

# Self-expansion

a new integrated  
paradigm for  
psychology

*EXPANDED EDITION*

*by Miklós Fodor*

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[www.psychology2.org](http://www.psychology2.org)  
[miklos.fodor@psy2.org](mailto:miklos.fodor@psy2.org)  
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# CONTENTS

<b>ACKNOWLEDGEMENTS</b>	<b>8</b>
<b>PREFACE</b>	<b>9</b>
<b>1. SYSTEM THEORY INTRODUCTION</b>	<b>11</b>
Introduction	11
Objects of Assessment	12
Sub-systems as operations	13
Integrated operations	14
Description of the connections of sub-systems	16
Types of connections	17
If scenarios connect	18
Suspension	20
The manipulation chamber	21
Testing	23
Indicator	24
Scenarios of indicator increase	26
Necessity for systems to cooperate	29
Connections within and outside the system	29
Increasing the indicator outside the system	31
Reproduction	32
Creation and cessation	34
Ultimate goal	35
Consequences of physical differences between systems	37
More complex phenomena	38
<b>2. THE MODEL'S USE IN PSYCHOLOGY</b>	<b>40</b>
PRESENTATION OF THE MODEL	40
Communication	42
Motivation	44
Diversification of mental representations	44
Body	45
Language	46
Groups	48
Ultimate goal: increasing adaptivity vs. reproduction?	48
Consciousness	49

The Self	51
Emotions	53
Arousal	56
“Automatic action”	57
Flow	58
Peak experience/enlightenment	59
HOW THE MODEL CONNECTS TO CURRENT TRENDS IN PSYCHOLOGY?	60
Piaget and the constructivist learning theory	60
Philosophical background	64
Neisser	64
Freud	67
Functions of a higher order	69
Further chapters	75
<b>3. INTRODUCTION TO THE MAIN CONCEPT (FIPP)</b>	<b>76</b>
Principal concepts	76
The model	77
Supplement to the pattern: the imperative of communication	78
What is self-confidence?	79
What is the competitive evolutionary edge of happiness?	80
Why do we communicate?	82
<b>4. ARTS AND THE COMMUNICATION OF COGNITIVE SCHEMATA</b>	<b>84</b>
The psychology of Art and Berlyne's model	84
Understanding the differences between kitsch and art, and high art and popular art	86
An artist is principally a communicator	91
Further examples related to the communication of cognitive schemata	95
The definition of beauty	100
<b>5. THE RIDDLE OF PUZZLES</b>	<b>102</b>
Introduction	102
A good beginning - initial Self-expansion	102
Increasing involvement	103
Brain Gym	104

Why do people submit solutions to puzzles?	104
Solving puzzles on a higher level	105
<b>6. SINGING IN THE RAIN AND ALTRUISM</b>	<b>106</b>
Why does somebody sing in the rain?	106
How does altruism have an effect here?	106
Altruism in the mirror of evolutionary biology and FIPP	109
We sing in the rain...because we obey the imperative of communication	110
Altruism and martyrs	111
The lack of altruism, and Self-narrowing	111
<b>7. SPIRITUAL ENLIGHTENMENT: A COMPLEX PHENOMENON DESCRIBED IN A SIMPLE MODEL BY FIPP</b>	<b>116</b>
Introduction to the phenomenon of Enlightenment	116
How does enlightenment accord with the concept of FIPP?	117
How does enlightenment happen according to the FIPP?	120
How do we attain enlightenment?	122
<b>8. UNDERSTANDING PROBLEM SOLVING USING FIPP</b>	<b>126</b>
The role of cognitive schemata in thinking	126
Problem solving described with the concepts of FIPP	126
Satisfying the hunger for problems	137
Natural – and artificial – self-confidence (narcissism)	138
<b>9. UNDERSTANDING AGGRESSION BY DEFINING DIFFERENT TYPES OF RELATIONSHIPS</b>	<b>141</b>
Introduction: the types of relationships between objects	141
Perceiving the Environment exclusively by a sole schema representative of it	145
The characteristics of separation and compression	146
Separation and compression as Self-narrowing effects	149
The aggression concept of FIPP, and classic psychology	150
Aggression and optimal group decision	154
Aggression: the forms in which it is manifested	156

<b>10. SEX</b>	<b>160</b>
Types of orgasm	160
Side-effects of sex	161
Excesses and absences of male and female bodies	162
The rhythm of the sex act	163
<b>11. WHAT MAKES A RELATIONSHIP WORK? HOW SHOULD WE CHOOSE A SPOUSE?</b>	<b>166</b>
The framework communication model	166
Dance and rhythm – Adaptation to each other	167
Domination and submission	168
Fitting together	168
<b>12. FUNCTION PRACTICE (CIRCULAR REACTIONS) AND THE DESCRIPTION OF COGNITIVE SCHEMATA</b>	<b>176</b>
What is function practice (circular reactions)?	176
FIPP's interpretation of the concept of cognitive schema	176
Levels of reality (and of modeling): the multiple aspects of reality	177
Cognitive schemata and ideas. Categories and their typical examples. The borders of cognitive schemata	181
Archetypes	184
Spontaneous Self-expansion	185
The establishment and growth of cognitive schemata	185
Definition of function practice (circular reactions) with the help of cognitive schemata	187
A final detour: play as autotelic function practice	189
<b>13. THE MENTAL HYGIENE EFFECT OF A COMMON RELIGIOUS ACT</b>	<b>191</b>
Confession	191
<b>14. THE DIFFERENT PATHS TO HAPPINESS</b>	<b>197</b>
About happiness	197
FIPP and death	198
FIPP and happiness	199
Objects of life: which path to enlightenment?	203

Summary: FIPP's contribution to existence after death	220
To properly interpret this chapter...	222
<b>GLOSSARY</b>	<b>223</b>
<b>IMAGES PROTECTED BY COPYRIGHT</b>	<b>224</b>
<b>REFERENCES</b>	<b>225</b>

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## PREFACE

Dear Reader,

In this volume, I will attempt to provide insight on the theme of connection through three perspectives, namely, system theory, psychology, and practice. These three all revolve around the same concept: what happens, from the perspective of an entity, when that entity connects to another entity?

One of the key aspects of this line of thought is that the only reality existing for a given entity is its “own” reality. That is, its relationship to other entities can be described exclusively from the vantage point of the entity itself.

What do I mean by entity? This becomes relative precisely due to the way I focus on connection. An entity is not necessarily a single unit, as observed from an external vantage point; for example, from outside the entity. Rather, an entity is something that is recognized as a unit by the entity itself. Therefore, a person may be an entity. However, this person and their spouse, who coordinate their operations through communication and on the grounds of common interests, may also be seen as an entity. In that case, their decisions (those of the couple) in that context will be determined on the grounds of what their common interest is.

Adaptivity, an aspect that represents an absolute positive value of its own accord from the perspective of the entity, is the key principle, in the light of which I will be examining the effects of the systems’ connections.

The notion of connection may at first seem of interest. However, since connection is not a key term in either psychology or system theory, is it worthwhile examining this notion at all? I believe that, by clarifying and encompassing the notion and quality of connection, it becomes possible to understand a range of phenomena in simpler and deeper ways than previously. We can obtain clear explanations for phenomena such as the (similar) traits of problem solving and altruism, or the relationship between religion and adaptivity.

While describing the different connection patterns and their effect on systems’ behavior, I have reached some novel conclusions. I will try to justify these through everyday examples and, more importantly, by reflecting on theories espoused by acknowledged academic figures, such as Freud or Piaget.

By using system theory terminology, the first chapter discusses how two systems can connect. Also, some new notions are introduced to help understand how connections impact upon systems. The conclusions accepted in the first chapter will then in the second chapter, be framed in terms of the person, as a system, and its sub-systems, namely, cognitive schemata. An overview of the impact of the connections of these cognitive schemata on the human psyche will then be presented in the FIPP – Fodormik’s Integrated Paradigm for Psychology – model, in the third chapter. There will then follow chapters specifically dedicated to examining particular themes in further detail, which will demonstrate how the FIPP model can be used efficiently.

I have endeavored to structure this volume to take into account the differing ar-

eas of interest and levels of knowledge of readers. For researchers, or those accustomed to academic articles, I recommend the first two chapters. Knowledge of the basic idea of connection is sufficient to understand the introduction to system theory. However, in order to understand the second chapter, formal psychological knowledge is required.

In the remaining chapters, I pay particular attention to providing an easy-to-understand format. To this end I have included illustrations, and explanatory footnotes. I also sought to satisfy the standards required of academic writing.

Consequently, the structure of the book enables readers to bypass chapters – with the exception of the third chapter presenting the FIPP model – should they find a certain chapter too academic, or if they are not interested in a particular theme.

Due to the novelty of my submission, I feel that it will generate further avenues of consideration. In this regard, I will endeavor to respond to any request for further information, or debate on this theme, from those who are open and interested; I can be contacted upon [miklos.fodor@gmail.com](mailto:miklos.fodor@gmail.com)

I wish you good reading, and a wealth of intellectual experience!

Miklós Fodor

# 1. SYSTEM THEORY INTRODUCTION

## Introduction

Since von Bertalanffy (1968) and Wiener (1948), works that focus on the structure and operation of systems have enriched the literature on system theory and cybernetics. In particular, how they connect to their environment and expand to include the assessment of management, and related issues such as information processing. Fortunately, the practical application of theoretical models complements these, so paving the way to attaining von Bertalanffy's original goal. That is, the birth of an integrated science, one that incorporates scientific concepts espoused by various sciences, and so offers mutual benefits in their relationship with one another.

Strangely, little attention has been paid to the connections of sub-systems that comprise a given system, or how these systems influence other systems. Maturana and Varela's (1987) notions of autopoiesis and autopoietic systems seem to have resolved the question of how specific systems adapt, so assuring their survival. When discussing the adaptation, however, they omitted assessment of how adaptation takes place from the system's internal perspective. That is, how can a system inform itself (what sort of mechanism provides it with feedback) whether the changes it has undergone are good or bad from the perspective of adaptation?

In any attempt to project system theory results onto a person or organization (enterprise), I acknowledge that we know much about what goes on inside us. However, we have less information on how these systems behave in relation to one another. For example, how we cooperate, compete, or help one another in an altruistic way. The question I raise focuses on the analysis of an interim, yet extant, level of assessment. On the basis of published literature, we know a great deal of what takes place inside a specific system. This includes what happens when a specific system (A) becomes part of a larger system (B). B itself then becomes the main system. However, we know far less about two inter-connected systems, which are more than a single specific system, yet still do not compose an entirely new main system. (Let us call this undefined, interim system, C.)

For a human comparison, from the perspective of system theory, we are aware of what goes on inside a person, previously indicated as (A); and what goes on in a group or society (indicated as B). However, we do not know a great deal about potential interactions between two persons (indicated as C). The same applies during the life of an organization, namely: we are aware of how a given organization (A) works, and how the market (B), in which the organization operates. However, we do not have sufficient insight on, for example, the relationship (C) between a given supplier and its client's enterprise.

In the following chapters, I will illustrate the benefits of the theoretical concepts in footnotes by framing these in the context of physically existing systems; namely, people and organizations. The examples I present have been taken from these two

main areas. However, ever since Miller (1978) espoused his theory, we know that a cell, organ, organism, group, organization, community, society, or supranational system, is structured on the grounds of the same organizational principle. That is why it may be no surprise that these theoretical concepts will also apply, and function, when projected onto the relationship between countries, political parties, and other groups.

## Objects of Assessment

Before assessing the connections of systems, I should specify those systems that the following concepts relate to.

The most attractive attribute of system theory is that it identifies similar fundamental relationships between, for example, the units, branches, and divisions, of an enterprise; the parts of a complex mechanical machine; and the particles of a cell. Similarities are based on the way each of these entities has similar properties. These include that: they are systems; they have boundaries; their sub-systems underpin various functions; and they have structure(s), in that the sub-systems connect to each other in a specific way. From amongst these, the most relevant property is that the systems are in contact with their environment. That is, they are in contact with something that is not a part of the system, which is in the form of inputs and outputs. These systems generate outputs from inputs with the aid of their internal structure(s).

Regarding the numerous types of system, my following claims are only applicable to so-called complex adaptive systems (CAS) (Holland, 1995). More specifically, those systems comprised of organic matter. The reason for this is that a minimum level of complexity is required in order to ensure that a system is capable of adapting without external help, by simply altering the structure and connections of its sub-systems. This complexity, and the chances for successful adaptation, increase linearly with the number of sub-systems. The systems built of organic matter, being those made up of sub-systems that decompose/decay or evolve/replicate more easily, mean much less stable systems. These change far more quickly and dynamically. Consequently, these organic CASs are capable of fast and complex learning, which suggests that the system is capable of adopting hundreds and thousands of system states within a short space of time. From amongst these, the single most adaptive state is selected. The structure so selected can stabilize, since it provides good responses to environmental inputs.

So many factors influence live CASs during the course of increasing their adaptability that from a higher and less detailed level of assessment it seems that this process is trial and error learning (Skinner, 1950). The operant conditioning requires multitudes of system states. From a higher approach, we might view these as being produced by a random number generator within the system.

Another unique characteristic of the live system, as presented in detail by Miller, is that its sub-systems comprise live systems, and are therefore structured on the

basis of similar principles; for example, including sub-systems with the same function. Perhaps my one deviation from Miller's approach is that, whereas Miller lists a limited number of complexity levels, I do not. Neither do I necessarily insist on quantising (relating a natural number to each complexity level of) the systems..

This will be relevant later, in the introduction on cognitive schemata used to describe human thinking, where:

a) cognitive schemata cannot be explicitly placed in the category of an organ, cell or organism; and

b) schemata connect at several, or even hundreds, of levels, to describe thinking and the human psyche, especially if we also accept basic sensory units as schemata.

I also prefer to extend the number of levels for similar reasons. In many cases, project teams or organizational units (or similar) with special competencies, do not fall on the "whole number" complexity level.

## Sub-systems as operations

Miller differentiates various sub-systems according to what they process i.e. matter/energy; matter/energy and information; or information only. As we are aware of how all sorts of information manipulation is embedded in the material world, we shall be focusing only on information processing. That includes the relevant neurological, biochemical and physical processes enabling the described connections, which must be identifiable in the future.

The handling of these information systems has also simplified, due to how we consider them as operations that generate outputs from inputs. I use the term operation to emphasize an approach identical to that of Stephan (2004). That views the system as a function which, using the inputs and the characteristics of the system, generates outputs and a new system state.

What is important to us regarding the notion of operation is that the system works with multi-variable inputs, from which it generates multi-variable outputs. Moreover, due to the nature of transformation rules, not all inputs are capable of being transformed; only interpretable input will lead to usable outputs. The regularities stored in the structure of the system (its sub-systems and their connections) designate acceptable input patterns. These, therefore, are also stored in the system. This does not presuppose a pre-processing or pattern filtering sub-system: the filtering mechanism itself is encoded in the structure of the system. The system begins to process each input, which is performed successfully or otherwise.<sup>1</sup>

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<sup>1</sup> This is evident in humans when a hungry child places an object in their mouth, chews, and then swallows it (processes/conducts an operation on it). The child then places a solid object in their mouth and, as usual, begins to chew it, but stops this action when it proves unsuccessful. Or, a person places a piece of chewing gum in their mouth, chews it, but does not swallow it as they are unable to convert it into something edible i.e. the operation stops. A similar situation may occur in the life of an organization. For example, a supplier delivers an aluminum compound to a plastic manufacturing factory, instead of the plastic compound that was required (which can be molded). Nothing occurs when the wrong base material is fed into the machines, and the production process breaks down, as the machine only heats the material to the melting point of plastic, not aluminum

Pre-processing, or a filtering apparatus, is not necessary. However, in the case of more complex systems, this does not imply that the presence of a specialist sub-system to perform this function is a drawback. I will return to this later.

Before clarifying pattern and input relationships, let us consider the consequences of an approach that takes systems as an operation.

The most relevant outcome is that the connection of sub-systems becomes possible to understand; namely, that an output of a given sub-system may be an input of another sub-system. Furthermore, the connected sub-systems also perform an operation, which coincides with the way they create a system through these means. Several systems may use the same output as an input, and several outputs may compose the input of a given sub-system.<sup>2</sup>

The notion of connection enables both:

- o the system theory-based description of complex behavior and phenomena generating many inputs and outputs; and
- o these sub-systems to receive information from one another.

This process of receiving information is independent of the time factor that, using the methodology of system theory, makes us capable of analyzing prolonged actions or sequences of phenomena. Moreover, we can observe a ‘linear’ sequence of this kind in various time horizons, or ‘resolutions’, since phenomena taking place on a daily, monthly, or annual, basis are embedded into each other.<sup>3</sup>

## Integrated operations

A question remains: with limited storage capacities, how can all the operations that make it possible to process inputs be stored? A notion similar to the logical operation of induction is key to answering this question; namely, the integration.

What do we mean by integration, and how does it take place? Integrated operation comes into play whenever we manage to reduce two or more operations to a single operation in a way whereby information is not lost in the process i.e. the integrated system is able to perform what those operations were able to do. The inverse process, of generating the ‘to-be-integrated’ type of operations from the

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<sup>2</sup> Although focusing on the mathematics of the topic is not our objective here, I will nevertheless provide a simplified description for clarity. Let  $x$  be the input of sub-system A, and  $f(x)$  as its output. Let  $y$  be the input of sub-system B, and  $g(y)$  as its output. In this case, the two connected sub-systems will generate  $g(f(x))$  from input  $x$ . If a third sub-system, C, also connects to B, and A and C jointly impact B –  $g$  becomes a two-variable function – then  $h(z)$  is the output of C ( $z$  is the input). So,  $x$  and  $z$  form the inputs of the system that is now composed of these three sub-systems A, B and C, whilst  $g(f(x), h(z))$  will be the main system’s output. Remember that this is a simplified description; inputs or outputs are actually composed of several independent variables

<sup>3</sup> In humans, the way in which a given person accumulates assets is a good example of a series of operations connected in parallel. The amount of money eventually at the disposal of the person is the outcome of a series of investment decisions, in which context the profit generated by a previous investment decision made over the years established the capital needed for the next investment decision, and so on. Production organizations (factories etc.) are prime examples of complex systems, the financial success of which may depend upon minor decisions. These might include whether workers should wear protective gloves, how prepared are its engineers, or the type of pricing strategy recommended by the marketing division

integrated operation, is termed deduction. In many cases, the integrated operations generate valid outputs even without the aforementioned (deduction) inputs, even if they contain less information (fewer details) than their deduced companions. This difference in information detail is generally negligible in relation to the degree of storage capacities that can be retained, or to how a lower volume of information can be better manipulated.

Integration may take place in either of two ways:

- o When various operations contain the same sub-operations, and the integrated operation collects and summarizes these common sub-operations. In order for this integrated operation to ‘know’ as much as the operations to be integrated, a differentiating sub-operation (that making the difference) must associate with the integrated operation. Therefore, the common properties will be stored in the new integrated operation, while the inputs (with the help of the differentiating sub-operation and the deduction inputs) will produce the same outputs as that prior to the integration process;<sup>4</sup> or
- o Deconstructing the operations to be integrated, and reconnecting these in a new structure i.e. by means of restructuring, creates a new integrated operation. Here, this new integrated system is capable of producing outputs similar, but not entirely identical, to those of the operations to be integrated. Moreover, outputs generated through these means are more adaptive than those produced as an outcome of the integrating operation.<sup>5</sup>

The number of common sub-operations of these operations determines which of the above two options for integration will take place. The first option is characterized by attempts made to reduce redundancy (decreasing storage demands of identical sub-operations). In deconstructing, it is the correlation between outputs and inputs that may launch the integration process. If there are only a limited number of identical operations in relation to the operations that deviate, redundancy will not reduce significantly. That is why the deconstructing process will be launched, assuming that outputs and inputs correlate.

If different operations connect to a single operation, these operations will behave like an integrated operation. This is especially so if that single operation is also capable of generating valid outputs of its own accord.<sup>6</sup>

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<sup>4</sup> In many cases, the process of human categorizations proceeds as follows. When the members of a category (say, apples) are placed in the same batch, this composes a sequence on the basis of certain similarities, and in spite of certain distinguishing traits (red, green, yellow apples). The reason underlying the difference between the components of the category is unknown. For example, many people are unaware of why an apple is red or green. The example is even more extreme in the case of artificially created categories (say, a batch of yellow fruits: lemon, yellow apple, banana, pawpaw etc. which have nothing in common other than their category label)

<sup>5</sup> Describing consistencies deduced from observations is an example of such interactions e.g. the laws of movement. The way in which it is possible to express this with the help of numerical deductions (digital), instead of through analogies, makes it possible to make much more accurate forecasts. Our output will then be more adaptive than the output generated by a non-integrated operation

<sup>6</sup> The multitude of roles a person plays is an example of such a phenomenon: John Doe the employee, John Doe the husband, or John Doe the sportsman. John Doe is the same real person who integrates all these roles. However, the context, as deductive inputs, defines a given role

## Description of the connections of sub-systems

As previously mentioned, the structure of the system determines two – closely interconnected – matters, namely: the operation itself, which the system performs; and the patterns derived from this, to which the system is incapable of responding. We originally narrowed the scope of systems being assessed in a manner that emphasizes living nature, which enables flexibility i.e. learning by means of transformation. The creation and cessation of sub-systems and structural changes (the creation and deconstruction of connections) accompany this transformation process. In accordance with Maturana's (1980) notion of autopoiesis, it is possible to state that – apart from physical materialization – systems are in a constant state of transformation.

This also implies, for example, that through changes in the sub-sub-systems, not only the operation to be performed itself changes, but also the pattern (designating the inputs acceptable in this context and still to be processed), hence ensuring an increase in adaptivity and survival for the system.<sup>7</sup>

It then becomes possible to introduce the notion characterizing the quality of connections, or connection quality. By using system theory terminology, I define this by how well the outputs of a sub-system function as an input for the connected sub-system that receives the product of an operation. More specifically, the information distance, of the input and the pattern determining acceptance, is what controls this quality. The smaller the information distance, the more similar they are; 0 information distance implies a perfect match.<sup>8</sup>

The mathematical formula used to calculate information distance can be composed in various ways. These include: the sum of the square of the distance between the input and pattern values; the degree of correlation; or the sum of differences calculated following normalization. Without examining the minutiae of this formula, it can be seen that, in order for adaptation to take place, the input does not have to be a precise number, but needs to fall within the acceptance range. This acceptance range is also a property of the system and – as with the pattern – its structure ensues from the system.<sup>9 10</sup>

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<sup>7</sup> An example of pattern changes taken from the life of a person occurs when, for example, a person's standard of living, and so their behavior, changes. An example of this in the life of an organization may be characterized by various changes occurring in the culture of the organization. Examples may include the tone in which an executive addresses employees; the quality of material an employee produces; or specific key figures (percentage rate of expected profit, staff numbers, and so forth)

<sup>8</sup> In human relationships, this is most evident in the case of cooperation. A worker may perform only part of a task, and the next person working on the task can only work with what is received from the previous worker. (Car assembly lines are a classic example of this.) This can take place at divisional or executive levels throughout organizations. As an example, the success of the sales division of a trading organization will depend on the price and quality of the goods procured. If goods were procured at a price that exceeds their normal market retail price, the sales division will be unable to sell these, or only at a loss. Thus, the too high internal sales price (that at which the procurement division sells the goods to the sales division) can be an output that the sales division is unable to accept as an input, which is why the process will break down

<sup>9</sup> Let us look at how this works in the case of neurons. Assume that five neurons connect to a given neuron, and that at least three of these need to fire for the base neuron to be activated. Therefore, if all five neurons

If we accept the existence of such patterns, this exactly serves as a system theory definition of Plato's ideas. Accordingly, ideas are internal patterns (existing in our minds). Nevertheless, they may exist in the material world, in relation to which we measure our inputs. Consequently, ideas are inputs with 0 (zero) information distance.

## Types of connections

Just as a function may generate rational results on several values, so systems do not necessarily generate outputs in the case of a single pattern. Indeed, in many cases the most pertinent issues relate to determining the patterns to which an incoming input belongs.<sup>11</sup> In order to gain a better understanding of this type of connection, which can be called a categorizing system, we need to examine the connection variations of sub-systems:

- o Base type: one input – one output. The system generates an output on the basis of the input.<sup>12</sup>
- o Distributing: one input – several outputs. The system performs an operation on the input and then distributes the results of this in several directions.<sup>13</sup>
- o Aggregating: several inputs – one output. Firstly, the system consolidates incoming inputs in accordance with its previous structure, then performs operations on these and handles the result as an output.<sup>14</sup>
- o Several inputs – several outputs. This is not a base scenario, since it can be traced back to a combination of aggregation and distribution.

The categorizing system can then be conceived as a complex system composed of three linearly connected parts (sub-system groups).

One distributing sub-system, which duplicates the inputs in accordance with the number of patterns.

fire, the information distance is 0; however, the neuron is also activated if only three or four fire. This means that the acceptance range represents a value equal or above 3 which also demonstrates the way in which the acceptance range is not always a finite interval, but may be open in one direction; for example, greater than x; smaller or equal to y

<sup>10</sup> A special definition for information distance – the notion of quality level – has evolved in the case of base material functioning as inputs in production organizations. Namely, quality is what determines whether the desired output can be manufactured. Note that we are not talking of quality control, but about a simple attitude, namely, that someone wants to manufacture something, if at all possible: “The raw material is not perfect. However, we are still capable of manufacturing the final product”; or “It is pointless attempting to manufacture the product from this base material.”

For example, a similar input in the life of a person is food. If we are hungry, a visually unappetizing pizza (baked a few days ago) will suffice, as it will assume the same function, namely of satisfying our hunger

<sup>11</sup> Example: recognizing form or shape in the case of people, or determining trends in share price movements in the financial world

<sup>12</sup> Example: a person who reacts to environmental stimuli through behavior; perhaps they see someone they know and say hello. Or in business, a marketing employee develops a strategy from a market research report

<sup>13</sup> Example: an actor who reads poems to people; a manager who distributes tasks to employees (X to do this, Y to do that)

<sup>14</sup> Example: a person in a decision-making context, subjected to further stimuli, who then performs an action. An example of this in companies is when an airplane or car assembly plant (see previously) manufactures a final product from many different parts

The number of base types of sub-systems connected in parallel with the distributing sub-system, corresponds to the number of patterns in the system to be categorized. The sub-systems each contain the patterns, from amongst which the various operations can be selected; these are performed on the input in line with the pattern. Information distance is calculated between the input received from the distributing sub-system and the pattern, concurrent with which the operation characteristic of the input is:

- o either performed; or
- o is not performed.

An aggregating sub-system is given the information distance from the preceding (base type) sub-systems. The aggregating sub-system selects the narrowest information distance base sub-system and either:

- o sends the output – if an output was received – as the output of the categorizing system; or
- o returns the original input – if an output was not received together with the information distance – to the selected sub-system, and only sends the output of this sub-system as the output of the whole categorizing system.

## **If scenarios connect**

In the following, I assess the various relationships that may potentially form between the input and the pattern.

### A. One input, one pattern:

The input

1. falls in the acceptance range; or
2. does not fall in the acceptance range.

### B. One input, several patterns:

The input

1. falls in the acceptance range of the pattern;
2. does not fall in the acceptance range of any pattern; or
3. falls in the acceptance range of several patterns.

### C. Several inputs, one pattern:

1. one input falls in the acceptance range of the pattern;
2. no inputs fall in the acceptance range of the pattern;
3. several inputs fall in the acceptance range of the pattern;
  - a. narrow information distance between inputs i.e. patterns are similar;
  - b. wide information distances between inputs i.e. patterns differ.

D. Several inputs, several patterns: this can be traced back to the combination of points A, B and C.

It seems evident that cases A.1, B.1 and C.1 correspond to the base scenario system: in such cases, the output belonging to the input is simply generated.

Scenarios A.2, B.2, C.2 and C.3.b result in the so-called suspension phenomenon; this will be discussed in the following section.

Scenarios B.3 and C.3.a lead to the phenomenon of competition.<sup>15</sup> Here, the output belonging to the sub-system with which the information distance is smallest is generated. If this cannot be explicitly determined, the system attempts to calculate an increasingly accurate information distance by returning to the source of the input and examining its components, or by examining the details of the sub-systems of structures containing patterns. As a last resort – if the above prove unsuccessful and the two inputs are not identical – use of the sub-system is suspended; see below.

Although both scenarios can be described in terms of the classical notion of competition, I would label scenario B.3 as the competition between females, and C.3.a as the competition between males, hence referring to mating phenomena in the animal world. While a female can be impregnated by only one male at any one time, and offspring are born as an output, the male is capable of impregnating several females in the same period. The analogy with scenario B.3 is that the male selects a female best suited to his needs from amongst the females (so females compete to prove to the sole male which of them is the healthiest). In the case of C.3.a (labeled as competition between males), the female selects the male whose inputs are best adjusted to her expectations (the males fight to prove to the sole female which of them is best in genetic composition, vitality, virility).

In accordance with the process described above, the competition process in the case of more complex systems presupposes the potential to gain insight into the processes underlying the system inputs. This is sub-structured and encoded within the structure of the system to find the optimum match. In the case of B.3 (competition between females), it is possible to calculate the information distance more accurately, in relation to the input that can be taken as a trait, by exploring the components of structures determining the patterns. In the case of C.3.a, (competition between males), the details underlying the structure of sub-systems generating inputs operating earlier in time may be of assistance in calculating the information distance from the pattern that can be taken as a trait.

I would highlight that the issue of competition alone does not ensure that the sub-system ‘for which they are competing’ will connect to (choose) the sub-system

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<sup>15</sup> In humans, an example similar to the animal world may be that of selecting a partner. Consideration is made of the physical, financial, and psychological circumstances a candidate for husband can create for their family, or how well a candidate for wife could satisfy the demands of her husband and children. Sport is a prime example of competition. Here, competition refers to who – perhaps by obstructing or outdistancing one another – is capable of proving that they are closer in terms of information distance to a set value.

A tender, or job application, procedure may be a concrete example of competition in business, in which case the first round corresponds to the first, approximate calculation of the information distance. This determines whether tender participants are within the acceptance range at all. Subsequent rounds make it possible to accurately define the input by gaining insight into the details of the sub-system structures underlying the inputs. This is achieved by concurrently calculating the information distance from the pattern

with the best quality connections (and therefore the most adaptive, as will be explored later). The competition merely ensures that only those two sub-systems with the best fit will connect. We cannot assume the presence of an external arbitrator that, on the grounds of some absolute principle, selects the sub-system from amongst the various sub-systems. Even if there were such a rule (for example, choosing the most adaptive sub-system), there is only one factor that will decide which two sub-systems connect; namely, the output generated by, or which matches the pattern of, the target sub-system. Consequently, if the pattern of the target sub-system is not adaptive, it may be that a less adaptive alternative, of the many available, will connect. Should this occur, the two connected systems may, nevertheless, be jointly more adaptive than the two separate systems. However, the contrary is equally possible.<sup>16</sup>

## Suspension

Suspension is one of the pivotal notions of our model. It is used to indicate bottlenecks occurring in a process – i.e. a system failure – because of the way that the input-output relations between two-systems are unclear. This may arise due to:

- o The output of a given sub-system proving to be an inadequate input, as it does not fall in the acceptance range of the other connecting sub-system, and therefore the latter sub-system is incapable of generating a suitable output;
- o Two, potentially antagonistic, inputs are received by a given sub-system, which would imply the creation of two antagonistic outputs as the outcome of a single operation.
- o What happens in the case of a bottleneck? A system functions if it is capable of generating outputs from inputs. If it cannot, there is ‘something wrong’ with the system i.e. the risk of suspension prevails, unless something is changed:
- o Changes may take place in the structure of the suspended (receiver) sub-system, as a result of which the range of acceptable inputs changes, and the system is once again capable of generating valid outputs.
- o Another possibility is that the inputs needed by the receiver sub-system to process are defects or defective i.e. one of the preceding sub-systems performed incompatible operations, which is why it transmitted bad outputs.
- o A third possibility is that an error occurred in the structure of the main system (the way in which the sub-systems connect) and the penultimate structure in

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<sup>16</sup> An example of this phenomenon can be found in the context of choosing a partner: the principle of “like takes pleasure in like” (*similis simili gaudet*), or “opposites attract”, often overrides a seemingly logical principle. That is, from the available options, everyone will choose the person who seems most attractive (prettiest/most handsome, richest, smartest). Selecting suppliers on the basis of personal connections, or similarities in the organizational culture or nationality of the two companies, instead of (uniquely) on the grounds of price and quality offered, can often be observed in the life of enterprises. Naturally, life itself often justifies these decisions, since personal connections, or a similar mode of thinking, can eliminate problems and divergences potentially arising during the course of long-term cooperation. This might not be possible on a financial/economic basis

the blocked chain, instead of connecting with the last, connects to another structure to which it sends outputs.

Seemingly, the simplest change in terms of the system – which, however, becomes more of a complex restructuring at the level of sub-sub-systems – is when the pattern designating the scope of acceptable inputs is modified or expanded i.e. one new sub-sub-system is given a new pattern. Since the pattern is always generated from the structure of the sub-system, this implies that the structure of one or more sub-sub-systems needs to change or evolve. This presupposes the deconstruction, duplication and (repeated) bonding of existing valid connections. In overall terms, that is the restructuring of the sub-system, or the evolution of a new sub-system. This explains the importance of positing our model relative to organic CASs, as these are capable of the aforementioned deconstruction, duplication and bonding.

It is important to stress that suspension does not imply termination. Even a suspended sub-system may possibly be capable of generating some sort of output; however, it is highly probable that the operation it performs is not adaptive. Suspension simply means that it is necessary to make changes, and preferably avoid the use of the system, until these changes take place.<sup>17</sup>

Note that suspension does not presuppose an external agent, which arbitrarily marks as non-working the connection of two sub-systems. Suspension is a phenomenon that takes place of its own accord even in the simplest of systems, since information is blocked in the system. Consequently, the system either breaks down, or begins to generate invalid outputs.<sup>18</sup>

## The manipulation chamber

Avoiding suspension is vitally important in ensuring the regular operation of a system. Suspension is due to the information distance between the input and the pattern being too wide. So, a system has an evolutionary competitive edge if it proactively ‘engages’ in connections between sub-systems that pose a threat to the operation of the system. In this context, a manipulation chamber performing the restructuring of connections most threatened by suspension (or possibly already suspended) may be of help.

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<sup>17</sup> Just as when a pipe is partly blocked, and the water cannot flow fully through or escape elsewhere; the water system still works, but the blockage needs to be eliminated sooner or later

<sup>18</sup> The phenomenon of suspension is characteristic of both people and organizations. Whenever a couple fails to satisfy each other's demands – i.e. fail to act as, or to say the things, the other person expects them to – the relationship itself will be at risk. In this case, the couple retrospectively examines where things went wrong in the relationship, or finds a solution in the present by restructuring their systems i.e. changing their behavior and habits with the aim of again satisfying each other's demands. A similar situation may appear in a factory production line. When the output of a given work phase fails to function as the input of the next work phase, production consequently ceases. In this case, it is up to the technical engineer or management to:

- change the technical instructions for the next work phase in order for production to resume and continue as normal; or
- make changes to the earlier phases of production, or at the supplier level (supplier development), that make it possible to avoid a break in production

A manipulation chamber is a sub-system with conditions ideal for speeding up the deconstruction and reconstruction of sub-sub-systems essential for restructuring. This not only implies more optimum conditions (for example, greater calculation capacity, better energy supply) in the physical execution of the manipulation chamber, but also an acceleration in communication. For example, sub-systems located at great physical distances from one another may possibly transmit their inputs to each other through a narrower bandwidth. By doing so, they can attempt to match their sub-systems much faster by duplicating themselves and placing those duplicates into a ‘communication center’, where the distance is almost zero. If the new structure with better parameters is created, this structure is duplicated back to its original place by replacing the old version, following which it is then tested in its native (original) environment; see the later section on testing.

I should stress that restructuring outside the manipulation chamber takes place of its own accord over time, albeit at a much slower pace. Another important aspect is that, although maintaining the special conditions in the chamber requires additional resources, a manipulation chamber is an investment that provides returns for the overall system, since it is capable of immensely improving the adaptivity of the whole system.<sup>19</sup>

It is also evident that the optimum size and capacity of a manipulation chamber is directly proportional to the complexity of the environment. In cases where there is little potential for attaining considerable evolutionary advantages, high resource demands will not provide returns, as the connection between processes and sub-systems is relatively simple.

In this regard, it is possible to state that a manipulation chamber is not absolutely necessary. However, it offers the advantage of more quickly dissolving the suspensions. It is also evident that investment in a manipulation chamber offers greater returns for highly integrated systems (those with many sub-sub-sub-system levels) because it is not necessary to create such a chamber at each individual complexity level, or for every single sub-system. Rather, an extremely high capacity, centralized chamber is capable of preventing suspensions that pose a threat to the sub-sub-systems.

Which connection should be placed in the manipulation chamber with the aim of restructuring? It is perhaps not too difficult to conceive that the strategy I call the maximum distance rule ensures the highest degree of efficiency in the simplest

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<sup>19</sup> For example, as opposed to plants, this is why it is worthwhile growing and sustaining nervous systems in animals, which nonetheless ‘only’ coordinate their activities; they do not ensure movement, or the function of their metabolism. However, they contribute considerably to increasing their ability to adapt. The situation is somewhat similar inside the nervous system (as a system) in the case of the brain that has evolved in animals of a higher order. Here, the information impacting the system, namely, stimuli, is being processed. These examples demonstrate that the appearance of the brain or the nervous system is by no means facultative (either it exists, or it does not). Rather, that gradation is equally relevant; the size of the nervous system or the brain, and the proportion of those resources used by a given species, depends upon the complexity of the inputs it needs to process to adapt to its environment. Considerably fewer stimuli – to which it must react – impact a tree that does not have a nervous system, compared with an animal that is capable of controlling its environment in a far superior way, due to its ability to move. However, that ability to move and displace itself means that an animal faces a different stimulus environment from one moment to the next

way. According to this rule, the manipulation chamber has to deal with improving the quality of those connections where the combined information distance of the sub-systems and sub-sub-systems concerned is momentarily the greatest in relation to their inputs and patterns. By also taking into account the connections of suspended sub-systems, and by moving from the most significant operational failure towards the most insignificant, this guarantees that the chamber does everything possible to improve the adaptivity of the system as a whole. Since this rule is simple, it is equally explicit. Naturally, it may nevertheless occur that the two information distances calculated through these means generate similar results. Consequently, a stalemate similar to suspension evolves; namely, which suspended connection should proceed to the chamber at any given moment?

In humans, consciousness functions as the manipulation chamber. The most acute problem that at a specific moment persists enters this chamber i.e. becomes conscious. The process of becoming aware is none other than the duplication of sub-systems – the so-called cognitive schemata – threatened by suspension in the manipulation chamber. Several experiments (Christensen, 2005; Dodds et al 2004) demonstrate that problem solving takes place both consciously and outside the realm of consciousness. Further, that the solving of tasks requiring high calculation capacity and systematic trials is performed more efficiently in a conscious state (analytical thinking). In contrast to this, we often manage to more efficiently solve (synthetic thinking) creativity tasks, or tasks requiring unique solutions, with the help of processes outside the realm of consciousness; for example, in dreams, or spontaneously while doing something entirely different.

Management meetings, or meetings in general, function in organizations as equivalents of the manipulation chamber. Each participant brings their most pertinent problems to such meetings, taking the analogy of duplicating sub-sub-systems and their connections within the chamber. High-speed communication, and on-the-spot decision-making, is ensured through the presence of the crucial sub-systems. In the example of an organization, those crucial sub-systems deciding on a specific problem would be divisional or line managers. Therefore, information does not have to wander down through long organizational circuits (communication paths). A given problem, presented by a colleague first-hand to the participants of a meeting, may assume the role of the sub-sub-system copied to the manipulation chamber.

## Testing

At first sight, the term ‘testing’ may perhaps seem a complex notion that presupposes the existence of an external agent (a tester). However, these are processes that can also proceed automatically. Whenever a system evolves, or is re-formed, it automatically attempts to create any connection with the rest of the sub-systems of the system. Namely, it attempts to use their outputs as inputs, or offer its output as an input.

By testing, I refer to attempts to make connections, and calculations of the information distance, between the input and the pattern during the course of this operation. If the new or restructured sub-system is incapable of connecting to other sub-systems in the manner described above, this will determine the position (not very central, and of and lower relevance) and status of the new sub-system. However, what if it does connect, but generates outputs incompatible with outputs generated by the system through alternative means (by bonding its sub-systems in a different sequence)? Then, either all of the old components of the system malfunction, or the new ones do. Therefore, suspension takes place within the system until this antagonistic situation is resolved by one means or another i.e. either by changing the old sub-systems, or by disregarding/restructuring the new ones.

Therefore, testing is an automatic process that may have two outcomes:

- o nothing happens, and the new sub-system connects to the components of the main system through several means. Most probably, it will then become a useful component of the system; or
- o suspension occurs, within the framework of which the components of the system are evaluated in further detail, and a potential correction procedure is launched.<sup>20</sup>

## Indicator

With the help of testing and suspension, and the information distance between the input and the pattern, we can also understand the role of a value that is undoubtedly useful in terms of evolution. Although it is possible to define this value in the case of every system, it does not necessarily have to be stored and measured in the form of a value. This value, which relates to the viability and adaptability of the entire system, I will call (an) indicator. It refers – by producing different results according to the state of the system – to how adaptive the system, as a whole, is. Its rate is automatically deduced from the quality of the connections of the sub-systems it is composed of. The indicator increases in line with the number of intact and well-functioning sub-systems and connections, and decreases in line with the number of suspended sub-systems and connections.

I should emphasize that there is no explicit correspondence between the indicator and the sub-systems of the system, as the quality of the connection of sub-

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<sup>20</sup> Testing can be observed in human relationships when a new member joins a group. By and large, existing group members attempt to identify their common traits (school, profession, place of residence, political views, origin, etc.) in the new member. Beyond their abilities, and what they can offer to the group, this will determine their social status in that group. Should conflicts arise (the values of the group are questioned, the new member lies to different members of the group) that will lead to suspension, or exile. A new technology is typically tested in business. This is to determine, for example, whether the base 'materials' currently used are suitable, if technicians are capable of using it, whether there are sufficient resources for its operation, and analyzing indicators (profit, quality) produced by manufacturing with this technology is compared with the existing method

systems makes matters more complex.<sup>21</sup>

The vast majority of sub-systems were created to handle environmental inputs; survival in, and controlling, that environment, is the goal of the entire main system. The indicator provides information on this. To simplify: a system with a high indicator will have a greater chance of survival in the same environment than does a system with a lower indicator. This is also attributable to the way the suspensions of sub-systems – positioned at the ‘boundaries’ or ‘gateway’ to the system – receive environmental inputs. Consequently, information distance is also included in the indicator. If environmental inputs are not obstructed anywhere in the system, an adequate response, one best tailored to the structure of the system, will be generated. In that case, the system generates an appropriate model of its environment.

To provide a more concrete example:

The indicator corresponds to the way a person perceives the size of his or her own self. In a person’s day-to-day life, this indicator (his or her self) is average in size. If the person obtains new information with which they are capable of placing their environment under more rigorous control, their self increases (expands). When confronting a problem that they are incapable of resolving, the person will experience self-narrowing, as some parts of the self are suspended. The relationship between the self (defined as the totality of cognitive schemata and the indicator), the phenomenon of self-narrowing, and expansion, will be analyzed in the remainder of this book.

In the life of an organization, the indicator corresponds to company values (if calculable, such as the share value in the case of companies listed on a stock exchange). So, if the organization better adapts to its environment by using new technologies and superior quality procedures, it sells higher quality products from a better position, which leads to an increase in the value of the company. If problems within the company inhibit adaptation, partial procedures will be blocked, and the value of the company depreciates.

Even though the notion itself is valid in the case of every organic CAS, the existence of the indicator has no direct benefits from the perspective of the system. To be able to contribute to increasing adaptivity, the system needs to gain, in some form or other, knowledge of its presence. For example, it is possible to determine the monetary value of a one-person micro-enterprise. Whether the entrepreneur fails (or chooses not) to take account of this is a different matter. In that case, this will not influence his decisions, for which reason he may sooner or later end up becoming bankrupt by making a series of bad decisions. The value of his enterprise may then become negative.

Equally, the indicator shows to the system whether its changes are in a positive direction i.e. whether the system is becoming more adaptive or not. If the indicator is effectively taken as a criterion, this is none other than a feedback circle for

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<sup>21</sup> To provide a human example: the efficiency or performance of a group does not depend upon how many members it has, but on how well they are coordinated and communicate. In other words, coherence and understanding within a group is as relevant. Many military actions justify this claim; smaller, but more determined and unified armies, have defeated much larger, but comparatively disorganized, military forces

selecting changes. To be able to consider the indicator's changes when deciding on a change, it must be stored and measured in a separate sub-system. Once this takes place, and feedback on the indicator is provided, the system then assumes a motivational role i.e. controls changes taking place at a more complex level.

Feedback can be observed in both humans and organizations, which explains the idea of motivation. In humans, the sub-system controlling the indicator (that responsible for motivation) converts an increase of the indicator into happiness or joy, and a decrease into fear or anxiety. In companies, the same happens with a change in market control or value, in the appearance of a profit or a loss.

## Scenarios of indicator increase

We can distinguish two key scenarios for increasing the adaptivity (indicator) of a given system, by examining whether the increase was – or was not – preceded by the suspension of sub-systems. This is relevant because the indicator may not only increase by dissolving suspension, but may also increase through the creation of viable connections that did not previously exist. The creation of better quality connections is common to the two phenomena. This may be seen as coincidence, since the combination and trial of the multitude of system states of the lowest level sub-systems is needed until the optimal connection and structure is found.

This process is based on the same set of principles. For the time being, therefore, I shall disregard the technical difference of whether the connections were created as an outcome of systematic trial in the manipulation chamber, or whether they were formed 'spontaneously' outside the chamber.

I should draw attention to another aspect. The way we seem to identify one scenario or another in many cases depends upon the level of complexity of the sub-systems we choose to perform our observations. Since operations are embedded into one another, a previously important sub-system may play an insignificant role if we examine its environment just one complexity level higher or lower.

### “Miracle”

Firstly, I would like to discuss the scenario that I call a “miracle”, one not preceded by suspension, but which instead evolves through the creation of a new connection. We should note that if a non-existent connection comes into being, its existence may result in a significant increase in the indicator of a given system. This situation (that an important link can be missed) results solely from the characteristics of the testing process failing to reach the point of creating this connection. This could be due, for example, to lack of resources or time. Or, within a complex network, there is too great a distance between two sub-systems, so that their connection establishes with lower probability.

The constant process of testing, within which sub-systems of a given system attempt to spontaneously connect, and those connections may or may not survive,

could lead to the generation of operations that significantly increase adaptivity.<sup>22</sup>

### “Fireworks”

Remark: I should define the type of firework referred to with this term. That is, a rocket that explodes into two or more segments and emits sparks, following which these parts also explode into two or more segments and so on, resulting in the exponential increase in its overall number of elements: 2, 4, 8, 16, 32, 64....

The lack of a connection may not only have an effect on the performance and adaptivity of two sub-systems, but also of further systems connecting to these. Then, beyond the connection of these two newly connected systems, the way in which further sub-systems can connect to these may be the outcome of the “miracle” scenario. Consequently, further sub- or main systems will connect until the two systems create a new system by linking up, dramatically increasing the adaptivity/indicator of the new system, and therefore its components as well.

The testing process feeds the “firework” chain reaction, which can be conceived as a chain of further “miracles” building on the original “miracle”. This means that the system automatically begins to test the miracle as soon as the first “miracle” takes place i.e. it attempts to connect sub- or main systems to the new pair of sub- or main systems. If the entity modeled by the two systems in the environment also connects in reality, it is no surprise if the systems mapping the components of the entity also connect. The “miracle” will potentially last until there are unconnected sub-systems that can connect to each other.<sup>23</sup>

The sub- and main system dichotomy emphasized in the above description also demonstrates that “fireworks” may evolve through two means:

- o A connection is created between two sub- or sub-sub-systems of two separated main systems.<sup>24</sup>
- o Two main systems connect, as an outcome of which sub-systems connect like

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<sup>22</sup> Humor is an example of this in everyday life; we associate things that at first glance are seemingly unrelated, but upon consideration they are. In the life of an organization, this might be a contingent discovery enabling two separate things to connect through unique means. For example, Viagra, originally developed to treat cardiovascular problems, was found to reduce impotency, a more profitable use that dramatically increased the value of the company

<sup>23</sup> For example, recognition of analogies: say, the connection between politics and a ship, where the Prime Minister is the captain, the state is the ship, and the sea is the political arena. Or recognition of basic notions and connections; say, when children recognize that there is an opposite of most traits, which can also be paired. These produce a “fireworks” scenario in human thinking. A similar example in humans may unfold during the relationship of two people when a secret is revealed; perhaps telling the other person what hurt them, or that they love them. In such contexts, misunderstandings, antagonisms, and the lack of cooperation, disappear when a new detail sheds light on the situation. The way in which human beings add these details to the knowledge and experiences they already have, makes clearer more and more matters. The person then manages to further understand the other person. In the life of organizations, for example, replacing a malicious, hostile or incompetent colleague may engender a similar situation: the division in which he/she worked is once again capable of performing well from that point on; the division whose operations were affected is again capable of working at full capacity, with a beneficial effect upon the value of the entire company

<sup>24</sup> This is the case, for example, whenever a small misunderstanding is clarified, and so helps resolve a serious conflict

a waterfall, by means of deduction at lower and lower levels.<sup>25</sup>

To use a visual term, the fireworks may ‘falter’ i.e. if any one of the connections created from the top down and in a fast sequence is suspended, this may retroactively impact upon the whole of the “fireworks”. It may even lead to the cessation of the newly created connections. This is possible if a connection that rules out the possibility for the two systems to compose an operation is suspended.

The phenomenon of faltering spectacularly demonstrates the way that two processes (testing and forming new connections) presented in two ways are identical. That is: the formation of new connections, as an instrument for increasing adaptivity or testing; or as a tool used to verify the quality of connections, is the same automatic process that takes place continually.

### “FIPP pattern”

This term (FIPP – Fodormik’s Integrated Paradigm for Psychology) refers to the name of patterns occurring in the context of the situation presented and discussed in detail in this volume.

This pattern is similar to that presented (in point A.1) earlier, with the difference that the “fireworks” is preceded by the suspension of connections. In this case, it is not necessarily the last link in the sub-system chain (the input receiver) that begins to restructure in order to eliminate suspension, and therefore restore the indicator. Instead, it is an increasingly larger section of the chain that begins to restructure, generally from one step to the next in the reverse direction, affecting increasingly higher-level systems. The suspension required for restructuring reduces the indicator at an increasingly faster pace, as if in a city an increasingly larger section of streets were to be closed for maintenance, making it increasingly difficult to move around.

Indicator decrease, and the suspension of increasingly complex operations, will continue until either of the following takes place:

- o From the perspective of the system, it seems more adaptive to forfeit an entire operation (and the connecting sub-systems) for an indefinite period, rather than attempt to continue restructuring, since this restructuring process may affect a higher number of sub-systems affecting other vital operations, which otherwise function well.<sup>26</sup>
- o Restructuring leads to a positive outcome i.e. the system finds the new structure that eliminates suspension. In this case, a relatively low indicator begins to dramatically increase, reaching a higher value than its original state.

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<sup>25</sup> This can be observed when a new scientific paradigm evolves, or, in the case of architecture, when a new concept plan emerges

<sup>26</sup> Without this mechanism, a person would concentrate on resolving a problem but simultaneously ignore their basic survival. To prevent this, people usually recognize that they are incapable of solving a problem, and give up. The size of the person’s self decreases as a consequence, as they come to terms with the fact that they are incompetent in a certain area of life. The situation is somewhat similar in the case of an organization when they attempt to sell or close a division generating a loss. Naturally, the value of the company will also decrease, but perhaps not to the same extent as allowing the loss-making division to continue unchanged

The reason for this is that the newly created connection induces a “fireworks” scenario, to which the revival of suspended connections is added.<sup>27</sup>

## Necessity for systems to cooperate

The fact that the value of the indicator is also determined by the systems processing the inputs received from the environment underlies the way in which there is direct proportionality, and a cause and effect relationship, between the value of the indicator and the successful modeling of the environment. This means that the more accurately the system maps its environment in accordance with key aspects relevant to its own survival, the higher the indicator value. The way in which a given system only maps its environment according to certain aspects in a simplified manner, and in its totality, ties in with what Maturana (1980) espouses. Namely, that specific systems are only capable of recognizing specific aspects of their environment, and never the totality of the physical world.

At the same time, it is easy to perceive that simplification necessarily leads to disregarding certain facts. Naturally, a given system endeavors to map the environment to which it wishes to adapt to the fullest extent and in accordance with its characteristics. However, the omission of certain aspects – sometimes minor, occasionally major – is potentially risky. Therefore, if specific systems specialize in mapping a segment of the environment and, in the meantime, connect to other ‘specialist’ systems that provide complementary information on how their environment can be perceived, may seem to be an adaptive evolutionary strategy. This means that the system will attempt to connect to other systems.<sup>28</sup>

Ignoring for the moment the details of how various special systems cooperate, let us now investigate how the imperative that drives systems to connect with each other has an effect on indicator increase. To do this, I would like to examine in more detail the notion of communication to support my reasoning.

## Connections within and outside the system

I would like to present two approaches to communication. Perhaps the simplest approach to the act of communication is by defining communication as the manner in which a system uses the output of a given system as an input of another system.

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<sup>27</sup> This phenomenon is discussed in detail in the present volume. A few examples: successful problem solving, love, and sexual relationships (more specifically, the orgasm). All forms of successful business process re-engineering (BPR), and costly R+D procedures, are examples of this

<sup>28</sup> This type of cooperation between specialization and specialists occurs frequently in organizations: various bodies assume this function, all of which engage in mapping the same market environment, but from different aspects (technological, HR, marketing, financial). A person competent in only one specific area of life (for example, the arts, law, medicine, or finance) will be at a disadvantage, since they may encounter situations in which their knowledge is insufficient for adaptation: a lawyer falls ill; or a doctor facing a lawsuit needs a lawyer

Another model treats the message the sender codes as an input, which is then sent to the receiver through a channel compatible with the code system. The receiver then decodes the information, which is its own output (Shannon & Weaver, 1949). Naturally, this process can also be viewed as a single operation. The reason I have considered these two approaches concurrently ties in with the physical realization of the systems. While we prefer to adopt the first, simple approach for conceptualizing communication within a system, we prefer to use the second approach for communication between systems, presumably due to the marked presence of the channel and coding-decoding processes. At the same time, it can be seen that the two approaches are almost identical. The one difference is that the technical execution of the act of communication in the case of the second approach is obvious.

My intention in this sub-chapter has been to draw attention to the connection of a specific sub-system to another sub-system, which only differs in terms of how it is physically accomplished i.e. whether it takes place inside or outside the system. Similar to Maturana's theoretical approach is Hugo Urrestarazu's (2004) boundary concept. Urrestarazu claims that what belongs to a system, what does not (and is contingent and changes according to system states), as well as the issue of boundaries, depend entirely upon the unique viewpoint of the observing individual.<sup>29</sup>

Naturally, no matter that we wish to perceive the connection between sub-systems and their intra- and inter-system characteristics as identical, physical realization is antagonistic to this. Namely, the way that this proceeds through a physically existing channel in the form of information. This then results in uncertainty of the existence of the connection, as it can cease when the channel is closed.<sup>30</sup> Sub-systems that store the act of communication itself serve to store connections threatened by rupture, in order for information to continue to resume flowing after reinstatement of the ruptured connection.<sup>31</sup> Contrary to the classical approach to memory (which espouses that only the transferred data is stored by the receiver), our model states that the entire act of communication is what is stored, not only by the receiver, but by the sender as well. As in the case of all other sub-systems, after a while the group of sub-sub-systems used by other operations breaks away from the sub-system registering the communication. Consequently, after some time has elapsed, it is the message itself that remains from an act of communication, and the circumstances surrounding it fade away. However, no matter how vague the remainder of the sub-sub-systems become, the existence of suspension-free connections remains, by and large, in place; for example, the memory of a friend, or of a lucrative cooperation.

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<sup>29</sup> For example, a citizen of a country affiliated to the Schengen Area might forget that there is an actual Swiss border. However, for a citizen of a country that is not a member of the Schengen Area, that forgetfulness would cause a serious problem

<sup>30</sup> For example, two people who leave the hearing distance of each other

<sup>31</sup> For example, when the human mind not only stores what someone said, but the circumstances in which that was conveyed: memos of meetings, or feedback certifying that an e-mail has been read, serve this aim in an organization

## Increasing the indicator outside the system

As previously discussed, the indicator rate relates to the number, and the quality of connections existing between, sub-systems. Connecting to other systems makes it possible to alter this. Namely, if the sub-systems of another system match the sub-systems of ‘our’ system, it is possible to effectively increase the number of these sub-systems and their connections. This not only prevails when a new sub-system is ‘obtained’, but equally applies when the sub-system is transmitted. This happens due to a reciprocal process, which leaves traces (in the form of connections) in both systems: on one hand, because of the way the sub-system itself is duplicated; on the other, due to the feedback circle confirming that duplication was successfully completed.<sup>32</sup>

To go further: although the attributes of information differ between matters, mapping material things in live CAS systems also takes place in the form of information. That is, an action that the system performs in the physical world as an output is stored or processed in the form of information within the system. A consequence of this is not only data that may proliferate or be transmitted whenever connections take place, but also material things; money, objects, resources, and persons. So too does the information that is related to them (their representation) when connection takes place. The one difference is that, unlike information, material things, when distributed widely, become smaller and smaller.<sup>33</sup>

In order for another system to connect a given sub-system to its own network of sub-systems, the given sub-system must bring advantages to the system. Its benefits must substantially exceed the investment in the accompanying testing and the physical relevance of the act of communication itself. Therefore, only the proliferation of sub-systems that increase the adaptivity of another system can be imagined; for example, because of the way they integrate operations, or contain a new pattern or operation.<sup>34</sup>

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<sup>32</sup> In plain words: both giving and receiving information is a joy. This is what motivates, for example, teaching, publication, and artistic creation. In the case of enterprises working with information (consultancy companies, market research firms, R+D companies), by sharing information they generate profit so increasing the value of the company (the indicator of the company as a system). Moreover, the phenomenon described above is responsible for knowledge sharing, which plays a key role in evolution. This is the driving force that motivates a given member of a species to learn a new method (for example, to crack open a coconut) and then pass this knowledge on to other members of the species, which increases adaptivity at a group level (main system)

<sup>33</sup> Altruism is an example of similarities in the described material and information sharing processes in humans, whilst companies manufacturing physical products are an example in the case of enterprises. Instead of information, two people connect in the case of altruism; one person gives money, clothes, or assistance, to the other person. That representation of the act of giving, formed in the consciousness of the giver, increases the size of their self. A company producing products or services connects to consumers through trading networks, retail channels, in which case the receipt of a product is not transcribed into the form of a representation, but in the form of money. The representation of money is a new sub-system in the system of a company, and contributes to increasing the indicator (i.e. the value of the company)

<sup>34</sup> In the life of human beings and organizations this would translate to exclusively covering new solutions, data, or facts. Distributing known things (those that are unchanged) is a bad investment of energy, which is why it rarely occurs. The value of novelty shows why systems have a preference for connecting to other systems

Beyond transmitting new properties or attributes, there is another obvious advantage to system connection, which I have previously referred to. By linking operations over-reaching the system, operations also capable of processing more complex inputs may be created, or make it possible to process the same inputs at a higher standard (from several angles). The use of specialized systems in the various sections of the entire operation benefits the latter, as each system performs the part of the operation that it is most adapted to performing. Aggregation of resources (computing, storage, manipulation) is a further advantage of connecting systems.<sup>35</sup>

The phenomenon of emergence (Clayton, 2005) and the key *gestalt* principle (Köhler, 1967), according to which totality is more than the sum of components, also describe the phenomenon of new operations ensuing from the cooperation of different systems.

## Reproduction

Explaining the necessity of reproduction from the perspective of indicator and adaptivity increase is one of the interesting aspects of the theory outlined above. I have referred to the manner in which the connection of physically separate systems through the manipulation chamber engenders the phenomenon of duplication; that is, the way in which a duplicate – which equates to a memory – of the connection of the sub-systems is created in the two systems when connection takes place. This enables cooperation, in the form of a joint operation, to continue in the future. This means that while the connection is broken – for example, due to physical distance – the sub-systems continue to connect through this duplicate to perform their testing operations, albeit limited by the image stored in the memory. It is this duplicate that ensures an increase in the number of sub-systems, a precondition for increasing the indicator.

