is a quadriplegic with limited use of arms and hands.

Picture any variety of amputated limb - hand, fingers, toes or foot by saws, presses, guillotines. If you saw any of the above happen it would be clear either during or shortly afterwards that permanently life altering damage had occurred. Similarly, if you did not see the damaging occurrence but saw the person some considerable time afterwards you would appreciate the damage that had occurred to the person.

In all cases you would develop feelings, and in many cases, particularly if you saw the damage being done, you are likely to develop strong emotions.

While reading this you can only feel or emote to the pictures you create in your conscious mind from the written words. Of importance to present considerations are the feeling judgements you would make of each of these persons if you knew of your own observations what happened to them and how their life has been affected.

Now consider the person who has damaged the tendons which curl the fingers inwards. The damage has come from repeated rubbing of the tendons over the edge of the strong ligamentous band on the palm side of the carpal tunnel of the wrist through which the tendons pass. The rubbing has occurred because the fingers are being curled inwards under load while the wrist is bent inwards.

The tendons swell and the median nerve is compressed in the carpal tunnel and ceases to function satisfactorily. The person has increasing difficulty in using their hand, experiences pain and drops objects.

Another person, over a long period of time damages the annular walls of a lumbar disc by overloading. They feel no pain with the early damage. Eventually the disc bulges and applies pressure to the nerve exiting the spinal column at that level. The nerve slides back and forward with leg movement and as a result of the pressure, inflames. Pain develops and may refer down the legs. By a complex of relationships the person can develop chronic pain. They will have good days and bad days and may, on a good day, carry out relatively normal lifting and carrying tasks. They are likely to pay the penalty for this by having a number of very bad days.

Both of these people were carrying out tasks which would look perfectly normal and not particularly demanding. There is no apparent reason for any damage to occur. There is also no visual evidence of the damage.

The life of such people may become powerfully affected by pain. They are physically unable to work and often cease to be very good company and so lose friends and lose or strain important relationships.

What do you create in your conscious mind from this and what judgement do you feel.

Now mass together 135 cases of these and other work damaged people each day for the next year, seven days a week for 52 weeks. Of the 48,900 people in the year, 26,900 will not work again, while the remaining 22,000 will, after time, work at a less demanding job or for fewer hours. As well, somewhere between 7 and 20 people will die each day as a result of work.

Examine your feelings about those people, those they are close to, their community and their workplace and employer.

Turn your mind to what this means to Australia. The total value in 2000-01 of damage to people from work was \$82.8 Billion (total exports for 2004-05 was \$162 Billion). Of this, \$48.5 Billion was for pain, suffering and early death, and \$34.3 Billion for a variety of costs to employer, worker and community. Overall value was 6.5% for fatality, 90% for non-fatal permanent alteration of life and 3.5% for lost time injury from which the person fully recovers. The employer carried 10.3% of the total value, the worker 76.7% and the community 13%.

Over all Class I (permanently life altering) damage accounted for \$79.9 Billion (96.5% of the total) quantity of damage (fatal 6.5%, non-fatal 90%). The workers' share of the total quantity of damage was \$63.5 Billion (76.7%). The Community's share was \$10.8 Billion and the Employees \$8.5 Billion. Class II (temporarily life altering) damage accounted for \$2.9 Billion (3.5%).

Investigation of over 6,500 Class I damaging cases lead to the conclusion that the majority are a by-product of our current technology. Current technology improves our standard of living. If Class I non-fatally damaged people are not enabled to live, as best they can, a similar standard of living to that prior to damage, they are subsidising our standard of living. Do you wish to be part of a community which requires permanently disabled people to subsidise your standard of living?

Above I have tried to create some form of mental construct or picture for your brain. Inevitably it is a relatively ineffective or feeble effort. For the majority of this section I have written in thinking terms. It is not an objective to tell any one how they should feel about what has been written. Rather it is a brief attempt to describe parts of a very large phenomenon which exists. I have described "base bones" version and not raised a myriad of relevant factors.

Try to construct, as best you can, the phenomena in your brain. Try to avoid thinking about it and explore how you feel about it in different ways.

Remember that feelings work via values to make judgements of the form "like" or "dislike", "agreeable" or "not agreeable", and is concerned with your perception of what is good. Explore your personal values and the community values in relation to these phenomena.

3. THE MANDORLAS

The Mandorla is the overlapping portion of two intersecting circles. It contains content of both circles. Each circle also has content it does not share with the other circle. Some of the stored material is intrinsically shared since it is naturally common to both circles. Other material may be shared, not because of its inherent properties but as a result of some other factors or activities which places the material in both circles.

3.2 The Present Safety Paradox Mandorla

There is one National Experience Circle. There are as many Individual Experience Circles as there are individuals. These individuals could be organised into groups according to their common patterns and individual differences.

The individual experience may be direct (they were damaged), as an observer (witness), second hand (told by someone else) or they may have learned or been taught either formally from institutions and professions or informally from the community's general knowledge.

3.3 The Present Judgement Mandorla – Present

3.4 The Effective Safety Paradox Mandorla

3.5 The Effective Judgement Mandorla

3.6 Resizing the Safety Paradox Mandorla

3.7 Resizing the Judgement Mandorla

4. WHO DOES WHAT

To be fitted in Consigning Consignorance and Consignoramuses to ?