Therefore, system duplication has direct consequences on indicator increase, since, if a system duplicates itself or one of its sub-systems, it links to these through hundreds of connections. By detaching itself from the system in which it was duplicated, the newly created ‘duplicate’ system begins to physically behave independently and in a detached manner. The connections nevertheless remain intact. If the system feeds back, or reduplicates, its own new connections in the parent system (through which it ‘refreshes’ the memory), it is capable of increasing the indicator of this parent system. This occurs due to both the refreshed memory and new connections acting as an external agent concurrent with the ‘regular’ life of the parent system.

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whose structure makes it possible for them to generate new things. In the financial world, it is possible to observe that everyone tries to copy the strategy of an innovative and successful company. The same applies in the case of people; namely, that they prefer being with people that teach them, or point out, something new

<sup>35</sup> The many forms of division of work in the case of people and organizations, such as work performed on the factory line, exploiting gender differences, cooperation of specialists, and teamwork in general, are good examples of the connection of systems

This implies that through duplication, the parent system increases its potential to increase the indicator, as well as adaptivity. On one hand it improves its own chances of survival by developing its internal and external connections. On the other, the new connections integrating the new sub-systems with the parent system are transmitted by the offspring system via its connections to the parent system. The following is required for this:

- o The connection between the offspring and parent systems needs to be sustained, so assuring the opportunity to exchange their sub-systems and to refresh the memory i.e. it must from time to time communicate.<sup>36</sup>
- o The identical sub-systems of the offspring and parent systems need either to remain intact, or to evolve in an identical manner. This is required to enable the new sub-systems (see above) to be smoothly replaced; this must occasionally take place, or at least for this process to occur with few suspended connections. In other words, similar sub-systems guarantee that the new sub-systems will connect easily if placed in a similar environment i.e. testing will be successful. If the sub-system batch, to which the new sub-systems received from the parent/offspring must connect, has in the meantime substantially changed, many suspensions may evolve between the altered sub-systems. It may happen that more resources are needed to eliminate the suspensions than are obtained as a profit arising from good connections.<sup>37</sup>

Moreover, through these connections, the two systems also compose a single system (from the moment the offspring system is created), which is also a live CAS. This animates the system on the basis of the same principle, the key objective of which is adaptation.<sup>38</sup> The tendency for the sub-system to help the adapta-

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<sup>36</sup> If a parent is not aware of the achievements of their children, or does not witness how their knowledge and skills develop, that parent will not be proud of their children. This implies that, beyond memories, they do not profit from having children. The same applies in the case of material processes: for example, when children help their ill or poor parents. If there is no interaction between them (even sending a check by post), the child will not help parent adaptation.

Regarding the connection between a parent company and its subsidiary, the processes described above are increasingly emphasized. That is why a parent company has legal rights ensuring its demand of a subsidiary for profits, or its ability to overrule, or take over, the management of its operations, even if this may go against the interests of the subsidiary

<sup>37</sup> The best example for sub-system similarity is what we generally call a good parent-child relationship: family members agree on most things (their operations generate the same outputs); they cooperate and help one another (the output a given member generates can well be used by another member as an input, etc.). A deteriorating family relationship is the process that corresponds to sub-systems that are initially similar, but change in different ways. For example, the child of a conservative family opts to take a liberal approach (or vice versa), or the child of a religious family moves away from their family tradition, possibly becoming interested in another religion, and conflicts (i.e. suspensions) arise in the family. There are ample examples of this, ranging from similarities/differences in values, through to everyday tension generated by teenager resistance and tension.

As in companies, launching actions in a common direction is what, for good or bad, helps parent and offspring systems. For example: for selfish reasons, a service provider to a given company begins to work for competitors of its existing customer. The service provider may even pass on sensitive business information or know-how to its new customers if not prohibited by non-disclosure agreements

<sup>38</sup> An example of this is a group newly formed within the parent company, which equally wants to remain profitable yet avoid bankruptcy or liquidation at the group level. In humans, a child, together with the parents, forms a family unit, which 'wants' to survive independently i.e. its members fight against divorce or disinte-

tion and survival of the system to which it belongs is also enforced, so improving its own chances of survival.

The other reason for creating the offspring system is that more complex operations can be performed if the offspring and the parent system are connected. Moreover, due to the similarity of the sub-systems (for example, those created during child-rearing) and their identical roots, testing will also be faster and smoother. Potentially, fewer connections between the two systems will be suspended.<sup>39</sup>

## Creation and cessation

A model focusing on connections would not be complete without examining the creation and cessation of connections between systems. In discussing creation and cessation, we need not only to provide responses to issues in connection with information, but also equally to address issues relating to what happens in the system's material appearance. The following claims are rather hypotheses, which future human neurochemical experiments need to justify or contradict.

The role of the capacity for increase of various systems, and the high degree of flexibility of live systems (mentioned in the second sub-chapter), play a pivotal role in the issue of the creation of connections, which are fed naturally by material processes. Flexibility is manifested in the way that, no matter how the boundaries of a given system may change (in which case the boundary is at the same time defined as a means for creating connections and as its 'place'), it will continue to expand. That is, within the given structural framework and due to the structure of the system – for example, its geometric structure – if it does not interact with other systems. If it does interact with other systems, it will create a connection that either improves the quality of the operations it executes (i.e. increases the indicator) or does not. The evolutionary principle comes into play from this point on: the connection remaining in place in the first case ceases as soon as it is created in the latter case.

Halting information flow, one of the preconditions for cessation, and which equally applies in the case of a connection that has already been created, is not used over a long period of time. A connection that is not used by the system will disappear, as will a forest trail that is not used or kept in order. This does not contradict the case when systems use or activate certain connections from time to time solely with the purpose of refreshing a rare, but highly useful, connection.

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gration. The child may try to settle arguments between the parents to ensure that the family remains intact, and hence ensure their own security and chances of survival

<sup>39</sup> Changes in the family or company empire are good examples of the connection of the parent and offspring system. The way family-run businesses are passed on from father to son is demonstrated by it being unnecessary to rely upon the occurrence of too many suspensions, due to their common roots. Naturally, as with the parent-child relationship in general, the precondition for the smooth handover of a company also ties in with how sub-systems need to remain similar to ensure that suspensions are prevented. This implies that, if the knowledge or personality of the son is very different from that of the father, succession will be just as difficult as when a stranger is the successor; a populist example can be seen the movie "Shark Tale"

Traces of connections may remain for a long time even if the connection is not used, except where it is deliberately severed due to suspension. This can take place when restructuring occurs due to the dissolution of suspension, or when it ties in with testing of the connections of the systems. As previously advocated (in the section on testing), a system may test connections between sub-systems by checking that the operation within the two systems generates the same output. To illustrate this, let us examine a given system composed of sub-systems A, B, C, D, E and F. If, within that system, the same input proceeding from A and aggregated in F, transmitted through A-B-C-F or A-D-E-F, does not generate the same output, suspension will take place at F. This can only be eliminated through the internal structure of the sub-systems. Alternatively, since the two operations are redundant, it will result in the rupture of the connection with one of the sub-systems (B and C, or D and E).

Two systems can test their ability to merge via ‘information ping-pong’: before merging they process each other’s outputs. In the case of operations  $f(x)$  and  $g(y)$ , the formula for this is  $g(f(g(f(x))))...$  In this case, if either output fails to correspond as the input of the other system – or, as will be discussed later, no input whatsoever was received from the other system – this will lead to suspension of the connection between the two systems.<sup>40</sup>

One definitive form of the cessation of a connection occurs when a member of the given connection ceases to exist; dies, decomposes, deconstructs, becomes bankrupt, is wound up. This greatly resembles the process of mourning. The connection between the two systems is suspended, since an empty/0 output is compared with the output ‘expected’ as an input, which leads to suspension. In turn, this suspension may also affect the other operations of the maintained/sustained system, which until then have been running with the help of the co-systems of its sub-systems. Consequently, all of the operations affected will be suspended, so decreasing the indicator until it is incapable of restructuring its connections.<sup>41</sup>

## Ultimate goal

In the light of these considerations, what can be said about the ultimate goal, if

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<sup>40</sup> As posited by psychology for some time (Taiyoba et al 2004), similarity in attitudes plays a key role in the formation and maintenance of positive relationships in the case of human relationships. This is what discussions with a single theme (e.g. on politics, human ethics) are good for. Within that framework, reactions and comments from others are expected, and the aim is to reach common ground. Should this not work – there may be a difference in attitude – then the friendship or relationship may be damaged. Information ping-pong is what can be observed in the context of regular supplier-client cooperation. Information wanders here and there, and the parties involved pay equal attention to the content of the communication and its form (reaction time, quality/accuracy of data provided, communication style, politeness, directness)

<sup>41</sup> In the case of mourning, beyond the drastic decrease in the size of the self (indicator) causing a feeling of discomfort, habits also need to change for the system to survive; the main income earner may change, the lack of a person to discuss the day with, etc. The resignation of an executive or key employee causes a similar position in the life of a company. Then, other sub-organizations need to take over the operations performed by a given sub-organization. In the meantime, the value of the company decreases due to its vulnerability, bad organization, or sub-standard level of development

any, of a system? That is, when does a system stop changing? Naturally, this question is purely theoretical, since it is only possible to discuss stability and the final state by disregarding material processes, and then only in relation to information-type structures. The process of aging, and fluctuation in the supply of resources, are factors that indirectly impact information flow, the effects of which are irrelevant during the short period of observation.

What can be deduced from the above is that every system aims to maximize its connections, concurrent with minimizing the chances of suspension.

Why would a system stabilize because of the way it connects to all other systems? The answer is linked to the range of potentially executable operations. That the physical world (as the widest environment and system that can be defined) has sub-systems also modeling the various aspects of this world, guarantees that all inputs the super-system created through these means will always be processed by the most competent system. In other words, the multitude of inter-connected sub-systems will always engender an operation that makes it possible to generate the most adaptive output.

Would this be the case when connections are created to everything, to all existing systems? Is it true that the more systems a given system connects to, the more adaptive it becomes? An increase in the scope of operations, from amongst which the most adaptive system is selected, seems to justify this claim. At the same time, multiple connections are equally advantageous from the perspective of material processes, especially if this takes place concurrently, and principally if the system is capable of assuming a central position. Moving together with the other systems and the common boundaries in the physical world makes it possible to further strengthen the system. This also provides greater protection, as well as better distribution, and potential changes of resources, similar to bartering.<sup>42</sup>

The other goal a system may reach is in developing the structure of its sub-systems to a point where all inputs fall within the acceptance range of its connec-

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<sup>42</sup> The issue of maximizing connections is most evident in the business world. Almost every single company endeavors to increase sales i.e. the number of connections to unique consumers. This may lead to extreme situations that approach the theoretical conjecture that everything connects to everything: think about imperialism, global enterprises, or monopoly endeavors. It is no coincidence that the state attempts to counterbalance such endeavors to maintain a balanced market economy. A group that forms an excessively large system due to its excessively greater ability to adapt, in which context proactive adaptation is dominant, changes its environment in an adaptive manner. That can negatively affect other competing companies and social sub-systems; social security, pension, politics, etc.

Damage occurs if this system is not entirely suspension-free, and the sub-system comes to “dominate” the entire main system. This implies a decrease in diversity. This also implies that there may be systems, within a certain sphere of environmental states, which react better than the near monopoly system that also contains suspensions.

There is also something similar in people, namely, the endeavor to control everything. Think of, for example, a mafia “Godfather”, or leaders who want to know everything that goes on, be that person a dictator or an authoritarian company executive. I would prefer to provide an example of the opposite process: a drastic decrease in connections (in depressed people, or loners) surfaces as a problem in self-definition/identity. People who fail to connect to others do not receive any feedback about themselves. Moreover, they are much more at the mercy of the physical environment, which is why an identity crisis may arise. It is no mere coincidence that psychology has repeatedly focused on the importance of reference groups (Merton, 1949) and demand for affiliation in a group (the so-called affiliation instinct Murray, 1938)

tions. This also implies the perfect modeling of a certain segment of the outside world. The system generates perfect outputs for each input, so preparing a perfect duplicate of the structure of the physical world within the internal structure of the system. The outcome of this congruence with the physical world is that the indicator increases to infinity, which also means that the indicator will lose its relevance once and for all. This occurs because of the way such a system is no longer capable of improving, or developing. Its processes, having reached a maximum adaptation level, are thereby finalized.

Lacking the opportunity for reaching an ultimate state, and so further increasing the indicator, also implies that motivation for all sorts of change will disappear. In a suspension-free state there is no point in taking on further development. This state, which at first glance may seem mystical, is what in human beings is termed enlightenment.

## **Consequences of physical differences between systems**

In line with the objectives set out in the introduction, I have only focused on the information flow and processing aspects of systems. Since we have identified several connections in this limited context, let us now assess the consequences of the extent to which systems have become embedded in the physical, material world.

We have highlighted the manner in which the systems assessed are living systems. The impact of this has been made evident in the way that such systems are capable of change and, assuming many system states, within a short space of time. These properties play a key role in the process of restructuring. It is, then, easy to see that speed directly correlates with adaptivity. A person or organization in trouble is capable of producing several scenarios expediently, and assessing whether these prove more advantageous in relation to the person or organization that performs them with fewer states, or more slowly.

Similar connections can be seen in the broad range of connections enabling information flow. For example, the limited ability sub-systems have in communicating with one another. The limitations of this parameter determine the various system states the system is capable of assuming, as well as the potential evolution of the connections of sub-systems.

The acceptance range is a special parameter in terms of adaptivity. The wider it is, the fewer suspensions the organism will experience. However, its outputs will also be less accurate. This may lead to suspension from other systems or interaction with the environment, even if communication within the system is smoother. The reverse applies if the acceptance range is too limited; that leads to frequent in-system suspensions. However, that also produces excellent outputs for both other systems and the environment.

The size of the acceptance range also affects the formation of integrated operations, in the way a system 'more easily accepts' an existing integrated operation. That is, it needs to comply with less rigorous criteria while testing, and has to inte-

grate to a ‘poorer’ extent. If integrated operations are easily formed, the direct consequence of this is that inputs will be processed much faster, but less accurately (many different things will seem to be the same). Since integrated outputs enable better use of capacity, it is possible to state that with wider acceptance ranges, less resource and capacity is needed to generate outputs. However, these outputs will function as inferior quality inputs to fellow systems that have a narrow acceptance range. The same applies vice versa. To be able to generate any required outputs using the poor faculties available, it is an adaptive choice to use a wide acceptance range.<sup>43</sup>

Another aspect of physical difference is the size of the manipulation chamber. Without repeating in detail the earlier discussion, we might observe a direct proportionality between the manipulation chamber’s optimum size and capacity, and the complexity of the environment.

## More complex phenomena

Assessment of the quality of connections may provide an explanation for seemingly more complex phenomena that we encounter in our everyday lives. From amongst these, aggression is a good example.

The way in which aggression can be categorized in several ways (such as pro- and anti-social, verbal, physical, etc.) demonstrates the complexity of this notion of aggression. The idea of suspension explicitly simplifies assessment of the notion of aggression. Whenever we talk about suspension, we generally take the opposite of this as well: two sub-systems, from which it is not possible to determine which is the ‘right’ one, are also antagonistic from some viewpoints where antagonism is the precondition for an aggressive connection. Aggression is none other than the act of creating suspension in systems where it does not otherwise exist. However, this may take place in various ways. It presupposes an impact (for example, an inhibiting connection) transmitted by another system, which engenders the suspension of the connection between the two sub-systems. Sabotage is a prime example of this. For example, when someone gains access to the system, and reduces the operating ability and adaptivity of the whole system by severing connections between two sub-systems, or desensitizes one sub-system.

Antagonism and aggression are also closely related to the issue of competition. In some sports there is no aggression – for example, cross-country skiing – and

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<sup>43</sup> As an example: people with poor mental capabilities who, nevertheless, can overcome everyday challenges by disregarding small differences and details. Instead, they manage their life in a wider context of connections, in the hope that this broad connection is a good model of the world they live in. Companies specializing in the production of “Chinese products” (cheap products, but of questionable quality) are examples of this in organizations. These companies do not bother with controlling the quality of the used materials or building sophisticated production processes. That is why they are capable of manufacturing products at a lower price. However, their customers may often be dissatisfied. People with narrow acceptance ranges are often seen as being anxious maximalists. Companies with narrow acceptance range – that we might also call demanders of high quality – can be found amongst luxury products manufacturers

competitors do not impede or interfere with one another. However, in other sports, the key aspect of competition not only mirrors the way we stake everything on reaching the finish line first. This may also entail interfering with or fouling other competitors in order to slow their progress.<sup>44</sup>

By using system theory terminology, it is possible to state that aggression is present in the latter form of competition, to the extent that one system is attempting to create suspensions in the other system. That occurs in order that the outputs of the latter system differ as far as possible from the pattern of the target sub-system, and vice versa. Here the target sub-system can be not only winning in sport, but also other genres of competition from different areas of life: love-relations (mating with the alpha-male); career (being promoted); admittance tests (being admitted or hired), etc.

**Coming next...** Through what I have so far promoted, I may have convinced readers that it is worthwhile examining the connection of sub-systems in further detail, since this complements our existing knowledge on system theory so well. We can identify, generalize, or translate, new connections into the language of system theory, by focusing on the quality of connections. We must remember that we need to relate pragmatically to exposing system theory connections. It is worthwhile thinking in terms of general terminology, until our conclusion becomes an end in itself, and that conclusion is possible to project onto the behavior of systems that physically exist.

In line with this objective, and having clarified the general frameworks, I shall concentrate on more concrete things, which will seem theoretical, as they still do not describe human behavior in detail. I will continue to use the results of the present system theory conceptual framework.

In the next chapter, I shall examine what happens if we take cognitive schema, viewed as the units of thinking as sub-systems, and the formation of integrated operations, as integration. Will this be capable of explaining phenomena such as emotions, problem solving, learning, the self, and consciousness?

Should any reader not wish to read a further dozen pages of theory, upon which few concrete examples are presented, I recommend passing over the next chapter, and to continue with the subsequent chapter. There, I will present a concise overview of thought and its multi-dimensional use, explaining religion, relationships, orgasm, aggression, and altruism. In the final chapter I will provide some answers to complex questions, such as ways of reaching happiness. The brief theoretical introduction that serves as a base for the remaining chapters of the book is presented in the third chapter, and focuses on the FIPP pattern. Here the indicator corresponds to the subjective size of the self, and building connections between systems corresponds to inter-personal communication.

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<sup>44</sup> A demolition derby, is good examples of the latter

## 2. THE MODEL'S USE IN PSYCHOLOGY

In this introduction, I explain human behavior and thinking with the help of the conclusions drawn in the previous chapter. I consider the human self as a system comprised of sub-systems called cognitive schemata. Sub-system connections, otherwise called schemata integration, are particularly emphasized in the following. This, as will be defined later, is a process identical to the connection of operations, and the integrated operation created from this process.

Some of the final conclusions arising from these assumptions will not be new to psychology. However, they provide a simpler and more general explanation for those previously espoused for phenomena that are not closely connected, such as aggression and altruism, or sex and religion. The strength of this approach is that it rests on few preconceptions – mainly rooted in system theory – and leads to results that can be easily transposed to day-to-day life or applied psychology.

The presentation of the model in this chapter is targeted at keen readers who wish to evaluate the scientific values of the model. Those not interested in reading often dry and complex descriptions should simply skip this chapter and resume with the next. Although less detailed, it will provide an understanding of, and introduction to, the remainder of this volume, which I believe they will enjoy.

### PRESENTATION OF THE MODEL

#### Cognitive schemata

Cognitive schemata is the first key notion to be introduced, being a sub-system of the system we call the self. Since it is a sub-system, it performs operations; for example, mapping the physical world. In this case, it functions like a transformer, converting useful information on the subject from valid modality information in the physical world that surrounds us. The eye, which generates colors and forms from wavelengths and photons, is a typical example of this.

Sticking with this example, we will see that cognitive schemata not only operate as modality transformers. In each operation, cognitive schemata have an input and an output, and the schema itself is located in the middle. This implies that a schema receives information, does something with it, and then provides information (possibly of a different modality, or according to an alternative code system) to the schemata connected to it. Accordingly, another schema does not transform information directly received from the physical world. Instead, the output of a 'peer' schema will constitute its input. Returning to the eye example, retinal neurons begin to fire by reacting to a certain frequency. When some of these neurons fire according to a certain pattern, the output of another schema will be that the entity sees, for example, a red line.

If we consider the number of atoms in the physical world, it is easy to see that every person interacts with a huge volume of data that can only be stored in the

form of patterns and by identifying connections. So, continuing with the example of the eye, it is enough to store the few bits related to the red line rather than storing each bit of information coming from the thousands of neurons of the eye.

In this regard, a schema needs to extract information received from the other schemata at an increasingly higher efficiency. Therefore, on one hand, the goal is to reach an increasingly greater information content (more specifically, information density or complexity), which is called induction. On the other, we must see that “information condensation” or “abstraction” is not performed for its own sake. We do it to store information and patterns in order to be able to adapt. Adaptation is when we generate new information on the grounds of these connections, which information helps us to find the appropriate behavioral or cognitive response to the changing environment. The process of generating the new information is what we call deduction.

Theoretically, information abstracting seems simple. However, that can be only when someone has not checked the integrated operation created through these means; that is, until the information deduced by the new schema – that created through induction – is compared with other schemata or reality. If the information generated by means of deduction perfectly reflects reality, or matches other schemata, induction has been performed correctly, and the entity is able to acknowledge that it has a new instrument at its disposal to adapt to reality. That is, its chances for survival have increased. In other cases, the schema needs to be discarded, or its use at least suspended.

As discussed in the previous chapter, there is value for entities in creating a feedback system to monitor the adaptation process; this system signals whether the entity is on the right track. The indicator functions as this feedback system, which is proportionate to the entity’s ability to adapt i.e. the indicator increases if induction is performed successfully.

Determining when this decreases is an interesting issue. By taking the above-mentioned feedback system into account, a decrease can be imagined as a warning sign, since it signals that the entity has less chance of survival, and therefore needs to do something. But when does the indicator decrease? When the next schema is incapable of decoding the output of a given schema as an input.

The question then is: what is responsible for this? The schema that is incapable of receiving the output of the other schema? The other schema that generates a useless output? Or there may possibly be bad schemata earlier in the process, the errors of which only surface later? Since there does not exist a power of a higher order within the brain of the individual, there is no one else who can decide. This antagonism is a warning to the individual. Possibly, none of the schemata are in order, which is why none of them are recommended for use. This is similar to a person choosing between a cheap, unbranded product, and an expensive brand.

Two events may take place in this case, namely:

The person accidentally finds a schema that:

- o is decisive, and makes it possible to discard the other schema, as it turns out that the other can be equally used. (To follow this example, the person finds

- that a professional user may also use an unbranded product and be satisfied with it, or find a leading brand product discounted by 50%); or
- o explicitly determines which of the two schemata needs to be used. (An acquaintance tries to reassure the person that the cheaper one is perfect if used only a few times. However, he needs to buy the dearer one for frequent, long-term use)
  - o or, further analysis of the situation is needed.

Further analysis of the situation requires examination of the schemata from which the two scenarios to be assessed receive information. That is, the sub-sub-systems of the sub-systems and preceding sub-schemata taking part in the process (investigating the different parameters of the product to be bought). These schemata are also compared, as are the schemata that provide inputs for these schemata, in the following. In general, ambiguity (an inability to define) continually increases if the matter cannot be decided either way. Consequently, the indicator continually decreases, as in more and more schemata they generate the opposite result from the same input. That is why they are risky to use, and are therefore suspended.

When analyzing the situation even more thoroughly, the original connections of the schemata also disintegrate, and new connections are created. This contradiction is dissolved when a new schema is formed from the new constellation of the other schemata (through the restructuring of sub-systems or the formation of integrated operations). This new schema contains the two originals, and simultaneously provides an explanation as to why the same result was generated in certain cases, whilst the outcome was the opposite from a different perspective. This schema is most valuable when, beyond dissolving the contradictions of two schemata, it is capable of generating (deducing) further schemata with the help of the deductive input.

It is generally true that one schema is not enough for deduction, but that another (the deductive input) is also needed to provide the necessary parameter. So, the power of explanation of the newly created schema (that results in the number of new schemata can be created through deduction) will be revealed when it begins to receive inputs from further schemata. That is, when it is capable of building connections with other schemata, and creating further schemata from them. This “testing process” functions automatically; in some cases it generates new connections, whilst in others it signals an inability to connect. The latter case causes the ability of using the new schema to be brought into question. During the course of testing, the indicator changes proportionately to the number of useable new schemata.

## Communication

By applying the conclusions of the communication concept (presented in the previous chapter) to schemata systems and people, the unusual result is that it seems

the brains of people connect during the act of communication, or that the minds of the communicating parties can be imagined as a common mind. If we set aside the modalities of communication i.e. if we perceive speaking or letter writing as the same type of communication as a person manipulating the schemata in his head, we can observe that it is possible to further generalize processes. The difference is that it is not the individual alone who tests his own schemata. The schemata of other people are also used, or other people assist them in testing. So, when an individual creates new schemata, they not only perform this in their mind to benefit themselves, but to benefit others as well. In addition, it is not only the number of available schemata that increases through the schemata made common during the course of interpersonal communication; so too do the volumes of computational and manipulatory abilities.

In the context of intra-personal (intra-system) communication, the person with whom the individual is communicating can explicitly be defined (i.e. with themselves, between schemata). In the case of inter-personal communication, the question arises as to how an individual selects the partner with whom their schemata system is combined, and with whom they share their newly created schemata. The answer is that individuals with whom they are most capable of efficiently communicating (beyond the costs accompanying communication, and communication with people best capable of increasing their indicator) can be classified in either of the following principal groups:

- o Entities whose schemata systems they know best, and are therefore assumed to readily accept their schema. This primarily implies entities of the same species (or a limited group of these), with which their schemata developed in a similar way over the course of evolution. This could be family, profession, or friends. Or, in the wider environment, people belonging to the same culture (nation, culture, religion). In these cases, it is possible to anticipate that the schemata have the same structure, and connect in a similar way. Consequently, the sub-systems belonging to a new schema exist beforehand, and it is not necessary to anticipate numerous suspensions during the course of their formation.
- o Entities in which it can be anticipated that integration dissolves a great number of suspensions. This is the case when the other entity that connects to the newly created schema has many schemata; for example, qualified experts operating in a specific field. In such cases, the new schema simultaneously comes into contact with several connecting schemata, and it is possible that the computational capacities mentioned above mutually help one another, so forming further new schemata.

In the previous chapter, in connection with communication is the question of whether this process actually communicates in the sense of classical information transfer? Or, if not, what else “can be communicated” (can swap hosts)?

The answer to the first question is that, since these are schemata, we cannot completely disregard the close connection of schemata to the things they represent in the physical world. That is, it is truly information that is flowing, and it is in this

sense that we talk about communication. However, what is more important is that this information conveys models i.e. information transformation rules. Moreover, creating changes in the physical world – typically, moving objects – often accompanies schema sharing. These changes are created in order for the schema, and what it represents, to remain in harmony. For example, in receiving the right of ownership in the case of the sale and purchase of assets, by moving the object purchased and its purchase monies concurrently. Therefore, by taking these reservations into account, the answer to what else “can be communicated” is that not only ideas (as clear forms of information), but also objects, are shared. Action is in progress during the course of inter-personal communication in order to alter the external world to reflect changes in mental representations.

## Motivation

Having accepted the usefulness of the indicator providing feedback on the success of the adaptation process at a system theory level, we can adapt this in the context of the survival of an individual entity. During the course of evolution, those species that managed to survive built all of their activities around this indicator. In other words, the species that constantly works on ways to increase this indicator, by definition, adapts better. Accordingly, this species has a better chance of survival than a species that, although having the ability to increase the indicator, is not motivated to increase it, and fails to experience its decrease as a penalty.

Note the extent of the power of this claim: we attempt to deduce the entire spectrum of human (or even animal) behavior to the increase or decrease of a single number. The way that we define this number can also be applied in:

- o the time horizon of a given entity’s life; and
- o the time horizon of the evolution of a given entity; and so
- o it is in perfect harmony with the basic principles underpinning evolutionary biology.

In the following, the only question remaining to be answered relates to how endeavors made to increase this number explain motivation underlying many actions.

Before reaching the point of thinking it impossible to find an answer to this question, one point seems certain: the cognitive schemata notion is flexibly defined through mental representation, and is interpreted as the representation of all existing objects and phenomena. So, if we opt to apply this, it will improve our chances of finding an answer to the question.

## Diversification of mental representations

Ever since the advent of Maturana (Heylighen et al, 2009) and other radical constructivists, we know that people differ in the way they map their environment. What does this mean?

I suggest that even if identical twins are placed in the same environment and

raised under similar circumstances, contingent events will still occur that impact each of the twins in different ways. Therefore, they will not create the same cognitive schemata. If the systems of cognitive schemata of two people are not perfectly identical, they will not map the physical world in the same way i.e. a new stimulus penetrating from the physical world will connect to different schemata and create different new schemata, from which point on the difference between the schemata systems of the two people will only increase.

To move from identical twins, let us focus on two unrelated people. What we see is that there are not two individuals who will produce exactly the same output in response to the same phenomenon. That only one entity will experience a given constellation of the physical world at a single given moment in space and time suggests that it is not possible to create identical schemata. From this point, it is possible to conceive that the subjective image two individuals have of the physical world they model cannot be identical. Naturally, this does not contradict the fact that only one physical world exists, and that this world contains the conditions in which the entity (also existing in a physical body) must live in.

So what we see is what every entity experiences – because they have no other choice – as they live in their own subjective world. However, that changes in line with what kind of schemata evolve in the given individual, who in the meantime attempts to create schemata, in the most coherent and unambiguous way possible, that map the physical world in which the individual is rooted.

Differentiating subjectivity and objectivity provides an explanation for how so many matters build on the same motivation. Perhaps you have so far considered biology, sexuality, problem solving, or spirituality, as different dimensions of reality. It is necessary to see that everything is placed on common ground through cognitive schemata. To demonstrate this with an example: although hunger is a bio-chemical process, when we become aware of this sensation, it presents itself in the form of schemata; the same happens with sexual desire. The way mental process and subjectivity correspond is most evident in problem solving. In the case of spirituality, we presume that some sort of metaphysical world exists beyond the realms of subjectivity. In the next sections of the volume we will see that this metaphysical world is none other than a reflection responding to the physical world and a mental representation of the physical universe as a whole i.e. it is also a subjective construct, a schema.

## **Body**

What is the case with unconscious processes? This is an important question, since unconscious processes (outcomes of hormonal processes or reflexes) are almost inseparably connected with physical processes due to the degree that they are biologically embedded. Although it is difficult to see this (since our consciousness is unable to monitor such processes), similar mechanisms operate in the case of unconscious processes, even if they are biologically manifested in different ways.

(Consciousness, and unconscious processes, will be examined later.) In order to perceive this, we must be aware of the consequences of the difference between the subjective and physical environment.

In the context of test signals (for example, monitoring body temperature, processes tying in with various homeostatic processes) information is coded in alternative modalities to that of consciousness. The reason for this is that we need to treat the body (which applies equally to the way any individual perceives their own body) as a physical reality that functions according to its own set of rules; biological, chemical, or physical. It represents itself through well-defined channels (for example, nerves, receptors) in the systems of cognitive schemata. This implies that our body is not a part of our subjective world, even though from an external perspective our body and our mind may seem to form a single unit. What is a part of our subjective world is the body's mental representation, a schema system created by modeling the body as a physical entity using our intra-body perception. As an example: the skin, muscles and bones of our hands are a part of physical reality. However, the mental representation of our hand (as a part of the body schema) is a part of our subjective reality. This is why there is no point in searching for a one-on-one correspondence between our body and our cognitive schema of our own body. Pathological cases, such as phantom limbs, or sportspersons whose body cognitive schemata include the sports equipment they use, or how they use their body in their sport – perhaps heading or kicking a ball – are examples of such incongruence.

## Language

In the section that focused on mental representations, I mentioned that each individual component of objective reality composes different cognitive schemata in various people, which is why individuals have different cognitive schemata systems. This, however, is contradictory to our everyday experience; namely, that people label specific physical entities in an identical manner. Does the fact that people are capable of communicating, in spite of their different cognitive schemata, contradict this? Again, the answer is that we should not confuse physical reality with the subjective image we have of this world. The physical world ensures common grounds for conceptualizing things as others do by sharing and connecting cognitive schemata, even though we map the objects of this world in alternative ways. Beyond the uniqueness of the physical world, there are several instruments available that assist in this, namely:

- o The brain structure of entities of a given species is similar, and the stimuli of the physical world are converted into subjective information, stored, and used through input channels similar in structure. For example, each person perceives the same range of colors; and reference levels are by and large identical, such as body temperature in relation to which we sense how cold or hot it is.
- o The rule underlying the formation of schemata are also identical within a

given species (for example, the cognitive schemata connect to each other according to basic logical operations such as IF, AND, OR, or EQV).

To summarize: even if the physical world could be identical to different people, if the perception and formation of cognitive schemata were not based on the same rules, the cognitive models of the individuals would differ to such an extent that any form of cooperation would be impossible. This does not mean that different individuals would be unable of co-existing. For example, ants and a person may live in the same house together, but they do not cooperate.

Another special form of help is available for reaching cooperation, and that is language. The components of language (words, terms, thoughts, expressions) are labels that explicitly correspond to individual cognitive schemata. When I say apple, everybody thinks of the same fruit, in spite of how someone may think of a green apple, whilst another imagines a red or yellow fruit. The components of language as labels (for example, verbs are schemata for processes, nouns represent schemata for objects and personal entities, and syntax functions as schemata for relationships between words) are ordered to a given schemata, just as a number and street belongs to a specific house: we do not need to know whether the house is built of brick or stone, the way in which we know it is number 12 indicates that it is the neighbor (usually) of numbers 10 and 14 (at least in countries where even numbers are on one side of the street and odd on the other).

These components of language help inter-personal and inter-entity communication through two means:

- o The manner in which a species agrees on how a given label must exclusively correspond to a single cognitive schemata. This not only offers an expectation of a given entity. Equally, it applies in the case of other communication partners, helping to accurately define terms used jointly. This implies that entities agree that they are only capable of cooperating if they encode and decode information in the same way and, therefore, reconcile the rules underpinning the translation of schemata, for example, empathy. During the course of this reconciliation process, schemata are compared with the help of the testing process depicted above, so whenever suspension takes place, they attempt to dissolve it. Termination/elimination of suspension (described in the previous chapter) in turn leads to the formation of new (common) schemata. These common schemata enrich the adaptation repertoire (system of cognitive schemata) of both entities, and accurately specify language use. Hence, the indicator that represents the success of the adaptation is increased. This assists in understanding how motivation underlying communication works using the same rules as individual adaptation. Assessing communication through this approach provides an explanation for learning, research and exploration, as well as how new knowledge is disseminated within a species.
- o The way in which the components of the language correspond to cognitive schemata helps so-called abstract thinking. In that context, only the label (not the whole schemata, together with the totality of other sub-schemata linked to the given schema) is used. Rules underpinning the manipulation of labels are

also stored in the form of schemata and so form the composition of language.

## Groups

If we claim that systems – and therefore people – connect to form a new system, and perform operations as a system on the inputs and outputs of people, it is then easier to understand the group.

Since a schema representing the personality of another person, and the self-identity schema of a given entity, may connect (for example, creating a marriage, or friendship schema, from the schemata of two distinct people), the schema of the entity representing the group or family they belong to may also integrate. The pre-condition for this is that the entity's indicator must increase during the act of integration. In other words, the entity needs to experience group membership as an adaptive, competitive edge. This may occur if the relationship with the group is suspension free i.e. the outputs of the entity correspond to the outputs of the schema representing the group. To use social psychology terminology, their attitudes need to be the same.

If the individual behaves as a sub-system (group member) of the newly created or joined system (the group), the individual is capable of acting in line with the interests of the group. These may override individual interests, hence providing an explanation for the phenomena of altruism, self-sacrifice, or heroism.

## Ultimate goal: increasing adaptivity vs. reproduction?

In the previous chapter, I propounded the claim that adaptation is the ultimate goal of the system, rather than reproduction, as would be expected following Darwin's approach. This is no coincidence. As I have previously mentioned, the method of assessment, and the order of magnitude of the part of the system under assessment, determines the consequences we are capable of drawing. This equally applies in the case of people.

When engaging in assessment at the entity level, adaptation is the only possible goal that can be set. If we observe a higher complexity level (more than a sole entity), reproduction also surfaces as a goal, since in this case, we are not only capable of examining a given entity, but can also assess two entities (for example, an opposite gender couple) or a group. In this case, offspring become relevant (which can also only be observed at this level of assessment); more specifically, the product of the connection between the parents. To frame this in scientific terms, a new system (family) is formed through the connection of two systems; another system – the offspring – is created from this system by means of deduction with the aim of increasing the adaptivity of the parents. (This assumes that the parent-child relationship remains intact, and that their schemata system remains similar.)

To return to the chicken-and-egg problem (according to which reproduction supersedes adaptation), I believe that a preference between the two does not exist;

the outcome of both processes is that entities that attempted to forge connections, and therefore managed to adapt, survived the course of evolution. Entities that managed to adapt, but did not reproduce (for example, because their physical build did not make them capable of this) became extinct. Moreover, every single act of communication is also a form of connection and reproduction; when an individual manages to pass on a schema to another person, a new duplicate of the schema is formed (replication). At the same time, this new schema connects to the other existing schemata of its new host.

## Consciousness

In the chapter presenting system theory considerations, one example was of the manipulation chamber corresponding to human consciousness. In particular, that the amount of information that the manipulation chamber can process, and its “acceleration capacity”, is dependent upon biological specificities (and their variations between species). If this is the case, the question arises: in human beings, would it not be more efficient to retain/operate the entire schemata system in the manipulation chamber? I propose that it is more efficient. However, there are limits to the cost-efficient mode of operation i.e. biological constructs ensuring speed and capacity can presumably only be generated at an extremely high cost (for example, from special proteins). Or its operation (blood supply, demands of oxygen or space, weight) may be far too costly.

The issue of consciousness can be explained with the help of a logical line of thought similar to the conceptual framework applied for determining optimum size. Namely, once we accept that we can conceive that consciousness (manipulation chamber) is not a black or white entity that either exists or does not, we can imagine the various levels of consciousness, for example, sleeping. These correspond to the state when, practically, the chamber does not operate, or only functions consuming significantly less resources.

The manipulation chamber not only works with the duplicates of existing schemata, but also performs the testing of schemata representing the freshly mapped models of the physical world. Psychology terms this process attention. Therefore, a phenomenon in the physical world, one largely incongruous with existing schemata, demands increasingly accurate modeling. This takes place in a way that schemata representing increasingly minute details of the physical world also enter the manipulation chamber as the sub-schemata of existing schemata. In the chamber, intensive work is in progress to connect these schemata to existing ones. This ties up the capacity of the manipulation chamber, as a result filling it. Consequently – adhering to the principle of prioritizing the maximum information distance connection – this “forces” other schemata out of the chamber.

By adhering to this approach in detail, it has become possible to create a single concept, and establish the common grounds of the notion of early and late selection (Broadbent 1958, Deutsch and Deutsch 1963, Treisman 1960, Lachter et al

2004). Therefore:

- o early selection corresponds to the phenomenon that only those models representing the minute details of the physical world – those whose connections with existing schemata have been suspended, and which therefore pose a threat in terms of adaptation – can enter the manipulation chamber; whilst
- o late selection takes place when the models of the physical world connect to existing sub-schemata and, due to the lack of suspension, do not enter the manipulation chamber in accordance with the maximum information distance rule.

The manipulation chamber hypothesis ties in with several claims espoused in connection with the role of sleep. Sleeping can be considered as the activity of the manipulation chamber when in a state of physical inactivity, during which attempts are made to make up for arrears caused by suspended connections. Due to the lack of new stimuli, suspensions between cognitive schemata with significant information distances are not created. So, the manipulation chamber also manages to work with schemata it did not have time for in a state of consciousness, owing to how these were ‘bombarded’ with information. This enables us to explain certain functions tying in with cognition during sleeping, such as those Jouvett (1992) mentions:

- o Improving mood. As I will demonstrate later, indicator decrease ensuing from suspensions is what is responsible for negative emotions. Moreover, the two are closely inter-connected. As soon as suspensions are eliminated through the restructuring of schemata, the indicator is restored to its original, ‘standard’ level, or even a somewhat higher level, which is reflected in the way mood changes in a positive direction.
- o Preserving memories. Some of the suspensions are not significant enough to cause a serious decrease in the indicator; consider the inaccurate connections existing at the level of sub-sub-sub-systems. Schemata restructure, and reach a stable state in the process of dissolving these suspensions. This is accompanied by the permanent formation of patterns due to the consolidation of the structure; see consolidation processes.
- o Another consequence, not necessarily related to the function of sleep, is dream ‘work’, namely, when problems are solved whilst dreaming. This ties in with the termination of suspensions, similar to improving mood as described above. It is necessary to stress that dream ‘work’ is not identical to unconscious problem solving, which often surfaces in the case of divergent tasks. The difference is in the way the manipulation chamber is used: as the term itself suggests, unconscious problem solving takes place outside the manipulation chamber (i.e. outside the realm of consciousness) through trial-and-error based restructuring of schemata.

Perceiving consciousness as a manipulation chamber also explains why some schemata enter consciousness, while others do not. This corresponds with Farthing (1992), who describes non-conscious and conscious as being on the same

continuum, and does not distinguish separate categories as a counterpoint of the notion of consciousness; namely, sub-conscious processes, pre-conscious memories, or unconsciousness.

## The Self

The way in which the self is defined is the cornerstone of many psychological theories.

Throughout the present chapter, I have discussed entities whose only aim is survival. Besides this motivation, do they have any will at all? Does nothing else drive them? I believe that there is nothing else. A basic evolutionary rule, as people are also systems, is: “become more adaptive by increasing the number of your schemata (your sub-systems) and by better connecting with each other”.

What is misleading is the way Western civilization failed to recognize this rule, and divided the assessment of human activities into several areas, namely: reproduction, social relations, cognitive operations, etc., and attempted to identify separate principles and rules in these areas. Although it managed to do this, the chasm between such areas only widened, to the extent that, for example, Western civilization began to consider the satisfaction of physical needs less worthy than, say, a scientific activity. Our culture, by moving away from finding what is common in the motifs, and thereby pinpointing what fundamentally drives human beings became unable to see the complete picture.

By failing to find a general principle, it came up with a notion capable providing an explanation for many phenomena, which actually personified the principle mentioned above – “become more adaptive...” – in the notion of self. It is as if there is a small person (homunculus) inside the mind of people, who directs their actions and makes decisions on the grounds of this principle.

Firstly, we need to distinguish two aspects of the self, which we will see are not independent of each other:

The first aspect is self-identification (self-reflection) i.e. who the individual is and how they differ from other individuals. This aspect adheres to the definition of self espoused by James (1890, cited by Kulcsár 1996) and Allport (1961/1985, cited by Kulcsár 1996). This implies a single schema that individually connects to all schemata that enter the manipulation chamber; see James’s concept of “experiencing intimacy”. This also implies that, after some sort of schema is formed in the manipulation chamber, for example, resolving a situation, or learning an action, this schema is connected to the ‘self schema, so creating the “I resolve the situation, I learned the action” type of experience/schemata. This also makes it evident that the existence of self-reflection depends upon the existence of a manipulation chamber. Therefore, in the case of the specimens of species where this does not exist, the notion of self is less relevant.

Moreover, the smaller the capacity of the chamber, the less relevant the notion of self becomes. A consequence of this is that, since the given entity is capable of

reflecting on created schemata, its ability to adapt also increases, since it will avoid situations it is incapable of resolving on account of not having the right schemata to do so. In addition, through its connections with schemata, the self is capable of repeatedly duplicating the schema in the chamber i.e. recall the knowledge it has already acquired (which has not been lost following the weakening/cessation of connections due to biological reasons). This definition of self corresponds to the concept of self espoused by Rogers (1959). He defined the self as the totality of the experiences, ideas, perceptions and values of the person by stressing the importance of the self when explaining things that impact upon the person. With system theory terminology the explanation is the same, with the difference that one can provide a general explanation for experiences, ideas, perceptions and values by taking all of these as schemata. From this point on, the self, in the sense Rogers describes it, and the way we define self, relates to the same cluster, which determines the perceptions of the individual and provides a guideline for how and why this is.

The second aspect relates to experiencing the self. This is none other than measuring the indicator, which provides information of the size of the totality of schemata mentioned above, and the quality of their connections. This aspect is vitally important for the self, since it is the only indicator that is significant from the perspective of the individual's existence. As can be seen, this latter aspect does not necessarily concern only the cognitive dimension, but also a far more important dimension: the existence of the person itself.

The indicator, as a measurement, can only be interpreted in relation to something, since all quantities are only relevant if they refer to some sort of relationship of their own accord (*ratio*). In our case, the indicator may change as an absolute value. However, it has a meaning in the context of the fixed and permanently perceived physical world in relation to a previous value i.e. it increases or decreases in relation to this, or is higher or lower than this value. It has no independent meaning (although it may be interpreted similarly to the psychological notion of self-confidence). In the context of the individual, only an increase or decrease can be perceived.

The question arises as to why we experience the indicator as a size, and not as an alternative quality (for example, smell, or color) of the totality of cognitive schemata? The answer to this is that the relationship between the indicator and the totality of schemata is similar to how the reflection of an object relates to the given object itself. In the physical world, the main characteristic of objects is that they occupy a place in space; that is why size is one of their most relevant properties, and which can be defined in the case of every object. The indicator reflects the totality of schemata (as a cluster of 'something'). Consequently, at the level of sensation the most evident, and most basic, characteristic is the analogy with physical size. This provides information on the volume it occupies in space, as a relationship, for example, between bigger and smaller.

Moreover, many of our schemata depict our body. These schemata model our body as a physical entity, also including schemata storing actions that serve to

change the physical world. The distance we are capable of penetrating the physical space is also a relevant aspect in terms of adaptation. For example, bound or by being inhibited in our movement, we are at the mercy of the outside world. Our body is incapable of impacting upon that world. However, with the help of instruments and objects, such as a weapon or a stick, we are each capable of keeping many times the space of the volume of our bodies under control. This implies that, from amongst the opportunities we have, we will experience the totality of our schemata as a volume-type quantity.

As highlighted earlier, the relevance of the indicator, and therefore increase and decrease, also plays a pivotal role in the terminology applied by the model and in the following, where we try to explain human phenomena of a higher order. As a rule, I believe it relevant to explain phenomena taking place in the individual, instead of focusing on schemata and sub-schemata. Therefore, I will be less concerned about the integration of schemata, but instead concentrate on how this impacts upon the life of the individual when introducing the notions of self-narrowing and self-expansion.

Self-narrowing refers to the phenomenon when the indicator decreases as a result of the suspension of schemata. Self-expansion refers to the phenomenon when the indicator increases due to the integration of two or more schemata.

## Emotions

As opposed to the psychoanalytical approach, the cognitive approach is often criticized for failing to provide a proper explanation for the world of emotions as the counterpoint of cognition. What is the case regarding our model? Is it capable of answering where the source of specific emotions lie, when they are experienced, and where they surface?

Although our model operates on the basis of cognitive schemata, due to automatic processes aiming to increase the indicator, it comes to a conclusion similar to prevalent motivation and emotion theories in psychology. Namely, the ultimate goal of every human action is to increase adaptability, and distinguishing emotions and motifs serves this goal. According to Atkinson et al (1996), emotions and motifs are distinguished on the basis of how motifs are activated internally, whilst emotions are influenced from outside. However, what I have advocated so far washes away the difference between the notions of outside and inside, on account of how the individual lives in a physical world, in relation to which everything else is a part of the physical environment. What Atkinson dubs outside is actually a part of the physical world, represented in the form of a schema within the subjective world. Presumably, what Atkinson dubbed 'inside' i.e. as a corporeal process, is also part of the actual physical world, regardless of how, from an external vantage point, it takes place within a given entity. Therefore, it becomes pointless to distinguish motifs and emotions in this way.

What can we say about explicitly experienced phenomena, such as anger, joy or

disgust? The theory of cognitive labeling, espoused by Schachter and Singer (1962), and Zillman and Bryant (1974), will help answer this. This approach suggests that increase in vegetative arousal is the common biological basis of emotions, to which cognition orders some sort of label, hence producing specific emotions.

However, what underlies this vegetative arousal? As will be discussed in the next sub-chapter, vegetative arousal can be perceived as a value that demonstrates the extent to which the indicator deviates from the average. This also seems logical from an evolutionary perspective. When the indicator greatly decreases (because of the way the system, the individual, is in danger i.e. is threatened by extermination) arousal needs to increase, since this is how the entity is capable of performing at an increasingly higher level. This performance increase must equally present itself when the indicator greatly increases, since the ability to act at a higher level is needed to disseminate the newly created operation. From amongst these two performance increases, negative values and penalties must associate with the former, whilst rewards must associate with the latter. The way the indicator relates to its regular value is what is precisely capable of ensuring this negative-positive trend i.e. the individual experiences indicator decrease as a penalty, and indicator increase as a reward.

Having made this distinction, we have managed to separate negative and positive types of emotions, such as those based on rewards or penalties. The way in which these types of emotions have an evolutionary competitive edge is evident, which is why it is no surprise that these emotions – although not specific emotions – can also be found in species functioning with less complex schemata, and in a less complex manner than in human beings.

We have already discussed how it is possible to define the indicator in the case of every living CAS (complex adaptive system). From an evolutionary perspective, measuring indicator changes is the next step on the road of development, and this plays a key role in understanding behavior. The following step on this development path is when the various patterns of the changes of indicators associate with schemata to enable situation evaluation. This is of key importance for planning behavior more accurately. This is not required in the case of less complex organisms, as so-called ‘fight or flight’ responses can be perfectly generated without having to evaluate the given situation. On the basis of this line of thought, it is no coincidence that the structures activated to determine the basic trajectories of the evaluation of emotions are in the most ancient part of the brains of human beings. Nor that the schemata to which they connect are stored in parts of the brain of a higher order.

The question is: what types of schemata are required, and how do they connect, to make the indicator change? In line with the target-relevance theory (Lazarus, 1991; Oatley, Johnson-Laird, 1987) that builds upon the theoretical framework of system theory, it is possible to state that indicator change is the precondition for an emotional response (target-relevance). That is, there are no emotions if the indicator does not change. The target-congruence notion of the same theory corre-

sponds to the positive or negative change of the indicator. The degree of change of, or the type of schemata that link to, the situation, may be further criteria that determine the given emotion. For example, according to the target-relevance theory, whether the schema of the self relates to the given situation – or otherwise – will determine the emotion. Specifically, schemata that are in use at a given moment – for example, those in the manipulation chamber or the environment – are those that will connect to vegetative change.

It is possible to connect schemata playing a role in a given situation with certain characteristics: for example, the rate of change, speed, precision, etc., of the change in the indicator to the components of appraisal theory; (Smith & Ellsworth, 1987: pleasure, expected effort, action involvement, guiding the situation, detection of obstacles, importance, predictability).

Arnold (Reisenzein, 2006) draws attention to how event appraisal, needed for emotions to evolve, does not necessarily have to be conscious. This is in harmony with what I have so far espoused, since the indicator change described above, and schema attribution processes, will only become conscious (enter the manipulation chamber) on the basis of the maximum distance rule. That is, suspension that takes place in connection with a concerned schema is placed at the top of the list.

According to the observations of Ellsworth (1991), vegetative arousal and cognitive appraisal are events prolonged in time. This corresponds with how the testing of new schema creating connections to be built with other schemata, or registering the quality of the connections of these new schemata, are time-consuming processes. Moreover, these new connections produce an array of results, not only one single value. This range of results modulates the situation, and so that also has to be appraised.

Before examining the question of arousal more thoroughly, five questions raised in an article by Lazarus (1991, p.820), in which he outlined the (five) criteria of a sound theory on emotions to provide coherent responses, will be discussed:

Question: “What are emotions?” Answer: On the grounds of what I have so far described, emotions can be defined as indicator changes that connect to cognitive schemata (labeling). The way in which these cognitive schemata connect depends upon the person, the stimuli in an environment in which the system functions, and the patterns of indicator change.

Q: “Should physiological changes be a defining attribute?” A: Definitely not. Physiological changes are only causes and consequences of schemata changes taking place, and the indicator changes accompanying these. Where physiological changes are independent of the will of the person (for example, in Schachter and Singer’s experiment, the injection of adrenalin, or a secretly injected drug causing euphoria), it causes the same type of changes in the schemata system as the physical environment does.

Q: “Should emotional meanings be dimensionalized into a few basic factors, or treated as discrete categories?” A: Since, by connecting to cognitive schemata, vegetative reactions constitute emotions, and there are, theoretically, an infinite number of schemata, the number of emotions is, in theory, also infinite. This is

exactly what the person experiencing a given emotion feels. He or she believes that each individual emotion is unique, and cannot be reproduced or categorized, even if an external observer groups emotions, or they are grouped on the grounds of linguistic similarities. Perhaps a child will not love their mother and father in the same way, or even love their mother differently at different times. Therefore, the answer to this question is that, if we do not want to lose any relevant information, we need to classify emotions within an infinite, number of categories.

Q: “What are the functional relationships amongst cognition, motivation, and emotion?” A: Cognition (which is not a separate notion, but the summarized activity of the schemata system) is what makes the indicator change; this can be perceived as an emotion when the sensation of the indicator change connects to a specific schemata. The endeavor to increase adaptivity is really motivation, which is not a separate process, but the direct consequence of the way the person functions as a system. If the system reaches a more adaptive state, the indicator will increase, which triggers a positive emotional response. And vice versa.

Q: “How can emotion theory reconcile biological universals with socio-cultural, developmental sources of variability?” A: Although in almost every person vegetative changes proceed according to the same set of rules, this on its own does not mean anything from the perspective of universal emotions and their differentiation. Cognitive schemata are the other component of emotions, which vary by culture and in the specific phases of human evolution, by ensuring the variability of emotions. However, strikingly similar biological processes underpin these emotions.

## Arousal

I have previously focused on arousal, the general activity level of the brain, in the section discussing emotions. However, I only referred to the way it relates to the indicator. I compared the absolute value of the change of the indicator with arousal, which I would now expand upon in the light of arousal theories. Ever since Hebb proposed his theory (1955), we know that arousal closely correlates with performance, which is expressed as an inverted U-curve i.e. lack of action is the outcome of extremely low arousal values, whilst extremely high values disorganize action. Neither engenders optimum adaptation in the short run.

What is then the case with extreme indicator values? When two schemata containing the totality of sub-schemata are suspended, the indicator dramatically decreases; these schemata fill the manipulation chamber. The manipulation chamber will also be full when the “fireworks” scenario accompanying the connection of two complex schemata uses the indicator with the aim of creating more and more new connections. The “fireworks” engenders a dramatic increase in adaptation ability. However, this level of saturation of the manipulation chamber may engender a decrease in adaptation ability in the short run since, due to lack of space, other ordinary, everyday suspensions will have insufficient resources to be dis-

solved. Therefore, the two extremes will lead to bad adaptation in this case, as well as in the case of arousal.

In spite of this parallel, arousal and the indicator are by no means identical. The following relationship exists between the two: the absolute value of the deviation from the indicator's average = arousal. What does this imply? When the indicator is in a more or less neutral state, this is excessively low arousal (sleep); low, or medium, deviation is optimum arousal, whilst high deviation is excessively high arousal, when performance declines.

Notice how the handful of suspensions that will prevent restructuring later on is needed to increase adaptivity. This concurrently engenders arousal ensuring optimum performance. In short: medium-level arousal enables regular activities, and vice versa: regular activities engender medium-level arousal.

Therefore, does a slight decrease in adaptivity have any positive effect at all? This is not easy to answer, since there is a missing link in the question raised, namely performance. Therefore, a slight decrease in the indicator is, in many cases, a precondition for performance. This can be interpreted as a goal, an event that will increase adaptation. The way positive emotions accompany indicator decrease is the product of a learning process: the sensation of a slight increase in arousal is associated with the chance of reaching a higher state of adaptivity. This association is a product of the way suspension generally precedes the attainment of a higher state of adaptivity, or how the potential to reach that higher level is inherent in suspension.

Psychology has been aware of the concept of eustress for some time. This was introduced by János Selye [Hans Selye] (Selye, 1956) as the counterpoint of stress, which can be conceived as the outcome of indicator decrease caused by suspension. Contrary to distress, eustress accompanies positive emotions. However, at a vegetative level it also shows similarities with changes taking place due to stress. Consequently, however surprising it may seem, and in spite of how the connection of over-complex schemata results in significant increases in adaptivity, the vegetative reactions accompanying this may take their toll on the person.

## **“Automatic action”**

Although I have particularly focused on phenomena concerning various systems and sub-systems, it is a fact that the majority of human behavior is nothing but the use of existing operations. Since these cannot cause suspensions (or only to a minimum degree) these types of behavior do not enter the conscious realm (the manipulation chamber). I will call processes that are largely irrelevant from the perspective of scientific research “automatic actions”.

Whenever schemata of higher order exist (for example, I would like to travel by car from X to Y), operations take place between their sub-schemata and the physical world without any sub-system entering the manipulation chamber. This situation is characteristic of all everyday actions that are not conscious; for example,

some movements executed when driving. In this context, the chamber will continue to fill with pairs of schemata having maximum information distance aimed at restructuring. However, if there are good models of these outside the chamber (i.e. with small information distance connections) hundreds, and even thousands, of outputs are generated without leaving any particular trace. Therefore, to continue with the example provided above (driving from X to Y), if we have routinely driven this route for years, while driving the manipulation chamber may engage in eliminating suspensions of schemata connecting to another area of life; for example, questions such as what should I get my wife for her birthday; how old was I when I first visited the seaside; or talking to somebody on the phone; etc.

As soon as the output of a given schema becomes an unsuitable input for the next schema, and the information distance is also great (for example, I see an accident on the road), this connection will be at the top of the priority list and enter the conscious realm to restructure as quickly as possible. I begin to drive more carefully, and slow down as a precaution.

If I am a driver without a routine, my schemata will have not developed sufficiently, so I drive the entire journey in a way that my schemata in connection with driving will restructure inside the chamber. This is what will always be prioritized. It is for this reason that I will remain conscious of the act of driving throughout the entire journey.

In spite of the way they may have formed outside the chamber, the totality of connections being forged increases the indicator. However, since these are schemata with a definite and broad system of sub-schemata, very few new connections will be established. Instead, existing ones will be used. Accordingly, my self will not necessarily expand just because I managed to drive from point X to point Y.

## Flow

The concept of flow, introduced by Mihály Csíkszentmihályi (1990), is a combination of the “fireworks” scenario and automatic actions. When explaining the fireworks scenario, I alluded to the way the number of connections created from one another through chain reaction increases exponentially, which is why the acceleration role of the manipulation chamber also comes into play.

The phenomenon of flow takes place when the schemata connections encoding the main properties of schemata of a higher order are available. Although schemata that are easily created from the connections of these are available, a few sub-schemata are nevertheless missing. This implies that the development of detail is what is in progress, which means that a series of connections is being created, resolving many partial problems. In such cases, some connections are suspended. However, the information distance is not exceptionally great i.e. it is not so great that their restructuring in the chamber takes a long time, but is not adequate for it to be resolved outside the chamber. That is why, by entering the chamber, suspended connections spend just as much time inside the chamber as it takes for the

next suspension to take place. This engenders a series of slight expansions of the self, which keeps the indicator at an optimum, slightly positive, level.

Ensuing from the above, for this scenario to take place several preconditions need to be fulfilled:

- o schemata required for creating connections need to be available i.e. the preconditions for creating a connection need to be in place and a major suspension must not occur;
- o a sufficient volume of sub-schemata need to connect for the series to evolve in due time; and
- o the complexity level of sub-schemata to be connected needs to reach a level that they are placed in the top rank in the case of suspensions, hence forcing all other schemata out of the chamber (consciousness).

## **Peak experience/enlightenment**

As mentioned in the first chapter, enlightenment is a religious concept implying complete absorption in the world. The distinction between self and non-self disappears, as does motivation. A state of all-encompassing knowledge emerges, which is accompanied by a continual feeling of joy and happiness.

In spite of this being primarily a key concept of Buddhism, our model does not exclude the existence of a similar state. By definition, this state only evolves once, is irreversible, and takes place only when all of the schemata in a person connect to form a hyper-complex operation. At first sight this seems impossible. However, the fact that the physical world is a coherent whole does not exclude the possibility of mentally modeling the entire world.

The complete lack of suspension results in motivation ceasing. This implies that the indicator reaches its theoretical maximum, and so creates a permanent state of joy. All-encompassing knowledge is the natural outcome of modeling the entire world. Since every schema has been integrated into a single schema, and this implies that the “self” schema has been integrated as well, the person and world unite to form a single whole, and the boundary between the two disappears.

Although this phenomenon is best described through the notion of enlightenment, we see similar constructs in psychology, such as that of Maslow (1962) (peak experience) or Wilber (1986) (trans-personal self).

## HOW THE MODEL CONNECTS TO CURRENT TRENDS IN PSYCHOLOGY?

Having become acquainted with this model, it is worthwhile reviewing:

- o Which concepts surface in the theories of other authors and, if there are any, can these be used perfectly identically, or is there a difference in their definition? If we find that there is a difference, does this rule out the use of our concept?
- o How it relates to other theories; do they contradict or complement one another, or lead to the same result?

The novelties of this model, and how it helps explain psychological phenomena, will be discussed from the third chapter of this volume.

### Piaget and the constructivist learning theory

Due to the way the schemata concept plays a pivotal role in the model, we should focus on the author who first proposed this concept; Piaget, the father of constructivist learning theory.

The first main difference between his use of the concept of schemata and ours is that, in Piaget's approach, the emphasis is on schemata being cognitive structures. This is understandable, as he focused on the cognitive development of children. The approach we operate with emphasizes the schema i.e. being a model and a system (closely related to the mental mode concept introduced by P.N. Johnson-Laird, 2004). It is for this reason that our model has more explanatory power, since it identifies the same principle underlying phenomena that is mentally represented. Beyond cognitive process in the narrow sense, this equally includes processes tying in with social relations, body image, and movement. This is why, beyond the input-transformation-output structure, it does not espouse anything else about the details of schemata. For example, by allowing various modalities of information to be processed. Or transforming information from one modality to another.

The other major difference ties in with how we interpret schemata i.e. in a narrower or broader context. Piaget uses the concept to explain very specific experiences or phenomena of which, in his view, there are a few hundred or thousands (a quantifiable, and a relatively slowly increasing, number) in the brain. We, on the other hand, operate with a far less stable, permanently changing, and almost infinite, number of schemata. Two things make it possible to assume that there is a much wider sphere of schemata, namely:

- o Schemata are composed of schemata. Therefore, what we classically dub as schemata of a higher order, are actually schemata structured and composed of several other schemata.
- o Schemata are formed every moment, and are in a continuous state of transformation, since their goal relates to mapping the permanently changing

physical world and providing new information upon it as far as is possible. These schemata attempt to achieve this by increasing quantitatively as well as qualitatively. That is, on one hand, new schemata are formed by mapping external impacts. On the other, existing schemata attempt to increase their level of integration. Piaget treated schemata as discrete constructs, which can become well defined in time, and are formed and transformed from time to time. Our model moves beyond the phenomena identified by Piaget. It not only applies Piaget's mechanisms to a discrete schemata system, but also to an almost infinite number of schemata that can be viewed as a continuum. Consequently, the same connections and suspensions take place at various levels as those Piaget describes when observing schemata engendering visible and perceivable consequences. In other words: the same process is taking place in the background when the eye unconsciously connects points to form a straight line as when object constancy is evolving.

There is another advantage in extending the scope of the size and volume of schemata in relation to the way Piaget uses this. We will not only be able to understand the way less complex schemata with visible consequences (schemata of a lower order) function. It will also become possible to examine schemata being processed at a slower pace. For example, the process of writing a study is also stored in a single schema, despite it taking possibly several months to complete; that is why it needs to be examined differently to a single one-off event. At the same time, schemata of a lower order (writing an introduction, or compiling a list of references) play a role in the formation of the final schema. . This is similar to the schemata Piaget observed. However, the roles of integration and testing only fathom processes of a higher order than schemata. The partial schema of this process can by no means be, for example, a simple action, such as finding a special computer key (say #), which could already be observed in the short run. It is similar to screening a film of the whole life of a person at various speeds (frame rates); the same patterns can be observed in every version.

What I have promoted so far may simply seem to confuse the concept of cognitive schemata, whereby this would have no serious advantages in relation to Piaget's concept. However, whilst Piaget's approach identifies two different and non-compatible phenomena in connection with the manipulation of schemata (assimilation and accommodation), our model manages to explain a wider range of phenomena with a single concept. Piaget defined the concepts he used in the following manner: "The filtering or modification of the input is called assimilation; the modification of internal schemata to fit reality is called accommodation." (Piaget, J. & Inhelder, B. 1969, p.6). Beyond it being impossible to consolidate the two concepts, the problem they pose is that Piaget fails to specifically define why one specific technique is used in a given situation. Some general references are provided; namely, accommodation will surface if assimilation is no longer possible. However, what Piaget means by "no longer possible" is vague.

In relation to the above, our model consolidates the two concepts into restructuring, in a manner whereby this single concept is always taking place. The only

question is, at which level of schemata (complexity) does this take place. This consolidation can be harmonized with Piaget's concepts if we differentiate the change: whether it takes place in schemata (for example, in the patterns of sub-systems) that either engender perceptible changes in behavior or are accessible through self-reflection or interrogation. Therefore:

- o Assimilation occurs if restructuring only happens in schemata of a lower order (the acceptance range of the observed schema changes); whilst
- o Accommodation takes place if schemata of a higher order restructure.

This answers the question: which (and when) of either assimilation or accommodation takes place? The answer is always that the same process takes place and only the technique used for observation will determine whether the observer notices accommodation or assimilation. This depends on whether the observer registers perceptible changes in behavior (accommodation) or does not (assimilation). Fundamentally, schemata are changing continually i.e. it is always accommodation that is taking place. In those cases where we do not perceive the effect, this is termed assimilation.

Another aspect deserving mention is when comparing the two schema concepts. Although Piaget did not specifically focus on this, the schemata system nevertheless has various levels due to its hierarchic structure i.e. more complex schemata connect to other more complex ones, and less complex schemata connect to other less complex ones. In identical modality information, there is then no reason to exclude the possibility that a less complex operation provides an input for a more complex one. This implies that schemata do not have a hierarchical structure or, if they do, that that structure is not discrete, but is described by continuous numbers. The only hierarchy in this context is that the operations of certain schemata cannot be directly connected without incorporating a transformation system in the process. For example, where a neuron and a schema represent a concept. This is due to the way schemata are built, and that there is a difference between the coding of the output and their inputs.

Beyond the criticism of Piaget, we need to clearly see the advantages of the constructivist learning theory. Namely, since it focuses on phenomena that can be clearly observed by the eye and perceived comfortably over time, its results can also be handled in a concrete and easy way. It is important to stress that, in spite of the way we apply a broader framework in terms of time and complexity than does Piaget's model, and handle schemata complexity as ongoing, we do not contradict the constructivist approach. Rather, the model presented can be conceived as a critically corrected extension of Piaget's approach, which retains the basic principles of the theory and also counteracts its critics (for example, Baillargeon, 1987).

The two typical criticisms of Piaget's work can be readily reconciled in our model:

One critical approach relates to the accurate definition of development phases and their precise sequence, as described by Piaget. The potential drawback of our model, which is more general than Piaget's approach and contains less concrete aspects, may become an advantage. The way in which it specifically focuses on

principles makes a great degree of generalization possible. That does not exclude the existence of processes and operations (even intrauterine or in connection with the embryo) that the external observer is not aware of. Our focus on general principles exclusively promotes the principles of connection/testing and suspension/restructuring. This implies that it remains sufficiently flexible to adjust to the way Piaget imagined.

The other critical approach, connected to the approach of Lev Vygotsky, is in connection with the issue of embeddedness, according to which development is subject to the culture and environment in which the child grows up. This approach is in harmony with the approach taken by our model, claiming that the formation of operations will only depend upon the phenomena to be mapped in the physical world. Therefore, as an example, if we take a person who has been blind since birth, he or she cannot be expected to form schemata relating to color mixing. The precondition for this would be the existence of a certain number of schemata relating to colors.

The principle of the connection of operations alone does not create distinct phases, and justifies those who claim or view development as an ongoing process (for example, Klahr 1982, or neo-Piagetian theorists, such as Mandler 1983). According to our model, development is an organic process, the outcome of which is the formation of new schemata by means of restructuring. This may seem to proceed in phases (as per neo-Piagetian theorists), or a single process, depending upon which level of schemata we observe. If needed, we can discover new schemata on a daily basis; or as another extreme, perceive childhood as the attempt to form one lone schemata, which we call an independent adult's world view.

Our model perhaps best adheres to the approach of knowledge acquisition put forth as a criticism of Piaget's theoretical framework, which espouses that processes are identical in every phase of life and that only the volume of knowledge accessible increases with age. This similarity is even more evident if we consider knowledge as the totality of schemata.

A final thought in connection with learning theories is that, having discussed Piaget's theory, it becomes evident that it corresponds to our model in how it traces learning back to restructuring. One of the general dilemmas of learning theories ties in with identifying motivation underlying learning i.e. finding an answer to the question: why do children learn? That there is no consensus amongst the answers provided in psychology to this seemingly simple question presumably ties in with how the question itself is rather awkward. Moreover, learning, as a concept removed from the context of cognitive operation, takes the wrong approach. Either learning does not take place at all, or everything is learning, since the more detailed and better modeling of the outside world (as the means for increasing our ability to adapt) is a permanent and continuous program in all individuals. Whether there are any perceivable manifestations of this – perhaps a child picks up a book and reads or a philosopher seemingly stares into oblivion – is a different matter. Intra- and inter-personal communication will nevertheless be performed continually to make operations underlying schemata increasingly accurate.

What ensures this is the penalty/reward motivation system building on indicator change.

## Philosophical background

### *Hegel*

The Hegelian dialectic can be detected in the description of the transformation of schemata from the perspective of integration. Therefore, a schema, as a thesis, will sooner or later find the schema that specifies its purpose. Should the contrary apply, the given schema would relate to far too many things, which is why the scope of interpretation needs to be limited; in our case, this can only be another schema. This other schema serves as the antithesis, and its tension with the other schema is what the main principle of this dialectic is. In our case, suspension is what is considered as counter-tension, which, once eliminated (through synthesis), will create a schema through the process of restructuring. As espoused by Hegel, we will consider this new schema, created with the help of synthesis, as another thesis, which will activate the thesis-antithesis-synthesis process all over again.

### *Plato*

The other relevant philosophical approach ties in with Plato's idea concept. In his famous cave analogy, Plato reveals the way ideas are unreachable. Therefore, two worlds exist: one is the world of ideas of "perfect" objects; the other is the world we live in, which is a poor duplicate of the world of ideas, just as shadows appearing on the walls of a cave are poor depictions of the objects around the fire that cast those shadows. What Plato called the physical world (as opposed to the world of ideas), I call the subjective world of the individual. In our view the physically existing Universe refers to the unknown and unattainable, which in Plato's theory is the world of ideas.

### *Aristotle*

The concept of logical operation, namely, deduction and induction introduced by Aristotle, has been mentioned earlier in connection with cognitive schemata. However, what deserves mention is that it is perhaps no coincidence that these concepts developed the way we presume schemata operate. Therefore, if schemata – which correspond to premises or thoughts in philosophy – connect in alternative way to one another, and comprehend each other differently, so logical concepts highly relevant to describing human thinking would not use these either.

## Neisser

Our model avoids the use of the concept of cognition, and only focuses on the connection of schemata. However, the concept of cognition, which can be con-

ceived as the operation of the overall system of schemata, is similar to Neisser's approach (Neisser, 1976). Beyond the way they both approach work with schemata, the most relevant similarity is that both theories – assessing different levels and focusing on different aspects – treat sensation, perception, and thought, as phases of the same process. They both attempt to provide an explanation for this through common basic principles. Moreover, both theories support the idea that the role and aim of schemata pertains to increasing adaptivity, and that the individual's cognition corresponds to the operation of the totality of schemata.

Beyond these similarities also lie differences, primarily due to Neisser's hypothesis, which proposed, contrary to what we have described, that there are significantly fewer schemata. This enables Neisser to work with a schemata concept that "lives its own life" (is less integrated with the rest of the schemata) and can be well defined. Consequently, as with Piaget, Neisser is forced to introduce a new concept in his theory; namely, that of schemata change, which he describes as a separate process and phenomenon.

This concept was introduced because the inability of two schemata to connect could not be explained through the suspension of lower level schemata – or even lower, should these schemata not fit – and the restructuring that followed. That is why Neisser was forced to work with changes to independent schemata. Piaget also raised the same theoretical question. If schema levels are limited and discrete, what will determine the number of levels, and why should this be discrete, since the physical world, as a whole, does not have any discrete layers; say 7, 15 or 194? This layer-structure also fails to correspond with the principle of Occam's Razor (which states that we should not integrate any theories in a model that could otherwise be disregarded for explaining the same phenomenon) i.e. why do we state that something is not continuous, since, should we do so, we need to assume that there is an agent (a variable, or something formed subsequently) that causes and determines levels.

By assuming this type of discrete schema layers, the only option left for Neisser was that there are schemata used to represent the world i.e. individuals have to look for their existing schemata in the world. Should the individual find schemata other than those they have, they will be forced to change their schemata. This is like the tail wagging the dog: would it not be far simpler to adopt the principle that the individual wants to map the world as best as possible in every situation? Further in this regard, that the easiest course is to simply take the outside world for granted – i.e. treat "incoming" inputs as facts – as a point of departure, instead of the contrary i.e. to fathom the external world through our schemata?

We have previously reviewed these potentials in the system theory introduction, when the individual comes into contact with stimuli (inputs) of the physical world during the act of perception. In this case, two things may happen:

- o if these stimuli, as inputs, fall within the acceptance range of the pattern of existing schemata, nothing special will happen. The individual will generate the output pre-determined by their schemata; or
- o if these stimuli correspond only in part to existing schemata, there is an

available schema and another formed by modeling the outside world. These two schemata will connect in a state of suspension, and attempts will be made to dissolve this in the way previously described in several instances. It will begin to model the physical world in increasingly greater detail. Concurrently, it will also compare the minute details of the physical world with sub-schemata of existing schemata, up to the point where it reaches a level at which the sub-sub-sub-schemata and the minute details of the physical world will eventually connect. This connection process proceeds according to the scenarios described earlier, and produces a state that, at a macro-level, corresponds with the phenomenon described by Neisser as schemata change.

The final point of the above description may correspond to the top-down (Helmholtz) and bottom-up (Gibson) approaches, which our model integrates, as with Neisser's approach, but by using a different concept. The most relevant difference between the two concepts is that Neisser treats perception as an active process, whilst this is described as a passive process in our model. The way in which this is understood as an active process is not what is problematic. However, presuming intention i.e. the individual is searching for something in their environment, contradicts the principle of Occam's Razor.

Regardless of this, at the level of phenomenon, Neisser's model does not contradict our results. Restructuring taking place at a lower level, and the "digging deeper and deeper" process accompanying this, may actually seem as though the individual is searching for information in his or her environment. That is, the individual seemingly transposes their own schemata when modeling the physical world, and searches for its existing structures. It is a completely different matter that Neisser's model fails to provide an explanation of how the individual comes to terms with an unknown mass of information, in which case they are unable to use existing schemata to structure the outside world.

By using the passive-active dimension, it is possible to distinguish the two approaches. One is from the perspective of whether to take the order in the mind of the individual as a point of departure (Neisser). Or if one should endeavor to find order existing in the physical world, and is therefore prepared to transform their entire schemata system for the sake of adaptation, as in our model.

To summarize, Neisser's "analysis by synthesis" approach (perception fathomed through the comparison of the physical world with our schemata) completely corresponds with our approach. In the first step, the individual attempts to use existing cognitive schemata to decode the stimuli of the outside world. The only difference is that we go one step further. We not only suggest, in connection with stimuli that fail to fit schemata, that it is the schemata that change, but also describe how this takes place, and what happens when there are no schemata available that would be capable of representing the physical world. This way, we can disregard the concept of anticipation (once again, in line with the principle of Occam's Razor) by bearing in mind that, if a single model of the physical world corresponds to several schemata, the most active schema at a given moment will have a better chance of fitting.

In relation to theories presuming classical passivity, our approach adheres more to Neisser's approach, in the sense that we presume the use of the system incorporates existing schemata when perception functions. Also, that when schemata are available, real-time structuring of stimuli will take place as well as during the perception process.

## Freud

Most of the theories that touch on the notion of 'self' try to clarify the way it relates to the psychoanalytical personality model. Firstly, it is worthwhile examining the way the concept of consciousness relates to Freud's concept of sub-consciousness. In our view what becomes conscious, and what remains unconscious, is a deterministic process, independent of any external agent or will. The maximum information distance rule is that which will automatically set what is processed in this chamber.

This automatism and mechanization is in harmony with Freud's highly deterministic approach, despite Freud not stressing self-functioning automatism, but instead emphasizing predestination. Therefore, what "rises up" from the sub-conscious realm is determined by rules in both Freud's thinking and our model alike. This is so even if we attempt to explain this through a principle resting on evolutionary grounds, while Freud uses analogies; hydraulic models (Fromm 1973).

Freud did not call the entities he used in his theories schemata, but rather ideas, mind contents, instincts, etc. However, Freud also described the phenomenon of suspension in a much more dramatic way, and with concepts that do not seem to be as scientific as the terminology used today. According to Freud, suspension takes place when impulses or mind contents released from the id collide with the super-ego. If the terms impulse and mind content are substituted for schemata, it is easy to discover the two poorly connecting schemata in the context of the id versus super-ego battle. If we are adamant about keeping the super-ego and id dichotomy, it is plausible to state that super-ego schemata contain the huge number of consolidated schemata of a higher order with well-functioning connections. These may, nevertheless, be bad models of the physical world, but seem to be a point of reference. Conversely, the id is a series of models spontaneously mapping the smaller-larger details of the physical world, which certainly include the internal biological processes of the body, namely, hormones, reflexes, etc.; they might be better quality representations than existing schemata.

The manipulation chamber corresponds to Freud's ego concept. If a connection results in poor outputs, but not so weak as to become the first to enter the manipulation chamber (according to the maximum distance rule), the connection will stay outside the realm of consciousness. Improving the connection's quality will then be performed slowly outside the chamber. Not counting the case when suspensions are created at a faster pace than the system can dissolve them – for example, continual bad luck, or continuous 'attacks' of ambiguous information from

the environment – each suspension will sooner or later take place in the manipulation chamber; for example, when sleeping. Regardless of the will of the individual, simply because a particular connection's information distance becomes the biggest, it will be duplicated in the manipulation chamber with the aim of restructuring and reconnecting. This corresponds to the Freudian concept of integration in consciousness, when the self attempts to mediate between the super-ego and the id to dissolve the tension between them.

To summarize: the Freudian basic personality structure (ego-id-superego) perfectly corresponds with our model, whereby we take mind contents and ideas as schemata and the ego as the manipulation chamber.

I should draw attention to another similarity with the two key concepts used in our model, namely, some dynamic psychology concepts with self-narrowing and self-expansion. In Freud's work on the term libido we can partly recognize the motivation for expanding the self, while the notion of death-instinct corresponds to the drive for a pleasure that a sufficient increase in arousal creates when going through a small self-narrowing. Naturally, Freud could not use the same schemata-based concepts for defining these terms as we do. Traces of the two concepts can also be identified in Lipót Szondi's (Leopold Szondi's) theory, namely, ego-systole and ego-diastole. However, no matter how similar the two concepts may seem, they are nevertheless used in an entirely different context in connection with pathology and the Szondi Test.

If we manage to describe the human psyche without instincts, and purely through cognitive concepts, do instincts exist at all? I must stress that our approach is not a purely cognitive theory, to the extent that it provides explanations only for the phenomena related to thinking. The endeavor to increase the indicator introduces an explicitly motivation-based aspect in the approach; from that point on it coincides with an approach presuming dynamic systems, such as psychoanalysis. Therefore, instead of instincts underlying impulses providing the source of dynamics, it operates with terms of connections and, consequently, the endeavor to improve adaptation. This implies that in the way we consider certain instincts as determined in their existence, due to the existence of biological faculties in our model, we take the existence of given schemata for granted.

In Freud's theory, instincts attempt to enter the conscious realm as if they were tiny creatures with their own will, or at least having their own energy. In our model, due to the random connection of existing schemata, some schemata will connect well, while others will do badly at connecting. Consequently, the act of suspension is what drives the individual, just like the energy provided by instinct in Freud's model. The individual attempts to reduce suspensions, or, in Freud's theory, to get rid of energy. This is the same thing, except that it is described visually with an opposite pole. When, by finding the right connection, suspension is eliminated, the same thing happens as when an instinct is satisfied. As tension between super-ego and id impulses damages the individual – causes mental disorders – so suspension also damages the individual, since it engenders a decrease in adaptivity i.e. the indicator decreases. As with the integration of schemata, the fulfillment of

an instinct is a self expanding, positive experience, although our approach prefers to highlight how this relates to increasing adaptability, and sharing this with other members of the entities. On the contrary, Freud conceives this as a necessary bad, which, however, benefits mental well-being. Therefore, the answer to the question raised earlier, of whether instincts exist or not, is that we are able to notice instincts if we view the world through Freud's eyes, notwithstanding that in our view they are a sub-cluster of a much more layered type of phenomenon.

## Functions of a higher order

Having examined the grounds of our theory in detail, let us assess which theories it connects to. I have so far focused on the schemata level, by discussing in detail what takes place at this level in the case of general psychological phenomena, such as perception.

### Seligman

Before examining the various phases of the life cycle, let us consider the theory of learned helplessness in the light of the above, since we are assessing a phenomenon with well-grounded neurological parameters (for example, Dwivedi et al, 2005, or Maier and Watkins, 2005) i.e. a robust theory. The key component of the experiment establishing a paradigm (Seligman and Maier, 1967 and Thornton and Jacobs, 1971) was that if people have no influence over when they are rewarded or penalized, they become more depressed in the case of failures than those people capable of influencing their own lives. As the term suggests, this is an approach rooted in behaviorist theory. In this context, by thinking in terms of S-R (stimulus-response) reactions, Seligman believes that people can be taught to experience themselves as either competent, or incompetent, entities. Therefore, the answer to the – seemingly slight – theoretical question, namely, whether one fathoms their own destiny or not, is yes. That is the outcome of the same type of learning process – which usually takes place during childhood – as tying a knot.

This experimental result is in tune with what our model posits. Moreover, underlying arguments also perfectly comply with what our model suggests. However, we can see matters slightly clearer with the help of the concepts introduced so far, and may perhaps be able to provide an alternative explanation for the phenomenon.

What actually takes place according to our concept? In the case of those individuals who were capable of influencing the act of reward/penalty, the output of the schema representing this influence fitted well to the consequential pattern. Disregarding whether the person was actually penalized, this improved the adaptability of the person and created a new operation. It increased the indicator, and expanded the self (which worked out which strategy would improve their situation and therefore experienced self-expansion). In contrast to this, when the person was rewarded or penalized on a random basis, due to the random nature of this act, the

information distance between the output of the schema of the strategy and the consequential pattern engendered suspension. A new operation could not be created. Even the use of schemata storing solutions adopted earlier were suspended i.e. people experienced self-narrowing and were forced to deem a part of their self useless.

Consequently, the smaller self naturally made them feel less competent, which led to the adoption of an avoidance strategy in a new situation. That is, by avoiding risks, they attempted to create a situation in which they would not have had to use schemata that otherwise exist, but are in a state of suspension.

Our model may have been even closer to Seligman's theory if he had explained suspension – by using behaviorist terminology – through the inhibition of schemata, instead of explaining it as learning a new attitude towards the world.

### **Csikszentmihályi**

Previously, I discussed the phenomenon of flow. It is no coincidence that it resembles the concept introduced by Csikszentmihályi (1990). To assess the similarities of the two concepts in further detail, let us examine what conditions are needed for flow to take place according to Csikszentmihályi, and how these relate to what has been proposed in connection with the following scenarios:

Condition (C): Explicit goals in harmony with the capability of the person. Reaction (R): the sub-schemata constituting the main structural components of schemata of a higher order need to be in place, or need to appear with other schemata that provide 'raw material' for the sequence of schema connections taking place in the manipulation chamber.

C: Strong focus on consciousness. R: this is in line with our concept, since operations are taking place in the chamber throughout the entire process.

C: Awareness of self-consciousness ceases. R: the two concepts are not entirely identical in this case, since, in our view, all integrated schemata created in the chamber connect to the schema of the self.

C: Distorted perception of time. R: perception of time also implies creating a connection; for example, a glance at your watch, reflecting on the inner clock. This does not take place inside the chamber, because the question of time does not represent sufficient information distance to enable it to enter the chamber.

C: Prompt reaction to signals arising during the course of the given activity. R: the key component of the scenario is that integration is permanently taking place, which eliminates suspensions (feeding off either external or internal sources).

C: Balance between the person's abilities and the difficulty of the task (the task is neither too simple, nor too hard). R: If there is no balance, either the "automatic action" scenario will take place, or we can talk about a serious, prolonged, stalled, typical problem solving context where two complex schemata are suspended.

C: Feeling of control over the situation. R: permanent integration where the indicator is kept suitably high, which provides feedback for the individual on adaptability increase and control over the environment.

C: The activity is intrinsically rewarded, which is why it is not difficult. R: indicator increase is rewarding of its own accord.

C: The person is completely absorbed in what they are doing, and focuses all their attention on this. R: Since the principle of maximum information distance is enforced, nothing else enters the chamber/consciousness besides the series of sub-schemata that need to be integrated.

## Erikson

When, instead of choosing from amongst different things, we talk about the connection of antagonistic things in regard to human life, Erik Erikson's (1950) theory, focusing on life-stage virtue, may be thought of. Erikson explicitly builds his theory on personal development of opposite poles. These opposite poles are the high-level schemata (to be connected) that evolve in various life stages, and which characterize that specific period in life.

Erikson's concept, and our definition of integration, show significant similarities. The ego – used in the Freudian sense, which, however, may correspond to our concept of self as, conceivably, the totality of schemata – is truly enriched when the two schemata that had earlier suspended connections **both** survive, and one does not overwhelm the other. So, restructuring takes place instead of competition. This is exactly how our model defines integration: by preserving the components it was composed of, a new entity is formed.

## Maslow

Readers may associate Maslow and his famous pyramid (Maslow, 1962) – aiming to demonstrate the hierarchical structure of human motivation – with matters related to health and happiness. Maslow's pyramid has been widely criticized (Wahba and Bridgewell, 1976) on several grounds: that there may be more levels than those presented in the pyramid diagram; that they should be grouped in an alternative manner; or that their sequence may not be so rigid (i.e. fulfillment of a given need is not necessarily a precondition for proceeding to the next level, as Maslow claimed). It is nevertheless worthwhile considering Maslow's basic concepts, both because his views have become widespread, and that they coincide with our intuition.

Our model considers all sorts of schemata connections that are positive in terms of increasing adaptivity. That is why every new thing – be it eating a delicious meal (level of physical needs) or elaborating a new theory (need-to-know and understand level) – may be equally important. This is at once true and false. It is true that every schema connection positively affects an individual. However, the extent to which this is positive may vary substantially.

The indicator-increasing impact of a connection created between two schemata depends upon the number of connections of the sub-schemata that connected. This includes the number of stored connections (dissolved suspensions), which is reduced by the number of suspensions remaining. Therefore, two factors need to

be taken into account if we are to determine the extent to which something makes us happier:

- o How strong is or was our desire for something i.e. the number of suspensions that can be potentially improved. The higher the number of suspensions, the greater our attempts to restore these.
- o The coverage of the scope of what we are doing i.e. how many schemata the new connection affect, which includes sub-schema connections.

The first factor makes Maslow's pyramid sequence relative, since we do not have to focus on an absolute sequence, but on always stopping the most annoying thing at any given moment. In fact, on the basis of the principle of maximum information distance, what we claim is that everything we do is because we would like to stop any disturbance to our self. Through this approach, we have managed to find the common grounds of an action performed to avoid being penalized and to seek reward. What remains is that, from amongst the two things with common grounds, we will first engage in whatever best expands our self.

The consequence of the second factor is that we are capable of determining the social value of something, and reasoning that those activities better appreciated socially cause greater happiness, even if this is often at the expense of a greater degree of discomfort or difficulty. Such socially appreciated activities are typically more complex, and are composed of a higher number of sub-schemata. The more sub-schemata two connecting schemata contain, the higher the chances are for creating schemata capable of increasing the adaptivity of others. More specifically, adaptivity increase achieved through schemata sharing is seen in that, each time we form a new schema, this is coupled by an imperative to share. By creating schemata that also interest others (preferably the highest possible number of individuals in the group, who connect to the new schema to increase their adaptivity) the effect generated by our schema multiplies. Through this, we become capable of exponentially increasing our indicator as the schema spreads.

This implies that connecting the highest possible number of schemata is not the only priority. The quality (new properties, modeling accuracy) of the newly created schema also plays a key role in dissemination.

To return to 'the eating vs. creating a theory' example mentioned previously: eating food, which is a simple task, will dissolve fewer suspensions in the individual. For this reason, the indicator will not increase as substantially as when someone is creating a scientific theory in which numerous complex schemata participate. Moreover, the suspension of schemata linked to hunger will rarely comply with the principle of maximum information distance in the context of other suspensions; it will only be discussed infrequently, as it does not bring a great deal of new information. Therefore, its spread to the schemata systems of other individuals is highly limited, which is why indicator increase will soon cease. However, the schemata of a scientific theory create many new connections, and are capable of dissolving many suspensions. That is why it is also capable of creating new connections in the schemata system of several individuals, which in turn increases their indicator. This feedback on the increase in group members' adaptivity then

generates new connections in the schemata system of the ‘creating’ individual. This further increases the indicator (with a continuous multiplying effect) as long as there are new group members with whom the schema can be shared.

In summary, we can state that the impact of a new schema is equally determined by two criteria: the number of group members whose adaptivity was affected; and the number of schemata within a person that the new schema could connect with. The closer we are to the top of Maslow’s pyramid, the greater the number of actions creating such connections.

### **András Angyal**

65 years ago, András Angyal instinctively recognized the problem inherent in the image of the person, which was split into various scientific branches of psychology at that time. By reacting to this, Angyal attempted to establish the basis of a holistic psychological approach building on system theory, which conceptualizes the person as a whole, rather than in terms of partial processes. This is similar to our model. This concept, which he first published in his book ‘Foundations for a Science of Personality’ (1941) was, in retrospect, doomed to failure. The then underdeveloped state of system theory, and the lack of elaboration of the concept of cognitive schemata, made it impossible to provide detailed explanations for certain human phenomena. Regardless of this, in relation to the knowledge available at the time, his intuitions proved to be extraordinary. They have stood the test of time, even if we have managed to reduce the two central concepts of his approach to a more general principle.

Angyal viewed the person as a system with two types of motivation in the context of its environment; namely, autonomy and homonomy. Motivation underlying autonomy – as the motivation of the system to develop its ability through which it can control its environment – was already known at the time. Homonomy, as opposed to detachment, is the drive underlying fusion with the environment.

The same trends are very evident in the terminology we use, according to which the individual attempts to create functional connections with his or her environment. Angyal’s notion of heterogeneous environment (Angyal, 1941) corresponds with connections riddled with suspensions, and which are therefore avoided.

Angyal explains the concept of aspiration from an alternative, process-based – not static – comparative perspective. According to this, aspirations geared towards autonomy correspond with the production of schemata through which the environment – with the help of its increasingly better quality models – can be increasingly controlled. Aspiration geared towards homonomy increases the modeling efficiency of schemata by connecting existing schemata, while concurrently creating an increasingly holistic image of the surrounding physical world.

In relation to Angyal’s approach, the new consideration we add is that two antagonistic complimentary processes (aspirations towards both autonomy and homonomy) can be integrated by reducing these to a third principle (the drive to connect). This is most interesting in the way Angyal also used the concept of con-

nection. He used the concept of 'love' to explain the relationship between two systems (people) when discussing the concepts of self-surrender and self-determination (Angyal, 1951). However, in contrast to our model, and in line with his own concept of aspiration geared towards autonomy or homonomy, he treats the two notions as opposites, as two aspirations that determine human behavior, which must be in balance to avoid neurosis.

Both components of the self-surrender/self-determination dichotomy concern our relation to the environment. There is an inherent antagonism in the way Angyal combines two complexity levels. We are able to pinpoint his attempt to draw a comparison between corporeal sub-systems; for example, the nervous system and the vascular system. This is not surprising, as Angyal was a doctor. However, what is surprising is when he talks about this love of two systems as self-surrender, the outcome of aspiration geared towards homonomy. He then fails to realize that these sub-systems are integrated into a system of a higher order (a more complex system), such as the body. Angyal emphasized that self-determination – which he defines as detachment from the outside world and which, in our model, corresponds with the increasingly good quality modeling of the physical world, or proactive adaptation – is the opposite of self-surrender. This refers to the drive to assimilate into the environment, to become a part of a greater whole. Indeed, during the course of self-surrender, connection takes place at one higher level, upon which process the individual reflects with the help of his schemata.

To make this even clearer through an example, we need to clarify the notion of love in the following context. A person tries to be different to everyone else (self-determination) and then surrenders him- or herself (self-surrender) when the person finds a spouse. Both people are then able to become a part of a greater whole (couple). According to our model, this is nothing other than the attempt made by the person to adapt, with the aim of perfecting their schemata system. Then, at a completely different observation level – say society or the family – we see that this person, as a system, connected to another person (also a system) and created a new main system, namely, the couple.

This process only becomes evident at a higher level of observation. At that level the person becomes capable of mapping – with the help of self-reflection – through which process indicator increase also takes place. Angyal is adamant about the way neither of these two processes are impaired. The two processes need to be in balance, whilst in our view these two processes complement one another. Namely, both processes individually increase the indicator, and their impacts accumulate. Consequently, rather than keeping the two processes in balance at the same level, the maximum effect can be reached by maximizing them. It is important to stress that in relation to the example, our model provides a much more general explanation for phenomena in the context of which the person is capable of connecting to groups which can be considered as systems, such as ideologies, sciences, enterprises, etc., by applying a similar process description.

## Further chapters

Having presented the theoretical frameworks, I will now present a short summary to reduce what I have so far proposed to a few basic concepts, and reconceptualize these in a model dubbed FIPP (Fodormik's Integrated Paradigm for Psychology). We will then be able to continue the discussion within this more compact conceptual framework. This also enables us to examine themes and general phenomena; for example, religion, or aggression. The relevance of what I have so far espoused can then be observed, as can the possible benefits its use could achieve.

### 3. INTRODUCTION TO THE MAIN CONCEPT (FIPP)

Defining the FIPP's basic terms: Self, Environment and cognitive schemata. \* The FIPP-pattern: Self-narrowing and Self-expansion. \* Converting Self-narrowing into Self-expansion with a new cognitive schema. \* Spreading the word of that new schema. \* Self-confidence \* The competitive evolutionary edge of happiness.

In this introduction, I present an overview of the model used throughout this book. The model examines what roles happiness or communication play in the humans' ability to adapt. An alternative approach to this question is: from an evolutionary perspective, what created the various states of mind, and why do we communicate with others at all? This seemingly too abstract, philosophical question is closely related to the concept that relates most to human existence, namely, the self. By clarifying the motivation underlying these basic human characteristics, I believe that I can provide an explanation for various types of behavior, reactions, and social phenomena.

The following section discusses these issues in plain language. Unlike the remainder of this book, the footnotes to this section are recommended for readers who wish to connect the present section with the theoretical approaches underpinning the model presented. Throughout the rest of this book, footnotes have been provided, with everyday examples of various phenomena.

#### Principal concepts

The main model – Fodormik's Integrated Paradigm for Psychology or FIPP – operates with three known psychological concepts: Self, Environment and cognitive schemata. We redefine them as follows (henceforth the redefined concepts of Self and Environment are indicated with capitals):

- o The **Self** is the essence of a person that perceives the Environment.
- o **Environment** is what the Self focuses on. As a part of the Environment, social Environment refers to that group of people which is important for the Self.
- o **Cognitive schemata** are the basic elements of thought. By structurally modeling the outside world they assist in the perception of the Environment for the Self (similar to a translation of the physical world to mental elements). For example, these are the ideas, concepts, shapes, categories, and technologies. The formation of a new schema creates a new model of the Environment; using that new model, the Self is able to structure and perceive, control and react to its Environment.

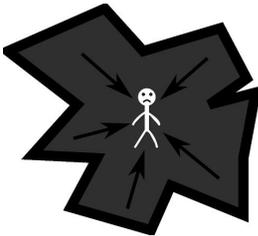
The Self and its cognitive schemata are only partly comprehensible to others. Getting to know completely another person's cognitive schemata is impossible, even those of people using well-defined, similar schemata. The Environment is completely subjective, and accessible only to the Self that developed and uses it. It is partly free from physical reality, since it was created by the Self.

Note: The partial independence from physical reality described above does not contradict the Self trying to model, understand and adapt to the physical world by discovering its rules and relations with the help of cognitive schemata.

The Self perceives its own size in relation to that of the Environment, and the proportion of these helps to characterize the ever changing relationship of these two entities. In addition, the relationship of the Self and the Environment is a key issue, as it shows the effectiveness of the adaptation of the Self i.e. how much it is subject to the Environment.

## The model

The model introduces two new concepts according to the possible relationships of the sizes of the Self and the Environment:



*Figure 1: Self-narrowing*



*Figure 2: Self-expansion*

- o **Self-narrowing:** when the Self perceives the Environment as becoming increasingly larger, and itself becoming increasingly defenseless. The extreme is the demolition of the Self by the Environment.
- o **Self-expansion:** when the Self manages to control the Environment, and so the Environment becomes part of the Self, enriching rather than threatening it. In this way, the Self becomes bigger than the Environment. At the extreme, we can imagine the Self exploding into the Environment and destroying itself.

These relationships are dynamic, and being subjective constructs they can scarcely be interpreted in numerical terms. The emphasis is on their relationship with each other, and on how the Self experiences its relationship with the Environment.

## The FIPP-pattern

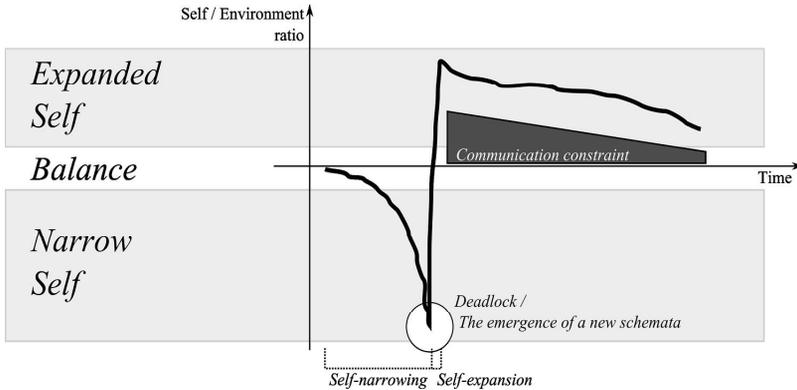


Figure 3: FIPP-pattern

With the help of the concepts of Self-narrowing and Self-expansion we can characterize human behavior in the following pattern:

the establishment of a new cognitive schema changes the course of Self-narrowing and converts it into Self-expansion.

The new cognitive schema typically emerges from the integration of two or more incongruous cognitive schemata. The integration is a process whereby the old opposing schemata disintegrate into their individual building blocks (that are also cognitive schemata). From these individual blocks, a new schema arises that contains the major characteristics of the two previous - opposing - schemata. The new schemata is superior to the previous two.

### Supplement to the pattern: the imperative of communication

Following the establishment of the new cognitive schema, the Self expands only for a short time, as long as the Self does not hand on the new schema to its social Environment i.e. it is retained for itself. If the Self begins to spread the new cognitive schema, the Self continues to expand. During the process of expansion, energy is generated, which is used in disseminating the new cognitive schema.

## What is self-confidence?

The notion of Self cannot be avoided in psychology: it surfaces in psychoanalysis, cognitive sciences, and social psychology. It is nevertheless less widely used in an everyday sense. Instead, people tend to use a similar notion, namely, self-confidence. Moreover, self-confidence is a key concept in today's success-driven society, which, for many people, is a precondition for good performance or a happy life. This is no mere coincidence. Self-confidence is none other than the relative size of the Self.

What do I mean by this? Probably everyone knows, or has met, a person who has far more self-confidence than the average person. In some, we may feel that the person is rightly proud of themselves. In others, however, there may be no real reason for this. Perhaps the most interesting phenomenon is when self-confidence changes: a reticent person suddenly becomes verbose and overtly self-confident, or someone who has always stood up for themselves becomes anxious and uncertain.

A consequence that can be deduced in the latter case is of self-confidence not being a permanent property, such as height, but changeable. If we observe ourselves, we can notice changes in our self-confidence within a single day. Therefore, does our Self, using the size of which we have defined self-confidence, undergo change?

To answer this question, we need firstly to understand what the Self is composed of. There are many definitions of Self in psychological literature. I recommend adhering to a simple definition, namely<sup>45</sup>: let us take the Self as a camera, through the viewfinder of which it is possible to perceive events taking place in the outside world, and which is capable of inducing changes in the surrounding world. What the camera 'sees' at a given moment is what we will call "Environment". The camera, the Self, decides how to react to the basis of incoming information, for which it is equipped with devices capable of processing this incoming information. These devices are what we call cognitive schemata<sup>46</sup>, which term refers to the way thinking (cognition) is comprised of units.<sup>47</sup> These schemata build on one another (as we will see later) to form, amongst other things, categories or words and sentences.<sup>48</sup>

How does self-confidence relate to what the camera sees? Everything is fine if we are simply admiring through a camera's viewfinder a calm, grassy plain. However, if we notice a lion in the distance, we become less confident, and may lose our self-confidence when the camera focuses on the lion and we see that the animal has noticed us. Therefore, the wider and more detailed we see the Environ-

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<sup>45</sup> in line with James's and Allport's ego concept referred to in the previous chapter

<sup>46</sup> definitions of the terms marked \* also appear in the glossary

<sup>47</sup> in this case, the camera is analogous with the visual system, which regularly receives inputs from the outside world (the Environment), performing operations on these, with the help of its sub-systems (cognitive schemata), to generate outputs

<sup>48</sup> cognitive schemata are systems comprised of sub-systems, which are also cognitive schemata

ment, the less we will be aware of the camera i.e. our Self. This Self-Environment relationship is, in general terms, labeled self-confidence.<sup>49</sup>

The way we feel is what truly counts: is it the Environment that is controlling us, or do we control the Environment? If we experience that our Self is big, the reason for this is that we feel, at least in the given situation, that we can achieve anything. If we feel tiny, we feel helpless; that the Environment may destroy us at any given moment, or at least cause serious damage.

What have cognitive schemata to do with this? How large we experience our Environment depends upon whether we have any schemata with the help of which we are able to control the Environment. A schema generally implies an understanding of something i.e. having a certain sort of knowledge. It attempts to map the structure and logic of the Environment to a degree that not only enables us to understand how the Environment functions, but effectively influence the way it functions through this knowledge. This creates a feeling of power i.e. it makes us feel self-confident.<sup>50</sup>

We have reached the point of explaining happiness, since self-confidence and the feeling of power is also a positive emotion; it makes us feel happy and joyful.

## What is the competitive evolutionary edge of happiness?

We have seen that happiness appears if we manage to gain control over the parts of the Environment that are important to us. But why do we need to feel anything at all? If we were not to feel anything when we control the Environment (the sensation of Self-expansion, or happiness in the general sense), nor when we are subject to the whims of the Environment (the sensation of Self-narrowing or anxiety), we would simply not do anything at all. We would not move, and would be under-motivated. Without movement, reaction and adaptation, we would quickly be destroyed; say, as if a lion approaches, and we take no notice of it. There is nothing wrong with this on its own accord; nature would still work perfectly without our adaptation. However, the way evolution works is that anyone who fails to adapt will, generally, not multiply either; this species, therefore, sooner or later become extinct. Therefore, the fact that we are living here and now demonstrates that human beings are a species whose ancestors were equipped with a certain property. Namely, a feedback circle that tells us both that it is worthwhile adapting and that it is hazardous to be at the mercy of the Environment. Today, there are no descendants of those who were not equipped with this.

What exactly is this adaptation that is capable of expanding the Self to such an extent? Cognitive schemata function like models: they grasp certain main aspects of what we experience as the Environment. Some schemata manage to do this

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<sup>49</sup> I use the concept of self-esteem to present the indicator concept discussed in the previous chapter, which serves as a basis for defining the degree of adaptation

<sup>50</sup> cognitive schemata, per definition, can equally be conceived as models of the outside world and operations. By connecting to one another, these operations shape the outputs of the person, as a system

well, whilst others do not. Schemata that fail to adequately grasp the key components of the Environment will, sooner or later, end up in contradiction either with a given property of the Environment or of another schema. To take a different approach: the way we know that our schemata are dysfunctional is that they sometimes generate the same response, whilst in other cases they generate a different response to the same Environment as another of our schemata. Whenever we experience our schemata as dysfunctional, we set these schemata aside (in other words, suspend their use) and put all our energy into fathoming this schema so as to make it a well-functioning one.

How, then, can we turn a dysfunctional schema into one that functions well? A watch repairer takes apart a watch that does not work properly, replaces the broken part, and then puts it back together (rebuilds it). So we too take our schemata to pieces (which, as we know, is also composed of schemata) and then put it back together in a different way, to see whether it will produce more adequate or appropriate responses like this. If it does not, we disassemble it again – and again – until it begins to generate responses adjusted to our needs. If two schemata are antagonistic, we need to disassemble both schemata and attempt to create a common schema that dissolves this antagonism (schemata integration); this common schema will be equipped with the same knowledge as that of the two separate schemata.

Since we take the Self as the totality of our schemata, whenever we excise a given schema or a group of schemata because we feel they are faulty, the size of the Self shrinks. This is like a clock that haphazardly stops from time to time. When it is taken to be repaired, we miss the clock even if it functioned properly only occasionally. This demonstrates that, in many cases, a lot of things need to go wrong before things get better (we have to do without the clock while it is away for repair). Another example that shows a temporary decrease in performance while restructuring something: in order to make our room more comfortable, we need first to disorder it by moving the furniture. This may make it difficult even to find a place to sit, apart from the temporary inability to use the room.<sup>51</sup>

A newly-repaired schema generally connects better to other schemata than does its predecessor. This implies that the size of our Self has also increased (in absolute value) in relation to the beginning of the process, although it may have reached its nadir midway through. This point (or deadlock, to use a different term) is when all of the schemata required to put a well-functioning schema together have already been disassembled, and for this reason our Self is at its smallest size during the course of this process (cf. figure representing the FIPP-pattern).

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<sup>51</sup> I have specifically focused on the so-called FIPP pattern scenario here, and disregarded the “miracle” and “fireworks” scenarios

## Why do we communicate?

There are reasons as to why people communicate, such as the need to cooperate. Knowledge transfer is another relevant function.<sup>52</sup> When we imagine a happy person, we rarely imagine them as sitting quietly and on their own. Communication is an integral part of happiness, or, as will be seen later, happiness always accompanies an imperative to communicate<sup>53</sup>, and an attraction to companions.

I will again propose arguments similar to those in connection with the competitive evolutionary edge of happiness. Thousands of years ago, there may have been people that might have realized ‘something’ and felt happy; however, they did not share this knowledge, or anything else, with others. Perhaps another group of people soon defeated this group, simply due they shared their knowledge, which led to the proliferation of immediate knowledge sharing. In this ‘winning’ group, individuals did not have to discover everything on their own, which is why their group knowledge accumulated. Therefore, the descendants of people that kept ideas to themselves died out, as did those unmotivated to adapt.

A new schema also requires communication from another aspect. An individual begins to use this schema when completely convinced that the schema does function well. When a person takes a clock home from the repair shop, they will check it from time to time to see whether it is still ticking, or by comparing the time it shows with that of other clocks. Similarly, alone, an individual is limited in his ability to test his new (or newly restructured) schema. Rather, it is also necessary to use schemata in the minds of other people. The given individual is unable to confidently use their new schema until they know that it functions well. Consequently, the individual continues the control process by exchanging schemata; which we call communication.<sup>54</sup> Schemata exchanges can be performed using different channels: verbally (through discussions, arguments), or in writing (writing letters, publishing, writing a blog).

To summarize:

- o The Self is the totality of schemata
- o Cognitive schemata convert information from the Environment into action
- o The quality of cognitive schemata determines whether the Environment or the Self is bigger
- o If the Environment is bigger, we experience Self-narrowing
- o If the Self is bigger, we experience Self-expansion
- o Control over the Environment may be realized with the help of a new schema

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<sup>52</sup> as demonstrated in the previous chapter, the ultimate goal of communication relates to increasing the number of connections. Cooperation and knowledge sharing are simply sub-cases of this ultimate goal.

<sup>53</sup> testing is an automatic procedure, which requires communication

<sup>54</sup> in fact, the testing procedure seemingly only differs in terms of whether the information moves beyond the physical boundaries of a given system. The underlying formation principle is identical in both cases

- o In most cases, several schemata need to fall to pieces for a new schema to be created; the various parts connect to form a new schema
- o The new, well-functioning schema engenders Self-expansion
- o The new schema needs to be tested; it has to be connected to other schemata
- o Once schemata inside the individual has been compared (tested), it then needs to be compared with the schemata of other persons
- o Schemata testing with others engenders the need to communicate, and ensures the dissemination of new knowledge
- o Self-confidence is the popular term used for the size of the Self
- o The feeling of happiness – similar to the feeling of being penalized, or anxiety – is required to motivate (penalize, reward) a person to adapt.

Principal points covered in this chapter:

- introducing the elements FIPP uses
- changing Self-narrowing into Self-expansion via new cognitive schema
- broadcasting that schema

## 4. ARTS AND THE COMMUNICATION OF COGNITIVE SCHEMATA

Communicating cognitive schemata through art. \* Comparing FIPP and Berlyne's inverted U-shaped model. \* Cultural embedding. \* Differences between kitsch, art and "art". \* Detective thrillers, thrilling horrors and horrid horrors. \* The artist as a communicator. \* What are fashions, and examples of good teachers, speakers, and illustration? \* Beauty defined.

### The psychology of Art and Berlyne's model

Why is art psychology the first example mentioned in a book about FIPP? Because the whole of that model is rooted in art psychology.

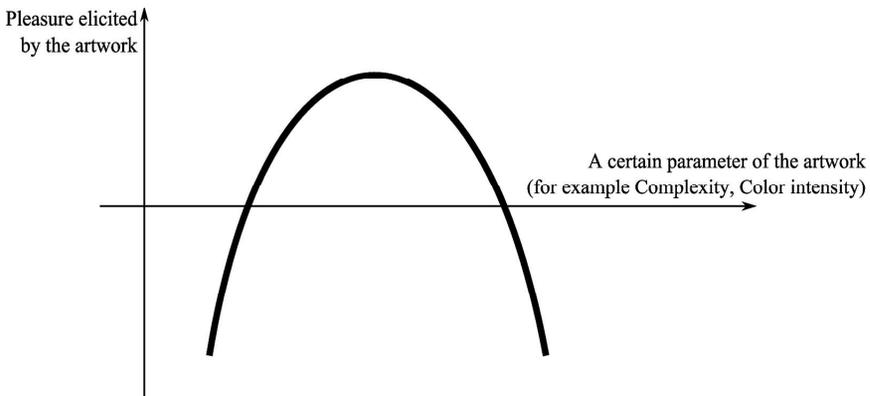


Figure 4: - Berlyne's inverted U-shape

### Introducing Berlyne's inverted U-shaped model

An important phase in the evolution of art psychology began when D. E. Berlyne (1960, 1971), examined the visual arts, and identified an inverted U-shaped curve that explained the connection between certain parameters of an artwork and the pleasure it provides; see illustration.

In brief, that connection is of a certain parameter – for example, complexity, the number of colors, or density – that elicits an increasing pleasure. Measuring this from zero, that pleasure seems to reach an optimal, positive point, after which it begins to have a negative effect, which can then become disturbing to the observer

of the artwork.

The advantage of the Berlyne model is its elegance. However, the model has little or nothing to do with real art. Examining the arts from a practical, measurable viewpoint is a childish simplification, as the basis of art is strongly connected to the period(s) and culture within which it was created. Let us call this cultural embedding. The Berlyne model does not consider these connections.

The elegance of the Berlyne-curve model describing the pleasure effect, despite its disadvantages, seemed to offer an implicit foundation, which I shall later justify and prove.

### **Can we improve Berlyne?**

The key issue is not to examine the intensity of a parameter, but to observe the distance between the cognitive schemata of the artist and the observer. For example, in the case of a photograph of an apple, the photographer who sees the apple illustrates it the way we see it in two dimensions. In this case, we do not have to work too hard to understand the uniformity of the two schemata, as the distance is practically zero. However, if we look at an apple drawn or painted by Picasso, we need to make a serious intellectual effort to 'see' the apple, or to 'see' the apple the way Picasso saw it. Those who give up before seeing the apple loathe, or at least dislike, Picasso, saying that he only scribbles. They appear to give up before a new cognitive schema has been created. Catharsis did not happen, and they did not achieve a Self-expanded state. In contrast, retaining their Self-narrowing causes them to become angry. If they do not understand the picture, they would remain neutral about it.

In addition, what happens in an apple? It is not a unique experience, even if we add the effect of solving a puzzle; reconstructing Picasso's 'scribble' to a form. A further experience is obtained in that, by solving the puzzle, we have a better understanding of the apple, and the observer of a painting sees it more plastically than on a photograph. We see it almost in 3D, to the point of believing that we can smell the apple, as the apple's cognitive schema becomes increasingly activated compared with the activation effect of a photograph.

### **What happens to cultural embedding?**

Cognitive schemata themselves are culturally embedded. So, to make a "correct" conclusion on an artist's cognitive schemata – understanding the artist's message – requires knowledge of the impulses and information that affected them. For this, we need to know the age and culture in which the artist worked, or works. For example, to understand a Renaissance painting, one should have a certain knowledge of the Bible, and the visual tools that Bible stories provide. This may communicate a message pertinent to the present, so providing us with a useful cognitive schema in our 21st century life. In addition, establishing these cognitive schemata causes Self-expansion.

Comparing Berlyne's model – which somewhat charmingly ignores the question

of cultural embedding – with FIPP, we see that FIPP can explain not only classic visual arts but also any works of art or creation. For example, it explains the fun of tasting wine, when after some trials we can recognize the taste of spices and fruits within it. Or in reading a poem, when the unstructured cognitive schemata of the poet enter the reader's mind and establish new connections and schemata. Or in admiring a building, which connects the schema of the building to value or values it suggests, so establishing a new one; for example, the Eiffel Tower as a flexible, elegant, light but ambitious structure representing the French spirit.

## Understanding the differences between kitsch and art, and high art and popular art

Using FIPP as a generalized Berlyne model, we can understand the difference between kitsch (worthless, or pretentious art) and 'high' art. The principal question with high art is that it is more difficult to understand. In contrast, as kitsch, and popular art, do not need intellectual effort to take them in, we realize that our efforts with higher art obtain a benefit. We can see that solving the mystery in an artwork – for example, where is the apple in the cubist 'scribble'? – is not an effort to see *l'art pour l'art*,<sup>55</sup> but enriches us by establishing new cognitive schemata. If we see a half-eaten apple after viewing Picasso's apple, we might perceive new associations with it. Whereas with kitsch, we need make no serious effort, and thus do not create cognitive schemata that can be used otherwise than in viewing a specific item of kitsch. So, kitsch does not enrich our knowledge or personalities.

However, we should understand that popular art can create new cognitive schemata. The difference between popular and high art lies in that level created by the new cognitive schemata. In the case of a comic, the new schema is created at a very basic level, usable almost only in the context where it was created. Whereas in a Bergman film, we might establish new cognitive schemata connecting with our whole life, being the highest level of cognitive schemata.

Identifying these differences between levels of our human life raises a question. On what levels do different types of art elicit their effects? For example, pornography and horror are said to gratify one's basic instincts. Detective stories are deemed interesting because of their ability to excite. These artistic forms continue to be increasingly popular, as they satisfy specific demands. But how do they satisfy those demands?

To date, most of our knowledge is a hypothesis on a particular genre satisfying particular demands. This has resulted in a process whereby we classify genres considering the general human or ethical value<sup>56</sup> of the demand they satisfy. Pornography and horror could be on the lowest level, followed by detective fiction, and on up to high art. However, even critics admit that true genius can place superior

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<sup>55</sup> art for art's sake

<sup>56</sup> sex, eating, physical needs on the lowest levels; altruism, social work, self-realization on the highest level; compare with the Maslow pyramid

messages – those that are of more use in one's life than simple, targeted messages – in some of the genres classified as inferior. Edgar Allan Poe's detective stories provide such an example.

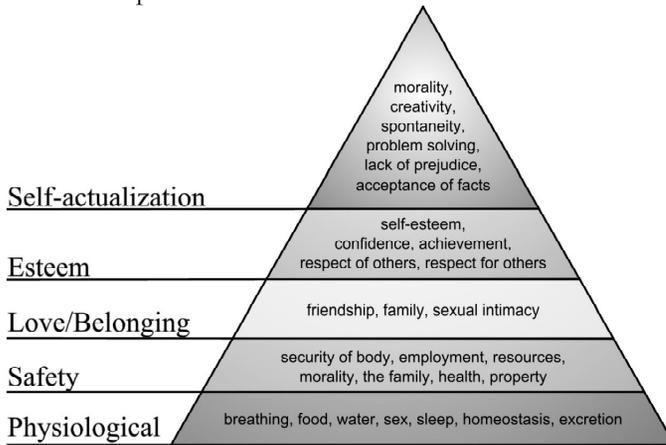


Figure 5: Maslow's pyramid and social values

Do these lower level arts cause an effect just by simply satisfying inferior desires? Even persons of high artistic repute might listen to rave music, read comics, watch cartoons. In the following, we try to determine the mechanism behind the effect of different art.

## Detective stories

A typical detective story contains the following elements:

- o the description of the crime (or what can be found at the scene of the crime)
- o an investigator, who often reconstructs the crime and identifies the suspect via a clean, logical thought process, paying attention to details that a reader may have thought irrelevant
- o the enigma is solved, the guilty are arrested...

Let us translate these using FIPP terms:

- o the Environment is the crime. To begin with a big Environment, the crime is related to aggression that automatically increases the Environment's size compared to the Self; it is rare that a detective story is concerned with "who was it who saved somebody's life?" When we accept the story's framework – perhaps it occurs during the last century, or in an upper-class environment etc. – then our Environment is identical to the detective story;
- o from acceptance of the story's framework, the Environment begins to increase and narrow the Self. This process is described in everyday life as excitement;
- o the increase of the Environment is undertaken as we follow the detective's investigations;
- o the Environment reaches its maximum when we are close to giving up in

- attempting to solve the crime;
- o then, by receiving required pieces of information, we can create (reconstruct) the cognitive schema of the crime. If this is not possible, we then listen to the detective who reconstructs the crime;
- o when the new cognitive schema was created, the Self regains control on the Environment – by retrospectively understanding how the information we had about the crime connects to each other – and this leads to Self-expansion;
- o this Self-expansion, in itself, is a joyful state that compensates us for the effort spent during the Self-narrowing, perhaps when reading the book or watching the film. A further question arises: is this new cognitive schema usable for anything else? Perhaps one does not have to read a book in order to learn the techniques of committing a crime;
- o there is a slight difference between solving the crime by ourselves or needing the detective to provide the solution. Solving it by ourselves creates a new cognitive schema, which leads to greater Self-expansion. In the second case it is the Self of the detective which is greatly expanded, and we are the first listener with whom he/she shares his/her new schema. The latter also creates a new schema in us, but the effect is usually smaller;
- o an important point is that the more complex (but still understandable) the crime, so more logical steps are needed to understand or solve it, and so the greater Self-narrowing we tolerate, for which the reward is greater Self-expansion; however
- o I have never read a detective story describing the Self-expansion of the detective...

It may be seen, from a psychological viewpoint, that this process has many similarities with problem solving.

## Horror and Anti-catharsis

### *Catharsis*

Before we attempt an explanation of the “beauty” of horror films, let us briefly familiarize ourselves with catharsis, one of the main concepts of ancient Greek aesthetics<sup>57</sup> and one parallel with the aha experience.\* According to the Greeks, it is the basis of artistic pleasure when a story, (typically a tragedy) with a negative consequence – the death of the leading character – ends on an optimistic note; the tragic event serves to show a greater good on a more general level. For example, the hero dies, but his city is saved. The Greeks describe catharsis as an overwhelmingly positive event that strengthens people's morality.

How does this work? When a film does not end happily we are sad. Self-expansion is usually described as a positive feeling. Is there a contradiction here? The contradiction can be ignored if we take into account that a new cognitive schema is created. We realize that sometimes we have to lose something to achieve

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<sup>57</sup> the appreciation and philosophy of beauty

higher goals. Naturally, we are happier when we win without effort or loss. However, that is seldom the case.

The other cognitive schema that a sad or tragic ending provides is the establishment of order amongst our personal values. When watching a drama, we feel empathy with the main character, and try to guess how we would have behaved in similar circumstances. As the main character behaves according to his or her own ethics, so we have also to reflect on our own ethics. As he chooses, say, between his child's life and saving his city, or between his reputation and his team's victory, so our priorities are made clear.<sup>58</sup>

### *Pink Flamingos and anti-catharsis*

To explain the cultural value of horror films in forming and bolstering schemata, a critique of "Pink Flamingos" might be useful. This film, which uses a technique that I term 'anti-catharsis', is concerned with making disgust limitless. Presented in a rather naturalistic manner, it seems impossible that most of an audience could watch this through to its end; I do not consider myself inhibited, but I could only watch the first third. The film centers on two mentally disturbed people competing to determine which of them can do something more disgusting than the other.

An example from the film: one of the main characters wants to have a child by kidnapping a woman, keeping her as a hostage, have a homosexual man try to rape her but, having failed, he injects his sperm into the woman with a needle. Later, they sell the child "produced" by the woman to buy drugs. Another storyline within the film is of a woman who weighs some 440lbs,<sup>59</sup> living in a mobile home in an incestuous relation with her retarded son. While shopping, she pleasures herself by walking with a raw chop between her legs.

I struggled to detach myself from the visual stimuli, while thinking of the twisted mind of the person who had written it. When I could take no more, I left the cinema. There then occurred catharsis. On the street were ordinary people I considered beautiful, and the ordinary weather seemed like the nicest day of spring.

What happened? I escaped from an extremely Self-narrowing state, compared with which even the ordinary outside world brought Self-expansion. The dead-lock\* was the moment I decided to leave. Even now, I consider the concept of the film wonderful. However, when I tried to watch it again, I could watch even less. This event made me realize that one can reach Self-expansion not only by starting and rising from the average level (by making superior cognitive schemata), but also by forcing oneself to concentrate on the most inferior cognitive schemata, and then the cognitive schemata of our everyday life. We could say that in this way

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<sup>58</sup> a colleague related that, when playing in a psychodrama, he realized that the success of – and everything to do with – his daughter, was far more important than himself. Until that moment, he would have been able to answer only theoretically that that was the situation. In the psychodrama, he also felt in his body that that was the case. That then became an axiom of his life, and so made decision-making easier as the priorities – at least concerning this topic – became clear

<sup>59</sup> ±200 kilograms

nothing changes: we do not create any new cognitive schemata. That is not true: we restructure our existing cognitive schemata on seeing the beauty in our everyday life. The different perspective on our usual life is the new cognitive schema, which enriches the way we view our ordinary lives.

A similar experience occurred when I asked Scandinavian friends why they had moved to Hungary, leaving behind what would seem to an outsider a perfect country, with a functioning, honest society, a high standard of living, and so forth. The gist of their answer was: the Hungarian weather is heaven itself to us. Yet I want to go to Hawaii and the Seychelles.... So, I learned to appreciate our weather. On the other hand, the wife of a good friend had to move to Hungary from Israel. Clad in a coat in the middle of October, she said “Back home I could walk on the beach in a bikini right now...”. In addition to my neutral opinion, the two further perspectives enriched my cognitive schema about our Hungarian weather: what can be heaven for a Swede is rather cold for an Israeli.

However, to return to horrors other than weather “Pink Flamingos” is an atypical horror film: it is not full of blood and gore, and one is not scared all of the time. But the mechanism is the same: after we are frightened (or disgusted), our Self narrows intensely, we leave the cinema or switch off the TV. When in our warm, cozy room, or while stepping out into the sunshine from the darkness of the theater, we realize that we are safe and far from these mentally disturbed people. Our relief and appreciation then cause our Self to expand.

The same occurs with very spicy food. Eating it may initially be painful and cause discomfort, but when the effect is fully released our Self begins to expand from its narrowed state.

### **Valuable detective stories, horror and pornography films?**

New cognitive schemata can be established on more than one level: an author can create new schemata close to those instincts of less intellectual people, and higher level schemata for those ready to use their intellect and learn something more.

An example of this is Shakespeare. In his time the theater was attended by people of all classes and ranks. Shakespeare was able to satisfy that range of interests and demands in the same play. For instance, Hamlet loved Ophelia (romantic feelings for ladies), it has many duels (aggression for men), but one’s own schema can be enriched with further topics: family affairs, jealousy, politics etc.

As for pornography, the value of a film such as “Emmanuelle” is that, apart from the spectacle of naked bodies and sexual intercourse, it attempts to explain the power of feminine beauty and the different roles a woman can have.

An educated person, with experience of classical arts – Shakespeare, Goethe etc. – may try to protect others from kitsch and so-called commercial arts, seeing them as being inferior to the classics. I might also do this, but for different reasons.

Let us classify the artworks under three art forms:

- o popular art: made for the masses for the purpose of generating profit for its authors (for example, action films, romantic novels, soap operas...)

- o high art: which can satisfy the demands of the well-educated, high-IQ population (for example, Bergman, Goethe, Picasso)
- o commercial art: which has some of the characteristics of high art, but with only a shallow message (for example, most Oscar winning films, such as "Titanic", "American Beauty" etc).

Popular and high art are fair deals, according to the model of cheat detection (Cosmides, 1989):

- o popular art: a small investment – one only has to look at it – one reaches virtually no profit (no teaching)
- o high art: a large investment – one must have preliminary knowledge to understand it, and, later, to consider it further – it provides a large profit and answers to major life questions
- o commercial art: promises a big profit for a small investment, yet delivers only a small profit for a large investment. This is perceived as a cheat.

According to FIPP:

- o popular art creates basic (low-level) cognitive schemata. Its pleasure lies in changing Self-narrowed and Self-expanded states quite quickly (compared with thrills, excitement)
- o high art creates high-level cognitive schemata, which can be used later for creating lower- or mid-level variants. It provides both a better understanding of the world and greater self-expansion
- o commercial art attempts to establish higher level cognitive schemata but, as it activates only low- and mid-level schemata, so it results only in low- and mid-level schemata. As the author knows that there is no new and clear high-level schema to communicate, it is like talking without a clear message; he/she cannot communicate a non-existent answer to a question. At the same time, however, it seeks to make these mid-level, rather tendentiously formed, schemata bigger than they actually are, by copying the visual world of high art. They hold out a promise of teaching more valuable high-level ideas, which they themselves may have not have, or only in an unclear form.

## **An artist is principally a communicator**

The point of all art is that a cognitive schema originally created or held by someone – usually the artist – is depicted in either aural, oral, or object form. Through its communication, that elicits a Self-expanded state in the mind of somebody else by establishing a new cognitive schema. This capability of artistic works to generate Self-expansion explains why something, apparently without a practical purpose, has existed on Earth since the first human: the earliest art seen in cave drawings, fertility sculptures etc. In addition, the first artworks provided the possibility to spread those newly-born cognitive schemata that verbal communication was unable to.

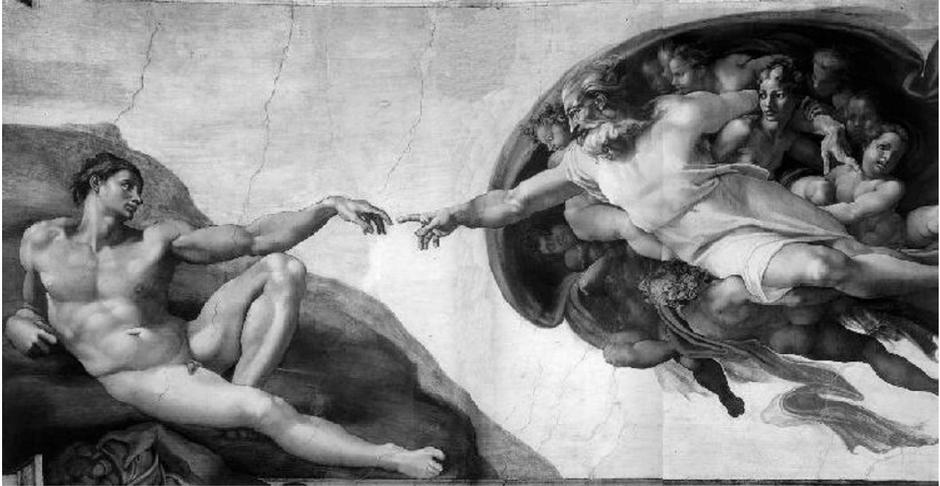


Figure 6: *The Creation of Adam* (Michelangelo, c. 1511)

To illustrate this:

According to the Bible, the first man was created by God shaping the human body from dust and then breathing a soul into his nostrils, the soul being the divine difference distinguishing objects from the living. By this process, the body of dust came alive, and the first man, Adam, was born.

To this point it is a story known by most people. If you had been there as an outsider, and could have recorded it on camera, but allowed to show only one frame of that film, which frame would you choose?

Possibly, the moment when something lifeless comes alive is the most important.

Perhaps Michelangelo was the first artist to realize that, if he compressed that universal event – on how human beings were created – into a single image, he would contrast markedly the divine, the living, with mere matter, the lifeless. Breathing – here, breathing soul into the body – cannot be rendered accurately in a still image, so Michelangelo sought a solution. Artistic freedom enables the visualization of a cognitive schema without the elements required of such a schema. So Michelangelo portrayed God breathing life into Adam by touching, a much more concise gesture.

However, where is the communication in this process? In Michelangelo's mind, two new cognitive schemata emerged to provide an intellectual solution:

- o the possibility of depicting the contrast between lifeless and living by a single image of creation; and
- o in connection with that depiction, the priority of touch before breathing.

The following cognitive schemata required to be communicated are united in one image by the artist:

- o the difference between the lifeless and the living

- o God's power to provide life
- o the state in which we did not exist, and that in which we do
- o the visualization of the process of creation

Supposedly, the image itself – as a cognitive schema – came to Michelangelo by an inductive process, as he was meditating on creation, lifeless and living matter etc. However, it is possible that Michelangelo came to this image through calculation, design, a process of trial and error, or by deduction.

I believe that it was by induction, as:

- o induction is more a characteristic of genius than is deduction
- o painters usually think in images rather than by logical exclusion

Whatever type of thinking he used, one thing is clear: a new cognitive schema was established. Regarding our model, as the new schema emerged, so Michelangelo felt the urge to communicate. He was motivated to share his new cognitive schema with others, which gave him the energy to physically create the picture.

In the process of artistic creation (physical realization), and technical ability (knowing how to paint, and how to convey one's internal pictures onto a canvas), connect with the quality of communication. So, if Michelangelo had not thought so much about it, the message obtained by observers would leave them with difficulties in interpreting and understanding the painting. Fortunately, in this instance we have a painting where not only the concept, but also its realization, is exceptional. Note in particular the solution in the structure of the picture: the hand of God barely touches Adam, so accentuating the tension.

Artists can excel in two ways:

- o those people we call virtuosi, craftsmen or, simply, professionals, can communicate their cognitive schemata intensely. We admire how well these people can touch the substance of something; compare a good photograph of an apple with Picasso's painting
- o they have unique thoughts and cognitive schemata about life that are rarely achieved by others. Sometimes, results are a consequence of the artist's different thought processes: musician think in melodies, poets in words, painters in pictures, and so forth. They can add something that makes our life more understandable, as Ingmar Bergman does in film

The reaction to an artwork is the process of incorporating the new cognitive schema. In doing so, we (the audience) establish the same connections, and thus the same cognitive schema, and then connect that to our existing cognitive schemata. Essentially, the received cognitive schema becomes part of our thinking, a part of our Self. It also must be noted that perception is not a unidirectional process. In order to find the proper place for this new schema, we have to consider the schemata around this future schema of ours. This is what we call cultural embedding: the surrounding schemata should be similar to those of the artist. Otherwise, the whole process leads to miscommunication.

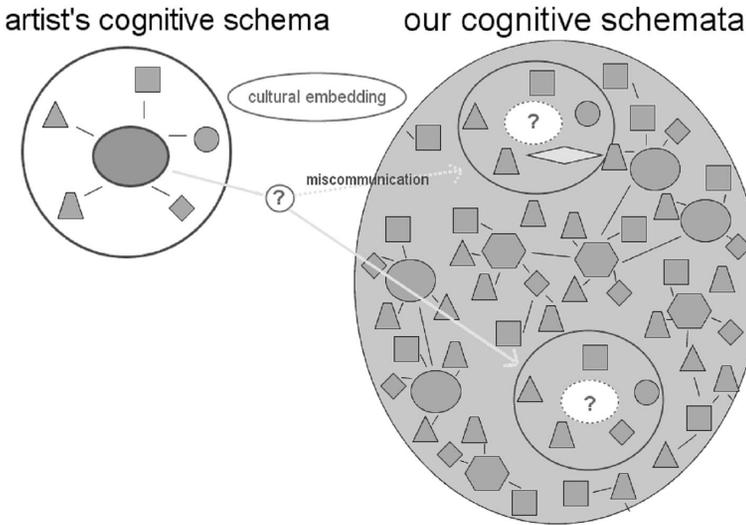


Figure 7: Whether we understand or misunderstand an artist depends also upon the correct decoding of cultural information

Therefore, with our knowledge of the Bible,<sup>60</sup> we complete the story, understand the picture, and so the new cognitive schema emerges. Those who do not know the Bible, or differ in their thoughts about the appearance of the first man,<sup>61</sup> will not understand the picture.

### What is fashion?

It should be emphasized that Self-expansion is due to a **new** cognitive schema. After this new schema becomes well-known and accepted, it may begin to bore.

In discussing the spread of new schemata, fashion will inevitably arise. This rhythmical change from a new to a boring state, or at least one that is accepted unquestioningly, provides the following rhythm of fashion:

- o a fashion appears,<sup>62</sup> with a newly-created cognitive schema behind it
- o based on that new cognitive schema more, but lower level, schemata are created via deduction<sup>63</sup>
- o when the new cognitive schemata have become known by the majority of the population, and there are then no possibilities for further deduction, the clothes or behavior based on this cognitive schema disappear, and a new schema appears and begins to spread.<sup>64</sup>

<sup>60</sup> which functions as a common communicational coding/decoding system

<sup>61</sup> for example, who believes that the first man was a monkey who could light a fire (evolutionist/atheist approach); or was born from the marriage of a jackal and the sun (in primitive cultures)?

<sup>62</sup> for example, body piercings (at least in Western civilizations)

<sup>63</sup> for example in the beginning everybody thought that armless T-shirts in black were funny, then somebody tried armless T-shirts in colors

<sup>64</sup> for example, perhaps armless T-shirts with turtle-necks

## Further examples related to the communication of cognitive schemata

### The good teacher

We know that there are good and bad teachers. Moreover, we realize that a teacher we like may be disliked by others, so that there is no absolute good teacher. How can we conceptualize a good teacher from a psychological point of view?

To discuss this topic, let us ignore a teacher's personality, and that people prefer those who are similar to them or, in certain instances, diametrically different to them (Newcomb, 1961). More effective indicators are obtained by examining the qualities of a good teacher or lecturer.

As we already have a psychological concept of what people perceive as a good feeling in general – the Self-expansion – we can say simply that a good teacher is a person who elicits Self-expansion in the audience.

But how can a teacher cause – or create – Self-expansion? He starts by narrowing our Self through presenting the problem (our Environment becomes the problem) and the weight or importance of the problem (the Environment increases in size). He or she then takes us on a journey requiring attention and intellectual effort, showing us the path to the solution. Individually, we shape the new cognitive schema that he or she wanted to teach us.

An alternative to showing us the path is to drive us, so that suddenly, as when driving on a road, we round a curve, and our whole perspective is filled with the sea. We understand the solution in an instant, and have an aha experience. This alternative method can be called the “dynamic lecture” style: the subject appears to become increasingly complex, and then suddenly everything falls into place as the new cognitive schema emerges. Everything we saw before now makes sense. Moreover, we can reach conclusions by ourselves, when we realize a general connection that can be applied both to the present problem under examination and to similar problems. The *ne plus ultra*<sup>65</sup> of a good lecture is when a high-level cognitive schema emerges which has a general influence on our world view.

But what is required for that to happen? One must choose the speed and the level of cognitive schemata carefully. By speed, I mean that the Self-narrowing phase has to be well-designed and balanced: if it is too slow (too gently sloping), it is boring; if it is too fast (too steep), most of the audience will not be able to follow it, and will give up.

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<sup>65</sup> the highest, most profound position or state able to be attained

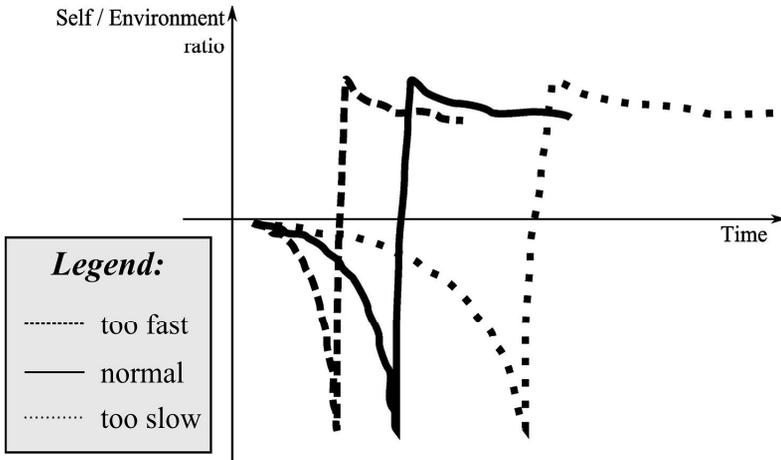


Figure 8: Different shapes of the FIPP-pattern, depending upon the speed of the lecturer

So, careful selection of the correct level of cognitive schemata is needed to ensure that the lecturer can use, can build on, the well-known, shaped concepts (cognitive schemata) familiar to the audience.

For this, the lecturer has to understand the limitations of the audience's knowledge. This requires a one-sender/many-receiver type of empathy. The lecturer can collect information on both the speed and on whether he has chosen the right level, by using the feedback from the audience. This feedback can have different forms; from buzzing, rustling, chatting, through to being rapt or completely silent. Or they are listening wide-eyed.<sup>66</sup>

The lecturer must also have reasonable targets. The lecturer has a chance to establish cognitive schemata within the audience only one or two levels higher than those they had before the lecture.<sup>67</sup> New, but too low cognitive schemata, do not elicit great Self-expansion, although occasionally it is necessary to broaden our knowledge by learning listed items without any obvious structure; for example, learning by rote the name of U.S. presidents, or the names of the states. Even then, it is of greater interest if we first realize the common idea behind the list.

There is a difference of learning a row of random numbers, perhaps those in a telephone directory, than by learning the names of different muscles of the human body (anatomy). Although the latter seems also to be random, the names have an internal logic. By learning them, a medicine student creates a cognitive schema of the physical basis of the human body.

<sup>66</sup> the phenomenon of being wide-eyed is pupil dilation, a side-effect of Self-expansion

<sup>67</sup> it is difficult to explain complex numbers using only primary school knowledge

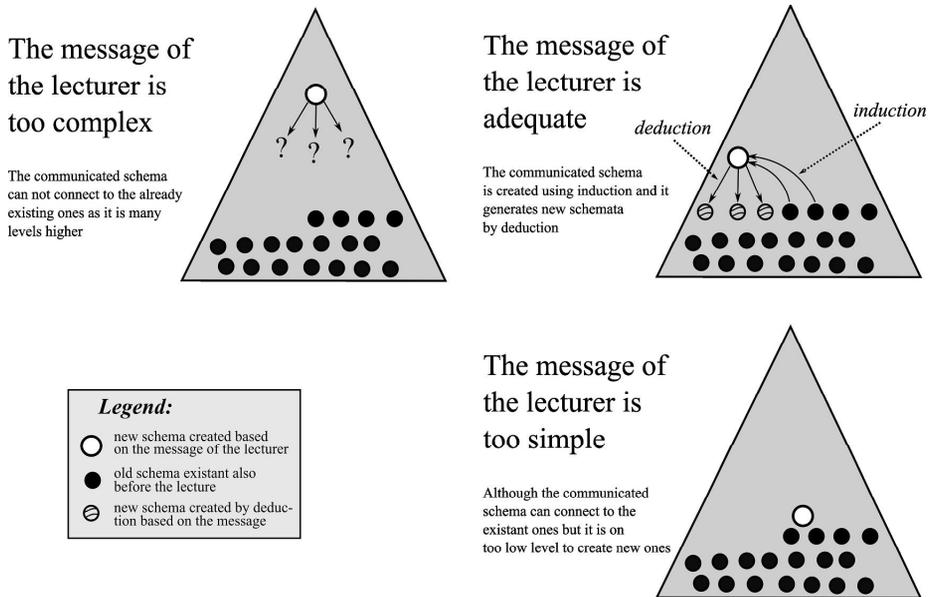


Figure 9: Different targets of the lecturer, and the effect on the audience of choosing these targets

If the Self-narrowing phase is overlong, people may give up, by physically leaving the classroom or turning their attention elsewhere. Another drawback is when an audience feels that the Self-expansion is not in balance with the former Self-narrowing.<sup>68</sup>

Occasionally, a lecturer is incapable of empathizing with the audience: their cognitive schemata are on such a different level that they cannot communicate. For example, where a university professor of mathematics explains summation to a primary school class. Even if he can do that, it is not good for either of them: whenever a teacher explains and proves a thesis, he rebuilds the cognitive schema in himself and experiences a small Self-expansion, or perhaps realizes some new aspect and so obtains greater Self-expansion. However, in the case of very low cognitive schemata, perhaps the most that the professor facing the primary school class can gain is the pleasure of imparting the methodology, the manner of his explanation, his examples, and so forth.

To return to personality...for a seasoned lecturer, choosing the proper level of cognitive schemata is mostly a conscious process. Thus, the selection of the target level may also communicate unconscious motives, for example, political views. So, those who deal impatiently with less talented students demand of the audience that it attempt to leap several levels, while understanding that only the most tal-

<sup>68</sup> for example, when after a long explanation, the lecturer sheds light on a fact that was previously known to almost everybody

ented students will follow him, so indicating an elitist focus.<sup>69</sup> Those who take the less talented into consideration, and want to help their development – notwithstanding that that will negatively affect clever students – are likely to have sympathy with socialist or social democrat philosophy in everyday life. It is logical that the former requirement – of a leap of several levels – will be favored only by the elite, and that the latter will be favored by the rest.

This position is the same when calling students to account, or for the form, or quantity, or both, of their homework. We may even consider a personality trait: how much does the teacher prefer visual tools, or how visual does he or she think? Those students who have an auditory focus will dislike lecturers who always use charts and figures.

### **The good film**

In the mid-1980s I learned that, if a director wants to avoid a film becoming boring and losing the audience's interest in watching it, then every seven minutes something new must happen; a diversion, exciting action, a new riddle, a new solution etc.

Intense attention cannot be endless in time. It will eventually weaken and turn to something else. Films that periodically give us new stimuli within this attention weakening period can be termed fast-paced; a master of this genre is Tarantino, or a better example might be the television series "24".

According to our theory, what happens in these fast-paced films is that the director changes the Self-narrowed and Self-expanded phases: the tension (Self-narrowing) and the solution (Self-expansion) change rhythmically (or at least periodically), and also new story-lines, possibilities, points of view. Anything new can be viewed as mini-paradigms\* or new mini-frameworks, which cause further Self-expansion. Raising new questions<sup>70</sup> also requires new, lower level, cognitive schemata. The partial solutions to the partial problems give us small aha experiences, but previously they also unavoidably led to Self-narrowing.

From this point of view, a dramatic advisor has the knack of mixing these elements optimally. This can only be achieved by careful planning. We can become disorganized if the elements from different sources and of different intensity are not distributed and placed well enough. We can then either become disturbed by the excess of stimuli, or become bored due to the lack of sufficient stimuli.<sup>71</sup>

To sum up, a good dramatic advisor, together with a capable director and cameraman,<sup>72</sup> can play with the size of our Selves in a manner that is good for us.

<sup>69</sup> those who were unable to follow the lecturer might never catch up with the topic

<sup>70</sup> mini-paradigms

<sup>71</sup> as an example, a murder in an action film is a typical method for Self-narrowing. But when a negative character is killed in a long fight in which the hero almost dies, that will lead to Self-expansion. Love scenes cause Self-expansion, partially through empathy; we enter into the spirit of the character, how good it must be for him, kissing, being teased. Also, generally, love means the solution of a problem within the film, which anticipates the resolution of the respective conflict

<sup>72</sup> those who guarantee the technical realization, providing the same craftsmanship described in the Michelin-

An adroit admirer does the same with girls' selves and their self-confidence, varying compliments and affecting either complete attention, or indifference and neglectful behavior. These variations force the other party to be fully engaged and so they turn towards the admirer with greater attention; the chosen person's Environment is filled with the tactical admirer. She fears that she will miss messages that could increase her confidence, and that she might remain completely ignored.

In both cases (in film and courting) the key is not to let the Self of people rest **and** to ensure that the overall process will lead to future Self-expansion. So, creators and admirers have to meet expectations on two levels:

- o inside the process, on different occasions there have to be several small Self-expansions ; and
- o the whole process has to lead to Self-expansion. For example, the film has something to tell, providing a new cognitive schema, or a brief intrigue becomes true love, which is again a new cognitive schema.<sup>73</sup>

### The good speaker

A good speech is based on similar principles. Although different in that it is less visual, far more intellectual tools can be used. The usual set-up is that someone stands on a stage and talks. They may use figures for explanations. The good speech has one or more clear messages for the audience. This message is in most cases delivered as evidence, a new cognitive schema. The greater the distance between the connected matters,<sup>74</sup> the greater the Self-expansion effect following the creation of the new schema.

There are different techniques to build up a speech. You can start with the general message, and later explain how you reached that conclusion. Another method often used by speakers is to repeat the path by which they reached the new evidence. This is similar to the Passion of Christ<sup>75</sup> being repeated by Christians each Easter. The advantage of this method is that many sub-problems, and the pleasure of solving them, can be communicated.<sup>76</sup> If the sub-problems are interesting in themselves, and if they mobilize the cognitive schemata surrounding the cognitive schema to be introduced, this may have a greater effect. This solution makes it possible for those cognitive schemata to connect more quickly with the new evidence – the new cognitive schema – as they trigger the schemata around the future schema, so causing increasing Self-expansion.

During a speech we have to pay attention to the harmonic distribution of evidence over a period, similar to the composition of a film, to retain the attention of the audience.

The function of presentation is to help the communication process by opening a

gelo example

<sup>73</sup> the cognitive schema "Us" is formed in place of the cognitive schemata "You" and "Me"

<sup>74</sup> for example, if it tries to place something in a political, social, or historical context, which is not expected

<sup>75</sup> the last hours of Jesus before he was crucified

<sup>76</sup> this supposes that the speaker does not state their cleverness in dealing with these problems in order to increase their own ego

visual channel to the audience as well as the auditory channel. As is known from the principles of Psychology 2.0, a good figure or diagram helps more in understanding than do ten pages of written material.

### **The good figure (illustration)**

If we talk about the advantages of visual communication, let us examine, with the help of the FIPP, what can be said about good diagrams. The criteria for good diagrams are well known:

- o they must be easy to understand. It should display only one or two thoughts. In other words, we can say that it is focused
- o it is clear. Even the most striking illustration is worthless if we cannot identify the parts of it<sup>77</sup>
- o and it has to be simple. In attempting to understand a diagram, congestion<sup>78</sup> intimidates us

Distinctiveness can be achieved by considering that any new cognitive schema can be built only upon those already extant. So, the greater the number of existing and widely-used cognitive schemata we build upon, the better the basis for the new cognitive schema. If we want the audience to understand our illustration, we should apply to it as few abstract concepts as possible. We cannot count on newly-understood concepts, as they have not yet subsided.<sup>79</sup> Thus, regardless of how it would accelerate the process of building a new higher-level schema based on those existing, it is not advisable to use the newly-built schema unless there is the possibility of re-reading it, from a publication, notes etc.

Using color-coding is beneficial, especially if it fits the general notation.<sup>80</sup> We can rely on the use of Self-expansion colors (vivid, warm) to be used for marking positive things, and Self-narrowing colors (dark, cold) for details indicating danger or negativity, for example, illnesses, viruses etc.

### **The definition of beauty**

Different things are ‘nice’ to different people, and so defining beauty is difficult. We can use the word “beautiful”, although we may have problems with its definition. Maybe Kant (2001) best defined it when he said: “In general, beauty is what we like without interest.” FIPP has an explanation for this phenomenon, and suggests a definition for beauty.

Let us attempt to understand why everybody does not like the same things, and why they call different things “nice”. This lies in the differences of our cognitive

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<sup>77</sup> however, a lecturer can use the technique of showing too much information early on in order to conceal the point of the lecture, and plans to return to an illustration later

<sup>78</sup> too much information density

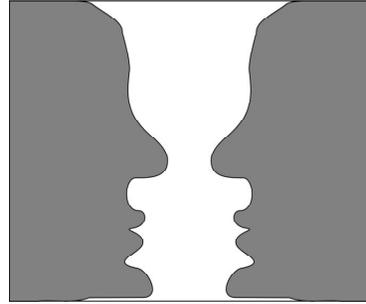
<sup>79</sup> the new cognitive schema has not made connections with those surrounding it, and so has not yet integrated with the audience's knowledge

<sup>80</sup> for example, the traffic light use of red = do not proceed, green = proceed

schemata Even if we had the same cognitive schemata, they are connected differently. For example, the word "Madonna". An atheist or agnostic will associate the name with the musician; a Catholic will associate it with the Blessed Virgin; while someone studying for an Italian language exam may associate it with the word Madame.

Similarly, it is also important to determine those cognitive schemata that are active and accessible when a person is looking at a piece of art. That is why the surroundings are so important.<sup>81</sup> All of these circumstances have a priming effect. In psychology, priming means that the perception of certain stimuli predisposes us to certain answers and mental states in an ensuing situation.

A good visual example on priming is of two persons' profiles, which from another point of view might be seen as a vase. (This may depend upon what we have seen immediately before; having viewed a cup, we see a vase, or having seen a portrait, we see two profiles.) Priming helps to maximize the effect of an artwork. This is achieved by incorporating the cognitive schema within the same schemata that the artist had when he designed the piece.



*Figure 10: Is this the stem of a vase, or a mirrored profile (white on gray background, or vice versa)?*

To summarize, we can say that beauty is nothing but a cognitive schema – object, event, phenomenon, person, thought – which can be incorporated amongst our existing cognitive schemata, can totally connect with them and, as it is new, so elicit Self-expansion. The more cognitive schemata it can connect to, and the better its connection, the greater our perception of its beauty.

#### Principal points covered in this chapter:

- The formalized description of differences between
  - kitsch and art
  - commercial and high art
- the mechanism of artistic pleasure
- the mechanism of beauty's independence from genre
- FIPP can also form the basis of a new aesthetic.

<sup>81</sup> for example, when looking at a painting: is the museum quiet; silent; is the lighting good; what are the frames like; is the color of the wall appropriate to the hanging; is the building sympathetic to the piece?

## 5. THE RIDDLE OF PUZZLES

Life; a puzzle, a riddle, a joke? \* Self-expansion; the first steps. \* Hooked by involvement. \* If at first we don't succeed... \* It can eventually - be done. \* Mind games. \* And if you don't like exercise? \* Outsiders acknowledging Self-expansion.  
\* Scientific and theological studies; a conundrum.

### Introduction

Every day, millions of people invest considerable energy in solving crosswords, riddles, and jokes. Why do they do so? The punch lines of the silliest jokes, and the rewards for finding the solutions, seem laughably small compensation for the intellectual effort and time involved. Apart from the so-called “brain gym” effect, perhaps some internal reward system may be the explanation for this seemingly irrational behavior.

Another, seemingly irrational, form of behavior is that people submit solutions merely for the reward of seeing their names listed in the magazine.

The process of Self-expansion may be an internal rewarding system following the formation of a new cognitive schema. But when are such new cognitive schemata formed during the solving of riddles etc?

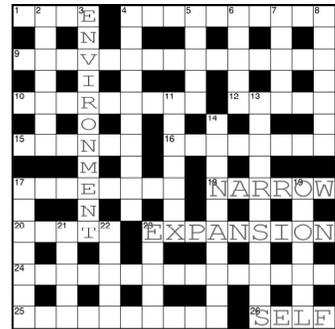


Figure 11: An example of a crossword puzzle

### A good beginning - initial Self-expansion

According to the FIPP model, when faced with a blank crossword, our Self meets a small Environment. The empty grid, by definition, provides no information, and the clues are abstract until placed in their context and answered. Therefore, the state of preparing for a crossword can be characterized as an Expanded Self, similar to that when given a blank sheet of paper and allowed to do anything we want upon it: we can write prose, scribble, or draw a design. This can be observed in the excitement of anticipation in crossword puzzlers when receiving, as a gift, a puzzle book, or they buy the new issue of their favorite crossword weekly.<sup>82</sup> This phenomenon is full of contradictions, as receiving a puzzle book means the beginning

<sup>82</sup> such excitement is tempered, or even completely dissipated, if they see that somebody else has partly completed the puzzle

of many hours of work for no financial reward.

## Increasing involvement

When somebody begins to complete the puzzle by writing in the first letters, they seem incapable of stopping. The more letters that are inserted (the greater the energy invested), so the greater the commitment shown towards completing the puzzle. As time passes, it becomes harder to continue, as there are no easy tasks left, for only the harder clues remain. Existing solutions define the answers to the remaining questions, which is a restriction, but also helps at the same time. We can therefore say that the more time passes, the greater the energy invested, and so it becomes increasingly difficult to leave the puzzle partially unsolved and our previous investment wasted. The pool of possible solutions, and the freedom to show one's knowledge, becomes increasingly smaller. This exemplifies the process of Self-narrowing.

### If we fail...

Extremely difficult puzzles can defeat us: in cases when we overestimate our abilities, we give up, and admit to failure in a narrow state of Self. The puzzle – the Environment – seems to consume a piece of our Self: we realize that our Self lacks the ability we believed we had, and this leads us to try to adapt our mental representation of our abilities to reality. This process results in the alteration of our Self, similar to that when we lose weight; our body becomes smaller so that our clothes may need to be taken in. Similarly, if we put on weight; we may have to buy new clothes. As with our body, so our Self is not a fixed size, or shape. Practically, it means that the Environment won that battle with reality. On the other hand, extremely difficult puzzles can give us greater success, and an expansion of the Self, and can be worth the risk.

### If we finally succeed...

As we have seen, our Self narrows during the solving of a puzzle. But what kind of object do we have in mind? Two objects may be taken into consideration, which often do not coincide:

- o finding the solution; and
- o “leaving no empty boxes”.

Both result in the formation of a new cognitive schema:

- o in tandem with a funny picture or a joke, a solution in words is a cognitive schema itself; and
- o the homogeneously filled figure without empty boxes is a visual cognitive schema.

The formation of the new cognitive schema goes with both the easing of tension – the expansion of the Self – and with growing awareness that we can control

our Environment. Upon these is the imperative of communication, to share the new cognitive schema with others. This communication imperative was described in Chapter 3.<sup>83</sup>

Now we can return to the two questions posed previously: the “brain gym” effect, and “submitting solutions”.

## Brain Gym

As an everyday explanation, the expression “brain gym” means the 'training' and stimulation of cerebral nerves in order to keep them in good condition, similar to that of the muscular system. But what does recalling, for example, an Assyrian king's name, have to do with understanding a tax return? That is, does recalling historical knowledge from time to time increase our other forms – mathematical, logical – of intelligence? Presumably it does not, but then why did the concept of brain gym spread?

### In place of Brain Gym

Indeed, there is some truth in brain gym but, rather than making the brain do gymnastics, it means the practice of changing Narrow and Expanded states of Self. That is, it allows us to experience those states without cost; that there is no need to give up on solving an intellectual problem before the deadlock, as we will be rewarded with the state of Self-expansion. Do those who have menial jobs that are not intellectually challenging – perhaps street cleaning, although that is socially valuable – attempt to solve puzzles and problems to compensate for their daily grind? Or not?

The maintenance of intellectual ‘fighting spirit’ obtains the additional benefit of solving puzzles, instead of the seemingly inconceivable advantages offered by brain gymnastics. This can be seen in the interpretation of brain gym, that says the brain does not become lazy, that it is ready to meet challenges when necessary.

To return to the relationship of an Assyrian king's name and understanding tax returns...common to both is the mental effort put into them. Independent of which skills we use, it helps us maintain that 'fighting spirit'. The effort to create structures, the step-by-step analysis, the search for connections and keeping the whole picture in view, are common to both of them. This despite recalling the king's name requiring the application of long-term memory, while a tax return requires logical ability.<sup>84</sup>

## Why do people submit solutions to puzzles?

An economist would say that they do it for an anticipated profit. Yet how can this

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<sup>83</sup> see Chapter 3

<sup>84</sup> not taking into account the many types of logic puzzle

explain puzzles that offer no material reward, only a mention in the next edition naming those who sent in the correct answers? People cannot earn their living purely by solving puzzles.

The explanation may be that the state of Self-expansion incorporates a spur, a motive, to share the solution with others. This imperative can be removed via the newspaper: the solution can be submitted to a disinterested party, and in this way the success – the new cognitive schema – can be shared with others. Sometimes people receive feedback as well, as when they see their name in the list of those who correctly solved the puzzle. This feedback causes the Self to expand further, by making the belief in the solution stronger.

## Solving puzzles on a higher level

From a broader perspective, studying sciences, or explaining the Bible and theology,<sup>85</sup> are similar to the processes described above. By way of distinction, in those matters where the solutions do not end in themselves, they may form new schemata that could be of a higher level, in that they deal with the meaning of life, the world, nature etc.

Explaining the Bible is riskier, but offers more profit than does the study of a science. Small successes occurring during the process of study can be found in both. In explaining the Bible we need to synthesize, understand and then reconstruct huge amounts of material. Nevertheless, if we succeed, we can form schemata of the highest level: about the meaning of life, the existence of God etc. The risk is that these schemata, for some, cannot be used directly in everyday life, as they relate to the relationship of the person and God. On one hand that is up to them alone, on the other it is not a means of payment. Contrastingly, the cognitive schemata that result from studying a science – for example, a material, or a technological procedure – are of a lower level, and can be used directly in everyday life.

Sciences (excluding philosophy), with their smaller and practical results, contribute greatly to everyday life. However, they will never relate to the questions of the meaning of life: the invention of the  $n+1$  type processor, or the theory of relativity itself, says nothing about our order in the world, or of the ways to be happy and to value.

Principal points covered in this chapter:

- motivation for solving riddles
- relationship between puzzle-solving, practicing science and interpreting the Bible

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<sup>85</sup> as a series of structural analyses

## 6. SINGING IN THE RAIN AND ALTRUISM

**Gene Kelly's WYSIWYG; What You See Is What You Get. \* Humans: selfish, rational, hedonistic, or altruistic; can I help you with this? \* Unthinking Self help. \* Military morale, and mother and child. \* Selfish genes and FIPP; a fit? \* Communication imperatives on Self-expansion. \* Martyrdom; does a Joan of Arc suffer Self-expansion? \* No altruism, no Self-expansion. \* New Environments, new opportunities. \* Is stress infectious?**

### Why does somebody sing in the rain?

I may not be the only person who feels that there is something strange about the most famous scene in the film “Singing in the Rain”: Gene Kelly sings and dances in a very good mood, as if the pouring rain did not exist or affect him. Usually, people try to keep out of the rain; they do not like to become wet and risk catching a cold.

So, why does this dancer sing in the rain? Our first guess might be that he is on drugs, or in an extremely good mood. FIPP explains this phenomenon with the common link between taking drugs and being in a good mood: that the singer’s Self is expanded. The characteristics of Self-expansion are the strong communication imperative<sup>86</sup> to share the new experience – the new cognitive schema – with others. That communication of the new schema cannot be hindered by any discomfort in the physical surroundings. The dancer singing in the rain shows us how independent a Self can be from the physical reality it considers to be its Environment: rather than the uncomfortable weather, it is the social Environment<sup>87</sup> that counts.

The visual picture is clear: the singer does not notice, or ignores, the weather, as his message<sup>88</sup> is so important that he wants to convey it and make other people feel as good by using whatever means he has whenever he can.

### How does altruism have an effect here?

The social sciences<sup>89</sup> formerly saw human beings as selfish, rational, hedonistic individuals, driven to maximize their happiness and pleasure level. There is nothing

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<sup>86</sup> see Chapter 3

<sup>87</sup> with whom the person wants to share his new schema

<sup>88</sup> for example, that he is very happy or in love

<sup>89</sup> economics, sociology, psychology, philosophy

strange when we assist ourselves automatically.<sup>90</sup> We do not mind inconvenience to become healthier, or to look more beautiful,<sup>91</sup> or when we are willing to help others because we expect a reward in the future.<sup>92</sup>

Altruistic help, enduring inconvenience or even facing death to save somebody,<sup>93</sup> is exceptional from this viewpoint. This type of action is not based upon economic rationalities, or personal interests that could be scientifically or mathematically described. So, rather than the social sciences, it was evolutionary biology that first provided a clear explanation for the phenomenon of altruism: that at the genetic level, it ensures the survival of species by keeping personal interest in the background.

Compared with evolutionary biology, psychology has no clear theory about the mechanisms of altruism. In psychology, altruism seems to operate with a background reward system linked with empathy i.e. with the ability to live through another person's feelings, experiences etc. As the empathy link is also unconvincing, altruism needs a simpler explanation.

The explanation based on the FIPP is simple: when accepting the fact that we help ourselves without thinking, we have the right answer to the phenomenon of altruism. We must bear in mind that the Self is defined as a relative entity; so, in the foregoing, "ourselves" means not only 'us' but also the Environment attached to our Selves. Therefore, to paraphrase that sentence, when we are in a Self-expanded state – when our Self and its Environment are merged – we help our Self and the Environment attached to it without thinking, as we would help our own physical body when needed.

If the Self merges with its Environment, there is then no difference between itself and those with whom it has merged. If we consider the subjectivity of this experience, we can also explain altruistic assistance when those we help are not physically present when that altruistic behavior occurs. It is mental processes, not the physical reality, that count.<sup>94</sup>

There is a major weakness in the available psychological descriptions linking altruism with empathy. In these, empathy works only in face-to-face situations, where the 'helper' perceives the other person's feelings. For example, we help a child if it is crying, as we feel the same discomfort he or she is feeling. But what happens when physical contact is not available, and we see a mental representation of a suffering child, as with charity photographs of starving African children?

When Environment for a soldier means his family and country, he merges with and fights for them, even at the cost of injury or death, as he would do to defend

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<sup>90</sup> we scratch ourselves when we itch, we eat when we are hungry

<sup>91</sup> we take bitter medicine to get well, or endure the pain that goes with cosmetic dentistry such as teeth whitening

<sup>92</sup> waiters who are very helpful in order to receive bigger tips; we 'lend' the neighbor some sugar which ensures that, when we need of something, they will feel obliged to reciprocate

<sup>93</sup> for example, giving money to beggars, doctors working in Africa and elsewhere pro bono, policemen, firemen, and soldiers, risking their lives to save strangers

<sup>94</sup> for example, the people for whom a soldier is fighting are not present at the actions, they are there only in the thoughts of the soldier

his own body. This explains the importance of soldiers' morale, the general state of mind, fighting spirit, commitment to victory and solidarity of an army. When morale declines, soldiers begin to desert, refuse to obey orders, or become less brave and more frightened.

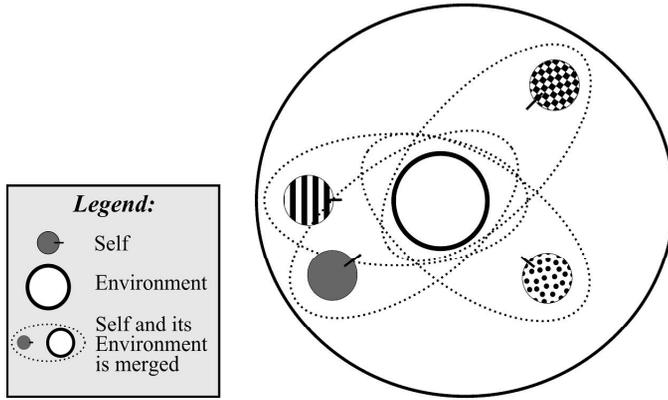


Figure 12: The soldiers with a common goal (same Environment)

Accordingly, morale is related to the level at which the Selves of the individual soldiers are merged with the same Environment. Being merged with the same Environment – for example, their home country – means higher morale, as they merge with each other through this common Environment, and so act more cohesively as a group.

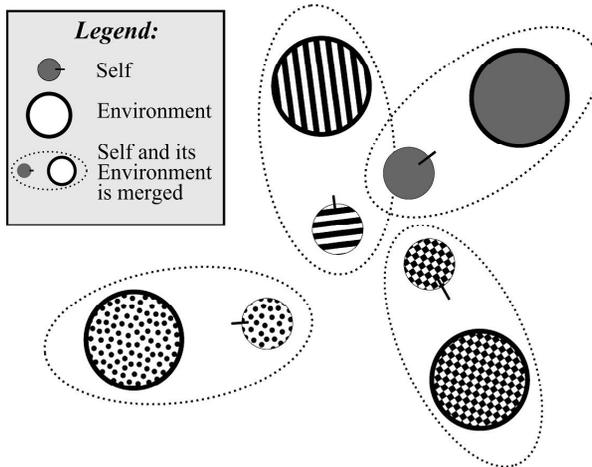


Figure 13: The soldiers focus on different goals (different Environments)

If the soldiers have no common aim, they will not fight with the same intensity that they would for themselves (for their own Self), and so exceptional bravery cannot be expected of them.

The merger of the Self and the Environment is related to Self-expansion and the dissolution of the Self's borders. As mentioned above, this merger, being a subjective/mental process, can take place between the Self and objects, thoughts and, especially, other people.<sup>95</sup>

The most thoroughly discussed example for the Environment-Self merger is the relationship between a mother and her child. Infants depend almost entirely upon their mother to feed them, keep them warm and so on. Accordingly, we can see that an infant's Environment is mainly its mother. The same position applies to the mother; the mother worries about and listens out for her child, to the exclusion of practically everything else. In psychology, this relationship is termed dual union. The unifying of two human beings has an extreme appearance: during pregnancy, when the bodies of the mother and her child merge and they feel similar stimuli, for example hunger, at the same time. It can be understood that when something hurts the child, its mother reacts as if it was happening to herself.

## Altruism in the mirror of evolutionary biology and FIPP

Since Dawkins (1976), we have been aware of the importance of spreading solutions that offer comparative advantages to the other members of our species.<sup>96</sup>

This phenomenon is reflected in FIPP, in that new cognitive schemata must be shared with others, and the process of Self-expansion can be fulfilled only in a social environment. Two matters must be emphasized:

Our social environment comprises people who are important to our Selves for some reason<sup>97</sup>

The state of Self-expansion is possible only through sharing<sup>98</sup>

So, why does FIPP fit with the selfish gene model? The selfish gene model claims that it is evolutionarily worthy to pass on our knowledge to those with the same or a similar set of genes; only those genes which live in individuals with these characteristics survive.

FIPP describes the psychological obligation of this process. That is, why human beings living today (a species which has not disappeared since it evolved) cannot do other than pass on their knowledge to their close environment, and so help that

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<sup>95</sup> for example, a soldier and his rifle form a union, as do Einstein and his theory of relativity, a newly-married couple, a mother and child, and so forth

<sup>96</sup> perhaps, if as a monkey I discover how to open a coconut, and I pass on that information to other monkeys, I increase the chances of my group being able to survive. In addition, my group may reward me; for example, by ceding control of the group to me (becoming the alpha male)

<sup>97</sup> for example, if the key to our identity is that we are mathematicians, and that we wish to broadcast a newly-created formula, it is more important that we convince a famous academic than any number of schoolchildren. Or when we are in love – which according to FIPP means that our Environment is limited to just one person – we want to relate to that person we love, before telling other people, matters affecting us

<sup>98</sup> for example, even if I write beautiful poetry, I will not be happy until I see it published and sold

small group of people with similar genes to survive.

A particular example illustrates that the state of Self-expansion can be experienced in a group; the smoking of a spliff<sup>99</sup>, or joint. As the name implies, enjoying a joint is best when passing it around a group and smoking it together. Smoking a spliff alone can be accompanied by a bad, almost anxious feeling, related to the extreme expansion of the Self. Over-extension of the boundaries of the Self can cause an uncomfortable, frightening experience. Social environment has a crucial role in controlling extreme expansion, as communication with others helps to maintain our Self; feedback helps us to perceive (live through) the borders of our body and Self.

## **We sing in the rain...because we obey the imperative of communication**

How do we adhere to the imperative of communication?

This is not an external imperative in the everyday sense. It is not a quick punishment following a negative deed. Rather, it is the lack of reward if there is nothing to reward, and a punishment if a positive deed is ignored. But what makes us do positive things?

The state of Self-expansion is rich in energy, which enables external resistance to be overcome when necessary, and to test, realize and spread the new cognitive schema. When this effort is prevented, frustration/aggression arise equal to that of the available energy, similar to high pressure steam becoming trapped and distorting or rupturing a pipe.

This explains, on a society level, the importance of the freedom of the press: enabling ideas to spread is socially valuable, and prevents people longing to communicate from being frustrated.

The imperative of communication is one explanation for the nervousness we feel when communication channels are unsatisfactory. For example, when somebody has important news for others, and wants to relate it on the telephone but the line is noisy. He becomes irritated, to the point of this turning into aggression and taking his anger out on the telephone itself.

Scientists and journalists are keen to publicize, to share, their most valuable cognitive schemata with the public. This phenomenon can be understood with the help of the process described above: they invent something and form a new cognitive schema; it makes their Self expand; and they are then eager to share it with their social Environment, that is, to publicize it.

Finally, an example, illustrating the importance of sharing experiences: “What could make a basketball fan very happy?” “Obtaining Michael Jordan’s<sup>100</sup> autograph.” “And what might then depress him most?” “If he could not then show

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<sup>99</sup> A marijuana cigarette

<sup>100</sup> Perhaps the greatest basketball player ever; six-times NBA champion. The basketball equivalent of Pelé or Ronaldo in football

that autograph to other fans”.

## Altruism and martyrs

As we have seen, dissolving into the Environment leads to the state of Self-expansion: we think in terms of “we are” instead of “I am”. In these cases, we maintain another person’s or group’s interest in view, our Selves dissolve in the Environment, and we enter into the state of the Expanded Self.

To better understand the mechanisms of altruism, let us take an extreme example; those religious martyrs who died to unite with the greatest number of communities possible.<sup>101</sup>

When younger I considered the behavior of martyrs, especially their pride and joy, irrational. With the help of FIPP, however, we can understand martyrs' particular logic. In martyring themselves, he or she encounters the highs and lows of humanity. This phenomenon can be described in terms of FIPP:

- o the Environment is a valuable aim;<sup>102</sup>
- o Self-narrowing is the fear of death;
- o deadlock is the acceptance of death for a higher purpose; and
- o that deadlock is followed by the greatest possible Self-expansion: a complete merger with the world, mankind, God, a brighter future, and so forth.

As martyrs’ Self-expansion is so extreme, so their increasing energy is also extreme. This enables them to cope with extremes of resistance and frustration, which may be seen as superhuman to an observer.<sup>103</sup>

Fakirs and yogis also strive for a similar extreme of Self-expansion, but their methods are more conscious. The many ways of reaching the state of Expanded Self are discussed in Chapter 14 on happiness.

## The lack of altruism, and Self-narrowing

We have seen that expansion of the Self induces altruism, and altruism makes the Self expand. But what is the relationship between altruism and Self-narrowing?

It had been thought that there are altruistic and non-altruistic people. The cause of this theory was the assumption that altruism is a personality trait independent of situations. In an experiment, students were asked the same favor,<sup>104</sup> some who were late for a lecture, others who had time to listen. According to the results, the situation (a student's state of mind, rather than their personality traits) was a better predictor of the appearance of an altruistic act. This experiment contradicted the previous assumption, that an altruistic attitude is a stable characteristic of a person.

Everyone can observe this phenomenon: people in a hurry are less likely to help

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<sup>101</sup> mankind, Church, God

<sup>102</sup> for example, spreading a religion believed to be good for mankind

<sup>103</sup> for example, Ancient Roman stories of religious martyrs praying after being thrown to the lions

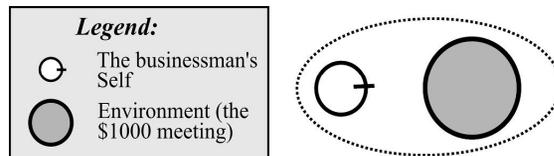
<sup>104</sup> for example, filling in a questionnaire

than those who are less busy, even if they have more resources. More surprisingly, we can observe in ourselves that, when we do not want to help (even if we could) for some reason, we pretend to be busy, suggesting that focusing on something else in our society exempts us from helping.

It is worthwhile comparing this observation with Self-expansion – merging with the Environment – an altruistic process described by FIPP, which is the opposite of this 'unhelpful' behavior. Our Environment is a well-defined thing<sup>105</sup> which differs from that of the person seeking help. The information from the person in difficulty disturbs us and we cannot – or do not want to – contact or merge with this different Environment. So, we will not become altruistic, because that would require replacing the current Environment with the new one. By replacing the current Environment, we risk reducing our Self. The bigger the current Environment, the bigger Self-narrowing we risk if we detach our Self from it. Meanwhile, the bigger the alternative Environment, the greater the opportunities for Self-expansion.

Being 'disturbed' means that the Self has first to make an effort to change its narrow state, and so redefine what it considers as the Environment. It would have to change focus, from the Environment that endangers the Self, to another person or situation. The larger we perceive our Environment compared with our Self, the less we can disregard it. For example, an impending deadline, another problem, a telephone call, can distract and attract our attention to the point that we find it hard to break away. The current and the alternative Environment compete with each other to be perceived by the Self as the larger, the more threatening, and the one which offers greater Self-expansion if controlled by the Self. The Self has to choose between the two Environments. That which is not chosen will automatically decrease the Self, or the potential Self-expansion which would have occurred if it had been taken under control by the self would be lost.

To better appreciate this, let us suppose that a businessman has to rush to a meeting, and will forfeit \$1,000 if he does not arrive on time.



*Figure 14: The businessman focuses on the \$1,000 meeting*

En route he sees a lost child.

<sup>105</sup> for example, stock exchange fluctuations, deadlines, homework, commuting, are normal, everyday occurrences

In this position his current Environment is the meeting, and the alternative Environment is helping the child to find its mother or home. The subjective value of the \$1,000 is the potential increase of the size of the Self. If he does not help the child, he has to relinquish the expansion of his Self that would have been achieved by taking the child to its parents.

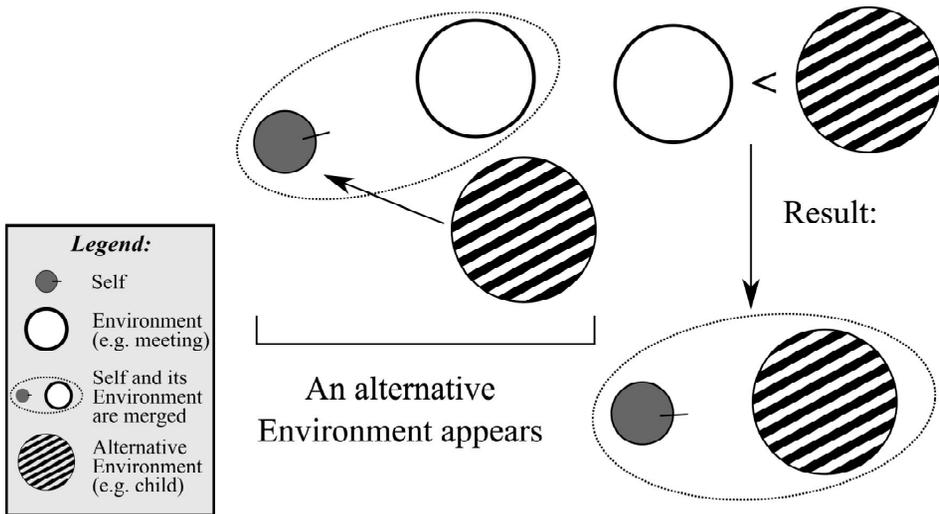


Figure 15: The businessman meets the lost child, and prioritizes helping against his meeting

Emphasized throughout has been the importance of subjectivity in FIPP. It is of key importance in this case; \$1,000 versus the child looking for its mother. The alternative Environment – the child – can only be the larger and selected if it "attacks" using stronger stimuli than the Self of the businessman.<sup>106</sup> If these stimuli are not received by the Self of the businessman, then he would not help because the alternative Environment was not strong enough to replace the current Environment. In other words, by failing to help he risks losing a smaller part of his Self compared with losing \$1,000. The bigger the businessman perceives the alternative Environment, the greater chance that he will help. Increasing the size of the Environment can be done by manipulating the picture of it through releasing stronger stimuli. This confirms our everyday experience, that it is not enough just to stay and wait for somebody to help you, one has to be pro-active in asking for help. So, the child has to cry more loudly to call attention to itself.

<sup>106</sup> for example, the child is crying; nobody is around; the weather is worsening and it is late at night

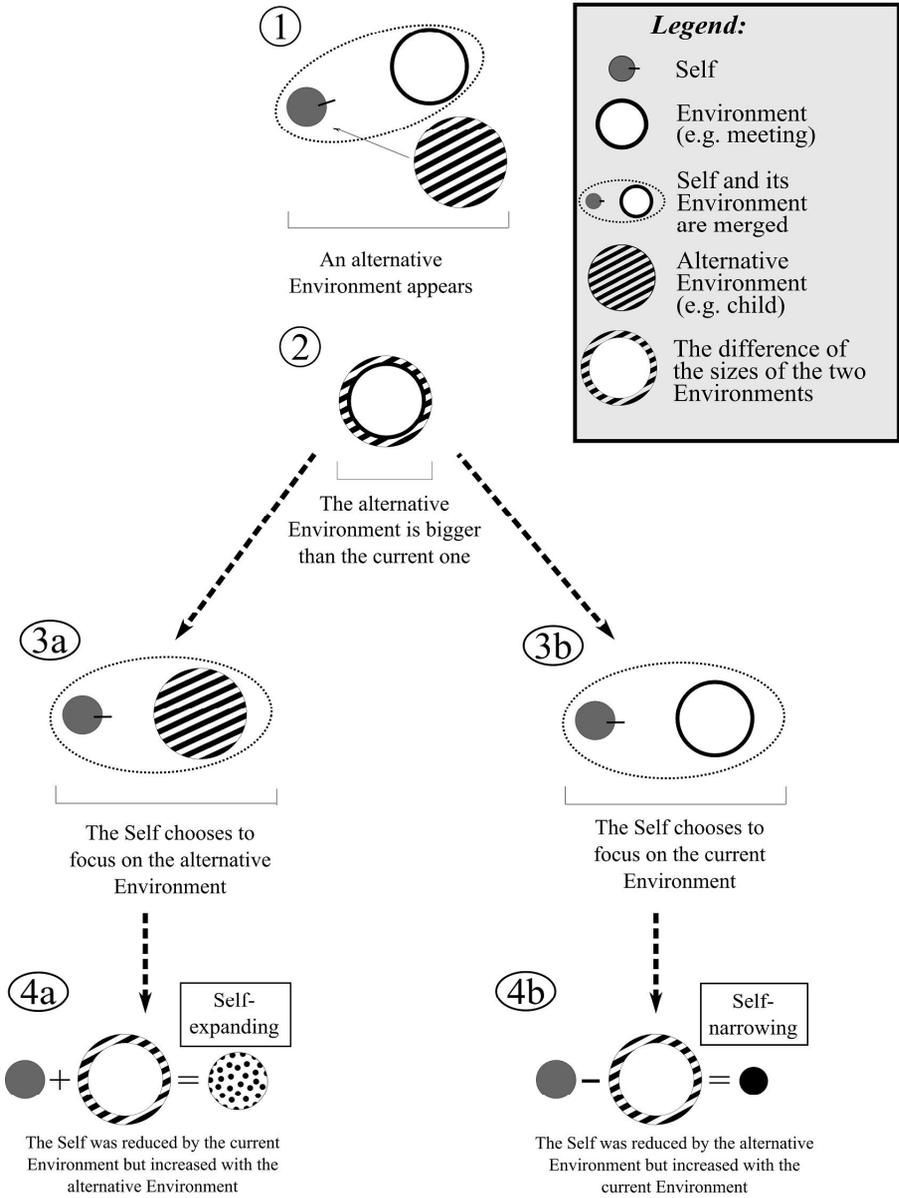


Figure 16: The decision making of the businessman.

To summarize, in decision-making the subjective profit or loss is what matters most i.e. the amount of the growth or reduction of the Self following the merging with either Environment. This shows that, if we need help, we must rely on more than mere facts; their appearance as an alternative Environment is required. Examples include the advertisement campaigns of different foundations and not-for-profit organizations, and advertisements in general: some of them promise Self-expansion by doing something, while others frighten or worry us into Self-narrowing by not doing something else.

One main advantage of the process described above, is that it explains why people in a narrow state of Self, facing a big environment, are less altruistic. Stressed people, facing a large, 'busy' Environment, need an even larger, alternative Environment, to attract their attention. Those who are in balance with their (smaller) Environment are likely to help, as merging with a relatively small alternative Environment can grow their Self, and so is of positive value to them.

Finally, the model described above also makes clear our dislike for people who are experiencing stress. Such people's Self is narrow: they do not appreciate humor; are not helpful; and are unsociable and bad company. The narrow Self has a close connection with aggression, which might provoke aggression or Self-narrowing at the people around. This is a further reason to avoid people who are experiencing stress.

Principal points covered in this chapter:

- understanding altruism
- restriction of the freedom of the press
- the joy of publicizing
- understanding martyrs and yogis

## 7. SPIRITUAL ENLIGHTENMENT: A COMPLEX PHENOMENON DESCRIBED IN A SIMPLE MODEL BY FIPP

Enlightenment = ultimate and maximal Self-expansion. \* Enlightenment and FIPP's pyramids of cognitive schemata. \* Finding talent. \* The enlightened and their environment. \* One's induction to enlightenment, or by deduction? \* Linking deduced schemata with others. \* Enlightenment; have you got what it takes? \*  
Enlightenment is where?

### Introduction to the phenomenon of Enlightenment

Spiritual Enlightenment is defined as a religious concept that unites with the world by understanding the principal connections and driving forces of the universe. Although the concept itself primarily originates in Buddhism, similar states of mind are described in other religions and cultures. For example, in Christianity, “saint” is the word that describes someone so close to God, or to the universe, that that makes him or her special. In certain professions there are comparable concepts: those who attain the highest results or abilities in their field are called guru or grand master, a person able to answer all questions related to his field.

Throughout history, many people have attained this status, and were treated with great respect in their cultures. According to their own accounts, enlightenment is accompanied by eternal, constant happiness and calmness, while earthly, everyday matters lose their apparent importance.

The similarity between enlightenment and maximum Self-expansion, which comes after the establishment of a top cognitive schema that integrates all knowledge available to the person, is noticeable. We will now examine why these two states are the same.

## How does enlightenment accord with the concept of FIPP?

### The cognitive schemata of enlightened people

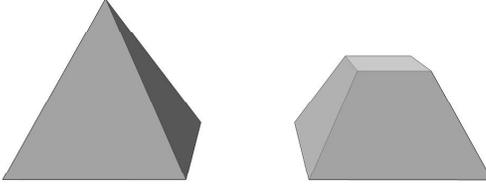


Figure 17: Pyramid and frustum of pyramid

To understand enlightenment from the viewpoint of FIPP, we need to keep the hierarchic construction of cognitive schemata in view. In the following, imagine the cognitive schema's hierarchy as a pyramid, where each building block of the pyramid is an individual cognitive schemata. The top of the pyramid indicates the cognitive schema, the so-called top-schema which integrates everything. Not all pyramids are complete: some frusta of pyramids<sup>107</sup> indicate all of the people who did not succeed in integrating their knowledge in a connected system throughout their lives; namely, they did not achieve enlightenment.

In the pyramids of cognitive schemata, it is interesting that every upper-level cognitive schema contains the lower-level cognitive schemata in an integrated way. In conclusion, the top cognitive schema has to contain the complete cognitive schema hierarchy i.e. everything that the person knows.<sup>108</sup>

Ignoring for the moment the concept of cognitive schemata, how can we erect, in the most efficient way, a pyramid to be

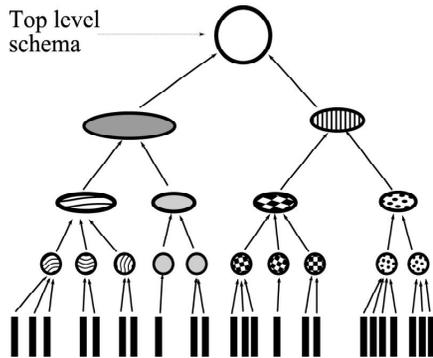


Figure 18: The top-schema integrates everything

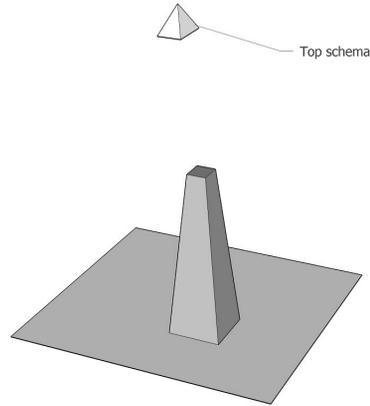
<sup>107</sup> the remainder of a pyramid after the topmost part has been cut off

<sup>108</sup> this is similar to the CEO of a company who is aware of all the information known collectively by his employees

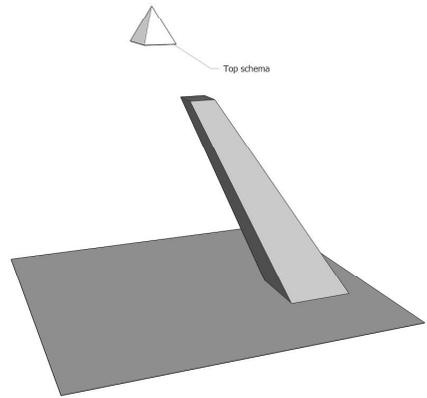
both the most stable and the highest?

One possible solution is a tall pyramid having a small base. This would mean reducing our level of aspiration, as a pyramid with a small base requires less material and construction time. However, it is less stable, and precludes the possibility of building a high structure. This pyramid with a small base can be seen in tandem with the enlightenment of those who live in an environment poorer in information, for example, on the top of a hill, in a hidden village, or in a monastery. Achieving enlightenment is easier for someone who has been partially isolated all his life from the outside world, since he has less cognitive schemata; for example, he may not have heard of or seen drug dealers and gang warfare. Therefore, it is easier to integrate those few schemata.

Another possible strategy is to build a pyramid asymmetrically. This reminds us of the strategies of specialists in a narrow subject area with no other interests who, although they may have many cognitive schemata, develop in only one field, albeit one in which they achieve outstanding results. Nevertheless, this raises the question whether the pyramid collapses if it is not correctly propped up. Can such a person cope with impulses different from those of his profession? A mathematician may find social relationships extremely difficult to comprehend or cope with. An altruistic social worker may miss out on certain possessions or pursuits as he does not care so much about money.

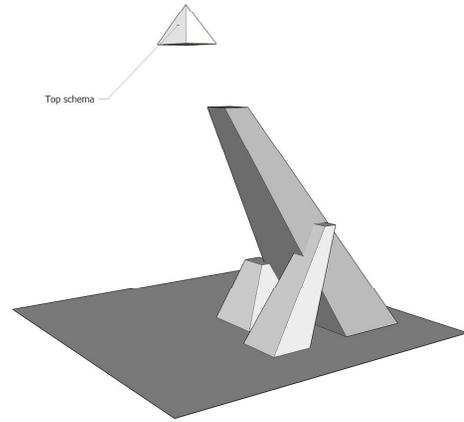


*Figure 19: A pyramid built on a small base and the level of enlightenment (with white)*



*Figure 20: Asymmetrically (thus unstable), but high pyramid*

The most reliable strategy may be not to build a perfect pyramid, but to shore up and surround our main pyramid with many sub-pyramids. This is the approach adopted by different school systems to promote the improvement of general knowledge. Apart from creating noticeable Self-expansion, general knowledge offers a chance to understand in which field the cognitive schemata establishes quickest, and so to identify a person's particular talent. Another effect of general knowledge is that it forms a bridge with other lower-level cognitive schemata; this bridge supports the main interest, enabling it to develop the Self to a much higher level.



*Figure 21: An asymmetric pyramid supported by smaller asymmetric pyramids that enable it to grow*

### **The Self and the Environment of Enlightened people**

Unification with the universe is a major phenomenon within Enlightenment. Those who reach this state feel themselves as part of the universe, and are unable to divide themselves from the outside world. They experience the world without mental pre-processing, so no new schemata are born, as all stimuli reach those schemata they are intended for.

This phenomenon can be described using FIPP terms, as the boundary between Self and Environment has disappeared. As all schemata that can exist have been born, there are no more conflicts within the perceived entities, and there is no need for restructuring anything within these cognitive schemata. Everything has been completed.

Emotionally, this leads to a calm that can be perceived as depression. The calmness/depression arises in that Self-narrowing and Self-extension have no place in the future. The Self is unified with the Environment, so there is no more fear from the possibility that the Environment will destroy the Self, as the two entities no longer differ. Lack of fear and anxiety is also a typical description of an enlightened person's state, and can also be explained by the irrelevance of Self-narrowing. The enlightened state is observed to be indescribable, in that as a top-level schema, it is not necessarily a verbal construct that cannot be translated into words, as words depict far lower-level schemata. Therefore, as this top-level schema cannot be translated into schemata that are available to ordinary people, so it cannot be communicated.

## How does enlightenment happen according to the FIPP?

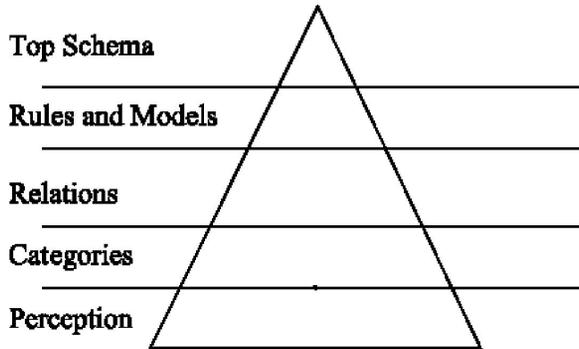


Figure 22: Different levels of complexity within the pyramid

On the lowest level of the pyramid of cognitive schemata, the most basic elements of stimuli from the outside world can be found; colors, shapes, etc. It is upon these that the categories and concepts that represent objects and people are built. Upon these categories we find the similarities that describe connections between objects and people, which become increasingly complex as we proceed to higher levels. Attaining a higher-level cognitive schema happens through induction; downward conclusions take place through deduction. Induction is the process whereby the Self finds a connection between two or more discrete cognitive schemata, and establishes a new, higher-level, cognitive schema. The process of deduction occurs where a higher-level schema combines with another schema, yet the new schema that emerges is of a lower level.

An example of induction: a basketball is spherical, a table-tennis ball is spherical, a football is spherical. The conclusion: all balls are spherical.<sup>109</sup>

An example of deduction: what shape can a baseball have? Since it is a ball it must be spherical. In this case, the baseball as another schema connects with the higher-level schema (ball).

Due to their nature, the stimuli and concepts that reach people form groups: visual cognitive schemata, such as colors, are different from musical schemata, for instance a tune. These groups can be found at different places in the base of the big pyramid, and they themselves form smaller pyramids. For example, Mozart had an extremely high musical pyramid with a wide base, while Einstein, although also having a high musical pyramid – he played the violin well – had a higher and wider physics pyramid. This did not mean that either of them had to have a large pyramid connected to, for example, swimming.

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<sup>109</sup> of course, there are always exceptions, such as the rugby ball

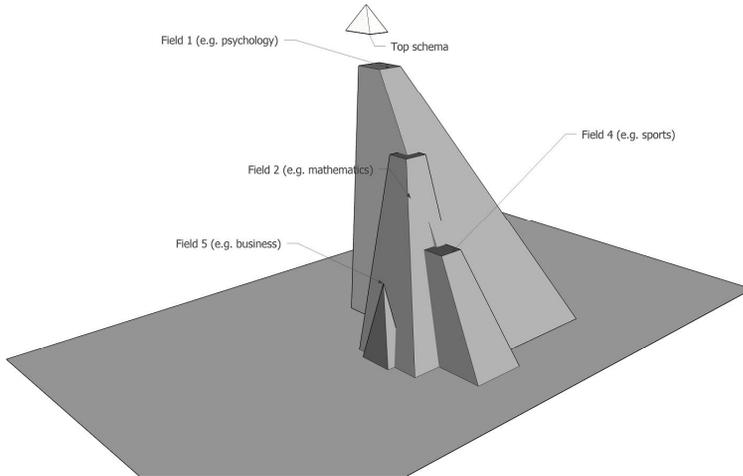


Figure 23: If its neighbors are also high, a pyramid can grow much higher

Schemata are interesting in that these pyramids can become mixed after awhile. A mathematician might find mathematical connections – rhythms, beats per minute, wavelengths, harmonic theory, note ratio et al – in music. Or the manner in which the results of biology influence our vision of society, as happened with the adoption of Darwinism.

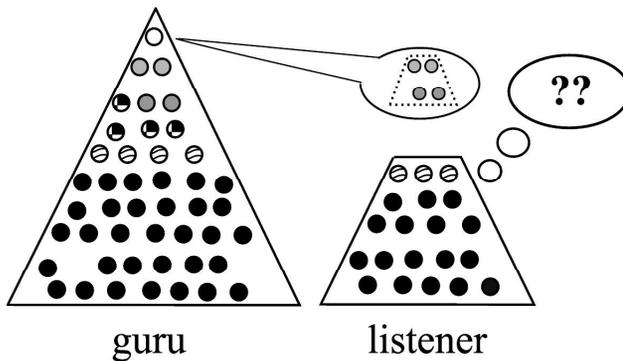


Figure 24: It is hard to understand a guru

We have previously mentioned one characteristic of enlightenment...that in the enlightened person's mind, everything becomes connected with everything else and a simple pattern, the highest level cognitive schema, explains everything they know. Since the top cognitive schema is built on cognitive schemata immediately below it, which are equally unknown to – or identified differently by – other people, he is not capable of communicating his top-level cognitive schema, as in the

minds of others there are no adequate/relevant cognitive schemata that they can build upon. Moreover, it is not at all sure that this top-level cognitive schema can be expressed in words. For example, it is possible that a top-level “general” tune explained everything about life to Mozart, and tunes cannot be translated into words. It is said “it’s easy if you know how” of people who find “it” easy, as they have a higher-level cognitive schema, as well as all those beneath it, and so everything is self-evident to them.

According to the FIPP, the way to enlightenment is to establish extremely high-level cognitive schemata in a certain field (sport, science, art etc.), which can later connect with the top-schemata of other pyramids through deduction. Thus, all the schemata of the person will be integrated in one schema, the top-schema.

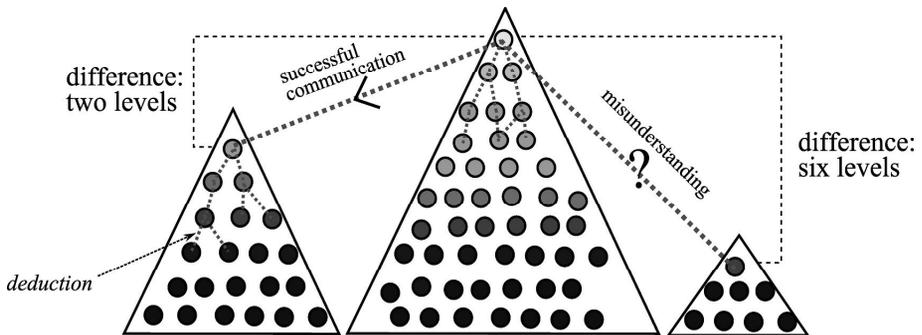


Figure 25: Top-level schema can only connect to schema no more than one or two levels lower

In order to make this possible, the favored schema cannot be many levels higher than those surrounding; for example, the second highest schema. The reason: that although through deduction we can also make schemata at several lower levels, very large gaps cannot be bridged through deduction. As an instance, let us assume that Boris Becker knows everything about tennis, and within tennis he has a schema, which would explain all the connections. But if he is only on the level of addition and cannot understand multiplication, then he will have difficulties in connecting his tennis schema with his incomplete knowledge of mathematics.

## How do we attain enlightenment?

From a general viewpoint, the way to enlightenment does not differ from normal life. Schemata are also established one after another, and so increase the height of our pyramids. The difference lies not in the nature of the process, but in its intensity. This depends upon:

- o a question of talent
- o the choice of the method

## Talent and enlightenment

Perhaps it is not surprising, though rather undemocratic, that enlightenment cannot be attained by everyone. To be able to establish a top-level schema, many schemata must be established beneath it. How many depends upon how much information is found at the basic level, and which has to be integrated.<sup>110</sup>

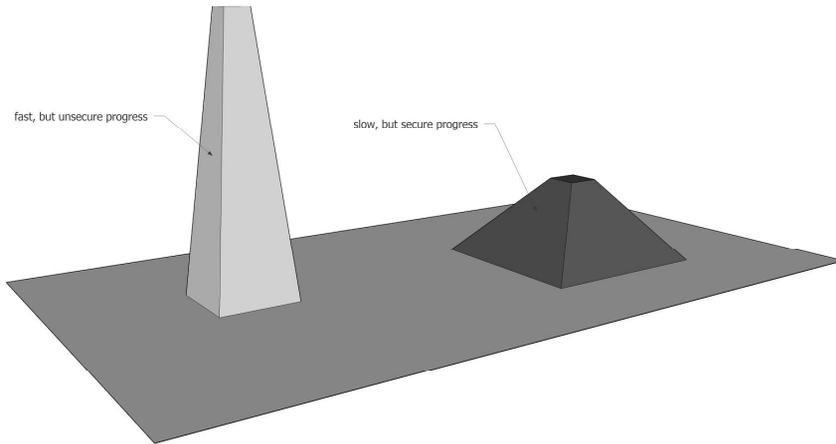


Figure 26: *Some progress quickly in a field, others query – and check –everything*

The question is: at what speed can these various schemata be established. It seems obvious to assume that, if someone is talented in a particular field, he can build the pyramid of that field quickly. This matches the observation that talented children learnt much more quickly the basic-level schemata of the field they later became extremely talented in. Mozart learnt the piano and began to compose at a much younger age than did his contemporaries with general musical talent. Moreover, as the frequency of establishing new schemata increases, so too does the frequency of Self-expansions. Engaging in a particular field that fits him enriches a child with positive feedback. In the meantime, this phenomenon also serves as a selective function, both in the choice of profession and of talented children. Those who do not have a genuine sense of achievement (Self-expansion) in certain fields will, sooner or later, give these up to benefit from what they are good at. Perhaps basing this on the presumption that we are born with different brains sounds particularly unscientific. However, we shall expand upon this later.

Within a personality, the degree of risk-taking and motivation for success or, in-

<sup>110</sup> cf. a hidden village vs. a city's wealth of information; a caveman's vs. a 21st-century man's knowledge

deed, sensation seeking, affect the speed of acceptance of newly-born schemata. Some people are satisfied with a mere intuition of setting out on the right way, and take one step forward. Others (using deduction) check two or three times if the new schema covers the reality well enough. Checking is time-consuming, although it provides greater safety. The more schema there are, the safer the basis from which to step up onto a higher level.

### **Which methods lead to enlightenment?**

A simple recipe cannot be described, as each and every person has their own way of shaping their top-level schema. As we have seen, those who achieve enlightenment have attained a high level in a particular field. This seems to be a criterion for reaching enlightenment. However, it is clear that it is not enough to be good in just one field, as we cannot then integrate everything. To achieve enlightenment, sooner or later we must connect the field we have mastered with the other fields of life, as the definition of enlightenment is that nothing can remain unintegrated.

It is also characteristic of the search method that:

- o it has to cope with the frequent Self-narrowing – occasionally of a severe nature – that is a natural result of frequent restructuring of the schemata; and
- o it has to deal with nobody being able to assure you that your efforts will lead to success (enlightenment).

So, continual uncertainty will accompany that effort. In sport, this appears in a spectacular and concentrated form: there are many professional cyclists in each country, but only a few from one country – its elite – will represent it at the Olympic Games. The uncertainty of whether there is a chance of becoming one of the elite, and whether it is worth putting so much effort into training, can only be overcome with coping strategies. Here, the role of personality again arises, not only in choosing the tempo, but also in providing diligence, persistence, bearing and Self-narrowing. All these are matters in which personality has an important role in connection with attaining enlightenment. That is why it is not incidental that people who want enlightenment do not care only about creating schemata, but previously – or concurrently – they prepare their personalities for resisting difficulties until reaching enlightenment, no matter how long that might take.

It is important to note that an enlightened person will not know the answer to everything. His knowledge will not be immense and limitless. Rather, he will be aware of life, human motivation and behavior, and his own principal connections. He will have a deep understanding of the regulation of the universe. It is similar when, in understanding the concept of gravity, we do not only understand why the apple falls on our head, or why the planets move as they do, but perhaps also why there is attraction between people. That he realizes that two people can look for each others proximity, or that there are certain central persons – Royalty, “celebrities” – around whom others circle, just as the Earth moves around the Sun determined by the laws of gravity.

Principal points covered in this chapter:

- understanding Enlightenment
- the pyramid structure of cognitive schemata
- the induction, and deduction, of schemata

## 8. UNDERSTANDING PROBLEM SOLVING USING FIPP

The activation, selection, application, and creativity of, cognitive schemata. \* Their ability to problem-solve...and cause problems by interference. \* Breaking down schemata. \* Manipulating their parts. \* Solving problems; possibilities or impossibilities? \* Schemata and their ‘children’. \* The hunger for problems...and Self-expansion. \* Self-confidence; true or false? \* The narcissistic Self.

### The role of cognitive schemata in thinking

Considering that, besides Self and Environment, cognitive schemata are important parts of the basic concept of FIPP, the FIPP model is particularly applicable in describing both the process of thinking and, within that, the process of problem solving. Cognitive schemata are not merely the building bricks of thinking, but more; they are the leading characters in new thought processes. Thinking is nothing other than the manipulation of schemata. Considering how many aspects of thinking – for example, memory, intelligence, creativity – are studied by psychology, this statement seems to oversimplify matters. However, if we examine it more closely:

- o we can look at memory recall processes as the establishment, more precisely the activation, of a cognitive schema;<sup>111</sup>
- o we can consider intelligence as choosing and applying the proper schema; or
- o creativity can be seen as the establishment of a new cognitive schema by restructuring or combining – or both – those we already have.

I believe that these few examples demonstrate the relevance of cognitive schemata in understanding mental processes. As the workings of cognitive schemata will be described in more detail in Chapter 12, let us return to problem solving.

### Problem solving described with the concepts of FIPP

FIPP attributes every problem to having two or more cognitive schemata that interfere with each other – neither or none of which describe the outer world properly – so that we cannot choose between or amongst them. This conflict generates the essence of our problem; the feeling that, at root, our schemata (or at least one of them) are useless, or our perception is wrong. This is a worry, and impels us to act and deal with the situation as a problem.

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<sup>111</sup> cf. recalling data from memory

In order to demonstrate this approach, let us imagine the opposite of the situation described in the former paragraph, namely, a problem to which:

- o a cognitive schema is the solution;<sup>112</sup>
- o there are two non-interfering cognitive schemata as a solution.<sup>113</sup>

What then happens?

If a certain cognitive schema is the solution, then it describes the reality properly; there is nothing left but to use it, and there is then no problem.<sup>114</sup>

If two schemata that fit with each other are needed to describe reality, these two integrate quickly. Again, there is nothing left but to use it. And, again, there is no problem here.<sup>115</sup>

### **A problem as the interference of cognitive schemata**

We can accept that a problem is nothing but the conflict of at least two schemata. For the sake of simplicity, and as the processes are the same, let us disregard the possibility of more than two schemata.

Hereafter, we can consider the process of problem solving as the constant growth of the Environment – composed of two interfering cognitive schemata – at the cost of the Self. The growth of the Environment derives from our increasing knowledge of the lower-level schemata which form the basis of the two schemata in discussion, and attempting to match them by breaking them down into increasingly smaller pieces. Different conclusions arise from this process description:

the process works well if:

- o we can identify the schemata
- o we identify the constituting schemata properly; and
- o we manipulate an increasing number – at increasingly lower levels – of cognitive schemata, and to do so we have to suppose that the mind has a processing capacity

To make this clearer, let us examine the two principal results.

#### *Partial schemata: dividing the schema into parts*

In order to divide an upper-level schema into its correct parts, we must properly identify its constituent parts.<sup>116</sup>

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<sup>112</sup> 'I am hungry, there is food in front of me'

<sup>113</sup> 'the door is locked; I have a key; and I want to enter'

<sup>114</sup> 'I begin to eat'

<sup>115</sup> 'I open the door with the key, then I enter'

<sup>116</sup> It is similar to a butcher cutting up a carcass; if he did not know the individual parts of its body, he would end up with strange, literally disjointed, cuts of meat

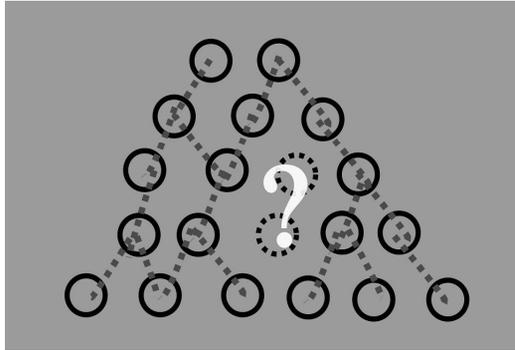


Figure 27: *Missing schemata*

This phenomenon arises as a schema could also be established in such a way that not all the schemata beneath it exist.<sup>117</sup>

The characteristics of the constituent schemata play a leading role when we divide the superior schema into parts. For example, its stability, how accurately it has been checked, how many other schemata it is connected to, and how unambiguous the connections are, both of themselves and in relation with the other schemata.

This is the difference between 'schools' and schools: accountancy is taught just as well at a 'lesser' college as at Harvard. While on Harvard, the connections between schemata that are presented have been thoroughly verified, and their clarity has been proven, in the 'lesser' college there is only surface order, as between the knowledge parts there may be contradictions. When a simple accounting exercise has to be undertaken, probably both courses are good enough to provide that capability. However, producing the annual financial report and accounts of a major corporation may result in dissimilarities.

The other phenomenon where partial schemata come to the surface is in teaching. Explaining what it is they do, and how, may provide a serious difficulty for people. For example, Lance Armstrong<sup>118</sup> explaining how to steer a bicycle, or what to do with the upper body when somebody is about to fall to the right. In order to convert these movements into words, he has to divide the movements into parts.

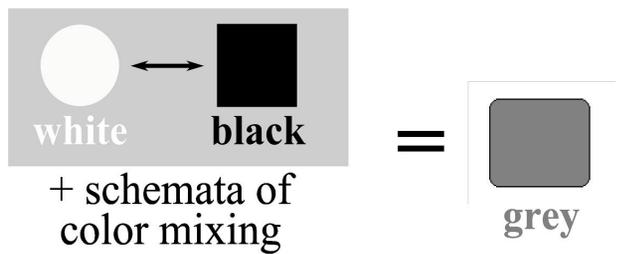


Figure 28: *The schemata of color mixing helps solve the conflict between white and black, as it results in gray.*

<sup>117</sup> such is the case of which people make jokes; for example, when someone miscalculates  $7 \times 8$ , and says that he was absent from school the day they learned it

<sup>118</sup> multiple Tour de France winner

However, it often happens that other schemata help to solve the problem: sometimes it is not possible to integrate two interfering schemata, no matter how much we dissect them, but a third schema can make a threefold connection between them. However, to do this, a third schema has to exist, and somehow, by inserting the other two schemata, all three have to connect. For example, when resolving the opposite of black and white, they are integrated by the schema of color mixing<sup>119</sup>, as different shades of gray.

### *The manipulation of partial schemata*

Dividing a superior schemata into its constituent parts is not enough in itself: we must try to fit them to each other in order to make a new schema. To do that, we have to store the separate sub-schemata and be able to manipulate them. For the moment, let us disregard the speed of manipulation, as this affects intellectual performance. Let us also disregard the strength of the connections amongst the schemata, to which detachment (the speed of detaching) of the schemata is inversely proportional.



*Figure 29: More space is needed to manipulate the sub-schemata*

The phenomenon is similar to having two unique puzzles, from certain parts of which a new one can be formed. The size of the surface we work upon can make a difference.

In this example, it is the measure of the working surface, disregarding the num-

<sup>119</sup> or rather by the schema of light intensity

ber of manageable schemata, that shows a strong connection with solving intellectual problems. In psychology, working memory, or short-term memory, is the relating term. But as mentioned previously, the strategy,<sup>120</sup> speed,<sup>121</sup> and the strength of connections,<sup>122</sup> all play a serious role in a person's intellectual performance within a certain situation.

### Description of Problem Solving

Let us now examine the steps needed to describe problem solving. The problem can be categorized in two groups:

- o when the cognitive schema, meaning the solution, is available to the person
- o when the schema, meaning the solution, has to be established

Another possibility is of a problem having no solution, but this fact is unknown to the person.

#### *The non-existent solution*

Before concentrating upon problem solving, let us deal with the non-existent solution. A problem can be unsolvable:

- o for a certain person;<sup>123</sup>
- o if it is excludable according to the rules of logic;<sup>124</sup> or
- o because of the lack of mental resources<sup>125</sup>

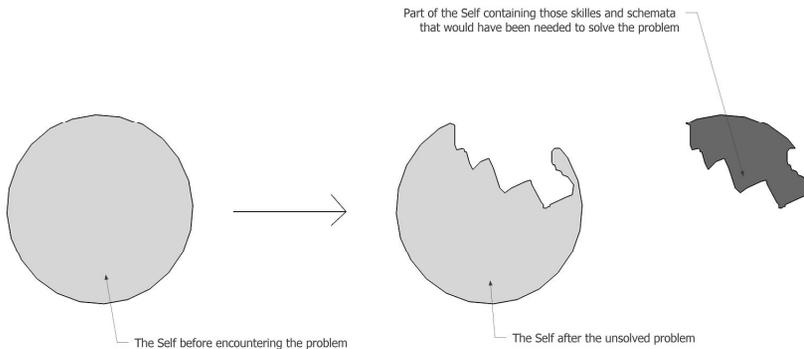


Figure 30: *Losing a part of our Self due to failure*

In case 1, there is a gap of several levels between the existing cognitive schemata and those required for the solution.<sup>126</sup> In everyday life, this may be the most frus-

<sup>120</sup> the way we structure our schemata, the way we solve problems

<sup>121</sup> how quickly we manipulate the schemata

<sup>122</sup> which has to be overcome in order to divide the schema into parts

<sup>123</sup> for example, for a three-year-old child,  $543+675 = ?$

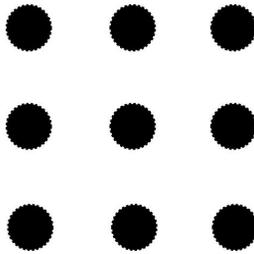
<sup>124</sup> for example, think of a number which is smaller than five but bigger than 7

<sup>125</sup> for example, multiply 876,231 by 982,312 in your head

<sup>126</sup> staying with the example: the concepts of numbers, summation, digits et al

trating type of problem (followed by the greatest Self-narrowing), since it can be perceived that the solution exists, only that our schemata are not good enough. If our schemata are inadequate, it means that we cannot model a certain part of the Environment, and are then confronted with the borders of our Selves.

This may create a division or reduction of the Self, forcing us to reassess our borders and restructure our Selves. This happens at a much increased rate if it requires an ability we thought we had.



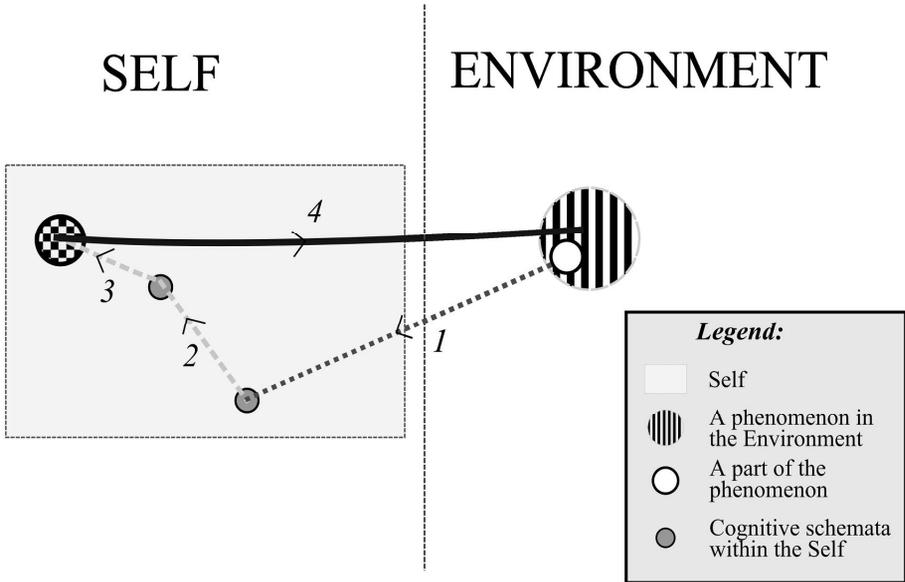
*Figure 31: Brainteaser: try to connect the 9 points with a single line that passes through the all of the points and changes course only 3 times*

The second type is not a real problem, as it has a solution: namely, that it is a contradiction in terms, at least within those frameworks we accept, it contradicts certain basic statements. In this case, it is the uncertainty that troubles us, as it raises the question whether there could be a way to modify the frameworks<sup>127</sup> in such a way that this problem also has a solution. Namely, that everyone has already experienced that new event, or feeling, which can only be established when we change the paradigm.<sup>128</sup>

However, the third type relates to the question of mental capacity: our memory is not endless, so the number of cognitive schemata we can manipulate at any one time is limited. Everything beyond this limit is unmanageable, or can be managed only very slowly and with different auxiliary techniques. For example, we can use our fingers to solve the abovementioned problem, or imagine it in a written form etc.. If the problem requires far more capacity, or cannot be solved, does not cause so much frustration, as the solution is ‘the capacity of my brain does not allow me to answer’.

<sup>127</sup> technically, paradigms

<sup>128</sup> cf. out-of-the-box-thinking, when one can step out of the frameworks and is able to look at the problem from a higher level, thus bringing new solutions



A part of a phenomenon activates (1) a cognitive schema within the Self. This schema activates (2, 3) others until the schema representing the whole phenomena is activated (4)

Figure 32: The process of finding an extant solution

### Finding Extant Solutions

The simplest case is when the solution of the problem is readily available. Amongst the person’s cognitive schemata there may be one which properly represents the Environment. The only issue is of recalling this schema. Most often this happens through several metastases: the person identifies a detail of the problem which he can recall, the connecting schemata then activate, which finally<sup>129</sup> activates the schema representing the solution of the problem fully and properly.

For example, when we do not see a whole apple, only a part of it upon which we see the apple’s seeds as well. The seeds activate the schema of the apple’s core, which activate the schema of the apple.

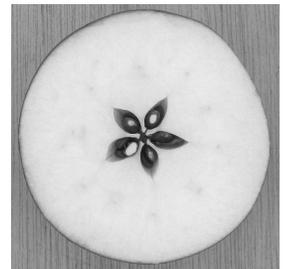
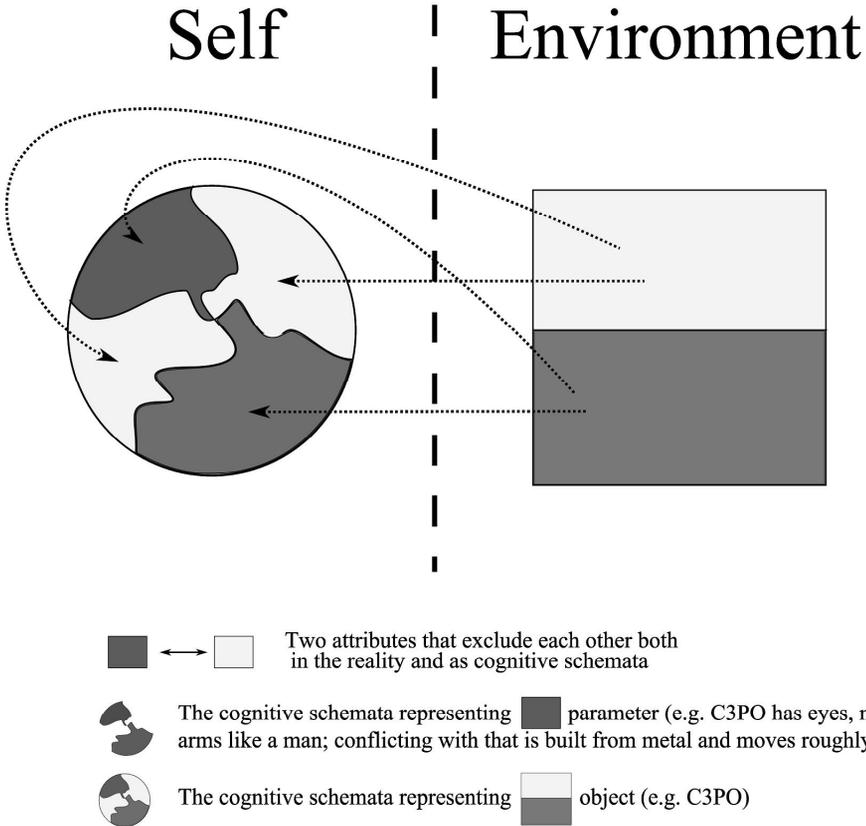


Figure 33: We recognize an image based on just a part of it (apple)

<sup>129</sup> possibly by connecting with other schemata

*Establishing a new schema*

Establishing a new schema is unlike drawing on blank paper. No schema can remain unconnected within the Self, as it would then never be activated for lack of a link to it; every new schema should be built on the old/previous schemata. The old schemata cannot fall into pieces and restructure itself or themselves, as they have the parts that preserve the internal relationships of those pieces. These relationships connect the old and new to other, pre-existing, schemata.



*Figure 34: Two conflicting parts of the same object, and the activated schemata*

As described in 'The manipulation of partial-schemata', a schema can fall into pieces rebuild itself, and so a new schema is established. This occurs when certain elements of the old schema do not represent the Environment proper, as there is no agreement between the two parts of it, one or both of them is/wrong. The same situation occurs when two separate schema do not fit each other, despite both of them partially describing the Environment.

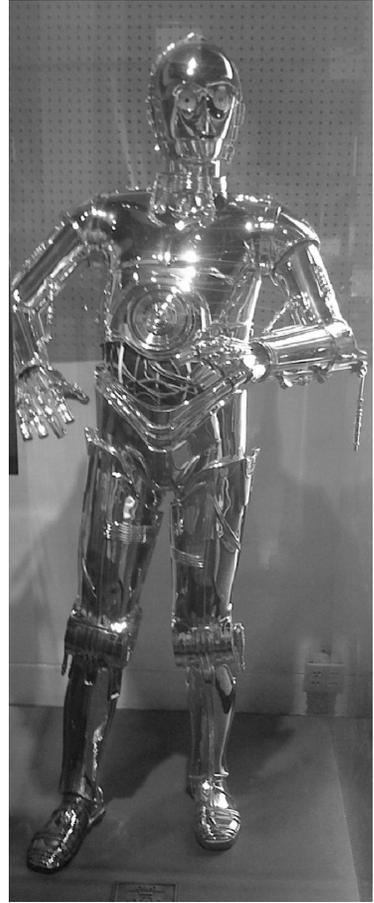
The Self tries to declare one of the competing ones unusable, and attempts to

convince itself that that one is irrelevant on this occasion. If the Self can convince itself to neglect one, it would then be free to use the other competing schema. To achieve this, the Self activates increasingly deeper levels of sub-schemata within the two competing schemata.

For example, on the attached figure the viewer cannot decide whether he sees a man or a machine. It is made of metal, but it has eyes and hands. It has no skin, but its head and extremities are discernible, and so on. This man or machine conflict maintains until he – it – realizes that it is an android. If he could reject the possibility that it is a man, then he would have considered it as a machine, which would then raise the questions of what this machine is for, how it functions etc.

The more active the sub-schemata beneath the two competing schemata are, the more intense the conflict is, and the greater the Self-narrowing. But the connection of the sub-schemata can dissolve just as they are established, and can be reshaped within a new group. These attempts at connection are termed problem solving. The new schema is established when the partial schemata – by bridging the differences – may form a new group that integrates everything by different connections within and between the schemata. The establishment of the new schema does not cancel the opposition between the former two schemata,<sup>130</sup> but integrates them in a new way. The better the integration of the two schemata,<sup>131</sup> and the more unambiguous it is internally,<sup>132</sup> the more stable and usable it is.

A certain quality assurance is obtained if the brain keeps the number of contradictory connections below an acceptable minimum.<sup>133</sup> As with quality controls in manufacturing, after a test phase it can be stated that a new 'product'



*Figure 35: Is this a man, or a machine? (Android called 'C-3PO' from the movie Star Wars)*

<sup>130</sup> so the concept of the android does not confuse the terms of man and machine

<sup>131</sup> the more parts (elements, partial schemata) are successfully integrated

<sup>132</sup> so that there are no contradictions between the partial schemata

<sup>133</sup> this 'acceptance level' differs from person to person, and is viewed as demand level. When we say that 'somebody has high standards', we mean that his acceptance level is high; he cannot accept too many contradictory connections

has been made : the new cognitive schema. This also demonstrates that it does not matter if we have some intuition about the right method. We check the principal points before becoming sufficiently satisfied to share it with our social environment. The main role of the social Environment, besides using the new schema, is that it is a part of the testing process: when we tell our friends a new idea or solution, they – with good or bad intentions – will criticize it, so trying to assist us in making an unambiguous cognitive schema.

Testing is nothing other than applying the new schema to different situations, facts etc. As it is nothing other than establishing newer connections with existing schemata, thus it offers increasingly higher level integration with the set of cognitive schemata. Until this testing brings positive results, by making more and more positive connections to the cognitive schema,<sup>134</sup> the Self expands more and more. This Self-expansion acts as a positive affirmation (to an optimal level), and the cognitive schema urges the person to further sharing and testing.

Behind the Self-expansion, the more connections the new schema makes, the more often it provides a more valuable answer<sup>135</sup> than those previous, and so increases the power of the Self over the Environment; or, equally, it decreases the Self's defenselessness in the face of the Environment. This is achieved as, by being able to model the Environment, it can be manipulated or dealt with in a manner that could not be done before.

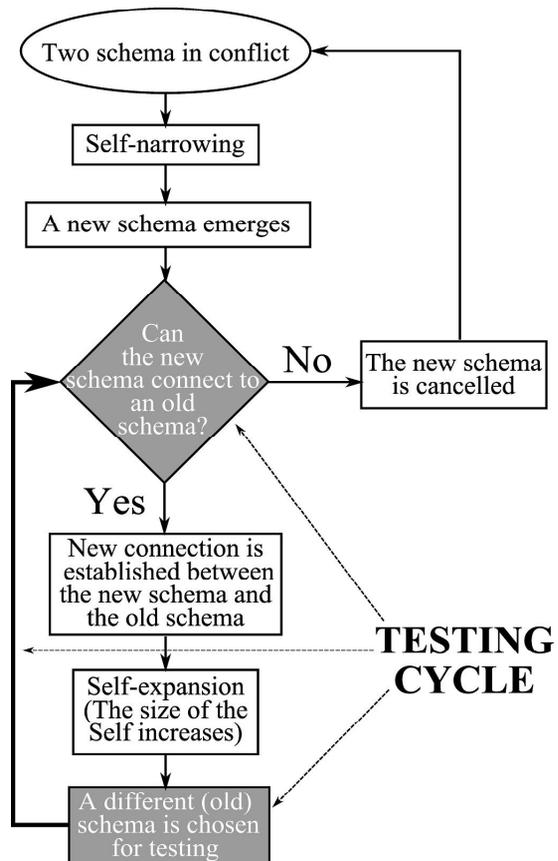


Figure 36: - The process of testing

<sup>134</sup> in the mind of the person and that of the social Environment

<sup>135</sup> more usable, more precise, faster

Self-narrowing is bound to a tendency to do away with one of the two competing schemata in order to be free to use the other; this tendency leads to a certain type of aggression. The aggression is rooted in the mental effort required to disable those connections that activated the cognitive schema, and which are to be ignored; this requires intense concentration. For example, to ignore the possibility that there is a man in the picture above, having decided that we want to see it as a machine. Aggression is also an adequate answer, as until the Self can no longer model the Environment properly, it is in danger: since the model is wrong the Environment is less manageable, its reaction or behavior cannot be predicted, and such Environments threaten the existence of the Self.<sup>136</sup>



*Figure 37: Tomato with an outgrowth*

In many cases, the appearance of aggression solves the problem. Think of a tomato that we want to give to someone as a gift, but upon it is an outgrowth, a smaller tomato. By breaking off the small tomato (which in our example is the appearance of aggression) we obtain a 'perfect' tomato, and can now give it to the target person.

If we look more closely at the example, we notice a small misinterpretation within it. By breaking the small part off, we obtain a nice tomato. However, the small one will have left a mark upon it. This is the beauty of the example: it shows that aggression does not lead to a perfect solution, as two things were connected, and we removed one of the two competing schema (the small tomato) in vain; the trace of the former link indicates that this is no longer a whole, only a part of the whole. Perhaps expansion of the example is a trifle forced, but maybe the best

<sup>136</sup> To expand this example, let us imagine that we are in an examination, and our result depends upon describing exactly what C3PO is

solution is if we give the juice of both the big and small tomato to the target person, thus preserving the original whole, as in tomato juice the two ingredients do not divide. Of course, the connection between the shape and the content of the tomato has been dissolved again, by squeezing. This is considered to be an aggressive act, as the trace of the missing link will be visible again.

A small detour: the missing link always indicates that it is not the whole, and that it is in a state preceded by aggression: it is not accidental that people shy from the sight of a truncated body, even if it is not bloody or the wound is not fresh. The trace of the link –, for example, the site of the missing limb – indicates the preceding aggression and the injury of the whole, thus it cannot activate a whole schema. That is why it can be difficult for us to perceive an injured person as physically whole.

## Satisfying the hunger for problems

The abovementioned connection, according to which Self-expansion has a positive reinforcing effect, has further consequences. Those people for whom problem solving causes more Self-expansion than Self-narrowing, will seek further possibilities for Self-expansion through searching out problems and solving them.

But when does problem solving in general provide one with more Self-expansion than Self-narrowing? This happens when:

- o he can solve the problems he faces because of his abilities
- o he faces problems which fit his abilities
- o his social Environment is suitable for sharing his newly-established schemata, and thus he gains further Self-expansion.

To make the above list more understandable, let us examine a few examples from the world of children and school:

Maybe it is easiest to admit that a very intelligent, creative child, with a good memory, has a greater ability to solve problems than his schoolmates of poorer ability. He experiences Self-expansion more often, and will enjoy meeting problems, since he has a bigger chance of solving them than failing and, in doing so, obtain Self-expansion.

The proper choice of a problem's level of difficulty can help any child to come to enjoy challenges. Even with lesser abilities, if a teacher gives him problems which accord with his intellectual level, knowledge and main abilities – for example, visual creativity, fine motor function,<sup>137</sup> technical sense, physical abilities etc. – then his sense of competence, and his Self, will grow, and he will with pleasure seek future challenges. The opposite of this is also true. If the child with greater abilities faces overly simple tasks, then the Self-narrowed periods will be short (as he solves the problems easily) and, as a result, the Self-expansion cannot be that important either. So he loses interest in solving problems as a “source of Self-

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<sup>137</sup> namely, manual skills

expansion”, and will look for other sources; sport, sex, drugs, gambling etc. That leads his Self through bigger Self-narrowing/Self-expansion phases. We can go further: standards set too high can cause proportionally greater Self-narrowing, even in children with good abilities, which also diverts them from seeking out problems.<sup>138</sup>

We already know that family background determines a child’s performance in school, regardless of their mental abilities. This can be considered more generally. The social Environment with which the child shares his schemata was originally defined as absolutely subjective, so not necessarily the parents or the teacher have to be the important people with whom the child shares his pleasure arising from the new schemata; it could be an old neighbor, or a distant relative. In spite of this, the class, teachers and parents usually offer a determining pattern on sharing knowledge. They provide an atmosphere allowing the child to increase the pleasure that comes from the Self-expansion following problem solving. The best example of the opposite situation is an unhealthy atmosphere in a class. Here, lack of preparation and knowledge, coupled with foolishness, come into play; for example, because a child of weak mental ability becomes the central character. Such an atmosphere does not aid problem solving, or sharing that with others. It limits the circle of friends who can function as a social Environment. Moreover, the child cannot have Self-expansion on their own undisturbed, as they will be at a disadvantage if friends catch sight of it. The same applies within the family. The child may discover the parents as partners<sup>139</sup> with whom to share the new schemata discovered at school. The child can tell them, and the parents may even understand what new things he realized in class, and further contribute to the child’s ability to both seek problems and to share the joy of the solutions at home.

To summarize...The fortunate concurrence of the abovementioned circumstances, which I consider as a task for teachers and parents, provides a type of hunger for established problems. This prompts young people to apprehend, throughout their lives, that part of life which is more difficult, but also provides more pleasure. This hunger for problems is a key issue for, *inter alia*, successful careers in many fields.

## **Natural – and artificial – self-confidence (narcissism)**

The majority of parents realize, after evaluating their own – and others – careers, that if they want to see their child become a successful person, then that hunger for problems and knowledge must appear in the child. Many people go further, and say that the greater the hunger for problems, the greater the success the child will achieve. This statement also applies to the first approach. Although a different

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<sup>138</sup> this is similar to the phenomenon of “learned helplessness”, when people learn that they cannot change anything in their lives. Their Selves shrink artificially and disproportionately to their abilities, and after a while they give up trying to make their lives better. They do not feel that they can affect their Environment, and are always filled with anguish because of their exposure to the Environment

<sup>139</sup> so that the parents can function as his social Environment

issue, whatever sacrifice success may require,<sup>140</sup> for most of the parents<sup>141</sup> no thought is given to this.

In order to proceed, let us accept the following hypothesis as true of parents: “the greater the hunger for problems, the more successful the child”. Note that this assumption incorrectly emphasizes something other than happiness; it is not saying “the greater the hunger for problems, the greater the Self-expansion,” and these Self-expansions will lead to a happy life.

Unfortunately,<sup>142</sup> parents have the power to artificially intervene and so increase the appetite for problems. How are such interventions made?

False feedback: constant compliments – such as how skillful/clever/nice you are – can increase the Self-expansion of the child after successful problem solving. This may result in a happy child in the short term, and have a reinforcing effect in that the child seeks out new problems and, by solving these, satisfy his and his environment’s need for success

The child is given seemingly difficult, but actually easy, tasks. In this case he does not obtain greater Self-expansion than he deserves, as the Self-narrowing was not that great. However, the proportions of Self-expansion (after establishing a new cognitive schema) and Self-expansion (after sharing this schema) will be permanently distorted. This creates and builds a strong dependence on social Environment in the long term, as he will expect Self-expansion later in his life, not so much from actual performance, but from social approval, partners, family and friends.

Where does this artificial inflation of the Self, and constant seeking of Self-expansion, eventually lead?

One possibility previously mentioned is when the performance, due to greater ability, is outstanding, but the hunger for problems can never be satisfied. So, a burden of performance emerges, which relies only on one source of Self-expansion: problem solving by using the intellect. This disturbs the balance of the personality, that which comes from the possibility to obtain Self-expansion from different sources, such as via human relations, physical activities etc.<sup>143</sup>

It can lead to cheating. When the apparent activity that causes further Self-expansion ends, then the Self-expansion, coming from a disproportionate reflection, can only be reached by artificial tools that provide disproportionate effects; for example, through drugs or criminal activity. The problem with these is that they cause substantial Self-expansion only in the short term. In the long term, its negative consequences stand out: it might be good to rob banks, as a lot of money is obtained quickly. In the longer term, however, he is pursued by police. Constantly hiding from them causes anxiety which leads to Self-narrowing.

If there is artificial inflation, there can also be eruption. When a person realizes

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<sup>140</sup> health, mental balance, human relations etc.

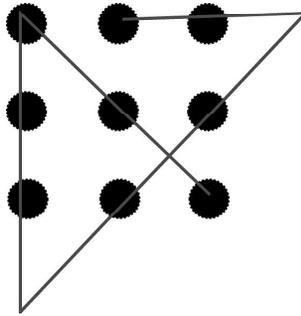
<sup>141</sup> especially those who were unsuccessful, and are now compensating for this at the cost of their children

<sup>142</sup> it would be better if the parents could forget their own goals and competitive attitudes, and focus mostly on their children’s happiness, rather than on their performance

<sup>143</sup> cf. Enlightenment section on specialists in a narrow subject with no other interest

that some people<sup>144</sup> lied to him, that is hurtful, especially if these people are close relatives, who provide the frame of reference in many fields of life. This fracture in somebody's life causes greater Self-narrowing, although this may still be the 'least worst' scenario compared with the two alternatives mentioned above.<sup>145</sup>

A person with an artificially inflated Self may find it difficult to realize that they in that condition. Even if – as a result of a personal tragedy or a serious interpersonal problem<sup>146</sup> – they did realize this, to rectify that would be extremely painful for them. No one is happy about giving up the status he has reached, especially when he is used to fighting for everything and ceding nothing. This lies behind the condition called narcissism. Narcissism<sup>147</sup> goes with an overly high level of aspiration, and thus an incapability of achieving happiness, which may cause other mental diseases or problems.



*Figure 38: Solution of the nine points problem*

A good example of solving a problem is by reinterpreting these frames: who said that you are not allowed to leave the imaginary square around the dots?

Principal points covered in this chapter:

- selecting and using cognitive schemata
- determining whether problems are capable of being solved
- Self-confidence and narcissism

<sup>144</sup> even with good intentions

<sup>145</sup> being a specialist in a narrow subject with no other interest or cheating

<sup>146</sup> for example, losing their job, or a divorce

<sup>147</sup> self-love

## 9. UNDERSTANDING AGGRESSION BY DEFINING DIFFERENT TYPES OF RELATIONSHIPS

Objects, entities, and their see-saw relationships. \* A schema as absolute ruler. \* Separating or compressing models; strength or weakness? \* Magnetic attraction...or repulsion? \* Connections; the energy they require, and mixed messages. \* Classical and FIPP concepts of aggression. \* Aggression can narrow the Self. \* But does it look like that? \* Intimidation of groups. \* Aggression can be good for you. \* Verbal versus physical violence: the decider?

### Introduction: the types of relationships between objects

Before examining the concept of aggression, let us examine more closely how we define something, and which possible relationships two cognitive schemata can have.

#### How does a definition work?

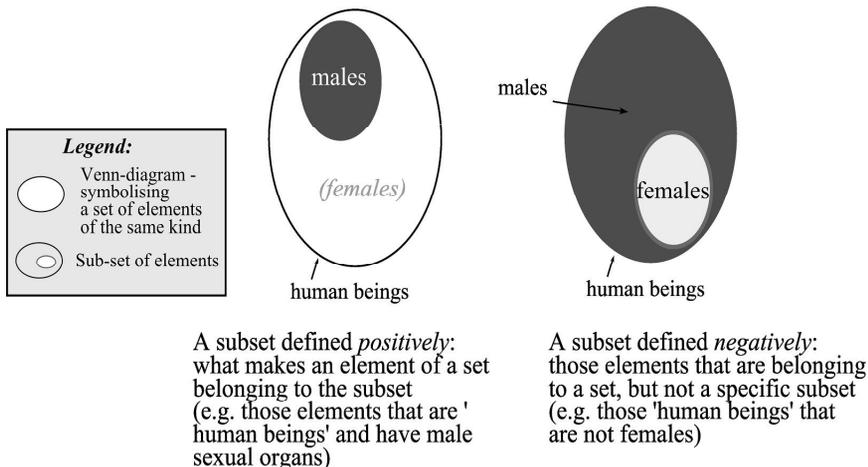


Figure 39: Defining 'man' in two ways

When we would like to define something (for example, what is a man?), there are two ways to do that:

- o in a positive way: we specify what it is (a man is a human being with masculine sexual organs) OR
- o in a negative way: we specify what it is not (a human being that is not a woman)

Note:

- o when we define in a positive way, we do not obtain further information on other things that might belong to the same group (in our case, there is no information on women)
- o when we define in a negative way, we have to know exactly the definition of those entities that were excluded
- o the negative way is not that precise, as there might be other members of the set that are not taken into consideration (for example, the hermaphrodites in our case are also taken as men).

**Relationships between two entities**

As numbers and logic fundamentally determine both our thinking and our view of the world, the truth of mathematics also affects how we look at – amongst other things – relationships. A simple form of this is to describe the relationship between different entities<sup>148</sup> as positive,<sup>149</sup> neutral (nil) or negative.<sup>150</sup> This describes the implicit manner in which two entities affect each other during their relationship. However, until we define and measure the effect precisely – not only its direction – we are satisfied with knowing that:

- o they help each other’s activity (for example, when neurons stimulate each other); or
- o they hold each other up (for example, when neurons inhibit each other); and
- o the condition in which they have nothing to do with each other, maintains, so that the entities are independent.<sup>151</sup>

Let us define the relationship between cognitive schemata along analogous lines, but with a small dif-

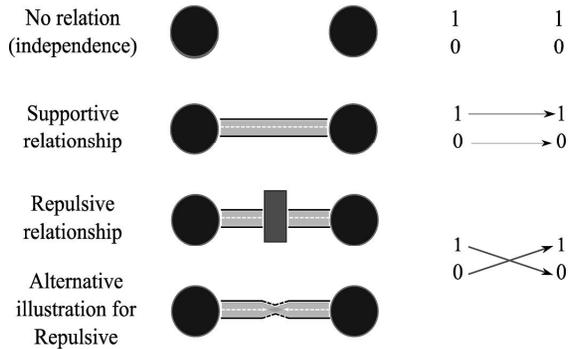


Figure 40: Basic relationship types

<sup>148</sup> for example, GDP and employment rate; sunny days per year and money spent on ice cream, etc.

<sup>149</sup> for example, 3, 251.92

<sup>150</sup> for example, -2, -659.34

<sup>151</sup> according to mathematical logic, helping is addition, interference or fence-sitting is negative addition (negation)

ference, by dividing the three connections into two differing subtypes:

- o where there is a connection between them (as when there is a road between two cities); and
- o where there is no connection between them (as when there is no road between two cities).

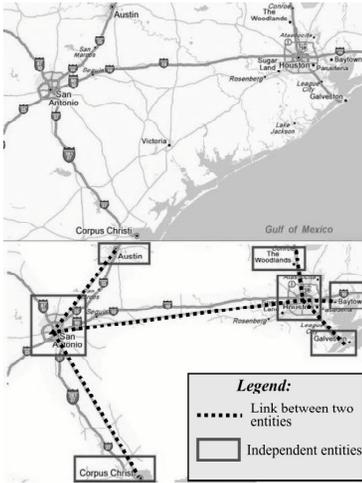


Figure 42: Supportive relationship

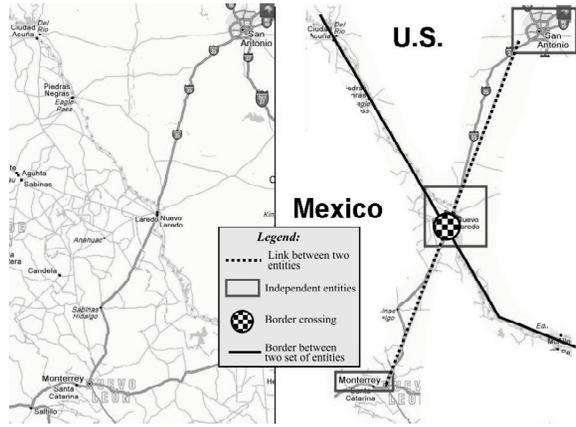


Figure 41: Repulsive relationship

When there is a connection between them, then:

- o either information streams through it (as when we are free to travel between cities). Let us call this a supportive relationship;
- o or the streaming of information is forbidden.<sup>152</sup> Let us call this a repulsive relationship. A good way of imagining a repulsive relationship is when we try to define something not by what it is, but by what it is not.<sup>153</sup>

What is the consequence of these defined relationships? In the case of supportive connections, the information streams between the connected schemata so freely, and quickly, that it is almost impossible from an external viewpoint to distinguish the individual elements from either each other or the whole. On the contrary, repulsive connections actively separate whole schemata from each other, thus limiting what is a part of one and what is not.

<sup>152</sup> when in the middle of the road between two cities/countries armed guards make sure nobody passes through; the Iron Curtain, the Berlin Wall

<sup>153</sup> for example, we do not say John is a man, rather that John is not a woman

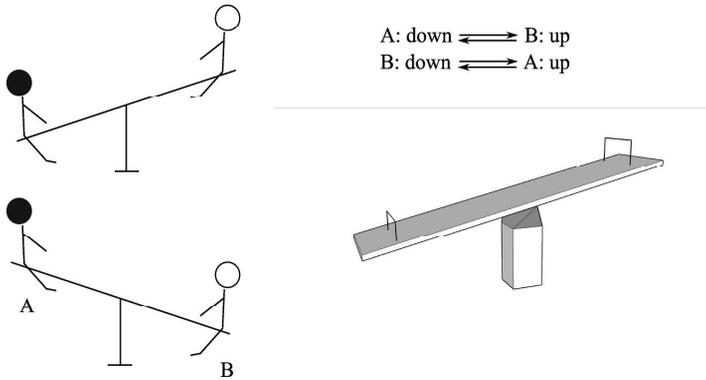


Figure 43: See-saw

To illustrate the repulsive relationship using visual analogy, let us use the see-saw (teeter-totter). The two children sitting on a see-saw are connected to each other, but always in an opposite position. One position fully determines the other. In mathematical terms, the relationship is  $A = \text{not}(B)$ , so that if A changes, B has to change as well, and vice versa.

Such divisions of relationships, especially the “merging” effect of supportive connections, explain how it is possible that lower-level schemata and their integrations (the higher-level schemata) are at once different and yet the same.

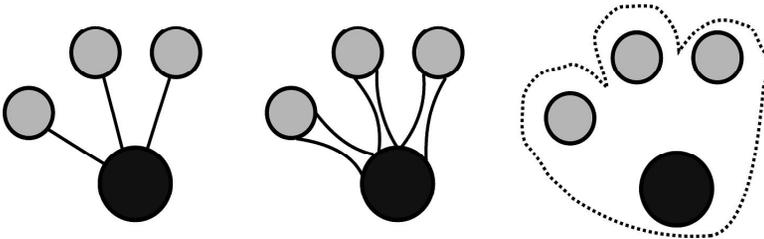


Figure 44: Different ways of illustrating a schema and its ‘children’ schemata

Why are these connections interesting in the case of aggression? That is what we shall now look at.

## Perceiving the Environment exclusively by a sole schema representative of it

### Establishment of the absolute ruler schema by integration

As seen in the descriptions of FIPP<sup>154</sup> and function practice,<sup>155</sup> the relationship of the Environment and the Self is fundamentally determined by how successfully we can represent the surrounding world with models called cognitive schemata. A person dominates his Environment when the schemata used at a particular moment is, alone, capable of gathering and processing, without contradiction, information in connection with the relevant events, objects and phenomena of the world.

We can define the final goal of all problem solving as the Self representing the Environment as a single unambiguous schema (having only supportive connections within it). One way of achieving this goal was described in Problem Solving: mismatched schemata represent different parts and aspects of the Environment, out of which a new schema emerges, which then represents the former two (or more) schemata in an unambiguous way. The Environment is then modeled as an absolute ruler schema.

### Other methods of establishing the absolute ruler schema

That two (or more) schemata do not match is caused by repulsive connections between them. To dissolve such connections, there can be integration with restructuring. In addition, there are two other procedures that lead to a representation in the form of a schema. It is characteristic of both that they reverse the connections that play a role in the non-matching, in order to rid themselves of contradictions. The two solutions are

- o separation; and
- o compression.

Separation occurs when a supporting connection ends as it connects to a part that makes the schema contradictory. A gruesome illustration occurs in those countries where the hands of thieves are cut off as punishment. Another example is where a region of a country separates, declaring independence from its motherland.

In compression, repulsive connections are turned into supportive ones. So, those parts originally separated become connected; for example, when we try to put two non-matching puzzle pieces together by force. However, to add another grisly example, a knife – something which does not fit with a body naturally – is pushed into somebody. Alternatively, where a country is invaded and forcibly subsumed into the territory of the invading country against the will of its citizens.

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<sup>154</sup> see Chapter 3

<sup>155</sup> see Chapter 12

## The characteristics of separation and compression

By considering the abovementioned examples and descriptions, reversing the connections (making a supportive one out of a repulsive one, and vice versa), mostly leads to a socially less valuable output than the initial state. However, separation and compression as such are cognitive processes that of themselves do not have value: they simply improve or weaken the model of their Environment. The common name for the two processes (supportive and repulsive) is aggression. It does not contradict the known psychological fact that there are socially valuable forms of aggression.<sup>156</sup>

That aggression – and within it separation – is a useful process, one easy to observe in the manipulation of schemata. We have seen in Problem Solving that, before establishing a new schema, we must first manipulate the pieces of certain schemata: we attempt systematically to put them together in order to find a new, better, fit. The separation of the partial schemata from each other plays a key role in this process. Note that, although it would seem logical to attribute the leading role to the process of separation, when the new schema is suddenly established from the many parts, it probably does not happen like this. The connections temporarily cease to be (as if there were never any connections) and the completely new schema is formed on the basis of its independence from each other. This also displays a difference between the technique of establishing a schema by complete reconstruction, and the technique of dividing them into parts and trying to fit them to each other randomly.

Another obvious advantage of separation is seen when the complete schema from which we separate something, has no relevance for the Self. For example, when a sculptor crafts a beautiful shape out of a large stone; although the shapeless stone is a schema, it is completely irrelevant for the Self of the person who observes the sculptor. This is the converse of the Self of the sculptor, who has to have a precise picture of where cracks and faults are, where the stone is hard or soft, where and in which direction it can be cleaved in order to shape it. A similar, less artistic example is a quarryman who strikes a stone. The only important thing for him is to make smaller pieces of stone; to divide a bigger whole into smaller parts.

Another example better demonstrates the aggressive nature of separation. If I pull a key out of a lock then push it back, nothing happens. However, if I break and then glue back together a porcelain vase, we realize that the distinction lies in the different cases of separation. For the “key-in-the-lock”, the constituent parts have the schemata that represent themselves; the “key-in-the-lock” schema can integrate them. The pieces of the porcelain vase are not independent schemata, thus the compression (the gluing) is not a possible method of integration. Aggression in this case is akin to breaking the vase into pieces, which cannot be reinte-

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<sup>156</sup> for example, defense forces

grated.<sup>157</sup> Separation is exactly the same in both cases. The difference is whether it happens to two separate schemata that are in a repulsive relationship with each other.

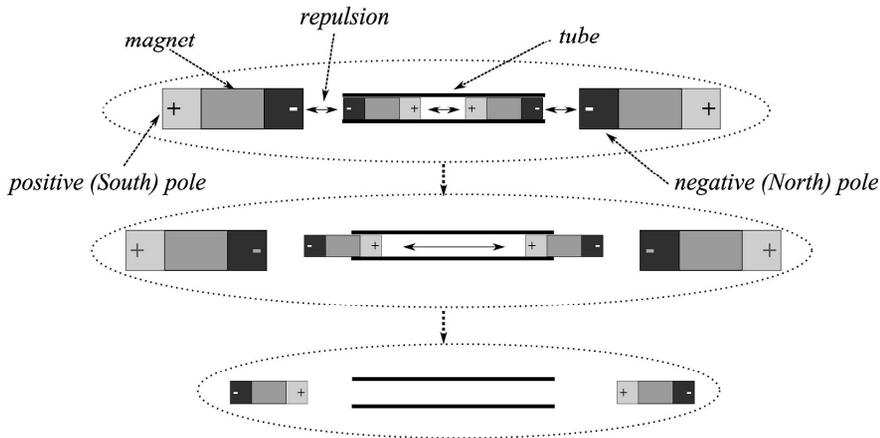


Figure 45: Magnetic attraction and repulsion

This position can be demonstrated with two magnets, the poles of which are aligned and so should repulse each other. Yet they do not move from each other as outer effects hold them together (two larger magnets, of higher strength, push them towards each other on the image). As soon as the outer effect ceases, the magnets move to a distance from each other where they no longer repel each other.<sup>158</sup> The repelling effect of the magnets is similar to repulsion, and the outer cohesive effect parallels the compression.

### Mixed types of connections

The situation is different when not all the connections are repulsive, but there are supportive connections as well as repulsive ones (see image). In this case, only integration with restructuring can help to avoid mixing the connections.

Mixing of connections is also of key importance in compression. We can make stable connections, equal in value to connections based on integration, if no repulsive connections remain between the sub-schemata.<sup>159</sup>

<sup>157</sup> only if we purposefully do it

<sup>158</sup> according to the law of physics, to an infinite distance

<sup>159</sup> for example, when we have a cork and a bottle in our hands, we have two separate, distinct schemata. When we begin to cork the bottle, overcoming the friction between the cork and the mouth of the bottle, by overcoming the repulsive effects we establish supporting connections. The supporting connection in this example is the adhesion (friction) between the cork and the mouth of the bottle, which does not let the cork come out, even if there is increased pressure in the bottle. We have then established from this the “schema of corking”

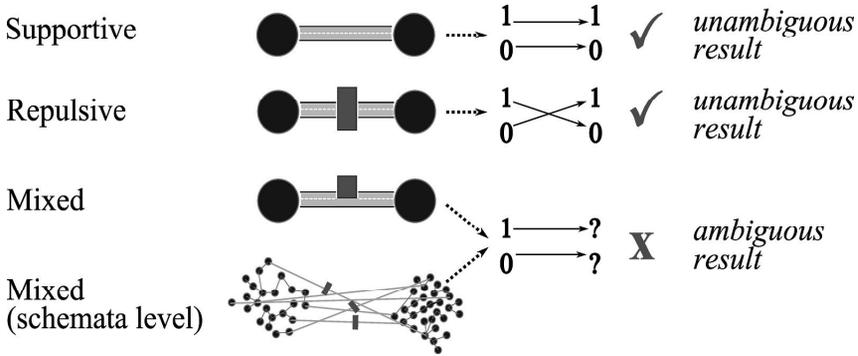


Figure 46: *Ambiguous connections lead to uncertainty*

To summarize, mixing supportive and repulsive connections generates an unstable situation due to the uncertainty that it leads to.<sup>160</sup> The uncertainty comes from the situation that, if an active schema is connected ambiguously to another schema, should that increase its activity, or would that decrease its activity level? That is why the aim is always to have either repulsive or supportive relations within both two schemata and their sub-schemata.

### The energy of connections

In both separation and compression, establishing and modifying connections takes effort. For example, in chemistry, the connections between atoms are known as chemical bonds. Chemistry describes the concept of binding energy, that energy required to disassemble two – or more – connected atoms of a molecule.<sup>161</sup>

Staying with chemistry, we are able to measure precisely and examine the energy used in separation and compression. In mental processes, we can, at best, indicate only the types of relationships (increasing, decreasing, bigger, smaller) during the processes, as they are difficult to measure. It is almost certain that the energy used in the mental processes has nothing to do with the energy surrounding what is happening in reality. The energy required to activate an atomic bomb by pushing a button has no association with the energy released on the explosion. Also, there is no connection between the physical and mental energy required for the extraction and carving of stone. It seems most likely that it is the number of connections to

<sup>160</sup> similar to the situation when we press on a car's accelerator and brake at the same time. How should the car react?

<sup>161</sup> example: in order to disassemble the H<sub>2</sub>O water molecule to an O atoms and two H atoms, we have to place an electric current through the water via an anode and a cathode. The energy (electricity) is required to dissolve the hydrogen-oxygen connections in the water molecules. To make two atoms join (at least initially) also requires energy (during the joining process the same amount of energy is generated as is needed to dissolve them). Usually, this generated energy feeds the process after it has begun: when we light a fire we provide the energy needed for starting, then the process sustains itself

be changed that most determines the mental energy: the more sub-schemata connected to a sub-schema, the greater the energy required. It is important to note that the one significance of the level of a schema is that a higher-level schema has more sub-schemata, and can thus have more connections; the sub-schemata of lower-level schemata have fewer bonds.

Note that, if we could ensure that the cognitive schemata operate in accordance with general systems theory, further examination of this bonding energy, and of the energy flows of a system, might provide interesting results.

Another important question in changing the connections is the relationship of the schemata and the Environment. Mentally, we can only deal with schemata and their related connections. However, the schemata represent the Environment. Until the Environment changes,<sup>162</sup> there will be discrepancies (contradictions) between what we perceive and the schemata we have. Accordingly, we either modify our schemata so that they model the Environment,<sup>163</sup> or we modify the Environment to make it accept our schemata.<sup>164</sup> The third option is to try to avoid realizing such differences between the Environment and our schemata.<sup>165</sup> This third alternative is the least attractive, as it does not provide a real solution, and eventually the Environment behaves in a manner difficult to overcome on a cognitive level.<sup>166</sup> Regardless of this, this solution is widely used, as it often requires less energy than do the two ‘modifying’ solutions.

## Separation and compression as Self-narrowing effects

The establishment of the schemata means a positive confirmation for the Self.<sup>167</sup> At the same time, modification of the connections is not Self-narrowing if a higher-level order can only be made by switching the connections. This requires consistent connections (either only supporting or only repulsive, but not mixed) between two schemata, or not to have contradictory schemata.

Inconsistency can be illustrated visually with images in which there are holes in the wall (supportive relationships amongst repulsive ones), or when there are potholes on the road (a few repulsive ones among supportive relationships). Such inconsistencies remaining within a schema do not provide obvious answers if we want to use the schema. It is only a matter of time before the contradictions emerge as problems.

Nevertheless, if we have too many inconsistent schemata it narrows the Self, as with the problem, so we can state that separation and compression cause Self-

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<sup>162</sup> through our actions or activity, or independent of us

<sup>163</sup> this is called passive adaptation; an example is how we think about the relationship of the Earth and the stars, whether the Earth goes around them etc.

<sup>164</sup> this is so-called active adaptation, as when we excavate passes through mountains to build railways or highways

<sup>165</sup> for example, when we do not want to notice that raindrops are falling because we want to barbecue outside

<sup>166</sup> for example, it begins to rain so much that it puts out the barbecue fire

<sup>167</sup> as it has more and more tools to represent the Environment so that it can exert an increasingly greater effect on the outer world, becomes increasingly safer, and thus has a Self-expansion effect

narrowing. The greater the number and size of the inconsistencies,<sup>168</sup> the more Self-narrowing is caused.

## **The aggression concept of FIPP, and classic psychology**

In psychology, there are different groups of aggression according to the aim (for example, self-defense, territorial acquisition), the method (verbal, physical) and the form (latent, mental, auto-aggression) of aggressive behavior. Despite our feeling that there is something common in these manifestations of aggression (which is why we talk about the same concept), defining it properly, and including all the forms of it in the meantime, is difficult. The difficulty of the definition arises principally from the duality of behavioral manifestation and mental processes; someone can say something nice about us and yet wish us in hell at the same time. Or he gives us his knife with the hope that we will cut ourselves with it. The difference in behavior/mental process is more clearly seen in passive aggression, when we do something by doing nothing. It is the negligence of an altruistic act.<sup>169</sup>

### **The aggression concept of FIPP**

When we first examined FIPP, we admitted that Environment is a completely subjective construct. Thus, we could clearly demonstrate both the priority of mental processes and that the change of the Environment is merely a result of the changes of our schemata. Such separation of the outside world and a person's Self, while emphasizing mental functions, explains amongst other things the equality of word, thought, negligence and act preached by different religions. As everything (talking, inaction and movement) is represented on the level of schemata, thus from his psyche's point of view it is practically all the same. This is the case no matter whether the child merely has detailed daydreams about hitting his younger brother, or actually does so.

In harmony with the above, FIPP defines aggression as follows: aggression is nothing other than separation and compression performed on the level of cognitive schemata (independent of whether it will appear in any form of change in the outside world).

### **Verifying FIPP's definition of aggression in relation to the results of psychology to date**

To verify whether this definition – which appears elegant at first – is in harmony with the current state of psychology, and whether it explains the former connections that have a paradigmatic effect, let us examine the so-called frustration-aggression theory. According to this theory, manifestations of aggression are pre-

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<sup>168</sup> so that the proportion of the repulsive and supportive connections between two schemata is 50-50, instead of five or six connections of the schemata connecting with, say, 2,000-3,000 contradictory connections

<sup>169</sup> for example, not holding out our arm to prevent somebody about to walk off a pavement into traffic

ceded by frustration in the majority of cases. Accordingly, people respond with either regression<sup>170</sup> or aggression when they are frustrated. But what is frustration? Psychology defines it as a hindrance in reaching a goal. According to FIPP, this is nothing other than the simultaneous presence of two mismatching schemata (one is the attractive goal, the other the obstacle itself).

Rarely do we have the possibility – or time – to integrate the schema of the aim and the schema of the obstacle, so separating the obstacle and the connected aim, then dividing it into parts hoping that with the pieces it will not connect to the schema of the aim. For example, we break the door, since the wooden pieces of the door cannot prevent us from entering the house. If the disintegrated schema was irrelevant for the Self in the first place (so that it is not connected to anything), then aggression is a solution. Nevertheless – staying with the former example – if we built the door with our own hands and are proud of it, breaking it is not such a good solution.

### **The relationship of aggression and Self-narrowing**

We have seen from the former descriptions that a problem can have different solutions.<sup>171</sup> It can be solved with integration, when there will be one schema out of two schemata, but we can also detach one of them and 'terminate' it by slicing it into pieces. The question remains, which one to use?

To answer that, we have to understand that Self-narrowing is caused not only by aggression, but also that Self-narrowing leads to aggression. This happens during Self-narrowing and manipulating schemata; series of separations and compressions occur as a pot-luck method of problem solving.

We could say that the strategy chosen depends upon our personality. But we can go further: if we destroy one of the competing schemata, we recognize and record  $x$  amount of Self-narrowing. If we wait until we find the schema (the solution with integration), during the search process we will also have Self-narrowing, the most extreme value of which would be  $y$ . The difference between them is that  $x$  remains even after solving the problem, while  $y$  turns to  $z$  Self-expansion, where  $z$  is proportionate to  $y$ . But we have an amount of uncertainty as to whether our Self-narrowing will turn into the same amount of Self-expansion as a result of finding the integrative solution.

If our former experience shows that<sup>172</sup> we often find the integrative solution, then we will undergo  $y$  Self-narrowing, because it will be compensated for, and the solution will be stable. If we do not trust our abilities then it is easier for us to live with  $x$  Self-narrowing, and we will choose the disintegrative solution.

According to this, our persistence in trying to find the long-term solution depends upon the following:

- o the relationship of  $x$  and  $y$  (which one is larger)

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<sup>170</sup> returning to a former stage of personality development

<sup>171</sup> solution of a problem: making a new schema out of two non-matching schemata

<sup>172</sup> due to our skills

- o our experience of how often we find the solution for these kinds of questions (how high is our pyramid of schemata of the field under discussion)
- o our ability to bear y Self-narrowing

The relationship of x and y is provided by the situation. Our former experiences and abilities come from self-knowledge. And the last, the ability to bear Self-narrowing, is explained in psychology by the concept of frustration tolerance.

The second point (experience) is determined not only by confidence but also by our tendency to take risks (how risk-averse we are). Other aspects are: the time we have (although finding the solution during the time we have counts in deliberating our chances, and shows a connection with how fast we usually are in finding solutions); and, our general condition (for example, hormonal condition) which influences the decision as well.

At the same time, there are those who have positive experiences with disintegrative solutions; for example, because they are generally in a more Self-narrowed state.<sup>173</sup> For them, x Self-narrowing has a relatively smaller effect, which also passes faster. So, they will more often choose a solution other than the integrative one.<sup>174</sup>

In accord with the foregoing, we can form a more precise picture of which solution we choose compared with simply predicting somebody's strategy of problem solving based only on personality characteristics. Also of importance is that FIPP is both capable of handling the circumstances – the past, the present condition, and the problem, at the same time – and of reducing them to a common denominator.

### **The effect of the fluctuation of Self-narrowing on the appearance of aggression**

In the previous sub-section, we referred briefly to the role of the general condition in the appearance of aggression. Here, consider cases such as a yogi and an anxious, stressed-out yuppie stuck in traffic jams. Briefly disregard that they interpret the situation differently, and assume that their position has an equally unpleasant effect upon them. In the momentary Self-narrowing, the yuppie feels increasingly disposed to behave aggressively; for example, he might overtake in the bus lane to reach his aim, for which he gets a penalty for using the bus lane. Compare this with the yogi, whose Self will also narrow, but will not reach the level which would cause aggressive behavior to be exerted. He waits regardless that he will be late.

What happens if the yuppie practices yoga, so that these two people are the same, only that his state of mind differs at two separate times? Their conditions are determined primarily by the events of the previous hours,<sup>175</sup> their hormone levels, and their health. A more efficient strategy might be where the previously mentioned effects do not vanish in us without trace, but determine their actual level of Self-narrowing as a random number generator. In other words, it is evolu-

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<sup>173</sup> they may generally be anxious or aggressive

<sup>174</sup> people who are generally aggressive will tend to use aggressive solutions more often

<sup>175</sup> the Self-expansion and Self-narrowing of those hours

tionarily beneficial if the level of Self-narrowing is not constant, but constantly fluctuates. Why? Because there are sub-optimal<sup>176</sup> conditions of balance, and to turn away from these conditions we have to modify our general behavior: sometimes we may have to act as a yogi, sometimes as a yuppie. This conclusion is based on the mixed strategy described by game theory, which in most cases achieves a better result than the clean strategies. An example of a clean strategy is if my behavior is always based upon the same logic.<sup>177</sup> A mixed strategy is when, by leaving it to chance, we mix two or more clean strategies in certain proportions.<sup>178</sup> It is mathematically verifiable that mixed strategies generally lead to better results than clean strategies, even if they are obviously worse in one or two series.<sup>179</sup>

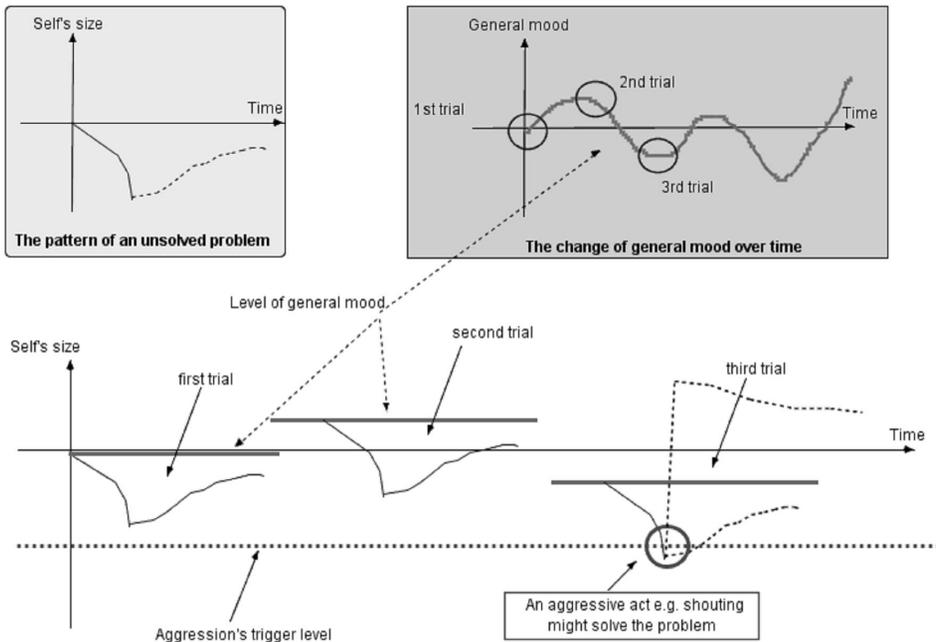


Figure 47: Solving a problem with aggression after several trials

From another viewpoint, the following can be stated: a fluctuating measure of Self acts as a generator of random factors needed to reach a mixed strategy.<sup>180</sup>

<sup>176</sup> worse than the optimal, but still good

<sup>177</sup> for example, whenever I bargain I initially offer how much I am prepared to pay; another strategy is to always wait for the seller to state the price

<sup>178</sup> so before starting to bargain I flip a coin: if it is heads I declare my price first, if it is tails I wait for the seller to set the initial price

<sup>179</sup> for example, by always obtaining heads, I might never obtain the lower prices I might otherwise expect from the seller, and vice versa

<sup>180</sup> to use a mixed strategy requires random input. The fluctuating measure of the Self, similar to the flipping of

Based on all of this, in real life, sometimes quiet people have to make a stand, while vociferous people might occasionally find it worthwhile to restrain themselves.

## Aggression and optimal group decision

The mixed strategy mentioned above also leads to positive results in group decisions. Recall Churchill's famous aphorism: "democracy is the worst form of government, except [for] all those other forms that have been tried from time to time". One interpretation of its meaning is that the opinion of the non-professional masses often pushes into the background those useful opinions that bring good solutions. Often, it is a problem in itself that certain solutions to a problem with multiple outcomes do not even enter the common knowledge or a debate, as they are so much against the mainstream. This happens at the cost of the group's creativity.

Another example from politics: a state is short of money,<sup>181</sup> and at first everyone urges increasing taxes, which seems logical. This logic is simple and clear to all: the state has money from taxes; if the state does not have enough money it needs more; if more money is needed, the state has to raise taxes. If we do not presume that taxes have an optimal level, then the government will raise taxes endlessly, disregarding the connection that the higher taxes imply, such as more people trying to avoid paying them by sending their money abroad.

So, the governing party urges the raising of taxes. Then somebody appears<sup>182</sup> and suggests that taxes be reduced.

In typical cases, others do not listen to him. Moreover, they accuse him of demagoguery and populism. However, lower taxes attract more investors from abroad, people begin to invest their money in the country again instead of sending it abroad, and so on. Using this strategy, income from taxes will indeed decrease in the short term, but as trade – and profits (in absolute value) – increase, so more tax income will accrue to the state, even if it is less in pure tax rate percentage terms. Therefore, it is a better bargain for everybody than the government or establishment suggestion.

The same thing happens during the brainstorming of an autocratic group,<sup>183</sup> where some of the better creative ideas are not aired, as the authors of the ideas do not raise them for fear of being criticized. Fortunately, since the new idea is a cognitive schema, the urge to share it guarantees that this does not often happen.

These phenomena have been understood for a long time, which is why there is protection of minority opinions. Therefore, to increase the number of available solutions and their diversity, opinions suggested by only a few people will be pre-

coins, can function as such a random input

<sup>181</sup> a so-called adverse budget

<sup>182</sup> the person who impersonates the group's creativity and who can step out of a certain frame of thinking, an 'out-of-the-box' thinker

<sup>183</sup> for example, a group with autocratic or dictatorial management

sented in the decision-making process, but will be derided. Civilized, democratic governments patronize their minorities for similar reasons, as although it is often disconcerting to care about their opinion, a longer-term view shows that their activity expands the repertory of available answers to the demands of world economics and politics.

Let us examine group decisions through an example: a group of ten people reaches a point where they can choose from three directions: left, right, and straight ahead. They have an intuition that the aim is somewhere to the right and forward, but the target in reality is to the left. Say that, at this time, six of them want to go forward, three to the right, leaving one person who wants to go to the left. According to the rules of democracy, they will vote; six win against four, and they go forward. If there is a debate, the ‘forward’ and the ‘right’ will debate, the one who voted for the left will not even have an opportunity to speak unless...

- o the group has a system which protects minority opinions; or
- o he stops the decision-making process,<sup>184</sup> and begins to market his opinion by trying to convince others that he is right.

He may attract attention by speaking louder, or being more persistent. This behavior might even be considered aggressive. Moreover, if he does this repeatedly and comes to the wrong result, they will see him as an aggressive person.

However, the real conclusion can be drawn in the opposite way: why are there not Paradisiacal conditions where nobody is aggressive and everybody agrees on everything? Why do we not just talk, vote, smile, and move on? Aggression often increases the group’s creativity by turning our attention to such minority reports, which may potentially lead to the optimal decision. In many cases, emphasized, stubbornly repeated minority reports are disturbing phenomena, yet optimal decisions have to be made, notwithstanding arguments, in a calm manner.

There are two types of such aggressive manifestations:

- o when somebody becomes aggressive for hormonal or other emotional reasons,<sup>185</sup> and surprises all of their circle. Mostly, this kind of aggression has a “meta-role” that comes from being a member of the group, and serves the goal of finding a new role within the group by showing new characteristics and features of the person.
- o when a group member obtains important (acquired or constructed) information, and this situation is coupled with commitment to the group. Therefore, the person wants to share the new information at all costs, since if the group makes the idea its own and uses it, the person’s Self will expand as he achieves a better position within the group and will be able to control his companions who function as his social Environment. The simplest example of this is when somebody shouts: “I have found it!” or “I have the solution!”<sup>186</sup>

<sup>184</sup> by any kind of unexpected behavior, for example, crying, shouting etc.

<sup>185</sup> a trauma behind one of his memories, or an awful association etc.

<sup>186</sup> “Eureka” is the classic story when Archimedes discovered the buoyancy, jumped out of the tub naked and ran around town shouting Eureka=I have found it! This called the attention of others to himself, to share the connection between the weight of the expelled fluid and the weight of the body – a radical discovery then –

## Aggression: the forms in which it is manifested

### Sharing pro-social and anti-social aggression

As its name implies, the basis of the division is aggression's relationship with society. In other words, the social benefit – or otherwise – of aggression. If it is useful, we talk about pro-social aggression; if it is harmful, about anti-social aggression. As soon as we relate to such complex concepts as society, several points of view are immediately raised: what is considered useful by whom,<sup>187</sup> and what is not. We can invariably find a group within society which at least understands, and might well support, different forms of aggression. Let us examine it through two examples of aggression, the judgment of which is obvious for the everyday reader:

- o Terrorists explode a bomb. When innocent people are killed by a group of fanatics, the majority will label it as deeply anti-social aggression. In spite of this, terrorists usually represent<sup>188</sup> the interests of minority groups, so we can be sure that the close environment of the terrorists will make them consider it as pro-social aggression. They will see that, rather than innocent people, the dead are representatives of the enemy, and they think this justifies the issue under discussion. They see the whole act as a final possibility, a cry for help from defenseless people who have no tools to fight the numerical superiority other than the tools of intimidation
- o Soldiers fight to protect, or create, democracy. Democracy is one of the basic values of Western society, so protecting it is a positive act, useful not only for the country that is becoming democratic, but also makes for a better conscience in Western societies generally. So, it is pro-social aggression. However, citizens of a non-democratic country, who lived in peace until a foreign country invaded their country, destroyed everything, killed neighbors and friends, will classify it as obviously anti-social aggression. Since they do not know of democracy and its benefits, they have no idea what the soldiers talk about; all they see is devastation.

Before reading the above examples, mention of 'terrorist' would bring a negative reaction to mind. Possibly, 'soldier' might have obtained a positive reaction. After demonstrating the relativity of these obvious concepts – according to what we consider as social norms – must we still have to reject the pro-social and anti-social division of aggression?

No, as FIPP provides a distinction that makes the division free of values. What we must keep in mind to achieve this is that, in most cases, an aggressive act is performed to achieve a goal. This goal is believed to make a positive change in the lives of one or more people; in other words, it helps their Self-expansion. For instance, the terrorist who kills in order to cause Self-expansion in members of the

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with more and more people

<sup>187</sup> or more precisely, by which group of society

<sup>188</sup> or believe they represent

group he represents.<sup>189</sup> A soldier kills in the name of democracy to safeguard those at home, and to ensure that the next generation of citizens of the foreign country will live a less Self-narrowed life in a democratic atmosphere.

However, what of the bank-robber who walks into the bank by himself, shoots a cashier, and leaves with the money? He only cares about his Self-expansion: the moment when he spends the money – obtained at the cost of blood – and provides himself with that Self-expansion.<sup>190</sup> The situation would be completely different if he shared the money amongst those poor who needed it, as Robin Hood did. Then, although it is ‘blood money’, he would provide many more people with Self-expansion.

One way or another, the person who performs the aggressive act provides both himself and his social Environment (the people who are important to him) with Self-expansion. However, in parallel with this, Self-narrowing also appears, which he must bear as well. This Self-narrowing has two sources:

- o systems established and controlled by the state,<sup>191</sup> which serve to preserve the power of the majority in a country; their direct aim is Self-narrowing. These include:
  - o acceptable punishment;
  - o the process of criminal investigation<sup>192</sup> and the accompanying anxiety<sup>193</sup>; and
  - o accusing attitudes and exclusion (nobody is happy when there is a criminal in the company or social circle)
- o taking over the Self-narrowing of the victims of aggression and their Environment<sup>194</sup> through empathy (involuntarily). No matter whether the aggressor wants it or not, the conclusion of his acts will also be represented amongst his schemata, and these conclusions include his aggression’s effect on other people. In addition, the Self-narrowing of the person who suffers the aggression will also narrow the Self of the aggressor.

On reflection, we talk about pro-social aggression when the Self-expansion we obtain with aggression is greater than the Self-narrowing arising from it. It follows that we talk about anti-social aggression when Self-narrowing is greater, and Self-expansion is smaller.

As in every concept and relationship in connection with people, we should not underestimate the role of subjectivity. Since the Self-expansions and Self-narrowings caused by the act determine the measure of Self-expansion, we have to consider several points of view.

### **The division of verbal and physical aggression**

Previously, the police in Hungary did not intervene in family disputes unless they

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<sup>189</sup> cf. people shooting in the air and celebrating after a terrorist act

<sup>190</sup> in the form of drugs, gambling, expensive sports cars, etc.

<sup>191</sup> the police, or judiciary

<sup>192</sup> interrogations, observation

<sup>193</sup> escaping from the police, limits as to where he can go, who he can meet, which in the end narrows the Self

<sup>194</sup> mourning, loss, inconvenience

were violent: the spouses could shout at each other, they could terrorize each other mentally, but the police attached aggression only to acts of physical violence (on the grounds of practicality). This example may divide physical and verbal aggression in an unhealthy way, as they are similarly represented in the brain. The power of speech can astonish us by its intensely subjective nature of human beings, and by its equality of mental processes and physical reality. Somebody swearing at another person appears to be nothing from a strictly physical point of view. But shouting in a certain tone at that other person can elicit a much greater reaction than if we, say, unintentionally collided with somebody.

Both physical events and verbal communication activate cognitive schemata in our brain, as well as our thoughts and fantasies. That is why, according to the FIPP approach, the forms of aggression are reduced to a common denominator, and why their aggression definitions show no difference. If somebody remains certain of the superiority of the physical world over mental processes, compare what would then hurt him more. What if your partner physically cheated on you once with a faceless and unknown person and she never saw that person again? Or if, although nothing actually happened, you came to know that your partner dreamed day and night in detail about how good it was to leave you for a mutual friend and start a family.

A textbook example of verbal aggression is swearing, which is nothing other than encouragement in calling for the stepping over – or on – of sexual taboos. The role of taboo,<sup>195</sup> from the very first, serves as an unquestionable axiom and frame of reference within the Self and society, while determining its limits. Their limiting function also means a repulsive connection towards other schemata. As an example, therefore, there is a repulsive connection between a man's schema (which represents sexuality), and the schema of his mother. Swearing is an attempt to turn it into a supporting connection with the verbal aggression's compression. Verbal aggression, with its technique of canceling compression of the limits of the Self, endangers the Self itself. For instance, if somebody is called a bastard, then his full identity is questioned. He may begin to doubt the supportive, unsullied image of his family. What may be instilled instead is rootlessness, and the fear of a vacuum in family history. In this example, the power of 'bastard' lies in the connection to the family; separation from the mother and father would endanger a central element of everybody's identity. In addition, being a bastard questions the schema of the father's persona; it questions the whole identity. In addition, identity is a concept close connected with the measure of the Self, so the faltering of identity narrows the Self, which then leads to aggression.

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<sup>195</sup> untouchable, unquestionable things, acts, thoughts; stepping over them is coupled with irrational fear. for example, the taboo of incest, respecting the dead

Principal points covered in this chapter:

- aggression's negative and positive roles
- connections and what they entail
- verbal and physical violence

## 10. SEX

**Sex says it all? \* Orgasms; the long and the short of it. \* Man or woman; you start.  
\* Women's roles. \* Sex and rhythm; one method.**

Sex is such a central subject of our lives and culture that it is difficult to state anything new about it. Perhaps a new viewpoint can help to discover and understand possibly unknown elements.

Several related subjects have been previously discussed, but the concept of orgasm, and intercourse itself as the central topic of sex, should be examined in detail.

Note: in this topic, the word sex is used to refer to heterosexual intercourse with vaginal penetration.

### Types of orgasm

Orgasm is more or less known to psychology, but it remains an enigmatic subject. Although Masters and Johnson (1966) doubted that it was true, Freud differentiated two types of female orgasm, and that they differ substantially. Clitoral orgasm can be reached by stimulating the clitoris, while vaginal orgasm is a result of vaginal stimulation.<sup>196</sup> Vaginal orgasm can be described as a general euphoric state, in which condition a longer lasting, so-called plateau phase, appears on the pleasure curve. In addition, vaginal orgasm elapses more slowly than does the male orgasm. Unlike male orgasm, it does not decrease sexual desire but increases libido. The resolution period<sup>197</sup> is much shorter as well. Compared with this, male orgasms are preceded by increasing tension; the quick dissolution of this tension is what provides men with pleasure.

Psychology talks about so many different aspects of sex that there seems to be no common denominator. However, in both the female and male, Self-expansion processes occur; these last longer in the female. Although no one person can experience the difference, male orgasms are not only shorter, but also less intense. If we examine the curve of sexual response, and the FIPP-pattern (the curve of Self-narrowing/expansion), we can identify the same stages.

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<sup>196</sup> male orgasm is said to be similar to clitoral orgasm

<sup>197</sup> the "reloading" period, during which we have to rest

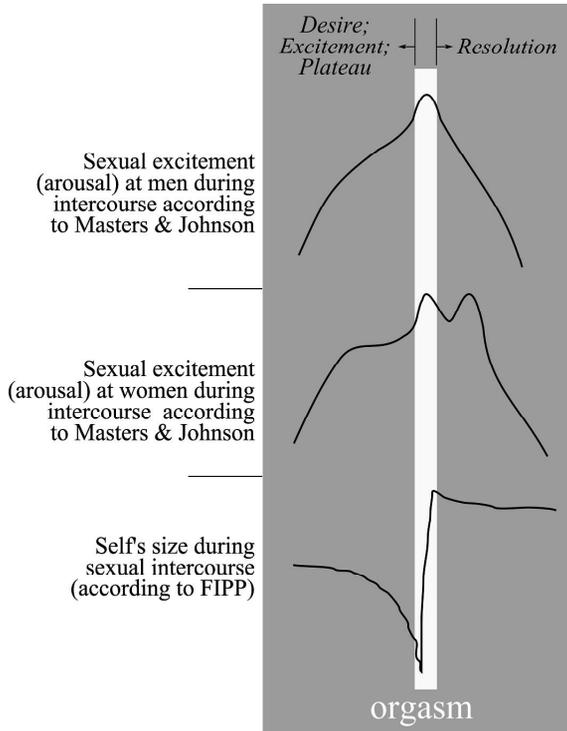


Figure 48: Curves of sexual excitement at woman and man

What conclusions can be made, apart from that they are the same process? It is plausible that the bigger the Self-narrowing, the bigger the Self-expansion. In other words: the more foreplay, the longer and greater the orgasm.

## Side-effects of sex

The exaggerated emotions during and after sex<sup>198</sup> are connected to the social demand for Self-expansion. The blurred sense of time and space, and increased tolerance of pain, all support the existence of altered states of consciousness, which occur at the same time as the characteristics of Self-expansion are experienced.

<sup>198</sup> which are usually labeled as love, but can be desire

## Excesses and absences of male and female bodies<sup>199</sup>

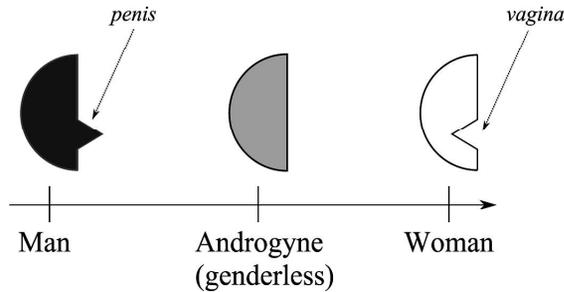


Figure 49: *The male and female body viewed simply*

If we try to put the physical bodies of a man and a woman on a continuum, we can imagine a genderless person<sup>200</sup> in between them.<sup>201</sup> Furthermore, that the place of man and woman will be symmetrical, compared with this sexless human.

Why is this interesting? Because in most cultures, body signs referring to sexuality are usually hidden in everyday life (ignoring explicitly man-woman interactions such as courting or seduction). So, in mentioning the human being in general, we imagine this genderless person. Similarly, when we recall our body's shape, the reference point is the sexless person's body. Compared with that, men have some excess, and women some absence, in their bodies.

This sensation is also strengthened by two further phenomena: a.) the genitalia are not part of our everyday body-image (we do not use them in everyday life as we use the other parts of our body, so we can ignore them); and b.) the genitalia react to our hormonal changes, and can be perceived as independent entities and out of control.<sup>202</sup>

The feeling of having something extra or missing, but also strongly part of us, results in differences in behavior between the genders. We approach the same things quite differently: men want to penetrate and to change the Environment ("putting the extra body part somewhere"), it, while women behave as if they were themselves an Environment, which needs to be penetrated by a Self ("to prevent an absence"). Environment can be made attractive, which attracts looks and stares, but at the same time it is not accidental that women pay more attention to their environment in general: the interior decoration of their apartments, the garden, their own bodies.<sup>203</sup>

The female equivalent of male activity is that, until fairly recently, women were

<sup>199</sup> although we can see these days that there are significant differences on what is viewed as feminine or masculine, in this chapter to make my message more understandable I did not emphasize the small nuances, but I have used the different genders in an archetypal way, as it was viewed throughout the history.

<sup>200</sup> an androgyne, but not a hermaphrodite

<sup>201</sup> without genitalia, similar to angels as depicted in paintings, or people dressed in over-sized overalls

<sup>202</sup> the slight difference being that, in men, this behavior is more visible

<sup>203</sup> make-up, clothing etc.

seen as being unable to take the initiative, but could provoke a man into taking that initiative. A woman cannot penetrate another's Environment/Self; conversely, heterosexual men have a horror of others penetrating them. Men do not penetrate an unattractive Environment with pleasure, despite its being virtually risk-free if the person's Self-boundaries are intact (meaning that the man's personality is healthy). Women's selectivity is explained by their unwillingness to let anyone within their Self-boundaries, as that person can then merge with the Self and influences it directly. Perhaps this direct influence is why women are more affected emotionally by sex: since they let somebody into themselves, and this condition can harm them, but can also make them more valuable. Men as protagonists can let loose maximum energy through his actions, ignoring those times when he is exposed to unexpected effects as a result of the weakness of his Self-boundaries (cf. delusion, unexpectedly falling in love, decrease of self-confidence).

With this model, we can reduce the non-professional roles of women (mother, housewife), and their roles in sexual connections, to a common denominator:

- o women as mothers also function as the Environment from the viewpoint of a baby's Self;<sup>204</sup> and
- o as housewives, women secure the warmth of home as Environment for the man and the children.

To summarize, we can say that women are the passive agents of the Environment, while men can be paralleled with the Self. As we have seen, one determines the other; in other words, one does not exist without the other. A woman is needed so that the man can feel as a man, and vice versa. This is theoretically demonstrable by the division of roles in homosexual relationships. In both lesbian and male homosexual relationships there is usually a masculine, active party, and a feminine, passive party.<sup>205</sup>

## The rhythm of the sex act

Many people have meditated on why the act of sex, intercourse, cannot be simpler, if its biological aim is solely reproduction. To ensure that sperm meets the egg efficiently, it would be enough that a penis ejaculates sperm into the vagina and onto the orifice of the uterus. The existence of the penis and the advantage of its penetration is not questioned; like a hypodermic needle needed to get a fluid to a protected place, it is evolutionary beneficial if the man can get his DNA to its target more precisely with the help of the penis.

However, the forward and backward movement of the penis in the vagina is not required to achieve this. Theoretically, it would be enough to insert the penis, inject the sperm, and take it out. However, this would make the selection of a partner, a

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<sup>204</sup> the same set-up as in the sexual relationship, the difference being only that the infant takes the place of the entity needing an Environment

<sup>205</sup> this was not established merely to undertake the technical implementation of sexual pleasure; these roles are also manifested in sexual acts

mate, too accident-prone, and as such it would be against evolution. By this, I mean that the choice of a partner would not be well founded, and the parents' subsequent relationship would not be so stable. It would be enough for just one party to want sexual intercourse: consider how easily and quickly a male stranger can get a woman pregnant, or how easily a woman can get herself pregnant by a male; perhaps 10 seconds would be all the time that requires. Therefore, we can state that evolution, through the time-consuming nature of sex acts, and the demand for a mutual effort, reduces the number of offspring accidentally produced. In addition, it is beneficial from the standpoint of natural selection that children are created by couples who have, at least, passed this small test. If a couple are incapable of cooperating for just the few minutes the act of sex requires, then they should not have children, as they do not have the minimal criteria required of a stable couple.

If evolution imposed time limits and some sort of cooperation to creating a child, the question then arises...what is the simplest, most primitive act that demands these basic conditions.<sup>206</sup> In humans, the answer to this question is the effort of rhythm. This partly requires atonement,<sup>207</sup> and partially proves the existence of physical ability.<sup>208</sup> The passive act, namely a couple spending time together without any particular activity, would not of itself prove physical fitness.

I have assumed that the biological background, where hormonal processes and muscle functions regulate the connections of rhythm, ejaculation and orgasm, is already known. Nevertheless, the psychology of the process is less understood. What, then, is the answer to...why does the rhythmical movement lead to orgasm?

It is important to understand that, here, rhythmical movement is an in-out movement during which the distance between two people decreases and increases. This increasing and decreasing distance repeats the experience of the merging of Self and Environment with growing intensity. This merging of Self and Environment is best illustrated by (the initial) penetration.

From this point of view, the movement performed during intercourse is as if the partners are seeking to repeat, with growing intensity, the merging of Self and Environment made by the penetration, but without ending the merging, without separating. It is at this point where the biological and psychological functions are connected. Rhythmical repeats are there, presumably, to multiply the strength of the singular experience, just as when neurons often transmit the strength of the stimulus, by repeating the rhythmical firing with an increasing speed, as they can signal it in no other way.<sup>209</sup> Increasing intensity not only demonstrates the merging of Self and Environment, but also the aspiration of becoming an identical entity.

This is in tune with the aspiration – which appears in many cultures – to revert

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<sup>206</sup> spending a certain amount of time together, the measurement of time required, and the ability to attune their efforts towards a mutual goal

<sup>207</sup> on both the physical and mental level

<sup>208</sup> by demonstrating the ability to make a persistent effort

<sup>209</sup> for example, the neurological aspect of the sense of pain

to the ancient ‘Paradise’ condition, when man and woman were one.<sup>210</sup> Another association of this aspiration, emphasized by modern psychology, is that there is a woman in every man, and vice versa.<sup>211</sup> That harmony and mental health comes from the unison of these parts, while suppressing none of them.

Although men and women, in connection with their orgasms and roles, are different, and they experience the sexual act differently, they both experience Self-expansion during penetration, as their Selves merge with the Environment that exists in the form of the other person. The growth of this Environment was what caused the strengthening Self-narrowing that ended after the orgasm.

Principal points covered in this chapter:

- sex, foreplay, orgasm, and their evolution
- women’s roles

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<sup>210</sup> for example, Eve was part of Adam’s body as the rib; we can find the same aspiration in Greek mythology as well

<sup>211</sup> cf. Jung animus and anima

## 11. WHAT MAKES A RELATIONSHIP WORK? HOW SHOULD WE CHOOSE A SPOUSE?

The symbiotic couple. \* Couples and rhythm, another method. \* Domination or submission; you lead. \* Virtues and vices of Self-sacrifice. \* Orgasmability: was that it; or was it good for you? \* Picking a partner; what's the choice? \* A partner as a dependant. \* Man as woman and vice versa. \* IQ and class differences as partnership impediments. \* Can you afford a partner?

### The framework communication model

FIPP can also provide interesting conclusions on the relationships of couples, as explored in the chapter on sex. Perhaps one further matter needs to be considered besides FIPP (and this is the key issue of every form of interaction between two people), namely the issue of communication.

During communication, nobody can be sure how the things he says or communicates are represented in the other person's head.<sup>212</sup> During communication, a schema is activated in the speaker's head. It is then translated into the speaker's spoken words, and these words activate schemata in the listener's head. There is no certainty that the two schema will be the same. To make it happen, the speaker needs to consider, at the moment of translating the schema into the spoken word, just what schemata his words may activate in the listener.

All these processes are interesting in the discussion of relationships of couples, as these automatic translation processes (from schemata to words and vice versa) build on previous experiences (discovered misunderstandings, common experiences), and become increasingly effective. They may even reach the level where couples (or spouses) who know each other well, will understand each other from a single frown, or a look, or tone; they do not need words, and yet the effectiveness of their communications is complete.

Complete, but not perfect. It is possible that communication is far above average. However, until the schemata in use are not perfectly the same, nor perfectly connected in exactly the same way, and until they use a perfect language (one which translates their schemata perfectly), it will always be that a word will activate a schema different to that which activated the word. Unfortunately, no matter how much they like and understand each other, or how much they try to avoid it, there will always be a certain distance between them that cannot be bridged. The meas-

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<sup>212</sup> for example, someone comparing a woman's leg with that of a fawn, intending to woo her by pointing out their gracefulness and shapeliness, and the woman thinking that he is joking about the hairiness of her legs, and becomes upset

ure of this distance fluctuates. Sometimes it even provides the subjective experience that it seizes.<sup>213</sup>

This fluctuation can be connected to what Erik Erikson<sup>214</sup> calls hesitation between isolation and intimacy. Spouses may want to be very close to each other, but at the same time may wish to stay away from each other, to preserve their identities. If this fluctuation and distance were not there, couples could merge once and for all.<sup>215</sup> The relationship of spouses also has an inner life, similar to the relationship of the Self and Environment. Just as in Self-expansion and Self-narrowing, there are also situations in which couples seem to be inseparable, and sometimes where they appear to be on the edge of explosion (divorce).

## Dance and rhythm – Adaptation to each other

To understand the establishment of couple relationships, let us adopt dancing as an analogy. We may know people who have no sense of rhythm. We could imagine this as...in order to catch the proper rhythm, we should do something in the next few seconds. An example would be the cha-cha: 1, 2, 2, 4, 5.<sup>216</sup> Compared with this, people with a faulty sense of rhythm – or none at all – would dance those steps in the wrong time: 1, 1.75, 2.5, 3.25 etc. Even worse is when the differences of time between steps are not constant: 1; 1.8; 2.1; 3.3 etc.

The rhythm of music or drums is there to guide two people into attuning their movements; for example, the drum continually emits sounds. What about people who are regularly late, or too fast, on the step (either contrary to the rhythm or independent of it)? The one who keeps to the rhythm of the music will stumble with the other person, or they step on each other's feet. Even those who – theoretically – accorded with the rhythm, will not enjoy the common activity (dance). Since we consider both parties as equal,<sup>217</sup> we cannot decide which one of them is not following, or cannot follow, the rhythm. But everybody sees that there is no harmony, that their movements are not synchronized and do not flow. There are two possibilities to make their movement harmonize:

- o the one with a poor sense of rhythm has to find the rhythm
- o the one with a good sense of rhythm – or who does not ruin the rhythm – speeds up or slows down to find the other's rhythm (thus both of them will then dance against the rhythm).

What conclusions can be drawn from this? Someone not following the rhythm does not mean that they dislike dancing. If the partner makes the same mistakes

<sup>213</sup> the tool for it is sex, which provides total physical fusion

<sup>214</sup> Erik Erikson, (1902–1994). Danish-American developmental psychologist and psychoanalyst, best known for his theory on the social development of humans, and for coining identity crisis. Briefly, Erikson postulated eight steps that a 'normal' human should encounter, confront and overcome, from infancy to late adulthood. Each step completed would build upon the earlier stages. Those steps not successfully completed... would probably reappear as problems at some time

<sup>215</sup> even then, their experiences after the merger would establish different schemata in each of them

<sup>216</sup> when it is 00:01, 00:02, 00:03 etc. on the clock

<sup>217</sup> for example, we see them equal when we do not hear the music but only watch them dancing

(according to the same pattern), then they both look successful at what they are doing. But to achieve this one needs a partner who:

- a.) makes exactly the same mistakes; or
- b.) has a higher (mistake) tolerance, so that they do not sense the time shifts so intensely.

## Domination and submission

There is another point in dancing: one party dominates, the other<sup>218</sup> lets herself be led. If someone leads the dance exactly the way the other needs,<sup>219</sup> the result will be successful. A good dancer can be recognized from the wide range of movements used in attuning with the partner, of dominating and of being dominated, so that they are much more flexible in adapting to achieve mutual success.

As we can see, two things count: to be able to dominate (lead) and to accept domination. This could be described as...I give the correct commands at the right moment in time to my partner, but if they never follow them on time, that would count for nothing. So, I must give commands the same amount of time and earlier, as my partner is (usually) late in making the correct movement happen on time.

Let us return to our bad dancers. If someone has a bad sense of rhythm, will he never enjoy dancing? Far from it. He has to find the dancer who is as late or as early as he is. This is the parallel between dancing and couple relationships: nothing is perfect, yet most of us find a partner.

## Fitting together

Everybody has faults. Bluntly, everybody has personality problems. Even more crudely, everybody is sick. There is no perfectly healthy person, just as there is no single truth. One reason is that different situations require different abilities. Similarly, different people require partners who, from other viewpoints, are tolerant or make different mistakes. An unskilled cook would wish that her husband's taste buds did not work properly.<sup>220</sup> There are people who have low sensitivity to the taste of salt (they have fewer taste buds for salt). This person requires a wife who always adds a lot of salt to their food.

Based on the above, we can say, for example, that a narcissistic person needs a self-sacrificing partner. Perhaps there is nothing interesting in this. However, although we may feel sorry for self-sacrificing people, they feel the need to surrender their personalities, so they look for narcissistic people. An extreme example of mutually satisfying needs is the sado-masochistic couple. Everyone feels sad for masochists. The absurdity of the situation is well illustrated by a joke. A masochist asks the sadist: "Hit me! Hit me!" The sadist smilingly says "Nooo! Nooo!" (He

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<sup>218</sup> in accordance with the rhythm

<sup>219</sup> with the proper force and timing

<sup>220</sup> or that he had none

causes pain by not satisfying the masochist's need for pain, and derives pleasure from causing that pain.)

### **Orgasmability**

With no empirical examination, but based merely upon everyday experience and stereotypes, the submission of a new concept is allowed, a new personality trait: orgasmability. As will be seen, the concept does not completely lack a psychological basis, as I believe that it is related to hypnability. A thoroughly examined property of people, hypnability is the measure of how fast and deep one can enter hypnosis. An analogy of this is the concept of orgasmability, which describes how fast someone can achieve an orgasm, and how intense, subjectively, his or her orgasm is. According to my assumption, these two concepts (hypnability and orgasmability) are closely correlated. Both of them are connected with the ability of tuning in to the Environment. Orgasmability is linked with the widespread observation of gynecologists that women differ in how much vaginal moisture (lubrication) is produced at the same levels of excitement; men differ in how much they can suppress their sexual interest, and how high their libido is.

Turning to everyday observations, at one end of the scale there are cold, frigid people. Yet Latin nations are stereotypically viewed as more emotional and that, consequently, their citizens<sup>221</sup> have more passionate sexual lives; they are seen as of the other end of the scale.

Accordingly, orgasmability may be the most conspicuous property of people. The reason why it does not come to the fore is that observing it is not supported culturally: we rarely contemplate the sexual behavior of our president, a criminal judge, or the old lady next door. No matter that we have fantasies in connection with the manifestation of this parameter, apart from some exceptions (people with great sexual experience of many partners), we can verify our assumptions from a very small sample (for example, whether a person we see in the street is as active or passive in bed as we think). More often, we test our theoretical ideas on the subject upon our circle of friends, and we usually agree here. However, these friends do not fulfill psychology's present methodology, or the criteria, of sampling.

The existence of orgasmability is obvious, and unavoidable in cases where someone not only has it, but pushes it into the spotlight in a disturbing way: they are either extremely frigid, or achieve orgasms easily. In these cases, we can assume that letting other people know that they reach the extreme values of orgasmability, has a positive effect on their mental balance. Further, that he/she hopes they will profit from the existence of this property. (For example, an attorney or a nun tries to suggest reliability and steadfastness with their low orgasmability, while high orgasmability can be used to signal promiscuity or artistic talent.)

We heed this parameter, even if not necessarily consciously of it, when we are looking for a partner. There is an interval within this trait for everyone, during

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<sup>221</sup> partially proved by surveys examining sexual habits

which other people can be found to be attractive. People within this interval arouse our interest instinctively, especially if they fit some of the basic parameters.<sup>222</sup>

However, filtering by basic parameters not only precedes, but is also connected with, orgasmability: the importance of orgasmability decreases with age, a certain stature marks the measure of this in a person.<sup>223</sup>

Due to its connection with sexuality, orgasmability also entails strong emotional effects: in cases of a high value, it means an affectionate or arbitrary person; in those of a low value, an aloof, distant person. This distinction connects with the desired measure of our Selves: those who fear for their Selves, if they are afraid that something will stick to or penetrate it, will look for a colder person as a partner, who approaches them less intensely. Those who see their Selves as too big, as something which grows by itself,<sup>224</sup> need a partner who occasionally reduces their confidence, and cuts their Selves down a little. People who are incapable of fast Self-expansion, or who need to feel that they can have a strong effect on their Environment, will need someone who expands fast, someone who can frequently achieve orgasm, reaching high levels quickly even from a low level, etc.

### Economy of relationships

Choosing a partner is also a market: the product and the price is written on our faces, even if we do not see or notice it. If we take a good look at someone, we can 'see' the one sentence which describes them.<sup>225</sup> These sentences, despite being relatively simple, contain the demand and supply at the same time. It is not true that anyone can pick anyone else. Even preparing to be able to be chosen is an active process.<sup>226</sup> Although some people seem to choose actively, their limitless freedom to choose whoever they want is apparent: they cannot choose from everybody. Firstly, they collect those who let themselves be chosen, and naturally they choose from them. Musicians have legendary sexuality. It is said that a member of the Beatles could have any woman...apparently! He had the advantage, compared with an 'ordinary' man, of access to those ladies who loved his music. For example, an old lady with an orientation to classical music, and who loathes loud popular music, might expel any popular singer from her house. This belief, that there are people who can have anyone, is a typical result of an incorrect methodological conclusion: we examine a sample unrepresentative from the outset, since it was filtered by something. Then we draw a conclusion on a more general subject.

So, orgasmability is a good common denominator in finding partners, if we constantly bear in mind that everybody wants a maximum amount of orgasms for a

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<sup>222</sup> for example, age, height, physical features

<sup>223</sup> cf. being extremely thin or anorexic has been associated with being frigid, while plump, overweight people are seen as more emotional and physically demonstrative

<sup>224</sup> like the teeth of rabbits and mice

<sup>225</sup> a sort of unconscious self-description. For example, "I want to be approached by a man who is rich and who pays attention to appearances"; or "I consider myself so beautiful that only the most perfect people should dare to talk to me"; or "I'm so lame that I need a strong man/woman next to me or I am lost", etc.

<sup>226</sup> when people dress up, indicating that they are attractive and ready to be chosen

certain level of self-involvement.

Orgasmability is perhaps one of the strongest keys when choosing a partner, but there are others. Some of these are:

- o mental diseases, personality distortions
- o a particular combination of intellectual abilities<sup>227</sup>
- o social status.

## **Detour on mental illness, and its role when choosing a partner**

### *Defining dependency*

If we thoroughly examine the introduced FIPP, it turns out that such concepts as dependent personality do not exist. If we want to use it, we have to consider everybody as a dependent person. This again makes the concept of dependent personality unusable. In clinical psychology, people are termed dependent if they undertake a certain behavior to excess, and escape to it from real life. Dependency is a collective term for drug addicts, heavy smokers, alcoholics, gamblers, pathological shoppers.<sup>228</sup> Different theories explain what happens to control functions;<sup>229</sup> early mother-child connections were damaged, and so forth.

Indeed, every person is an addict: we are dependent on Self-expansion. Only our methods are different. Some people combine methods, or use different strategies to achieve Self-expanded states. For example, sometimes using sex, sometimes problem solving, at other times altruism, or charitable donations. Others do not change their ways. Perhaps we could better consider addicts as good or bad game strategists: some people always bluff, other people always 'say' the truth in poker. The winning strategy is the mixed solution: usually saying the truth but occasionally mixing in a few bluffs.

I have some concerns with the use and definition of the phrase "dependent personality". Diagnoses accord with the social attractiveness of the result of behavior, and do not focus on the cause: was not Mother Theresa an altruism addict? Is not the obsessed researcher a discovery addict? If everyone looked into themselves, they will find those techniques used to reach their everyday Self-expansions. These techniques depend on the brain. Results are provided to some people only by drugs, to others through promiscuity, or Self-sacrificing maternal care. Amongst these, some cost more, some are more visible to the outside world (more difficult to conceal), and some are considered socially useful. So, we welcome them, rather than putting them into the same category as the heavy drinker's alcohol dependency.

Let us examine an obsession which at first seems funny, but is quite sad: kleptomania.<sup>230</sup> We know that kleptomaniacs do not steal for the value of the objects, but

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<sup>227</sup> good memory with low intelligence; high creativity with bad visual memory etc.

<sup>228</sup> who shop only for the pleasure of shopping and getting, not for a material need

<sup>229</sup> which should normally stop these acts

<sup>230</sup> an obsession with stealing

for the excitement of stealing and the pleasure of possession. Let us imagine an old lady affected by this disease. Preparing for stealing,<sup>231</sup> and the act itself,<sup>232</sup> is a Self-narrowing process, whereas the gaining of possession causes Self-expansion.<sup>233</sup> Is it possible that the lady has no other opportunity to obtain Self-expansion? Perhaps her intellectual abilities are incapable of allowing her to enjoy paintings or literary works. Sex may be out of the question. But she can still steal. Perhaps her parents, when forbidding her to steal, indoctrinated her so much with the idea of respecting property, that it causes her huge Self-expansion to violate this taboo. Once she tried it, she realized that that is what she most likes, so she enforces this strategy. We do not have to search for neurological alterations or a change in neurotransmitter systems. We need only reduce the measure of the taboo in order for her not to experience such disproportionate Self-expansion. It also shows that prohibition is not the proper remedy, as it only increases the taboo and, indirectly, the Self-expansion.

### *Mental illness*

Let us return to choosing a partner. I indicated earlier that personality distortions and mental illnesses are of help in choosing a partner. Regardless of what we call it, it seems logical that, if someone has a weakness, he looks for a person with whom he can live his life despite having this weakness. As an extreme example: if my stomach is twice the normal size, I will then look for a person who is an excellent cook, so that he/she can cook excellent food for me. Or a person with an equally large appetite, so that we can eat together as often – and as much – as we like. I deliberately chose an extreme example: it could have been an example of extreme sexual desire and its toleration, or with being pedantic or easy-going.

Reviewing the answer to the question of the dependent personality, we can say that everybody looks for a partner with the same life strategy,<sup>234</sup> or whose life strategies do not cross those of the other. Further, that they help each other, in any way that leads to Self-expansion. We have to expand our perspective with one more thing: it is not only our own Self-expansion strategies that count when we plan for or dream of a life rich in Self-expansion. A relationship can be compared to (as in symbiosis) giving Self-expansion to each other, as in a barter deal: I like to listen if somebody sings and I am bored with the subject of money. You need money and it means nothing to you to sing all day, so you sing all day long.

Parts of abilities exclude others: for example, we cannot be at once both tall and short. If we were, we would be mediocre at everything. We cannot be a man and a woman at the same time. Also, different techniques of Self-expansion are available for men and women. Probably via a somewhat different route, but for the same reason, Jung reached the concepts of animus and anima.

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<sup>231</sup> as it requires focusing, planning, and it is stressful

<sup>232</sup> it is done under time pressure, and results in high levels of adrenaline

<sup>233</sup> the Self became richer with the stolen object

<sup>234</sup> someone who seeks Self-expansion via the same methods

*Animus and anima*

Animus and anima are the Latin terms for the male and female spirit. According to Jung's statement, there is a man in every woman (animus) and there is a woman in every man (anima). In Jung's opinion, the condition of mental health is the harmony of two spirits in one body: so that the woman accepts that she has masculine thoughts. The man accepts that he can become overtly emotional; tears come to his eyes if he sees a child stroking a dog, or during a poignant moment in a book or film. To attain and maintain mental health, a man has to accept his anima, and a woman her animus.

We can go further than Jung. It is not difficult to notice that there are different techniques for Self-expansion according to different genders – manifested in the animus and the anima – and the cognitive schema which can be accessed and activated by them. In the case of anima it might be music, a child, etc.; in animus, strength, competition; and so forth. In order to be able to produce new Self-expansions, we cannot limit ourselves to our gender's half of the opportunities. Regardless of how good our techniques are: a.) we may use up all our possibilities after awhile, and the technique begins to cause increasingly smaller Self-expansions;<sup>235</sup> b.) we become completely one-sided, and use our techniques to affect every part of our lives;<sup>236</sup> or, c.) when the frames are so expanded that it threatens us with annihilation.<sup>237</sup>

**Intellectual ability**

As a head hunter, I have interviewed many people for different jobs throughout my career. Flexibility was the declared expectation of many clients, together with creativity. As a classical psychologist, I would have been supposed to take some creativity tests and test – and tire – applicants with them. Questions arise: what exactly do creativity tests measure; and what type of creativity was it that my clients required. Instead, I decided to examine their ability to change viewpoints. Perhaps I might have found a test for this, so what remained was to confront them with spontaneity. During the interview, I frequently changed the subject, sometimes to one completely unconnected with the subject of the job. Then, not impolitely, I might get up from the table and do something unusual: walk out of the room, tell jokes, open and shut the window etc. In the meantime, I was curious as to how quickly they adapted to the new situation, and how much what I did confused them. On many occasions the speed, topics and vocabulary of the conversation showed me that there is no possibility of using these tricks. At other times, a funny or jokey association was enough to show that there was no appropriate response to it (a typical 'free shot' situation); I was the measuring instrument. If they

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<sup>235</sup> for example, someone likes climbing mountains, but cannot afford to travel any farther than the little hill of his village which he can scale blindfolded; that is then a problem

<sup>236</sup> for example, when someone risks his job or marriage or existence to climb mountains

<sup>237</sup> for example, when we begin to climb Everest with a bad vascular system, simply because we have climbed everything else

could follow, or maybe even surprise, me, then I could be sure my clients would then consider the applicants intelligence, flexibility, etc.

A friend spontaneously gave selected women weird presents at university parties; he made flowers out of napkins, or something out of a match. Those who appreciated creativity were worth doing something for him. How does this fit in with long-term relationships (professional or private)? The main point of attuning to each other is to show whether the partners can relax in each other's company, or how they respond to each other's creativity. They can spread the new cognitive schemata established in their Self-expansions. Moreover, they can build new cognitive schemata on each other's schemata, which causes Self-expansion for both of them. These new cognitive schemata can be painful puns, dry humor, beautiful rhymes, poetic images, mathematical formulae, new ballet steps, or musical tunes. The point is to be able to provide the other with Self-expansion, by producing cognitive schemata during their communication. That newly-created cognitive schema has to be new and usable for the partner. It does not matter whether this happens at the workplace during a brainstorming session, or in a dance hall, or between jazz musicians who have spontaneously gathered to improvise.

This is another way of choosing a partner in life.

The other extreme of choosing a partner is when we at least do not have to be afraid that the partner causes, or will cause, Self-narrowing. A person who holds himself in high esteem, but who has weaker abilities, will be anxious if he is unable to follow his partner whom he also holds in high esteem; say in music, sport or conversation. If I meet Michael Jordan to play 2-on-2 street ball, his being much better than me will not be my only problem. It would make me nervous that perhaps I should not be his partner, as I do not know even the most basic techniques. If I make myself believe that I am an excellent physicist and able to talk to Einstein or Hawking, then I will feel small and embarrassed, as I would not be able to understand him (I Self-narrow), and he has to make increasingly lower-level schemata in order not to end the conversation. This will be inconvenient for him, as he does not obtain any Self-expansion. However, if I stand with a person who is more or less on the same level as myself, perhaps what we talk about will not be so inspiring, but at least I do not narrow myself. And I will try to expand my Self in other fields of life.

The concept of creativity is too complex and multidimensional to be of use.<sup>238</sup> Sometimes, classic creativity is not what the establishment of a new schema requires: to recall a part of a poem suitable for a situation requires long-term memory, a strategic game requires thorough planning, music requires good musicality, dancing requires a good sense of rhythm and co-ordination of movement, etc. That is why creativity and intelligence are not the only things that count in choosing a partner or employee. Rather, it is the compilation of these abilities. Of probably equal importance are personality and communication. A good result can be broadcast with insulting arrogance (bigheadedness), and a major mistake can be

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<sup>238</sup> there is visual and acoustic, originality, out-of-the-box-thinking, restructuring

fixed with charm and politeness.

These viewpoints are useful in understanding the whole picture.

### **Socio-economic status**

There is nothing particularly new in describing the role of social status in choosing partners. If a young lady wants to go home from the disco in an expensive car, these days she examines the men, what car they arrived in etc.

But money and wealth are dynamic: having a 50,000 USD car does not mean I do not have a 75,000 USD loan. An empty wallet does not mean that I have no money in the bank, or a monthly salary of 10,000 USD. As an initial approach, I believe that money in a wallet, and wealth, can be seen at a certain moment as so plastic that this source of information can satisfy only a short-term thinker.

Economic status is a superior source of information, although for those who believe in the power of money, choosing a partner based on wealth reverts to choosing a partner based on mental illness. Why? Because wealth, in most cases, is important when it is needed for a dependency.<sup>239</sup> The other variation is when a wealthy man or woman avoids Self-narrowing by choosing a similarly wealthy partner: so he/she will not be afraid that the merging of their fortunes will make his/her half of their combined wealth considerably smaller than what he/she is used to. This can be uncomfortable in cases of divorce, or living up to and beyond those reserves of wealth.

We should confront the question: why would economic status be important in choosing a partner? It is simultaneously important and unimportant. Economic<sup>240</sup> status is important, as it accompanies cultural fitting. Also, cultural background tells us something of intellectual ability, and the similarity of cognitive schemata. If I was raised in a family comparable to that of a potential partner, we will have the same experiences, and I can then provide that partner with Self-expansion when I have reactions similar to hers.

At the same time, it is not important, as most high-level Self-expansion is not dependent upon money. There again, wealth shows its importance in that a lack of money can cause much Self-narrowing.<sup>241</sup>

#### Principal points covered in this chapter:

- couples: natural selection and other selection criteria
- how – and what – two people give to each other;
- and what they take, as well as maintaining their individuality

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<sup>239</sup> dependent shopping or gambling

<sup>240</sup> to be more exact, socio-economic

<sup>241</sup> frustration, conflict etc.

## 12. FUNCTION PRACTICE (CIRCULAR REACTIONS) AND THE DESCRIPTION OF COGNITIVE SCHEMATA

Circular reactions = function practice = repetition, repetition. \* 'Reality' as a mental representation; unsplitting the atoms. \* The hierarchy of schemata; categories and their boundaries. \* The schemata super-highway. \* Limitations, simplifications and life 'models'. \* Spur-of-the-moment Self-expansion and sharing. \* Cultivating cognitive schemata and the lessons we learn. \* Function practice is child's play.

### What is function practice (circular reactions)?

If anyone has seen a child dirtying, then cleaning, a toy fifty times, then dirtying it again, they will know what function practice<sup>242</sup> is. The same practice occurs when a child learns to stand up, then falls down, then stands up again, as long as they are able to physically do so or learn how to stay on their feet. I would not limit use of the concept of function practice solely to children: when a 16-18 year old juvenile finally obtains his driving license, all he wants is to drive, and every opportunity to get behind a steering wheel will be taken.

If anyone suspects from the foregoing that the phrase "function practice" is the same as practice, they would be close to the truth. This term was invented to distinguish the everyday use of the word "practice" with a more general meaning, one based upon the phenomenon that people can be happy with things that, theoretically, are not beneficial in the short term. Moreover, that a seemingly boring thing can be endlessly repeated while enduring a deal of inconvenience, such as a child continually falling down.

To understand this phenomenon more precisely, we must examine what mental processes occur during function practice. Mental processes connect with cognitive schemata, therefore we should initially consider the nature, formation and function of these schemata.

### FIPP's interpretation of the concept of cognitive schema

A cognitive schema is the key to cognitive science.<sup>243</sup> There is a great deal of lit-

<sup>242</sup> Jean Piaget (1896-1980), the very first psychologist who described in detail the phases of children's mental development, used the term 'Circular reactions' as a synonym for function practice

<sup>243</sup> science on the boundaries of biology, philosophy, neurology, psychology and informatics

erature on this subject; here is one understanding of this concept.

Previously, in other topics and, briefly, in the introduction to FIPP, a cognitive schema was described as the basic element of thinking, that it is nothing more than a mental model of a certain aspect of the outside world. So, almost everything that assists thinking can be considered as a cognitive schema: concepts, categories, theories, symbols etc.<sup>244</sup>

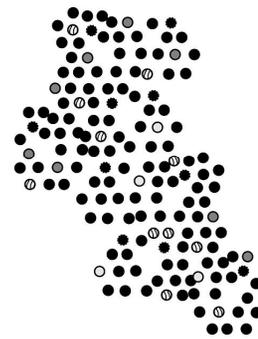
To understand the concept of a mental model, let us recall the definition of the term ‘model’: a model is a copy, which always copies the original thing in a simplified way. It seizes only one or two aspects of reality, and disregards other aspects or dimensions. It does all this to provide the brain, through simplification, with a manageable amount of information. The less important, but still essential, information, can predict accurately enough how the modeled entity will behave. So, we could define the reasoning of all models, and therefore the ultimate goal of cognitive schemata, as: to help with, and provide, adaptation, so that the chances of a person surviving in the outside world increase by properly representing that world. This happens in the case of every lesson learned, even on a somewhat primitive level at S-R<sup>245</sup> reactions. The lack of the S-R reaction, or learning, would lead to that individual’s death.

If the mouse we place in a labyrinth did not model the labyrinth in his brain – for example, from stubbornness or stupidity, he did not examine what routes and crossovers there were – and so did not learn where the food was, it would eventually starve to death.

## Levels of reality (and of modeling): the multiple aspects of reality

In order to understand the function of cognitive schemata, let us first take a slight detour via the relationship between reality and its mental representation.

When talking about reality, in most cases we think of a mechanical image of the world consisting of physically extant atoms, one which obeys the laws of physics. The important thing is not whether the world is like that, or whether it includes extra parts that cannot be described with atoms, but that our brain is capable of forming an image, of only limited complexity, of this mass of atoms. Our brains do not operate on the level of atoms, nor with the representation of atoms, but with relationships.



*Figure 50: In reality, our world is a set of different atoms*

<sup>244</sup> we could go further and imagine schemata in connection with movement and feelings, but these are disregarded here

<sup>245</sup> S-R=stimulus-response: the most primitive reflex-like form of learning

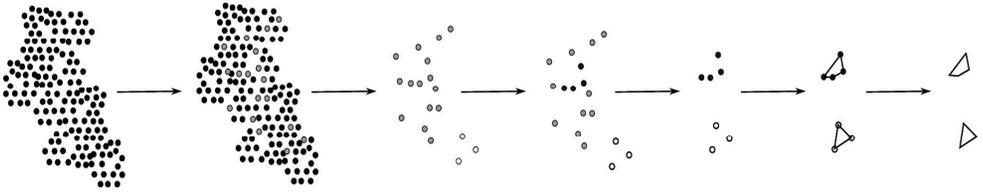


Figure 51: Reducing the amount of information

These relationships can be between atoms, but to adapt to our complete reality we must cope with the different levels of their establishment and combinations of atoms. As an example: a person may be affected by  $10^{1000}$  atoms.<sup>246</sup> Of these, he might perceive  $10^{100}$  atoms, equal to  $10^{50}$  shapes that are combined in 1030 objects, down to one piece of the world in which he lives. Cognitive processes – even if not on an atomic level – will deal with things within the spectrum of the level of ( $10^{50}$  different) shapes to the level of one piece of universe. This presumes that it has to somehow structure these stimuli (the information), and thus the  $10^{1000}$  atoms. Here, structuring means extracting the pattern or essence of different groups of atoms by using our mind's ability to model. As in each person these atoms group themselves differently, it is clear that our models will also differ, even if, seemingly, we talk about the same things. The difference of our models is reflected in our differing reactions to the same inputs.

Key to understanding the reason for modeling is that the functioning of our mental abilities is based upon limited mental capacity. We can readily admit that the full complexity of the universe (compared with the number of combinations of the  $10^{1000}$  atoms) is impossible for our minds to grasp. Perhaps it is also conceivable (and parallels our everyday experience), that we can manipulate simultaneously just a few cognitive schemata. We can listen to, or concentrate fully on, just one source, while keeping several other, different, matters in our heads.<sup>247</sup> Disregarding, for example, 99.5% of the  $10^{1000}$  atoms building our outside world, and purposely not wanting to become known to those, does not seem to be an efficient strategy, as it is possible that we may be endangered by something from that 99.5% territory which we pay no attention to, or avoid. In summary, we can say that we have to live in a world where our life depends on  $10^{1000}$  different things and our brain's capacity is able to parallel process  $10^1$  different things. How can we achieve this?

The answer lies in hierarchies. Hierarchies make it possible not only to sum or multiply numbers, but also to raise them to a higher power. Let us assume that we could raise our capacity by 10% at the cost of a lot of pain, beginning with, say, 10 units. But what is 10, 11 or even 20, compared with  $10^{1000}$ ? What would happen if

<sup>246</sup> the number and order of magnitude are illustrative

<sup>247</sup> as an example of the limited capacities of our mind, there is a widespread observation in psychology that our short-term memory can store only five to nine things

we could somehow double or triple our capacity? It is still 20 or 30, almost nothing compared with  $10^{1000}$ . However, if we increase the base capacity exponentially, then we can reach  $((10^{10})^{10})^{10} = 10^{1000}$  in just a few steps.

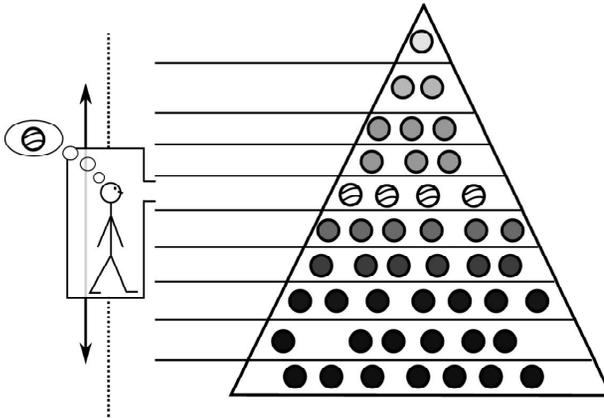


Figure 52: Ability to see different detail levels

What is modeling based on hierarchy? That the brain extracts the essence: the similarity of elements of a set with different complexity. It does the same on the levels of perception, when creating categories or establishing regularities, and when it forms paradigms. Only the units differ: at the levels of perception the unit is the physical stimuli; in categories it is the properties; in rules it is the experiences; and so on. When the similarities are extracted, these become a new element of a more complex set: firstly, the basic stimuli, then the essence derived from those, followed by the essence of those essences...to, eventually, the so-called cognitive schemata, which models a certain detail of our world.

This ability is insufficient by itself, as the constant extraction of essence results in decreasing data-like knowledge of the world; we would see fewer details with which to understand the connections. But to adapt ourselves to our environment, we need access to all information. So as not to lose the full picture, our brain needs to be able to jump, switch between, and connect matters between, levels.<sup>248</sup> This occurs because a particular detail may be of interest, next time the overview is important, and so forth. Moreover, sometimes one needs to view the same cognitive schema with its child-schemata. Besides this ability to move and connect between levels, two additional abilities are required to make this method function: induction and deduction.

<sup>248</sup> like an elevator (lift), connecting one at a very high level with a basic (lower) one

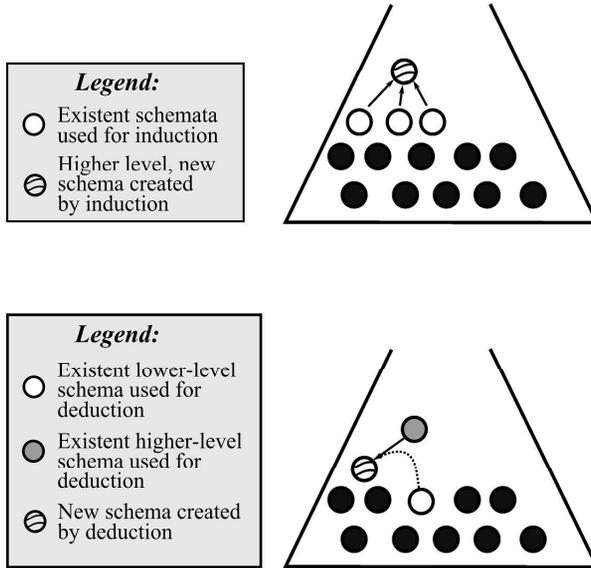


Figure 53: Induction and deduction

Induction happens when the brain extracts the essence from lower-level schemata. Deduction is when a higher-level schema, accompanied by a lower-level schema that is on the same level as the constituents of the higher one, form a new schema.

Before we accept that there is order in our brains, I should express doubt that we can talk here about a multi-story construct similar to a pyramid, where every cognitive schema understands which level it is on. I have no proof, only an intuition, that there are also schemata halfway, or one-third of the distance, between stories.

It is possible that the connections are far more chaotic than in a regular pyramid. Rather, we should imagine the world of schemata as a collection of small and large pyramids embedded in each other. However, regular pyramids will be used to illustrate the following; they provide a satisfactory model for a base.

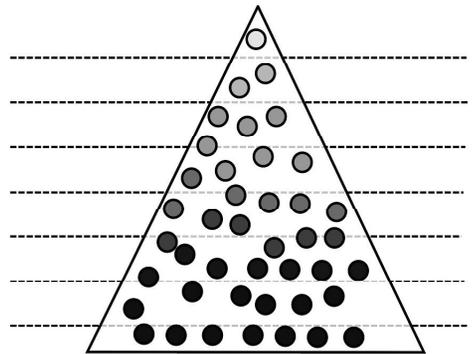


Figure 54: The leveling of the schemata is not uniform

Before examining cognitive schemata in detail, we should look at the philosophical results of connections between reality and our minds. That we cannot obtain first-hand information on the physical world, due to the boundaries of our perception,<sup>249</sup> is not new. Thus, by considering the above, we can state something of the reality that a person perceives. Unfortunately, nobody can prove that reality is not that you are the only person who exists in the world, and that everything you perceive is only a dream. Or that reading this is only a dream.<sup>250</sup> If we disregard this possibility, and presume that there are people and other entities around us, then we can also state that the outside world connects with the Self which processes its environment only in the form of those mental representations that process the information. Similarly, our effect on reality can be considered real only in that we give a command to perform an act, then nothing happens, then new information reaches us of the change – presumably as a result of that act – in our representation of the world.<sup>251</sup> Whether anything changed in reality, or what this change might concern, is an insoluble riddle.

In my opinion, the concept of the ‘outside world’ is an unfortunate construct: it is so difficult to define objective reality that it seems a pointless exercise. If we accept that reality is not necessarily the way we perceive it, then we immediately start looking on our world from the viewpoint of a being independent from everybody.<sup>252</sup> It is probable that these independent beings have different organs of sense, different logic, that they model the world in different ways, and may not even think on a neurological basis. However, even if we could contact them – while trying to reduce both their communicational code system and ours to a common denominator – we would inevitably build on our own logic and mental representations to understand what they see. To summarize: we have to accept that the outside world only reaches us through our mental representations. Its cognition is basically determined by our cognitive schemata, which we cannot get rid of, even if we wanted to. Perhaps we achieve the least distorted image of the outside world by recalling childhood experiences, when the majority of our cognitive schemata did not limit the way we saw, heard, felt, etc.

## **Cognitive schemata and ideas. Categories and their typical examples. The borders of cognitive schemata**

On representing the world and categories, perhaps one should recall Plato on ideas. There are many differences and similarities between cognitive schemata and ideas. While a cognitive schema is a mental construction, the concept of ideas re-

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<sup>249</sup> for example, we cannot see UV light or atomic particles

<sup>250</sup> the expanded version of this possibility is explored in the film “The Matrix”, which is based upon William Gibson's books “Burning Chrome” and “Neuromancer”

<sup>251</sup> to clarify: there is no proof that anything changes in reality as a result of our intention to perform an act. We simply perceive that we have to change our mental representations in order to comply with inputs from the world beyond our mind

<sup>252</sup> for example, UFOs, God, gods, other transcendent beings etc.

fers to the essence of certain things. They are free from mistakes<sup>253</sup> and all earthly attributes.<sup>254</sup>

The two concepts are not the same. However, the reason this requires consideration is that we can consider an idea as the title of a cognitive schema or its theoretical designation. Plato<sup>255</sup> seems to have felt the essence of cognitive schemata when he wrote of generally valid things. He imagined the ideas as something perfect, and the physical objects as poor quality copies of the ideas. In our approach, cognitive schemata are more akin to a list of relations, or a set of rules: an entity which integrates the common property of every object (those that are parts of the category) under discussion. This entity is perfect in that it is a mere mental construction, and reality does not distort it with its own mistakes.

Yet cognitive schema should not be confused with the typical example of a category, which marks that element which best fits the definition of the category.<sup>256</sup>

These parameters/rules/definitions form the essence of each cognitive schema. As definitions of categories they are empty statements, worthless constructs, but when filled with content, new, individual elements emerge.<sup>257</sup> Beside these definitions, another important characteristic of cognitive schemata is their connections with other cognitive schemata. These connections can point upwards (cf. induction), downwards (cf. deduction), or can be on the same level (cf. association). We have not so far examined this last variant.

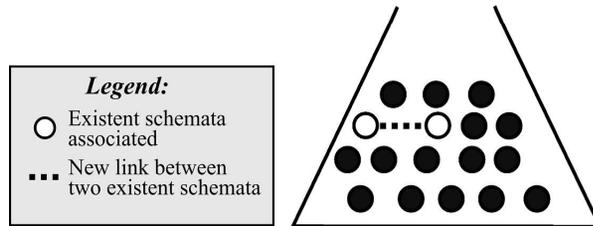


Figure 55: Association of schemata

<sup>253</sup> the perfect circle, the perfect ball, etc.

<sup>254</sup> specifics due to physical appearance

<sup>255</sup> who invented the concept of ideas

<sup>256</sup> the "typical example" is a psychology term depicting that element of the set forming the category which is the default example for most people, as it has some parameters closely matching the criteria of the category. According to this definition, the "typical example" of the category "pet" is the dog or the cat, and not the parrot or the turtle, as fewer people have experience of the latter animals. This does not make the typical example a perfect fit in the category, as the definition of a category is inevitably simplified. From this point, only matters which fit the parameters of the definition of the category will be members of the category. While an idea is based upon a convention, as a result of verbal thinking every word has to have the same definition for all people. Nevertheless, one example typifies how this can be interpreted by different people. For example, if I say 'ball' to a basketball player, in his head the image of the latest NBA official basketball may appear. If I say ball to a soccer player, he or she may think of the official ball for the latest World Cup

<sup>257</sup> cf. with deduction

Association is that type of connection when cognitive schemata of the same rank connect with each other; the aim of that connection is simply to become a part of a model within a larger system.

Another type of connection is at least as important. Namely, those negative connections that guarantee differences. These are the connections that designate the borders of the cognitive schema. They do so by designating a group of cognitive schemata with which it has no common properties; if two cognitive schemata had common properties, they would then be connected positively by these properties. We can also see this principle in real life: we often define something by saying which things are not characteristic of it. This is important in cases when a part of the definition is not the fulfillment of a requirement, but the lack of it.<sup>258</sup> How these cognitive schemata can be imagined is now considered in detail.

### The road network metaphor

Cognitive schemata are nothing other than connections similar to that of a road network. There are cities (which are akin to cognitive schemata) having districts within in them; this is similar to cognitive schemata forming new units by building them onto each other. There are then the main roads connecting these districts, with one, two, or three lanes, which show the strength of the connection between the cognitive schemata. The larger categories of cognitive schemata are connected like cities and towns in a country.

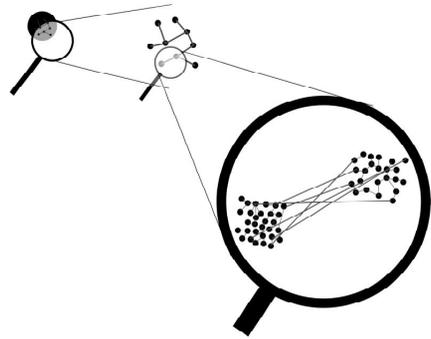


Figure 56: *Within schemata we also find schemata*

The analogy has two important parts:

- o the connections between cognitive schemata form a hierarchical network. This means that something is not connected to something else, where the ‘something’ can also be a sub-network. This network and its sub-networks are similar to physics, where particles were divided into smaller and smaller parts, until finally it was realized that there was nothing else, only waves. The difference between particles and cognitive schemata is that, in the latter, we find neurons instead of waves; and
- o the other is leveling: as there is also the street-district-city-country-region-continent series, here we can identify levels as well.

<sup>258</sup> for example, when we define animals as living entities that – save for the kangaroo and wallaby – walk on more than two feet; whereas people and birds have two legs, animals and insects walk on four, six, eight or more legs

## Archetypes

As previously examined, the way matters are organized in the world has little or nothing to do with the way we organize the world in our heads, due in part to:

- o the limits of the organs of sense;
- o the simplification made by the organs of sense in translating the outside world;<sup>259</sup> and
- o the limits of our brain capacity and its pre-wired nature and structure.

These influence how the world is represented.

The abovementioned limits seem to hinder us in adaptation, as we are not taking our decisions using all available information. This might be true, or these limitations also exist in other human beings, and aid communication between people. That others do not see in the infrared range either, or that others also do not have much greater mental capacity (and so on), enables almost identical models of the world to be made, and so we can share them.

Apart from these limits, people go through the same life phases due to their physical-biological nature: a child is born, has a mother and father, can be either male or female, experiences gravity, acceleration, collision etc. All of these limitations and common points determine the models we build.

Examples of models that are probably attached to the human species, and as such span differences in culture, include:

growing: the brain has to determine the principal direction or orientation; by following lines of gravity, up and down are perceived. Experience shows that something that is small can also become bigger, by growing. The end-products of growing range between the dwarf and the giant, as definitions of the two extremities. Following this logic, it is no wonder that the concepts of up and down, big and small, dwarf and giants etc. can be found in every culture.

God: regardless of what people think or believe about the origin of the system they find in the world,<sup>260</sup> the presence of a system is perceived in one way or another. The operator, the top of the system, is a cardinal point for everyone that has to be named. No matter what we call it – the Creator, a higher intelligence etc. – we are talking more or less about the same thing.

Extra-terrestrial: if we look at our environment as a system that we live in,<sup>261</sup> there has to be something beyond this system. In this extra-system there might be living creatures. Whether these living creatures are as an African native is to Westerners, or how a UFO is viewed by a modern man, or witches were viewed in the Middle Ages, is all the same: we exist in our system, and there is something beyond it. Also, that that something has always been named by ourselves with different names, even if nobody had seen them.

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<sup>259</sup> for example, if we look at a forest, we do not see single trees

<sup>260</sup> our brain gives the system to the outside world; or there is a system in the outside world because a higher power built it as a system

<sup>261</sup> we can take the planet Earth, or a village in a jungle, as our system

Moreover, we feel fundamentally that these models are not comparable with transient modern constructs, such as, say, acid rock, or the wearing of ripped jeans, but that they carry a certain universality. For Jung, these models had a unique importance, as archaic concepts building bridges to the deepest layers of our psyche. The subconscious<sup>262</sup> operates using mainly these models, so they form the language of the subconscious. Jung calls them archetypes.

## Spontaneous Self-expansion

A better understanding of the concept of cognitive schemata makes it possible to be understood more precisely and to explain certain exceptions. The FIPP emphasizes the process – of Self-narrowing → establishing a new schema → Self-expansion – while ignoring spontaneous Self-expansion. That is, where two schema accidentally merge through a connection and establish something new. The following example is rather tabloid-like, but it sheds light on the process of easy Self-expansion. Let us assume that somebody's favorite actress is Angelina Jolie, and their favorite actor is Brad Pitt. He respects both persons and holds them in high esteem, for their beauty and talent. Then he reads that they have married each other. Any happiness he feels about this comes from establishing the cognitive schema of a perfect couple, on the basis of the cognitive schemata of perfect stars. Of course, there is a testing phase here as well, just as we have seen in the chapter on Problem Solving. The person attempts to match the existing information on the actor and actress to determine whether their personalities fit each other and if they would form a good couple. Perhaps, if Brad Pitt had married Pamela Anderson, that would have established a more contradictory cognitive schema. From this, we can see that it took no serious effort to establish the new schema. Moreover, the fan's skills and abilities were not questioned while reading the news, so the Environment did not endanger his Self that much. Accordingly, the Self-expansion is not so frenetic either, but is enough to produce the usual sharing imperative, so he might relate this news to other friends and fans in his environment.

## The establishment and growth of cognitive schemata

The essence and precondition of a cognitive schema are its inner rules. These principally define the cognitive schema, whatever it might be: a mathematical formula, a tune, or an object. Connecting this rule with other cognitive schemata, the schema becomes increasingly embedded in the net of pre-existing schemata. In other words, the cognitive schema's net of connection spreads.

From this description, it follows that there are cognitive schemata with either smaller or greater nets of connections. Those with a smaller net are therefore less determining, and those with greater networks blend with the mass of cognitive

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<sup>262</sup> which plays an important role in the aetiology of psychic diseases in psychoanalysis

schemata. An example of a larger cognitive schemata is the schema of a man, or a woman, which is also connected (either positively or negatively related) with the schemata and other properties<sup>263</sup> of all the people we know.

The net of connections of cognitive schemata is capable not only of spreading, but also of restructuring and shrinking. They rarely vanish without trace, since they remain in the form of actual facts. Only their system of connections restructure radically, to the extent that its shape bears no resemblance to the original.

The establishment of a new cognitive schema does not expand the Self solely due to the establishment of the new connections. It is also based on the former experiences that anticipate the number of new connections to be established. For example, when an art dealer buys a Picasso for 1 million USD, he is neither happy nor unhappy. He has spent a considerable amount of money. But he is almost sure that that expenditure will enable him to sell on the painting and so make a substantial profit for himself; perhaps, at the moment of purchase, he anticipates how he will spend that profit.

Alternatively, when a new cognitive schema is established, the Self also expands as it expects a number of new connections to be created soon, which pleases it. Perhaps someone discovers a new restaurant in his neighborhood; he is happy that there is a new menu available to try. The cognitive schema of the restaurant will make new cognitive schemata of meals, which connect with the cognitive schemata of taste.

The pleasure of having established new cognitive schema accompanies the testing process previously mentioned, which examines the congruence of the world and the cognitive schema. For example, the restaurant may seem nice, but is it clean? It may be nice and clean, but are the waiters polite, civil? In order to avoid this scrutiny, and so reduce the pleasure of the establishment of the new cognitive schema, in most cases a person will:

- o complete any missing information with positive things: the restaurant is nice and clean, so the toilets must also be clean. We do not eradicate our pleasure by inspecting all of the rooms to check their condition;
- o examine the topic at a higher level – by making a so-called “general impression” – before going into the detail step-by-step. For example, if I often frequent Starbucks, I enter one of its outlets anticipating an understanding of its condition that I may never bother to verify. The same applies to the restaurants of a particular district of a city, or in the case of a national cuisine. If I go to a Chinese restaurant, I am more or less aware of what tastes I can expect there.

The results of testing increasingly fill and enrich the cognitive schema, resulting in a detailed picture being formed. Naturally, the enrichment of the cognitive schema cannot be reached only with the help of outside stimuli, but it also requires inner processes: we say that we are “ruminating” on a problem. At such times there is no new input, it is only the variables of the structure trying to con-

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<sup>263</sup> for example, aggression, tenderness, risk taking, compassion etc.

nect with other, pre-existing and different, cognitive schemata. This happens when someone reads a theory and tries to understand it by bringing up examples, attempting to rebuild it, and so on.

Experiencing a cognitive schema that has a stable, unambiguous inner structure, and that it is connected with other cognitive schemata, provides further pleasure. Although the new cognitive schema was established earlier, henceforth it is both usable and ready to make new connections.

Once a cognitive schema is ready for use, it becomes subject to more or less intense verification when in use. Verification is either direct,<sup>264</sup> or meta-reflective,<sup>265</sup> about the value of its use.

## **Definition of function practice (circular reactions) with the help of cognitive schemata**

This preliminary examination of understanding cognitive schemata enables us to attempt to explain the phenomenon of function practice, or circular reactions. Principally, it relates to the establishment of cognitive schemata, and the growth of their net(s) of connections. Moreover, we can also say that function practice is no more than all of those attempts to increase the net of connections that are motivated by the reinforcing effect of Self-expansion. The latter is the function pleasure that we can observe in function practice, and which has been previously described in psychology. Function pleasure is the happiness we feel when becoming increasingly successful at an ability we have to learn, or a series of acts as we use them.

However, what is the phenomenon in connection with which we can declare that we are becoming more successful?

As previously seen, after the main connections – the essence of the cognitive schema – congregate, the cognitive schema then begins to shape the system of connections that determine its relationship with other cognitive schemata. In an admittedly artificial manner, we can divide these relationships into:

- o inner connections, which organize the constituents of the cognitive schema; and
- o outer connections, which organize the relationships of the cognitive schema.

This division is not the best way to view the schemata, as these connections do not have to differ in quality merely for occurring within cognitive schemata. Within the cognitive schemata, there are also other cognitive schemata; recall that a cognitive schema is established through the integration of other, lower-level, cognitive schemata, or by the extraction of their essence through induction. Perhaps a method of distinguishing inner and outer connections is by measuring the strength or density of those connections. This would be similar to the road network meta-

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<sup>264</sup> for example, can we solve something with it?

<sup>265</sup> can we solve something quicker than usual?

phor, showing roads within a city and those leading to other cities. Both inner and outer roads are similar, but while those within the city have just one or two lanes, the roads – or highways – between cities can have three or four lanes.

The greater strength of a connection is due to the inner connections of the cognitive schema having become more harmonic, so making the inner contradictions vanish. The solving of these minor, internal contradictions leads to small Self-expansions. For example, we can hit a ball with a tennis racket, but a good coach can instruct us how we can hit it with more confidence, and with greater accuracy and power. To avoid selecting incorrect methods of achieving these aims we must practice, which makes the connections stronger.

The road network metaphor can be used to illustrate two further points. That the city is already there (the cognitive schema is established) means that its road system becomes increasingly complex – the inner net of connections of the cognitive schema grows – and also has some traffic. What else can then be done to improve what we have, in order to be able to travel from one part of the city to another more quickly; how can we increase the efficiency of the modeling? To achieve this, we must do away with dead-ends, replace two-way streets with one-way streets (so dissolving mini-contradictions), and by broadening main roads (so strengthening the connections by practice). That is how it looks at the micro level of cognitive schemata.

On the behavioral, macro, level, the previously mentioned function pleasure can be observed: the better we do something, the more we initially like it, but we then become bored with it. The order of this progression is:

- o initially, the child or adult cannot solve a problem
- o using the trial-and-error method, he proposes a solution
- o the solution is often wrong, but the proportion of good solutions begins to increase
- o the proportion of good solutions almost completely outnumbers the errors, so the problem can be solved with almost complete certainty
- o in dealing with the problem, boredom sets in, and:
- o he stops the activity and does not begin again<sup>266</sup>
- o it becomes a necessary, automatic, routine, undertaken by pure reflex<sup>267</sup>
- o the problem is made more complex, testing his success at solving the more complex puzzle<sup>268</sup>

But rather than becoming bored, why do we stop before reaching peak (100%) performance? Why do we not strive to become completely perfect? The answer: after awhile, our investment is so much greater than the profit or advantage earned, that it seems to have become an enterprise which would provide a deficit if further investment were made in its development. Even if not a deficit, a better invest-

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<sup>266</sup> in the case of a child, shaking a toy; people who retire and who do not miss their previous job, as they have reached their goal

<sup>267</sup> tying a shoelace, multiplying figures

<sup>268</sup> cycling, cycling without hands, on one wheel; operations in different numerical systems, natural numbers, complex numbers, binary numbers etc.

ment can be made in an enterprise where equal effort promises greater reward. Here, profit and effort should not be thought of as abstract numbers, rather in terms of language of the psyche i.e. Self-expansion and Self-narrowing.

Why is it like that? Repairing small mistakes in an almost complete cognitive schema requires restructuring of the whole schema. However, the increase of performance and competence, which would lead to Self-expansion, is hardly noticeable.

People who become bored with their profession do not realize that they can reach and obtain in other fields of life the Self-expansion they are used to. However, due to a failure-averse attitude, or the lack of a risk-taking attitude, they do not dare to change. They stay in the field where they are acknowledged, they do everything routinely, yet the meaning of their life, and their happiness (series of Self-expansions), is missing.

My comments on function practice could be taken as a mere by-product of human thinking. However, function practice is much more than that: it is the key to understanding thinking and human development. If someone did not want to practice functions, he would not only give up function pleasure, but would stand wholly incompetent in the world. As the establishment, growth and use of cognitive schemata are not to be separated, they take place in a continuum, and the same processes occur. Connections are established the same way, the only question being "Just where do we stand on the scale? Just above the base when the connections are established, or significantly higher following function practice?" So, although function practice was previously a good concept, closer examination shows that it is no more than the normal activity and spreading of a schemata. Being a concept difficult to define, its use should be limited to the one phenomenon, or perhaps two, necessary in child psychology.

## **A final detour: play as autotelic function practice**

Playing is another favorite philosophical question. It has no economic profit, yet it consumes considerable energy and is seemingly undertaken with, and followed by, great pleasure. Questions arise: why is play established? How can we define it precisely? To what can we oppose it?<sup>269</sup> Etologists have defined play as practicing crucial behaviors<sup>270</sup> without any negative repercussions. Psychology describes play as a form of function practice with no specific aim.

Upon this, a key issue remains unanswered: what motivates the play; where does the most important constituent of play – pleasure – come from?

FIPP provides an answer: a great amount of information congregates in a child's head, which is stored in the form of separate cognitive schemata, the connections between which have yet to be established.<sup>271</sup> So, during play, an array of new cog-

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<sup>269</sup> for example, doing nothing, being bored, working

<sup>270</sup> such as hunting

<sup>271</sup> example: he knows he has grandparents. He has heard about marriage. He knows that his parents are married.

nitive schemata are continually being established, which cause frequent Self-expansion during play. We have examined why people like play; the rewards of play are the reason we invest energy in it. Behind the accompanying, and frequent, Self-expansion is that – as the new cognitive schemata are established from existing information, and children lack many basic level connections – children find connections easily when playing. Without realization during play, most cognitive schemata would not be established. We would then have a great deal of encyclopedic – but little usable – knowledge. Another major point is that play is a model of reality which does not contain the inconveniences – in military games, death and injury; in medical games, pain and illness – so the profit is disproportionately large compared with the investment. There are virtually no inconvenient episodes, but the great number of realizations causes a great deal of Self-expansion.

This raises the question of why do we not play until the end of our lives? Because play only models the outside world. We manipulate the outside world on a high level in vain; it remains a model. It does not matter if we always win at “Monopoly”, our personal wealth remains the same. If the play-acting is of an exceptional model of reality, it can be a small step to matching it to the real world. This in turn raises the question of personality, principally in connection with our response to stress. As an example, what are our feelings when we begin to play poker with stakes of real money, rather than with matches or tokens?

One difference between play and work is that, at work, we no longer manipulate the models of mental representations, but the representations themselves, so our actions are irreversible.

Principal points covered in this chapter:

- ‘reality’
- hierarchies of schemata
- children learning through play

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When in a tale the grandfather bear meets grandmother bear, he understands that his grandparents are married. Moreover, he realizes that, generally, there is a mother next to a father, and that usually they are married

### 13. THE MENTAL HYGIENE EFFECT OF A COMMON RELIGIOUS ACT

**Confession as a mental antiseptic.**

#### Confession

Confession seems a bizarre and illogical act for neutral observers: as an example, after I commit a murder, by simply telling somebody else of this my responsibility vanishes, and everything goes on as if nothing had happened. This happens on the level of a phenomenon, so agnostics or atheists can be rightfully suspicious that this is one more tool used by the church to extract information from its ‘dependents’. However, confession is more complex than can be described at the level of a phenomenon. It is an internal, psychic process connected to the church emphasizing psychological functions before behavior.<sup>272</sup>

The theological background of confession in Catholic religion is that Man has always been born as a sinner; that was Adam and Eve’s covenant with God when they ate the apple. This is seemingly unjust: what has the decision made by two people thousands of years ago to do with me, even if – as “everyone” comes from Adam and Eve – I admit my descent from them. This culpability is canceled by baptism, a chance given to us by God which, if taken, enables us to stand with a clean slate (soul) before God. Therefore, baptized children do not have sins. Moreover, as it is intention that counts, as long as the child does not purposefully perform an evil act, he cannot sin.

However, as soon as the child begins to make conscious decisions about his acts, he can be in one of two conditions: sinner or sinless. Sinners go to hell when they die, the sinless go to heaven. So far, it seems clear. Then, what happens when someone sins? Religious or otherwise, the sinner experiences compunction. Psychologists have various explanations for this:

- o some interpret it as a result of learning: generally, sin is followed by punishment – beating, scolding etc. – and the effect of anticipating that is compunction;
- o some link it to social education, and emphasize its evolutionary benefit, in that it deters us from further sin; and
- o according to the Freudian approach, the complete function of psyche is based on the super-ego, which is there to keep the norms and fight with the ego – which sometimes misbehaves – because the id which represents our instincts makes it do so. Compunction is a by-product of this fight.

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<sup>272</sup> focusing on what happens in the soul, instead of what happens in the visible, physical world

It is certain that, if somebody becomes weak and does not change the Self-expanded option, then he becomes Self-narrowed: he is anxious about the consequences of his act, afraid of its coming to light, and in general he feels bad. The main problem with the Self-narrowing called compunction is that – thanks to the function of human memory – it never ends. It fades with time but repeatedly returns, and can also exert effects that cause illness. If anxiety escalates, it can become permanent, and hinder attainment of mental balance. In “Crime and Punishment”, Dostoevsky described how sin can even lead to suicide, more or less genuinely but, above all, suggestively.

Catholicism answers this with its theology, or in the guise of theology. It is a historic ‘given’ that priests are not ordinary men; they have a unique relationship with God following their ordination, and vow that they are his servant. This means nothing other than the opening of a communications channel to God; anything related in the confessional is told directly to God. Since they are only a channel of communication in this role, they have no right to retain, talk about, or imply anything to do with this information. That is the so-called “Seal of Confession”, the priest-penitent privilege that is recognized by the laws of many countries. In other words, the priest cannot pass on whatever he has heard in the confessional<sup>273</sup> as it is not himself who is being told or informed to, but the Lord. Since the Lord cannot answer directly, the priests answer for him; according to Catholicism, the Lord suggests the answer to the priest.

Therefore, it may be that someone hurts somebody else by thinking selfishly and finding a Self-narrowing solution to a problem; for example, he is short of cash, and so steals a wallet. A tension then arises in him, which might remain with him until his death, even if he returns the wallet and money, as certain (negative) elements become embedded in his Self, which narrow it. He goes to the confessional, which guarantees complete anonymity, and he relates his act to the servant of God.

What happens in the confessional from a psychological viewpoint? Somebody shares a secret and relives an event. Sharing a secret decreases the tension (Self-narrowing) caused by the secret, according to how many people we tell and to whom we tell it.<sup>274</sup> If I tell a secret only to my wife and my best friend,<sup>275</sup> it will barely decrease the tension, as there are virtually no consequences. If I tell the police it might have serious consequences, as the police represent society; in effect, I tell everyone. In many instances, the police are not interested in the issue, or analyze it only on the levels of the scale of the act, and the physical reality of its consequences. It is not their duty to deal with psychological motives. However, sharing the secret with a priest is perfect, in that I share my secret with “the universe”, who will understand it in the way I want it to be understood. God only listens to me, and theoretically ‘reads my thoughts’; we need not go into detail and bother

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<sup>273</sup> the small box-like construction with two doors to two compartments separated by a grid, in which people can be heard, but not seen or identified visually, by the priest

<sup>274</sup> how important those people are

<sup>275</sup> who will not hurt or betray me

with protracted questioning and answering; a ‘perfect’ communication takes place. Psychologically, the guilty person has the experience of saying those words used to share the secret; he has to say “I stole the wallet”. However, it only matters to him, as God is “all knowing”; he knows that the guilty person stole the wallet, the reason why, and what it meant to him. As well as sharing, the key is reliving.

The effect of words is often surprising, as when we put something into words, or digitize analogous information.<sup>276</sup> During this process the information is involuntarily restructured, and a new cognitive schema emerges which, until that point, was merely a set of acts and sensations with an emotional tone.<sup>277</sup>

The next most important aspect is so-called ‘sincere regret’. Namely, that it is not enough to say automatically “I stole a wallet”, but we have to experience the negative nature of the event and plan how to avoid making the same mistake again. The whole story happens between the person and God: no one<sup>278</sup> knows what sin encumbers the soul of that person. Nevertheless, even the priest cannot determine whether the person does or does not regret what he did. Moreover, it is not the priest’s duty to judge this. As nobody can call him to account, everyone understands that confession only serves to make the penitent feel – or seek to become – better.

There are two further aspects related to confession:

Penitence: the so-called penitence (remorse) levied on the sinner by God,<sup>279</sup> is nothing more than a certain amount of prayer, in proportion to the weight of the sin(s).<sup>280</sup> It is not difficult to admit – or see – that this is a strictly symbolic form of compensation – a mere five to ten minutes of prayer – to relieve oneself of the sins. However, this ‘compensation’ is compulsory. Because of its meditative nature, prayer has the effect of preparing one for the end of the phase of Self-narrowing. In a Self-expanded state, prayer helps inner communication and the absorption of inner processes required for remorse.<sup>281</sup>

Remission (communion): within the sacred framework of the mass, one of the high points is the repeating of the last words of Jesus at the Last Supper, when he blessed the bread and wine. So Jesus’s body becomes identical with the bread, as does his blood with the wine. During communion, a person has a piece of holy bread<sup>282</sup> placed in his mouth, which is a piece of the body of Jesus, so he becomes one with him. The communion is bi-directional:

- o as the communion can take place between two similarly sin-less entities, only those whose souls are without sin might become one with God; either they

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<sup>276</sup> words store information in digital format, while our emotions are stored analogously

<sup>277</sup> he had had the opportunity to talk to himself about stealing the wallet, but the final form of the cognitive schema emerges only by writing it down or telling it to somebody

<sup>278</sup> apart from the priest

<sup>279</sup> and communicated in words by the priest

<sup>280</sup> according to God’s judgment

<sup>281</sup> because one achieves inner harmony with himself during prayer, he can more easily focus on himself, and his decisions can then touch higher-level cognitive schemata. The relaxed state of Self-expansion then helps the restructuring of his cognitive schemata, which is required to change bad habits

<sup>282</sup> a flat wafer of bread, the host

confessed recently<sup>283</sup> or had not committed serious sins since the last confession. If you want to take part fully in the most holy event of the mass, to relive the communion with Jesus, you should cleanse your soul by confession

- o the communion, on the level of an individual, is the last step of the confession/penitence process towards obtaining God's forgiveness.

The act of communion<sup>284</sup> is the turning point towards Self-expansion. As the wafer-thin host disintegrates in the mouth of the person, the possibility of a new life opens, by being able to begin again everyday life without sin.<sup>285</sup>

The Catholic Church is often presented as authoritarian, which is true from many viewpoints. However, as with most religions, the Catholic Church was established principally to conserve the essence of the religion and to survive. The service of confession in its churches is considerably liberal and democratic, and it respects – and builds upon – the function of psyche. Why is this so? The confession/communion is on one hand a mental antiseptic.<sup>286</sup> This can preserve the mental balance of the morally frail, and easily sinning people, who could break down if confessing to serious sins, even if they still have the strength to change to the 'right' way. The first step in using the opportunity of confession is to accept that there is a higher entity that has power over us. It cannot work without this. If someone is so Self-narrowed (evil) that he is incapable of uniting with his Environment by Self-expansion, he will not go to confession in the first place. It is hard to imagine Stalin or Hitler, while sending millions to death, rushing to priests to confess.

In addition, excessive Self-expansion does not allow confession: if my Self is so big that I feel that I am a king, and everyone must serve me, then I will not accept someone to mediate between me and God. I will want to talk to him directly, not through a priest. That is why I cannot imagine that Napoleon or Elvis would go to confession. Someone has to be in a normal state to start on this path: neither too Self-narrowed<sup>287</sup> nor too Self-expanded (contemptuous).

However, the abovementioned conditions are not exclusive. The opportunity is open, even for the greatest murderers, to return to the righteous path, and be able to attain Self-expansion again. The church, or Jesus, laid the decision of trying to return to the righteous path in the hands of the individual. To illustrate this, consider that there are no control points for outsiders: nobody can control a mass-murderer's internal (soul) processes. If someone only simulates the whole process and meanwhile thinks about how he will cheat on his wife, then he will be no different from someone who genuinely regretted their sins and who will be a better (more Self-expanded) person the next day onwards. This notwithstanding that he

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<sup>283</sup> so all their sins were forgiven and so their souls were thereby cleansed

<sup>284</sup> the priest placing the 'body' of Jesus in the mouth of the person

<sup>285</sup> assuming that he genuinely regretted his sins and carried out the act of penitence

<sup>286</sup> preventing mental illnesses, fighting against anxiety, and soul distorting effects

<sup>287</sup> in religious terms, he "has lost his connection with God"

may speak in the confessional in exactly the same way, kneel in prayer,<sup>288</sup> and take the host in his mouth.

This being without control delegates the decision to the deepest part of the person. We have to square our conscience with nobody else, so usually most people would rather not go to confession than attend and apparently confess, but not genuinely.

These Self-repair mechanisms work not only on an individual level; they also affect communities. During confession, people will, more or less, commit themselves to changing their bad habits, and to try to take decisions so that their Self will remain/become expanded.<sup>289</sup> This approach also has a positive effect on those people who do not believe, or who do not attend confession, in two ways:

- o those who confessed after re-evaluating their existing relationships are given the chance to repair, in reality, their broken relationships; they get rid of negative feelings towards their enemies.<sup>290</sup> So, either they are given one more chance to turn a bad relationship into a good one, or they can start to reverse the effect of their sins in real life;<sup>291</sup> and
- o there is a psychological effect associated with that new chance. When you have one (theoretically last) chance to be good again, you try harder to be good. This is like a child who becomes extremely dirty whilst playing. After a while he becomes disturbed by the mud and dirt. He takes a shower,<sup>292</sup> puts on clean clothes, and so experiences how good it is to be clean. Then he will try harder to keep himself clean when he goes playing again.

Before assuming that I have an overly idealistic opinion of confession, I must note its limitations. These arise from:

- o the human nature of the sidemen;<sup>293</sup>
- o the innate insincerity of people;<sup>294</sup> and
- o the aims of the church as an institution.<sup>295</sup>

Apart from these limitations, I believe that confession is a fortunate and useful institution, which has probably saved the mental health of millions of people,<sup>296</sup> and improved mankind. However, the intention of this detour was not to make a judgment, but to demonstrate a psychological phenomenon that is interesting from the viewpoint of our FIPP model.

Finally: in Judaism, forgiveness and regret are not connected to the mass, but to a celebration (Yom Kippur) when everybody apologizes to God for the sins they have committed against others, and forgives those who have sinned against themselves. At the same time, everybody apologizes to everyone they know, and every-

<sup>288</sup> whether he prays in the meantime, or thinks about the next atrocity, is something nobody else will know

<sup>289</sup> for example, helping others; behaving in an unselfish way; avoiding the use of aggression

<sup>290</sup> the obligation to forgive your enemies is a part of the confession

<sup>291</sup> this obligation is also a part of the confession, more exactly, the penitence

<sup>292</sup> which he may normally loathe

<sup>293</sup> priests, who can pray on the Seal of Confession

<sup>294</sup> for example, people in small communities may confess only because of peer pressure

<sup>295</sup> an example being the influence exerted by priests upon all strata of society throughout the ages

<sup>296</sup> consider adolescents who experienced continual compunction due to their increased sexual interest

body has to forgive everybody who apologizes to them.

Principal point covered in this chapter:

- the psychology and redemptive nature of confession

## 14. THE DIFFERENT PATHS TO HAPPINESS

Can ‘happiness’ be described? \* And then we die; views using FIPP. \* Freedom = Self-expansion...or selfishness and Self-narrowing? \* Pursuing Enlightenment? \* Sex without end is not an answer. \* Religiosity as Self-expansion. \* Buddhism, Judaism, Christianity, Nirvana. \* Happiness through subjective performance. \* Altruism can expand and narrow the Self. \* The psychology of invention. \* Maternal Self-expansion. \* The blinkers of competition. \* Travel; to or from Self-expansion? \* Acquiring knowledge; ‘reading’ forming cognitive schema. \* Arts patronage. \* FIPP and post-death existence. \* The moment of death and fast-forwarding flashbacks.

### About happiness

Despite the historical search for a definition of happiness, psychology today talks, at most, about happy people within the concept of mental health. The connection between happiness and mental health is quite strong, but happiness – and the ways of reaching it – has not become a part of mainstream research, although it has been discussed in positive psychology.<sup>297</sup> This is due to many reasons:

- o as a concept difficult to define, representatives of science are not too eager to deal with it;
- o as a concept that embraces the totality of human life, it is seen as more in the territory of philosophy;<sup>298</sup>
- o it greatly overlaps with religion, which does not deal with the study of happiness,<sup>299</sup> but the question of a “good life” (from different viewpoints) is at the center of their interest. In addition, the logic of religion is directly opposed to the logic of science.<sup>300</sup>

Despite these reasons, it seems clear that it would profit mankind if science provided some guidance on how to attain happiness, which would also state something of the meaning of human life.

The presented model – Fodormik's Integrated Paradigm for Psychology (FIPP) – enables us to understand joy and happiness from a cognitive point of view. We have seen that FIPP describes thinking processes in problem solving. It can also

<sup>297</sup> for example, Seligman, Csikszentmihalyi etc.

<sup>298</sup> cf. life philosophies

<sup>299</sup> because they examine our relationship with transcendence

<sup>300</sup> as they do not prove, but simply accept, things in which one ‘has’ to believe

say something about sexual life and gender differences. Since FIPP is rooted in system theory, it is worth examining further, whether the patterns it describes also work in relation to other systems.

As an example, a society is a system, but so are the human brain, groups, companies, and the family. It is, therefore, not illogical that, if we look for the same pattern in these systems, that how we perceive things is simply a matter of organization and viewpoint. It is about the same people, just that at one time we consider them as elements that assist a company, another time as units of race-preservation (family), and yet another time as parts of a community bordered by geographical borders. "Reality" is the same, the only difference being the viewpoint, the way we model reality, and at what level we observe.<sup>301</sup>

In examining the topics of smoking (a spliff) and sex, we observed certain isolated parts of human life. In attempting to apply FIPP to all of human life, the aim is to define happiness, and compare ways that lead to it.

Initially, we must learn something of, what is for many, an unhappy event: the end of our lives.

## **FIPP and death**

We initially tested FIPP with problem solving. But happiness is connected with life, not problems. Or would life then be a problem as well? If it was, how can we be so different and yet still have common problems? Is there also a turning point in life, when something new emerges, such as a new cognitive schema emerging during the process of problem solving?

Probably, yes. Our common problem is that we are going to die. Since we were born, so we will die. It is an axiom, based upon the biological nature of human existence, that we need to do something about our own (physical) dissolution.

If the problem is "how do I deal with my death?", then how is happiness connected to it? To answer this, we must temporarily divide the concept of happiness into short-term<sup>302</sup> and permanent happiness. In discussing permanent happiness, we touched upon solving the problem of "what can I do about my death?" That is, about accepting death as the natural order of life, that our physical presence is a temporary condition which goes against the normal flow of the universe. What is meant by 'going against the normal flow of the universe'?

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<sup>301</sup> just as a tree is part of a forest, and the forest as a mass of trees is the same thing on a different level, so applying FIPP on different levels sheds light upon different things

<sup>302</sup> we can call it joy; for example when seeing a person for the first time in ages

## Death and the laws of nature

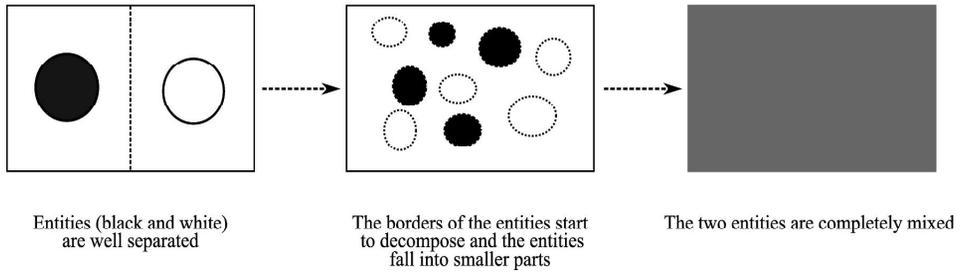


Figure 57: *A system's different stages as entropy increases*

One of the most general of physical laws is the so-called principle of growing entropy; the alternative name is the Second Law of Thermodynamics. The concept of entropy shows how inordinate a system is: how evenly the elements and energy of a system are distributed. In other words, how the distribution of the elements of the system is very similar to random distribution.

The principle of growing entropy says that a system strives to be entropic, and that order is an unnatural condition of nature. So maintaining order<sup>303</sup> requires effort. Based on the concept used in the chapter on aggression, we can say that repulsive connection is against the laws of nature. We have also seen that boundaries are nothing but repulsive connections. If borders are against the laws of nature, then the splitting up of borders accords with the laws of nature.

The human body is an entity that has borders. Moreover, the Self has borders too, and people want to strengthen these borders. Nature inevitably handles this by using the principle of growing entropy as a temporary state: atoms manage to congregate against the principle of growing entropy for a while (cf. body) then nature wins and atoms begin to depart from each other (cf. decomposing body).

What people need to realize to accept their unavoidable death is that all their boundaries are temporary. They can only be maintained by force, and that it is normal that they will end. We do not have to separate ourselves from nature and society and their laws; we do not have to strengthen our separation from them; but we have to obey them. The meaning of obedience to these laws and flow, and whether we impersonate them, is now examined.

## FIPP and happiness

For someone trying to apply the description of FIPP and its examples to himself whilst reading them, it will not be of any surprise if I say that the experience of Self-expansion is closely related to the everyday use of the concept of happiness.

<sup>303</sup> for example, keeping two things separated from each other

Perhaps even more than closely related, as there is the matter of pride at being a part of it, due to the enhanced Self and new competencies. This is the small difference that highlights why it is important to enter the new concept of Self-expansion within the formulation of FIPP. It is also the reason why I did not use the word happiness instead of the term Self-expansion.

However, with the help of FIPP, we can define happiness as experiencing Self-expansion.

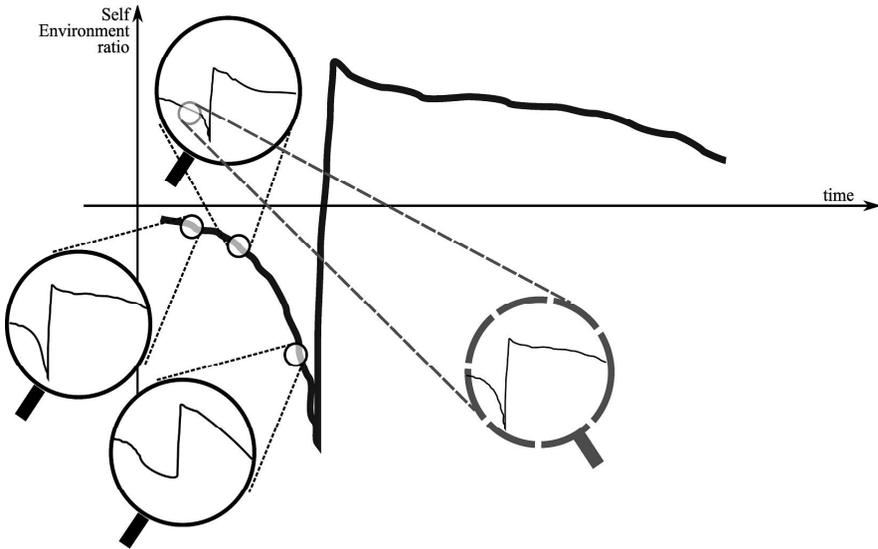


Figure 58: *The FIPP-pattern used on different magnitudes of a process*

I previously noted that, when examining happiness, we must keep the aspect of time within view: happiness is either manifested for a short time,<sup>304</sup> or is manifested as an elongated period (as a mental state). This division does not invalidate the previous definition (happiness = experiencing Self-expansion), as by being able to apply FIPP model at different levels and different complexities of phenomena also enables it to describe matters concerning different temporal courses. For example, when someone understands how to furnish his room,<sup>305</sup> then the new concept<sup>306</sup> is, in itself, the solving of a problem. However, during the execution, new partial problems occur.<sup>307</sup> On the level of schemata, these partial problems are the ‘children’ schemata of the concept, established by deduction from higher-level schemata. But these partial problems can include other problems as well.<sup>308</sup> The

<sup>304</sup> so to say, as an impulse

<sup>305</sup> or his office, his workbench, his computer’s file system

<sup>306</sup> a collection of ordering principles

<sup>307</sup> I cannot connect two cables, a cabinet does not fit, etc.

<sup>308</sup> the two cables can finally be connected, but the socket of one of them is slightly deformed; finally there is space for the cabinet, but it is not level

solving of such 'partial-partial-problems' also shows the FIPP-pattern, as it did with the discovery of the concept. So, it causes Self-expansion as well, which is equal to many small pleasures.<sup>309</sup>

As previously seen, schemata do not only have constituent parts (children schemata), but they themselves are parts of something. Together with other schemata, they make a higher-level schema. In our case, the room we furnished with our concept serves our comfort, improves our efficiency, and altogether enables us to achieve our goals. Thus, they contribute to a happiness that manifests itself over the longer term. If we continue the list, we can find what is common in the nature of pleasure and happiness: since achieving our goals, being better at our jobs eventually helps us to reach the final goal of life and contributes to whether, overall, we live a happy life or not.

The only question remaining is: what possibilities do we have in determining the final goal of our lives? Before answering, we should examine whether there has to be a final goal in life at all. Do we overcomplicate matters, or place an unnecessary load on ourselves by setting goals? Because it can also be – and this leads us to the question of freedom – that the goal hinders us.<sup>310</sup>

## Freedom

Western cultures have been determined over the ages by the question:<sup>311</sup> which one is more important, freedom or happiness? From the moment we commit to something, we are no longer free.<sup>312</sup> This something can also be the final goal. So, if we have a goal, we cannot do anything and everything we want to any more; we are no longer free. The inverse of this logic follows: we should not have goals, so that we can preserve our freedom.

From another viewpoint, people who lack the competency of controlling the Environment are not free. Since the Environment controls them, they cannot do what they want to, and so they are not free.

Translating these thoughts into the language of FIPP:

“if we have a goal...we are not free” means that, as soon as we set a target or goal (an Environment), our commitment to that causes our Self to begin to narrow. Accordingly, is not being free the same as being Self-narrowed?

If we cannot control our Environment, then our Self is smaller than the Environment, so we are Self-narrowed. Do we reach the same conclusion, that the lack of freedom is Self-narrowing?

From all of this (if the Self-narrowed state is due to the missing freedom) we can draw the conclusion that the Self-expanded state is nothing other than freedom. This is supported by a visual example: birds are the symbol of freedom in

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<sup>309</sup> pleasure as short-term happiness

<sup>310</sup> as an example of the hindering nature of goals, if my goal is to lose weight, then I cannot eat whatever and however much I want

<sup>311</sup> for example, existentialism, Sartre et al

<sup>312</sup> if we ever were

many cultures, as living in the air enables movement in all three dimensions. If we imagine the Self of a bird in the air, it is without boundaries, just like the air, since wherever there is air it can fly.<sup>313</sup>

### **The relationship of freedom and happiness**

Is it not contradictory to first say that Self-expansion is happiness, and then that it is freedom? Moreover, we have also stated that these two are incompatible...

The free person loses his freedom and becomes happy when he finds the goal that suits him. While he works on achieving his goal, he advances the Self-expansion which will come to him, and which can also make him happy. Although it is possible that he endures a deal of frustration on the way to the goal, knowing he is on the right way makes him happy. That is, if he knows. While approaching the goal, when we meet difficulties we become uncertain whether we are really on the right path, and whether we really want that goal.<sup>314</sup>

If we do not commit to anything, in order to selfishly preserve our freedom, paradoxically our freedom loses its value. In other words, the value of freedom manifests itself when we give it up; until that point, it is seemingly worthless. Let us again look at birds. Try not to imagine an 'average' bird, but rather one which strives for absolute freedom that it wants to preserve forever; its ability to fly in all directions. If it starts flying in one direction,<sup>315</sup> a hillside will eventually be in its way. At this point, it might turn back to where it still has space; that may be the exact place where it came from. The more it fears its freedom, the faster it will turn back, until it will go around in circles. Sooner or later, it will starve in the air. However, despite freedom being important to the bird, it will not discover an exit from the valley through which he could have flown out.<sup>316</sup>

To summarize...if we do not commit to and do not choose an aim, although freedom remains, the lack of a goal will also result in never reaching anything new or attaining new competencies. Not having a goal, not struggling to reach a goal, keeps us from losing our freedom. If you do not choose a goal simply to stay Self-expanded – to be free – you miss the opportunity to further expand your Self by choosing a goal and reaching it.<sup>317</sup>

### **Enlightenment as a goal**

According to FIPP, enlightenment is the condition in which we reach the final and maximum extent of our Selves. In the chapter on enlightenment, we described in detail that it is not attainable by everybody: our innate abilities play an important role in whether it is possible that a schema emerges that integrates everything.

<sup>313</sup> note that a bird, by its ability to fly, can control the air – the Environment – around itself

<sup>314</sup> for example, when sportsmen train daily to win the Olympics, which occur just once every four years, and have to daily persuade themselves that it is a goal worth working hard for

<sup>315</sup> for example, horizontally in a valley

<sup>316</sup> in psychological terms, it is afraid of exploration

<sup>317</sup> this Self-expansion is greater even than that which comes from freedom

Therefore, although in many cultures it appears black-and-white that there is a final goal, dangling enlightenment before the general public is futile. On the other hand, enlightenment is not something that can be forced. It is possible to develop in certain fields, which may establish a one-level-higher schema, and connect the well-known fields with others, but we cannot really want it. My belief in this is supported by the act of wanting something, which is a Self-narrowing procedure: that is, the concentration upon something. Also, enlightenment requires giving up the boundaries of the Self or, as previously mentioned, it requires admitting that we are controlled by laws and cannot counteract them. Perhaps enlightenment requires a combination of knowledge and humility. Here, humility is taken to mean: no longer wishing to increase the size of our Selves; not to think of the boundaries of our Selves as important; and, that that differentiating ourselves from the Environment is not important.

## Objects of life: which path to enlightenment?

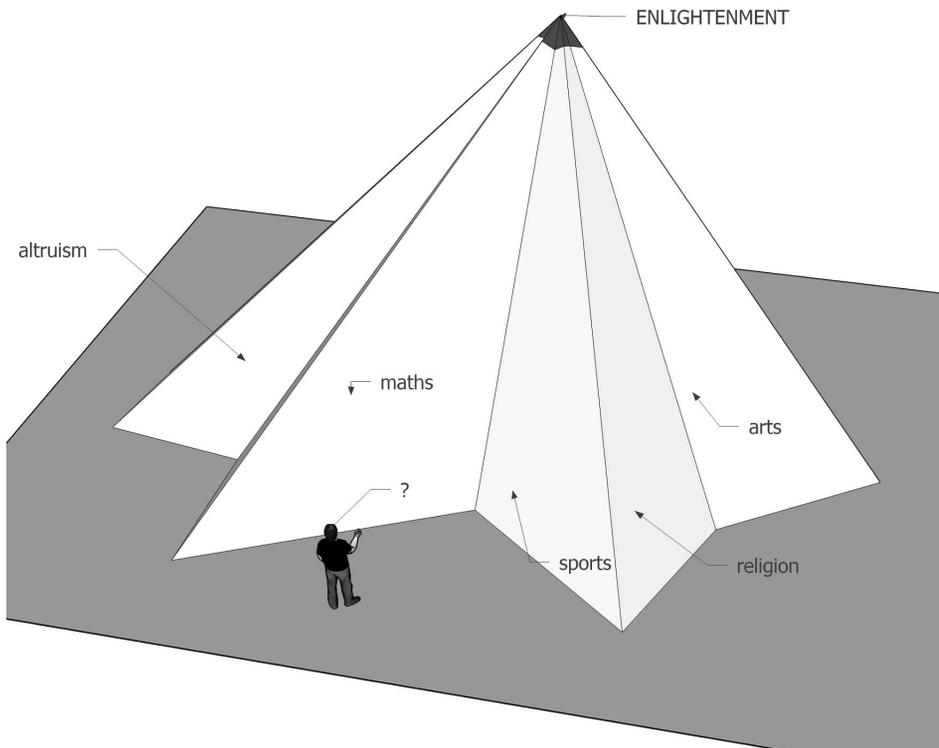


Figure 59: Different paths to reach enlightenment (the top of the mountain)

Following this speculation on freedom, we can exclude freedom as a purpose of our lives, as we must choose a goal for ourselves. Furthermore, we have seen instances of enlightenment as, initially, an overly aspirational goal. Let us, therefore, now review what other truly satisfying objects of life are available to people which can bring us closer to enlightenment and a happy conclusion of our lives.

There is a commonplace answer to the question in the title (“Which path to enlightenment?”): “So many people, so many ways”; but that is only partly true!<sup>318</sup>. Just as a mountain can be climbed from different directions, so there are different ways of obtaining happiness. Though we can draw an endless number of paths on the mountain, the mountain has sides. Similarly, the pathways to happiness belong together according to their nature: we can distinguish religion, science, art, and society, as the main areas that help us to prosper in life.

It has been known since Freud that people’s thinking is saturated with sex. It is also not a new discovery that the main goal of sex is pleasure. This seems, therefore, the first topic that we should examine closely.

### **Happiness by endless sex**

If people were animals, the sole object of their lives<sup>319</sup> would be to give their genetic material to as many successors as possible. If it is a male, he should spread his seed indiscriminately, and fertilize until he is exhausted. Females should choose the healthiest male, and give birth to a successor every year.

So far, that is the oversimplified, lay interpretation of evolution. A little more complicated, but still a particularly biological definition of the purpose of life, is that both genders strive to ensure that their successors survive, and so pass their genes on with the highest probability.<sup>320</sup> Since resources are limited, people would have to hinder the spreading of competing genes, and give preference to relatives. So aggression towards others (and the successors of others) appears.

That evolutionary fact, that the chance of survival of certain genes is greater if the individual stays within the group, makes the issue more complicated. Beyond simple sex and reproductive activity, man has to deal with a more a complex issue: his relationship with other people, society, and cooperation within it. Therefore, no path leads to happiness from mere generational and nurturing effects.

A distorted version – unsuccessfully implemented in society – of the aim inherent in biological drives, is the sex-centered lifestyle propagated by Mr. Heffner<sup>321</sup> and the hippy generation. Orgasm is Self-expansion, and it would be logical to make it permanent by promiscuity, thus reaching a state of happiness. Even if we disregard the ethics of thousands of years, we can see that people do not get ‘stuck’ in permanent sex, even without ethics, as orgasm is a Self-expansion that

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<sup>318</sup> as we have seen in Chapter 7 on Enlightenment

<sup>319</sup> the pre-requisite of their happiness

<sup>320</sup> cf. selfish gene theory

<sup>321</sup> founder of Playboy magazine

runs down quite quickly. As we experience the larger and longer Self-expansion of, for example, creation, a permanent state of orgasm will not seem to be particularly attractive as an object of life.

In activities that society respects at different levels, the height of those levels is in direct proportion to the strength and longevity of Self-expansion. And, fortunately, everything is in its place: the higher the level of the activity, the more social value it carries as it affects more people. For example, practicing science or building a house is incomparably more valuable to mankind than any purposeless sexual act.

Perhaps there is one stance that does not support the notion that the higher the level the act is, the greater its value and the Self-expansion it causes, and that is Buddhism. From a European perspective, the pursuit of Buddhism seems more selfish than socially valuable, despite it being seen as, notionally, a religion of a 'higher' level. This is because Buddhism only focuses on the individual by making the increase of Self-expansion the goal, not just a by-product. And this Self-expansion occurs – in one way or another – by disregarding social activities as by-products.

Another socially more valuable, but still sex-related topic, is the question of successors. Those who are childless will not have experienced that children can be the source of enormous Self-expansion, but that they can also cause many Self-narrowings. Watching our children causes Self-expansion. But the road to it is evidently not a series of Self-expansions. Childbirth is the transcendent event for many people; it causes huge Self-expansion.<sup>322</sup> But it is a temporary, not a permanent, condition.

The foregoing demonstrates that sex and creating children do not of themselves lead to happiness. We can ascertain that these basic connections<sup>323</sup> are deeply encoded in people, and provide an intense drive for them. We can also state that, the smaller the chance someone has of reaching a higher-level Self-expansion, the more he focuses on those Self-expansions that are biologically available to everyone.

## Happiness in religion

Let us move on to the “mountainside”, the closest relationship with Self-expansion itself: religion.

Not having seen the birth of the great religions, we cannot state the reason why they were established. If we think in a particularly material way (and accept the model of FIPP), we can imagine the situation as follows. People lived their lives and had Self-expansions as and when they realized certain successes. They began to name these phenomena that were connected with Self-expansion, talked about them with each other, until finally they felt they had to attribute these strange feelings to something. That was probably the time when the concept of transcen-

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<sup>322</sup> without this, would women face the serious difficulties, and endure the pain, of giving birth?

<sup>323</sup> according to which, sex leads to Self-expansion, as does having a child

dence, or gods as the source of Self-expansion, was established. They could explain the event of Self-expansion only by assuming that there is something, beyond the physical realm, with which they were connected.

According to Judao-Christian religiosity, man consists of two parts: the divine part (the soul) and the physical part (the body). We can see changes in the physical during life. Of the mental part, we experience the phenomena called Self-expansion and Self-narrowing.<sup>324</sup> We can look on all of this from an inverted, cause-and-effect viewpoint, as religion teaches it. The Lord gave us the ability of Self-expansion (for example, we can pray), so that we can experience our divine part, and do not forget or ignore it. One way or another, Self-expansion connects with the transcendent, paralleling the process during Self-expansion when our Selves merge with the Environment, the world itself.

A teacher once stated that religions were born only in places where there were mountains. His explanation for this: that there is something about mountains that urges people to engage in transcendence.

I believe it is something else. If someone climbs a mountain, the scene in front of his eyes is a vast Environment, which he can also experience as a whole (nature) of which he is a part. For example, if he climbs to a familiar place, the valley he looks down on is on harmony, and he is safe: when he looks down on his village or recognizes the lake in front of him, he will have Self-expansion. Of course, if he is hanging on by his fingernails to the edge of a rock, that will more likely cause Self-narrowing.

So, where there is a mountain that can be climbed, by looking around Self-expansion can be experienced and obtained. In addition, the new perspective can provide us with realizations of new connections, so enhancing this Self-expansion. With the help of this rare perspective, which puts things into a different context, and provides a better visual representation of the proportions of man and nature, it is then easier to imagine a god who sees everything from above.<sup>325</sup>

### *Buddhism*

I shall begin with this religion as its declared aim is to reach a condition in which the soul achieves Nirvana, a state of permanent happiness. The road to that is Enlightenment, which can be reached with meditation, prayer, yoga etc. It wastes no time on gods and afterlife, but purposefully seeks to establish the top cognitive schema that can both explain the whole world and answer all questions.

That is a distillation. I do not profess to know the minutiae of Buddhism, but imagine that it ‘attacks’ from the physical side of the “mountain”. So, Self-expansion can be exerted by auto-hypnosis and relaxation; followers of this religion become adept at these techniques. The body is complex, so its mysteries have to be revealed before we can control it. That requires huge energy, and a lot of

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<sup>324</sup> if not practicing science, we could call the two phenomena Soul-expansion and Soul-narrowing also

<sup>325</sup> it is a characteristic of 'god' in almost every culture that he or she is somewhere above us

time.<sup>326</sup>

Buddhism emphasizes the importance of getting rid of desires (and thus borders; see the chapter on aggression). It seems to me that Nirvana is that place where people can rid themselves of desire, and thus have nothing bonding them to earthly things. How does this enter our picture? Why would reaching Nirvana, and ridding ourselves of desires, be good for us? Because every physical thing we desire can cause Self-narrowing, and that causes discomfort. We work for it until we attain it, we narrow our Selves to achieve it, and to make it a part of our Selves. Then, when it is actually ours, we begin to worry that we will lose it, and that leads to new Self-narrowing. Only at the moment of obtaining do we obtain pleasure, even if ‘it’ is repeatedly obtained.<sup>327</sup> There is no Self-expansion without Self-narrowing except when we rid ourselves of all desires and unify with the Universe; we reach Nirvana.<sup>328</sup>

Let us turn to the issue of economics as a variation of the route to happiness.

Children know that wealth is relative. According to our needs, we can feel in childhood that we are immensely rich with just marbles in our hands, or in adulthood even the twentieth million dollar may not be enough to assuage our quest for wealth. I translate this as: our Environment is determined by our Selves, the question is...what is important to us at a given moment: marbles or money? Environment tries to manipulate the Self,<sup>329</sup> and the Self does not have perfect control over what it considers to be the Environment.

There are then two extremes of feeling rich:

- o we get everything we need
- o we decrease our needs to zero.

Buddhism tends to the latter. I also tend to a decrease in our needs, to be happy about everything we obtain as a bonus for using our abilities.

### *Judaism*

The principal concept of Judaism is that of one God, and this God gave the Torah<sup>330</sup> letter by letter; if we read it attentively and thoroughly, we can answer every question (in connection with society and behavior). Since these answers come from God, they have absolute validity, and can be considered as laws.<sup>331</sup>

The function of the laws and an everyday relationship with the Torah can be imagined as branches that are points of decision in a person’s life.<sup>332</sup> The Torah

<sup>326</sup> cf. how much time is required to be able to perform yoga techniques at a ‘professional’ level

<sup>327</sup> for example, seeing our children day after day, or receiving our salary regularly each month

<sup>328</sup> although it is a big joy to have a wife, children, a house, we can never be calm, as we always have to be afraid of something in connection with them: our wife leaves us, children get sick or become lost, our house burns down... Moreover we need new, more, better, bigger, dearer: houses, cars etc. It is conceivable that this hinders achieving a Self-expanded state

<sup>329</sup> this happens in advertisements, when items appear of which we have never thought before, or when an unnecessary ‘essential’ breaks into our field of vision

<sup>330</sup> its Christian equivalent is the Old Testament

<sup>331</sup> for example, “you shall not murder” is one of these absolute commands

<sup>332</sup> beginning from what to do when I wake up, how to behave towards my enemies etc.

and unwritten tradition is nothing other than a system of connections hidden in a limited amount of information. This helps us at these branches, from which we can obtain the right answer at every decision point.

Religious Jews live well if they make the right decisions. Of course, the Torah cannot be there at every single move they make, that is why there are superior commands (laws), which more or less successfully give the right answer to a particular situation.

Religious Jews believe that, if someone acts according to the laws, that he then acts according to the will of God, by which he, so to speak, unites with God. We could say that this is exaggerated: absolute belief in the laws makes people behave rather like hypnotized people, who blindly trust a hypnotist and follow his commands. Pleasure comes from the ability of following his orders and thus merging with him. In this case, the hypnotist is the most perfect thing: God. We do not have to think about what we want to do in a situation, but we have to understand what God told us precisely in order to be able to execute it. Knowing that someone who keeps to the laws of God is on the right track causes Self-expansion; the Self merges with the Environment, which is nothing other than God. The more successfully someone keeps the laws, as he becomes more used to them and understands their common essence, the more he begins to understand the “will” of God, and so unifies with him.

The methods of merging the individual and God are greatly emphasized in religion: this goal is supported by short prayers, which people are obliged to repeat at almost every event.<sup>333</sup> The role of prayer is to constantly remind people that everything is due to God. It is a type of auto-conditioning: people expand their Selves with a force voluntarily chosen every time to connect to the Jewish Environment that symbolizes God.

In Judaism, the power of the community plays an important role: whereas the laws and prayers regulate the relation to transcendence, this is real. The community plays the role of the social Environment, the place where people live their lives. Nursing the relationship with the religious Jewish community<sup>334</sup> establishes a connection that helps the merger of the Self and the social Environment. The interest in the connection is that it does not only have an effect on the present. By remembering, with the help of feasts and rituals, it provides the people with the feeling of being a part of a family/community with a glorious and long past, that many other people feel the same way, and that this connection is unconditional and exists regardless of our will (on a quasi-genetic basis). This dissolution in the past (in time) and in the world (in space) causes Self-expansion and, at the same time, it satisfies the need of defining our selves.<sup>335</sup>

Another important element of Judaism is continual learning: the deepest possible knowledge and interpretation of the Torah. Discovering the connection hidden

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<sup>333</sup> waking, eating, traveling, etc.

<sup>334</sup> on Sabbath dinners, feasts, in the synagogue etc.

<sup>335</sup> our identity

in the text causes (like problem solving in general) Self-expansion. Moreover, it also means – since it is a divine text – that the connections of absolute laws about the relationship of God and people are revealed.

### *Christianity*

Jesus (who himself had been raised according to Jewish laws) brought something new – compared with Judaism – in the sense that he directed the attention from the outer level<sup>336</sup> to the inner<sup>337</sup> processes. The change was that the priority of the acts were replaced by the equality of acts, thoughts and intentions. In tandem with this he made a new law (a top level schema): Matthew 19:19 – “Thou shalt love thy neighbor as thyself”.

Jesus did not want to change the basic teaching of Judaism. However, he thought that caring too much about the laws focuses our attention on appearance too much, since the laws cannot do anything with the invisible, inner processes. The regulation of the act granted the harmonic functioning of the society and the unity of the nation for the Jewish people, so it fitted the aim perfectly. However, regulation on the level of thought directly affects the Self, so co-ordination of larger masses became possible.<sup>338</sup> The acts and the inner world are independent of each other, as action does not influence the size of the Self. Religious Jews act for the mental representation of their acts, not necessarily for the representations of the consequences<sup>339</sup>.

Based on this, we can consider the teaching of Christ as Jesus commanded: be Self-expanded in decision-making situations. If you do so, you will unite with God (the Environment), or, as your Self expands, it can reach the condition of uniting with the Environment (go to heaven cf. Enlightenment).

Let us understand this sequence of ideas through an example. A person walking in front of you drops some money on the ground. What do you do?

- o Judaism precisely controls the situation, saying word by word what has to be done. You have nothing to do but execute it. After doing it<sup>340</sup> you feel that you kept the command, you acted in accordance with the laws of the world, therefore you became closer to God (you experienced Self-expansion).
- o Jesus does not give you a straight answer, even if he explains in a parable a mechanism that works in similar situations. He says (according to my interpretation): "Make your decisions in order to expand your Self!" This can mean many things:

- if you keep to the main teaching (so you love your neighbor who walks ahead of you as yourself) then you do what would make you happy: to get back what is yours. Pick it up and hand it over! Here, Self-expansion means: your Self unites

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<sup>336</sup> discernible, phenomenological

<sup>337</sup> so to say, cognitive

<sup>338</sup> cf. the spreading of Christianity, evangelization

<sup>339</sup> for example, we can practice charity without feeling anything in common with the person we help, but we can experience the pleasure of fulfilling our obligation to practice charity

<sup>340</sup> reluctantly, or with pleasure

with the person who walks ahead of you (who is your Environment at that moment) and you feel what he feels, so you will be happy too when he gets back what is his. Perhaps Jewish teaching provides a similar command;

- however, what if you have more information in connection with the situation? For example, you have a hunch that the person who walks ahead of you has stolen the money and, as others are hungry, it should be given to them. You take it and give it to the hungry, and say it was given by the bad man. It is not you who gave it to them, but the bad man. Here, Self-expansion postulates a bigger Environment: now, not only the people who walk ahead of you are a part of it (including him) but others too (the hungry). And in that Environment, you achieve harmony according to your best knowledge and regardless of your selfishness: you give it to those who need it more, but you do not 'profit' from it. You do not feel that you acted correctly because money was given to the hungry. No, you did not give the money; rather the evil person did. You just put things in their places in the Environment, which accidentally reached the 'wrong' place. You could also say that God obtained the money from the evil man's pocket, and then dropped it on the ground, so that you could give it to the hungry. It is important that, in the act of 'giving-harmony-to-the-environment', your Self retreats into the background, which then guarantees an unselfish, Self-expanded decision.

This 'giving-harmony-to-the-environment' phenomenon was mentioned in the introduction as laws; for example, helping the growth of entropy. The money was not distributed evenly (the rich had more, the hungry had less), and this was against the growth of entropy. In that the money reached the poor, the entropy of the money increased, thus events took place in unison with the laws of nature. Of course, this parallel between entropy and the distribution of money is rather optimistic. However, we can illustrate with such visual examples that there are laws of society and nature, which we can oppose only temporarily. Going against them (or more precisely 'wanting-to-go-against-them') hinders reaching happiness. In Judaism, it is declared, even more clearly, that the laws of God which had to be kept are, at the same time, the laws of nature. As in Buddhism, it is the disintegration of the desires, the dissolution of borders, that results in the final calming and unifying with nature.

### **Happiness by performance**

A friend gave the following reason for withdrawing from the world, at the age of just 30, and to begin living an ascetic, religious life, despite his successes in everyday life: "Let's assume that I work to make enough money to be able to marry the kind of woman I want. So far so good. I buy a house and a car. I marry a beautiful woman and we have children. Then we will need a bigger house because the kids grow up, and a bigger car. I work to be able to buy those. I bought them. So what? My wife loses her youthful attraction after a few years, and the children leave the house...."

That is how a person without religion thinks. For him, only the results of the

physical world are conceivable, as only those ‘exist’. Since he is a man, giving birth to successors does not excite his curiosity that much. Fortunately, despite the many mistakes of this friend, there is something very true about his realization: life has to have a purpose, because performance in itself (for example, making money) does not lead to constant happiness. Take professional athletes: if a single outstanding performance caused satisfaction or happiness in the long run, then every Olympic champion and world champion would retire the day following that performance. And in everyday, economic life, anyone who earned their first 10 million USD would retire from their job.

So people have to have a purpose to their lives. Moreover, a purpose of itself is not enough: we have to make a story around it so that we can explain how we chose that exact aim and to provide a more precise framework for that aim. As an analogy of the expression “narrative” in philosophy, I call this personal narrative. These personal narratives might have the same structure as the religions, but we can create one of these narratives on our own.

### Goals and personal narratives

Different types of self narrative are known by everyone. If we look at a newspaper stand, we can read celebrity news about people who are envied. Some of these people have nothing else to do than trying to figure out how to make their life happier. The emphasis in choosing the right way is on their talent and abilities. Common to every solution is their aim of merging with the Environment:

- o either by way of religion;<sup>341</sup> or
- o by their individual solutions.<sup>342</sup>

Let us take a closer look at these.

#### *Altruism as an objective in life*

Altruism would assuredly win any vote on the nicest human characteristic, at least according to our present value system. Its definition: doing something which serves the interests of an individual or a group, even if it is against our own interest. Its archetype is Mother Teresa, who helped so many in need that she was awarded the Nobel prize. At first sight, it seems inexplicable. Why would someone give anything to strangers, or dispense the money he or she gained through hard work? But it is evolutionarily reasonable. The chapter on altruism discusses in detail both the function and mechanism of altruism. For those who have not yet read that, a brief summary.

When we give money to a beggar, or otherwise help someone, we feel good about that. Psychology describes the phenomenon, but the explanation of the underlying process is not easy, as so far it can only be explained by empathy. According to this, we reward ourselves through seeing and experiencing the other

<sup>341</sup> Madonna and Kaballah, Richard Gere and Buddhism, Cruise and Travolta and Scientology

<sup>342</sup> Princess Diana and Bono through their charity work, Bill Gates with his charitable foundation and expenditure of billions of dollars

person's pleasure (relieved situation). According to FIPP, it is about dissolving the border of the Self, and so letting the Environment in and merging with it. We therefore act by looking at the common profile of the Self and the Environment. The merging of the Environment with the Self can be seen as Self-expansion. And it is known that Self-expansion provides a positive experience. The fact that this also happens according to the FIPP-pattern is supported by the deadlock before it, when we hesitate and consider before doing something against ourselves.<sup>343</sup>

Helping others<sup>344</sup> is a pro-social activity, but the efficiency of the execution is often questionable. Although the goal is pure, the way it is realized often takes matters in the wrong direction,<sup>345</sup> or cancels out the effort. That is why help does not have a top form that is the most valuable, but instead has many variations according with what is considered the most effective, and by whom. Who and how we can help also depends upon our Environment: the doctor who heals neighbors helps in one way, UN employees or charity people help in another, while voluntary helpers, dedicated politicians or government advisors help in others. There are people who teach in African villages, because that is what they can do, and there are people who are cavers or first-aiders who help at disaster areas.

It is common that the saved person, the healed patient, and the hungry, give an enormous experience to the people who help. However, it takes great naiveté not to notice that, besides this Self-expansion, there are a lot of irritating circumstances<sup>346</sup> which cause Self-narrowing to the helpers. Unfortunately, there will always be suffering in the world; the realization of this leads to mental exhaustion in many altruistic people. Since the fight against problems never stops, altruism of itself does not give us complete happiness, as it is like a drug: the more we help, the more we want to help, and the more trouble we see and experience.

### *Scientific research and artistic creation*

Previously mentioned was that mankind can be helped on many levels, dependent upon the abilities of its people. A special case is of discoveries, inventions, arts, and sciences. I consider these matters special as, particularly if they are pursued by people of talent, they are all self-rewarding. The Self-expansion accompanying the establishment of a new cognitive schema can maintain creativity independently of any physical circumstances: for example, money; how many starving poets/painters/inventors, such as Van Gogh, have there been?

Constant creation, and sharing the new cognitive schemata, would theoretically be a good solution for finding a happy life, as discoveries and works of art help people to realize and understand the laws of the world. This helps us all to live in harmony with the world. However, this path is not given to everyone as a possibil-

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<sup>343</sup> the archetypal story of such hesitation is when Jesus decided to die for the good of mankind. The dead point before that was his last night in the Garden of Gethsemane, when he had his last chance to escape. Instead, he waited for the soldiers to find him, despite knowing the suffering awaiting him

<sup>344</sup> supplying food to the hungry in Africa, caring for the sick etc.

<sup>345</sup> for example, the leader of a tribe takes all of the supplies; or unsuccessful surgery caused by malpractice

<sup>346</sup> stealing, mistakes, bad organization

ity, because some lack the required ability. Individual differences play an important role in the fields of personality, ability, and self-estimation. It does not matter if someone has wonderful images or thoughts in his head if they cannot be realized as his skills are all manual, or he cannot think rationally, or is too impatient to work out the details properly. Individual differences play an even bigger role in sharing the cognitive schemata, when personality can determine how much others accept his intellectual products,<sup>347</sup> or how he deals with the (often negative) reflection of the social Environment.

Moreover, doubt always accompanies creation, and doubt is Self-narrowing. Is what I have done nice? True? Correct? If it is, is it something new?<sup>348</sup> Could I have done the same thing better? These questions are the great enemies of artists and scientists. If someone is talented, and the age in which he lives understands him, his personality remains healthy and he reaches happiness on this path. That is why I believe it probable that Picasso or Einstein were happy.

Mental health and creation is not a simple issue. In particular art, and science, heal, if someone connects to reality through these, if for nothing other than the frequent Self-expansion obtained. This dissolves the tensions and contradictions between the cognitive schemata within the Self. However, the brains of very talented people are rarely coupled with competencies that enable living with 'average' people to be smooth. Even if they were, the growth of the Self, which subsists on research/creation, makes living together difficult.<sup>349</sup> It is not only a question of will and situation that might generate serious friction between the researcher/artist and his environment. He often pays for his talent with disadvantages in other fields. How can he assure harmonic, balanced development in all fields if there is a favorite field<sup>350</sup> as the strong attractive force? The pursuit of that field rewards him more than anything else does.<sup>351</sup>

### *Children and grandchildren*

Women have a great advantage in achieving happiness: their ability to give birth, and what comes of that, their instinctive attraction to children. Moreover, society supports them in this activity, since there is no other group of people that would value investing so much in their successors. The fact that they are already halfway along the route designated by biology 'guarantees' them 50% happiness. Of course, personality plays a role here as well: are they capable of loving their child, do they build good relationships with them, do they practice good educational techniques?

However, guaranteed Self-expansion still remains for them, which they feel when

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<sup>347</sup> think of the strange personality of Dali or Warhol, or those inventors with poor communicational skills or introverted personalities

<sup>348</sup> have I given mankind anything new by this?

<sup>349</sup> if some of the scientific or artistic community considers X as a unique talent, there is a chance that after a while X believes that helping his wife with the housework is a waste of time and beneath him

<sup>350</sup> that in which he is exceptionally talented

<sup>351</sup> it is hard to imagine that Einstein would have been happy to go to cookery classes if he had had the possibility to solve physics exercises instead

they look on the children playing, and later their grandchildren. They feel that their blood flows in their veins, and they experience the identical existence of them and the family, and it makes them happy. Of course, this is not eternal either, since children and grandchildren grow up, there are conflicts etc. Still, for many women, the path to happiness is nothing but the greatest possible number of children with the best possible upbringing and the connection with them; in other words the unity of family.

There is only one thing against the automatic happiness of women who are capable of giving birth and bringing up their children: unfortunately for them, there is also an animus within them that desires other kinds of pleasures as well.

*Eternal competition – oil billionaires*

America and Anglo-Saxon culture, does not, allow slacking: there is an underlying feeling that those who stop are lost. So what often happens is going to the extreme: forcing competition and constant fighting.

Multi-billionaire oil moguls were asked how they could be motivated to increase their wealth even further? We should understand that getting rich from oil did not require a special talent in 20th-century America, unlike, for example, the creation, building up, and management, of a multi-national corporation. Some fortunate people were in the right place at the right time, and fought others for control of oil fields, as happened in gold mining. So, oil moguls knew each other, and fought for their millions by competing with each other. It is not about the money in the long run: money is only a measure of their skill and success, like centimeters in long jumping.

Of course, measuring somebody's skills by their wealth is a tendency amongst those who cannot stop making money.

- o I believe that very rich people are:
  - o either simply lucky, like lottery winners;<sup>352</sup> or
  - o born competitors. That is not to say that their personalities are injured in some way, but it seems to be something similar. If someone cannot give up making money, and worries even after a certain level of fortune has been reached, it would seem that he is running from something:
  - o because he is good at nothing else.<sup>353</sup> It makes him a specialist in a narrow field with no other interests, and he has a decreased chance of finding peace of mind;
  - o or because he finds pleasure only in making money. His brain is constructed in such way that he can answer problems which come up in a particular market or industry, or he is a talented businessman, so he generates a constant aha experience by solving problems. From this viewpoint, it is similar to the category of the artist/scientist described earlier; or he is running from a

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<sup>352</sup> for example, he establishes a firm, which stands on its own feet after a while, and makes a fortune. He keeps his shares but has nothing to do anymore

<sup>353</sup> whatever else he would do, the slower progress in that field would frustrate him, and his personality is not mature enough to deal with failure

problem.<sup>354</sup> He is successful in his work, and too lazy to struggle in other fields because he is not successful there, or that directly injures him; or he gives something to the world that is needed. And he is the only one who can provide that. Here, this person can be happy if he does not measure himself by the amount of money,<sup>355</sup> but in more human things: how many people his firm provides jobs for, how many people are happier every day for obtaining his products etc.

The problem with money and constant competition is that society supports this attitude, thus spawning very specialist people who are blinkered to other areas. Many societies demand altruism and contribution as opposites in a healthy way. Both direct the attention of rich people to others, and compensate society for the supposed loss that the rich obtain unjustly on a social level.<sup>356</sup> Obeying this pressure takes our ‘poor’ billionaire out of the treadmill of everyday life. An alternative contribution is when people who become rich engage in politics. This is, theoretically, another form of altruism (or should be) as it is a form of acting for the common good.

*Travel: an escape from seeing the end*

In biographies, we can find often travel as a hobby, and people who have had ‘once-in-a-lifetime’ experiences that took place during a journey. What was so unique about those journeys is a different issue: the quality of the accommodation and food, the adventures or the landscape, perhaps something to do with the people or culture. If someone wanted to learn about landscapes and the shape of nature, theoretically he would not now even have to leave his home. He could simply switch on the Travel Channel, or surf Google Earth. I can think of two reasons for travel that surrogates cannot easily substitute:

- o if someone feels bad in the culture where he lives and wants to move
- o if he needs to have new stimuli all of the time.

If someone travels to the same country,<sup>357</sup> for example, the Seychelles, and regularly, or obsessively looks for a place where he feels good, that is most often due to the structure of his brain not fitting in with the culture he lives in. If we believed in reincarnation, we could say, for example, that the soul of a person from the Seychelles is reborn in the body of that regular visitor, and that is why he returns again and again to the islands.

If we consider the time and energy spent on travel, we can see that people make serious efforts to obtain something in return. What is the pleasure or satisfaction provided by a journey? Every culture has a particular logic and a particular value system, similar to that we mentioned in connection with the brain: life<sup>358</sup> is organized differently in an Arabic country as compared with, say, German culture. How-

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<sup>354</sup> it may be the wife, children, a problem in childhood etc.

<sup>355</sup> as in something which is independent from his Self, or which symbolizes only a part of him

<sup>356</sup> for example, money retained by avoiding taxes, profits from arms manufacturing or gambling etc.

<sup>357</sup> not considering travel due to sport or business

<sup>358</sup> time, space, human relationships etc.

ever, the way we look at the world, genetically or family-wise, and the order in which we feel good, is a faculty that does not necessarily fit the geographical territory someone was born in. For example, if somebody is slow because of his hormonal function and nervous system, but he was born in Manhattan, he feels much more at home in a slow, sleepy Mediterranean town, where nobody is in a hurry. The same applies to human relationships: if a direct, sociable person is born in a cold, Northern country, he will have a series of Self-expansions if he moves amongst people (for example, in Greece) who are happy with strangers and trust them without question. The opposite can be true as well: if a Greek person has more vulnerable self-boundaries, perhaps he would rather live in a place where nobody wants to interfere in his life, and people, in general, keep a greater distance (for example, London or Sweden).

In these cases, things naturally happen in a way convenient for the person who sees repeatedly that life can be lived differently (exactly the way he wants) from what he is used to; this will lead to unspoken and unconscious Self-expansions. All he feels is that everything is in its place. Which is of course untrue, as there is no culture that fits someone perfectly, but things will on the surface, work smoothly (what a tourist sees). When someone returns to a place regularly, it means that the matching of the person and the culture goes deeper than the surface.

The opposite of Self-expansion provided by engaging with the culture are the Self-narrowings we feel before the journey: packing, planning the route, the inconvenience that comes with travel itself.<sup>359</sup> Arriving and acclimatizing to a new place are signs of long-lasting Self-expansion. On these occasions we expand our minds almost compulsively at the beginning.<sup>360</sup> Then, after awhile, we expand our minds purposefully to embrace the new Environment (and we begin to adapt), for that is why we went there. The new stimuli inundate us, new cognitive schemata are established, people begin to understand the local culture at their own level, thus they are enlightened. We recognize items, styles, scenery we have seen on photographs fall into place,<sup>361</sup> and these all cause Self-expansion. Tourism from this point of view is a journey with Self-expansion: we jump from obviousness to obviousness, then we return home. That is why it is so horrible when something bad happens,<sup>362</sup> as that deters us from permanent Self-expansion.

Based on the above, it could be seen that travel is an artificial, Self-expansion which we purchased. This immediately raises the question: why do we spend money on travel? Staying at home means confronting our real lives, that we might live without goals. Moreover, and more frightening, is that we realize that our lives are meaningless. Collecting experiences endlessly during a journey is like collecting money: having more experiences or money does not enrich our personality. What is worse is that the experiences<sup>363</sup> are very difficult to share.<sup>364</sup> It does not matter

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<sup>359</sup> for example, waiting at the airport, long journeys etc.

<sup>360</sup> for example, when we have to adapt to the local customs; in Italy, shops close during the afternoon

<sup>361</sup> for example, Santorini in blue-and-white, Arabic calligraphy, Arabs in dressed in robes etc.

<sup>362</sup> for example, someone is robbed or kidnapped etc.

<sup>363</sup> cognitive schemata established during the journey

that I see a thousand different cultures. Besides some colorful stories and a few well-taken photographs, it is all mine. Still, Self-expansion is complete if we can share the new cognitive schemata.<sup>365</sup> What remains is returning home, a Self-narrowing period at home again, and the hope that we can hold on until the next trip.

One last argument for the illusory nature of this solution: did Einstein travel using the money earned from his work and awards? Was Mother Teresa excited when she traveled? Did Picasso need to spend holidays in exotic places? There are people who develop their interior world – and enrich themselves – by giving to others. Others try to steal the beauty of the world using their sight or camera, but it does not actually penetrate them. They will not be wiser or more open and, above all, they cannot give to others. Would we be happier if we gave to a poor family the price of a holiday to the Seychelles?

This is not to say that I dislike travel: I enjoy it. The difference I want to emphasize is that there is travel that enriches our personalities, and travel providing only short-term experiences that are quickly forgotten.

### **Endless acquisition of knowledge**

We should differentiate the endless acquisition of knowledge into types:

- o autotelic
- o seemingly autotelic but engaged in God (see studying Torah in Judaism)
- o integrative acquisition of knowledge with an aim of publication

There is seemingly an ethical aspect anticipating that only autotelic of the above list does not lead to true happiness, due to it not giving anything to anyone. Since we examined ‘seemingly autotelic’ in the section on Judaism, let us examine the other two.

#### *Autotelic acquisition of knowledge*

Due to its distinctly intellectual nature, reading is universally respected. Someone who constantly reads has a certain standing in European society,<sup>366</sup> meaning a general moral appreciation. We could say that until somebody reads he does not – perhaps cannot – hurt others. We usually consider reading as a neutral activity, since reading takes time away from something perhaps more useful. The same time could be used in helping others, or engaging in other pro-social activities. This positive judgment also stems from the fact that readers can, while socializing, flaunt both their education and being well-informed.

It may be a harsh judgment, but one who reads a great deal seems to do so only because nothing assembles to him: he is engaged in acquiring information, rather than engaging in actual understanding. That he could do by being selective with,

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<sup>364</sup> although the photographic and video industries are built upon it

<sup>365</sup> cf. accounts of experiences, travel films

<sup>366</sup> perhaps this originates in its positive judgment by Judaism, where lifelong learning is one of the most valuable activities

and limiting the number of, his choice of books on a particular subject. Another motivation for chronic reading can be a strongly introverted nature: reading accompanies loneliness. There are no rules for propriety or dress, as only the person and the book are together. This gives great freedom, but also a good reason, or excuse, for avoiding people.

Many people, upon finishing a book or article, immediately forget what they have just read. Others are incapable of integrating what they read. Even more people read newspapers and books of poor or questionable quality; tabloid newspapers come to mind. Now the internet provides many alternatives to reading. Accordingly, it is understandable that the number of chronic readers is gradually reducing. This does not mean that we do not have to read, rather, that we should read in optimal quantities. We should more carefully select what we read, as integrating badly constructed cognitive schemata in our Selves harms us instead of educating or helping.

But why do people do nothing but read? Depending on the intellectual level, there are always books that have something new to say. Saying something new is nothing other than establishing new cognitive schemata, which cause Self-expansion. A lot of reading provides many Self-expansions. The act of reading itself is a sign of Self-expansion: an act performed openly in one's Environment in a relaxed state.

#### *Reading with the purpose of integrating*

People having good general abilities can reach a point in their self-knowledge where they accept that, by themselves, they cannot give anything new to mankind. They measure and accept the limits of their abilities (initially, creativity), and choose the path of utilizing their different and unique abilities: of integration, memory, attention to detail, organization etc. These are the people who make science work by their own arrangement of information, distilling it and so making a dialog between different theories. They are a good source of information for those too impatient to read all of the literature on a subject.

This activity can lead to happiness, as people can feel that they not only absorb, but also provide a service. As previously seen, such giving is one way to Self-expansion. Autotelic reading lacks this sharing of knowledge.

#### *Arts (collecting, cultivating)*

A more visible measure of unlimited wealth, and more intellectual than jewelry or gold, is the art collection. Before reviewing the psychology of collecting art, we should recall that the principal aim of art is to obtain Self-expansion; this is enlarged upon in the chapter on beauty and aesthetic quality. Let us begin with the general acceptance that looking at a painting causes Self-expansion. The better the painting (it is also how we define it), the greater Self-expansion it causes, and for more people. Using this principle, let us disregard the collections acquired as investments by wealthy people who value art only by price, not for its aesthetic qualities. Such people see art as a status symbol. Instead, let us focus on those who

appreciate the aesthetics of art as an exemplary life form that should be available to all people.

These people are determined in their pursuit of a painting or its provenance, and feel satisfaction (Self-expansion) when they succeed. In this and everything else, there is no difference between passionate collectors, whether of stamps, baseball cards, china, matchbox labels etc. They all obtain Self-expansion from improving their collection.<sup>367</sup> On the other hand, as they appraise their paintings, so they discover new connections, or conduct research in order to find connections between different pieces.

We could ask, “So what?” Imagining somebody living their life amongst art of immeasurable value, in constant fear of it being stolen or damaged, and doing nothing but eat, sleep and look at his art, makes us feel that this cannot be fulfilled happiness. The world of art collectors is a sub-culture: they know each other, each other’s collections, brag about their new acquisitions and disposals. They live and breathe art.

Still...so what? Some of these collectors<sup>368</sup> leave their collections to their children, so that they can obtain a form of the happiness which comes from raising children. That is what happens to the collections of the aristocracy: the Prince of Lichtenstein, the British royal family. The problem remains that there is no permanent bridge between the Self and the wider (social) Environment, therefore permanent (lasting) Self-expansion cannot occur. So, they open their collection to the general public, or give it to the state. They can then finally step out of the confined world of the Self, and open up to the world by unselfishly giving again. This smacks of altruism, another way to happiness.

Another method that can also make a (subjective) bridge towards others is to patronize art. A wealthy person patronizing an artist with whom he can identify aesthetically, practically buys a share of the artist’s Self-expansion arising from the process of creation. When the painter creates a work of art that the patron likes, the patron rightly feels that he has participated in the creation, that it is also due to him that the world is enriched by that work of art. At such times, we can be surprised at the purposes money can serve. Somebody can contribute it to the creation of great works without any personal creativity or without touching a brush, and can have a share in the pleasure of its creation. It is not by accident that art historians maintain accurate records of patrons and customers of former ages as the financial driving forces of the world of painting.

Returning to the publicizing of collections, we can discover a “Catch-22” which applies to other forms of Self-expansion. What is it like when someone opens his collection to the public, and then takes it back for some reason? Or gives it to the state, then requests its return? This is unimaginable, but this bi-directional nature is what gives a bad taste to Self-expansion in general: when you tell a secret to some-

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<sup>367</sup> “One of the 1934 etchings of Picasso was still missing, but now I have that too. Now it is a complete collection.”

<sup>368</sup> perhaps motivated by economic/tax considerations

one in a very intimate moment, and cannot take it back when the relationship goes wrong. However, if you do not tell it, there will be no intimacy.

This calls attention to Self-expansion having to be irrational to allow things to happen which would not happen rationally. At the same time, irrationality enhances Self-expansion, even if it is not its essence. That is more akin to the dissolution of boundaries and obstacles, which make the merging of the Self and the Environment possible.

The question is: can the Self reset the original boundaries after the Self-expansion passes? To use the previous examples: I told a big secret and someone will be able to blackmail me; or, I gave my collection to the state, and I watch helplessly as they store my biggest treasure in damp and dusty places. What can I do at such times? The rational answer would be: a.) do not be irrational; b.) secure their return or silence legally; or c.) ensure you that cannot be harmed. For example, you may have been told a secret in return; you make a contract with the state, declaring what they can and cannot do with the collection. In most cases, spoken words are very difficult to take back, and performed acts are very difficult to undo.

This legal attitude to contracts etc. detracts from the beauty of the situation. They require a Self-narrowed condition,<sup>369</sup> and so are against Self-expansion. The same applies to marriage contracts. They are logical, and rational, but they carry the germ of distrust. What we have discussed so far is: that there is no complete self-sacrificing, that the Self cannot become completely one with the Environment, that there is no absolute trust, as there is no absolute truth. However, everybody strives for truth, and we need a condition in which we can forget about this. We realize that condition by forgetting that which we are not supposed to forget.

## Summary: FIPP's contribution to existence after death

Discussing a happy life is a difficult task. We cannot make ourselves completely independent of the moral aspect, although principles based on general human motivation can be demonstrated. Briefly, we can feel happy on our death<sup>370</sup> if we feel we have given something to the world, and so are at peace with our Environment. We might say that our Self (especially the boundaries between the Self and our Environment) started to decompose even before our physical body. A man's Self can merge with the Environment, as after he dies his physical body will merge with his physical environment ("ashes to ashes, dust to dust").

Morality and science should be separated. However, if morality does intrude, that should not be disturbing. That is, in the sense described above, in that science does not contradict any major traditional system of thought: morality, religion, Kant's categorical imperative,<sup>371</sup> psychology's image of mental health.

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<sup>369</sup> contracts require concentration, maneuvering requires guile

<sup>370</sup> because what else counts if not the last moment that lights up – or, admittedly, clouds – everything that has happened before

<sup>371</sup> do to others what you would like others to do to you

Another result is that we can reduce the behavior of Mother Teresa, Einstein, Picasso, and Bill Gates, to a common denominator. Everybody gives something to the world, only they do so in different ways and with different things<sup>372</sup> according to the best of their knowledge. What is common in them is that they did not retire to loneliness to obtain only lower-level Self-expansions,<sup>373</sup> that form of Self-expansion is short-term, and has little effect on other's lives. Instead, they chose to use the good within them for the common good, for all.

That seems to be how 'heaven' works. People who, at the end of their lives, can look back and say that they gave, are the people who can enter a state of endless Self-expansion. Is this foolish? Is Self-expansion being over-emphasized so that it can explain even heaven and hell? The answer, albeit speculative,<sup>374</sup> is: near-death experiences have been studied scientifically in medical procedures, whereby a patient is placed in a state of clinical 'death', then brought back to life. Psychologists interviewed such patients about their near-death experiences. There were two common points in their accounts:

- o people relived their lives before the moment of death; and
- o they were completely calm, saw lights, heard pleasant voices etc.

By combining the two, assuming that the latter is an extremely Self-expanded condition, the process then works in the following way. We relive those experiences of the highest emotional intensity. Amongst these there will initially be intensely Self-narrowed and intensely Self-expanded experiences.<sup>375</sup> All of these memories, mixed with the actual state, result in those who were mainly Self-narrowed maintaining a Self-narrowed (evil-minded, pessimistic, violent) state; and those who are generally Self-expanded (positive thinking, helpful, giving) will become even more Self-expanded. The import of this moment of death is that it is the last a person will ever have. There is no absolution of this, and no chance for explanation, so that it becomes a constant moment. The key to understanding this lies in the wrong – or at least altered – sense of time: when we relive a whole life (70-80 years, more than 2.2 billion seconds), it is possible that the last second may feel as if it lasts for decades.

Imagine the worst (the most Self-narrowed) moment of your life: great pain, terrible news etc. Fix that mental condition in yourself. Now, imagine that you are in that mental state for 70-80 years. Is that not the greatest punishment you can ever receive? Permanent living purgatory? Is this not Hell that you receive for your sins? Is this not the opposite of what we call Heaven (70 years of constant Self-expansion, similar to a 70 years long orgasm)?

Did God create in us this alteration of the sense of time (when one-tenth of a second feels like 70 years before death)? Or is this only a biological fact everyone has to decide for himself? Which hormones and neurotransmitters could do that

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<sup>372</sup> people who help others; give knowledge; create beauty or things that make our lives easier

<sup>373</sup> for example, sex, eating, autotelic reading

<sup>374</sup> due to its nature

<sup>375</sup> for example, our first kiss, marriage, childbirth etc., and matters that are sins according to the Ten Commandments: intrigue (gossiping), stealing, cheating, etc.

are not known, but if there is a system like this, is it both a work of God or the result of evolution?

There have been people throughout history who “came back from the dead”, so that their remaining lives run down in front of their eyes due to an existential danger. After they related their experiences, the concept of heaven and hell could be established, which closely related to the good in the life of these people.

### **To properly interpret this chapter...**

As the theory described has not yet been verified by experiment, it is not so robust, or usable, in many cases. What can be stated is that the theory may not work in a chemically 'pure' form, but that the combination of these paths is close to an actual answer for somebody. Therefore, real happiness can be attained by those who mix the different paths described, even if one of the aims overtakes the others by some distance. Altruists who do not have children, or who are not interested in aesthetic beauty, will have difficulty in being happy. It does not matter how nice or attractive these things are but, as we are sated and sickened if we eat chocolate all of the time, so permanent stimulation of the region of the brain dealing with cognitive schema will lead to burn-out.

The good news is that, in order to be happy, we need to do no more than find our path, and set out upon it. Finding our path needs self-reflection and higher knowledge about ourselves, but struggling with these questions may be the nicest problem we can ever have.

Finally, a personal intuition on finding an easier path. Whatever that path may be, we have to give something to those around us. You might ask, to whom, and what, should I give? “To whom” are those who are important to us: our children, nation, mankind, or any group one belongs to or that is important in our lives. “What” is whatever you can give that has value; knowledge, health, money, technology, or advice.

Principal points covered in this chapter:

- can happiness be defined
- religious Self-expansion
- death

## GLOSSARY

### Aha experience:

an insight that manifests itself suddenly (from German 'Aha-Erlebnis'). Here, 'aha' expresses triumph.

### Cognitive schema (plural: schemata):

basic element of thought; a mental model depicting the environment. Examples include: concepts, shapes, categories, technologies etc.

### Deadlock (nadir):

taken from the world of sport; a situation where a worse position cannot be achieved. Long-distance runners know that, at the start of a race, they will feel increasingly tired until they almost give up as their legs fail. Then, suddenly, something changes, the tiredness disappears, and that is replaced by a feeling of limitless power. After deadlock, athletes feel as if they are able to run without stopping.

### Levels:

cognitive schemata are not only connected to each other, but they are also arranged in a hierarchy (often visualized as a pyramid). Each schema (except the top schema) can have children (lower-level) and parent (higher-level) schemata. The level at which a schema is found indicates the complexity of the phenomenon it models. The top-level schema depicts the whole universe.

### Maslow's pyramid:

the popular name of Maslow's hierarchy of needs. The higher needs in this hierarchy only come into focus when the lower needs in the pyramid are satisfied. According to Maslow, people develop their personalities by rising higher and higher in this hierarchy, until they reach the top level. A similar concept is presented in Chapter 14.

### Paradigm:

a philosophical and theoretical framework of a scientific school or discipline, within which theories, laws, and generalizations, and the experiments performed in support of them, are formulated. Broadly, a philosophical or theoretical framework of any kind. (Taken from the Merriam-Webster Online Dictionary – <http://www.merriam-webster.com/dictionary/paradigm>)

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4	<a href="http://en.wikipedia.org/wiki/Image:Maslow%27s_hierarchy_of_needs.svg">http://en.wikipedia.org/wiki/Image:Maslow%27s_hierarchy_of_needs.svg</a>	GFDL*	<a href="http://commons.wikimedia.org/wiki/User:_Finkelstein">http://commons.wikimedia.org/wiki/User:_Finkelstein</a>	deleted 'of ' six times in the row 'Safety'
5	<a href="http://commons.wikimedia.org/wiki/Image:God2-Sistine_Chapel.png">http://commons.wikimedia.org/wiki/Image:God2-Sistine_Chapel.png</a>	Public Domain	<a href="http://commons.wikimedia.org/wiki/User:QuartierLatin1968">http://commons.wikimedia.org/wiki/User:QuartierLatin1968</a>	converted to black and white
10	<a href="http://en.wikipedia.org/wiki/Image:CrossswordUK.svg">http://en.wikipedia.org/wiki/Image:CrossswordUK.svg</a>	GFDL*	<a href="http://en.wikipedia.org/wiki/User:Michael_J">http://en.wikipedia.org/wiki/User:Michael_J</a>	inserted words; converted to black and white
32	<a href="http://upload.wikimedia.org/wikipedia/commons/1/11/Sterappel_dwarsdrsn.jpg">http://upload.wikimedia.org/wikipedia/commons/1/11/Sterappel_dwarsdrsn.jpg</a>	GFDL*	<a href="http://commons.wikimedia.org/wiki/User:Rasbak">http://commons.wikimedia.org/wiki/User:Rasbak</a>	converted to black and white
34	<a href="http://en.wikipedia.org/wiki/Image:C-3PO.jpg">http://en.wikipedia.org/wiki/Image:C-3PO.jpg</a>	Public Domain	<a href="http://en.wikipedia.org/wiki/User:Nricardo">http://en.wikipedia.org/wiki/User:Nricardo</a>	cropped; converted to black and white

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