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THE BRAIN, A DECODED ENIGMA

Dorin T. MOISA

Warning

This book contains a symbolic model associated to the basic hardware function of the brain.

A symbolic model is a model based on logic only. So, this book is not recommended to individuals who has the tendency to understand the external reality based on imagination.

The book can be understand by persons between 12 and 20 years old who have special abilities in the field of positive sciences.

Also, the book is recommended to persons who already work in the field of positive sciences (mathematicians, phisicists, engineers and so on).

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Introduction

This book contains my original theory, called MDT (Modeling Devices Theory) on the basic hardware function of the brain (human or animal).

As any scientific theory, it is a symbolic model. Any symbolic model is based on a limited number of basic terms and a limited number of basic relations between the basic terms.

For the basic terms and only for them, there are accepted descriptive definitions. All the others terms are generated by the model, together with their normal definitions. These definitions are generated by the model by logical and mathematical procedures.

These are the basic characteristics of any scientific theory and so, I follow the procedures described above, to make a theory on the basic hardware functions of the brain.

This theory is in a total opposition with all the actual sciences associated with the functions of the brain. The present sciences, associated with the functions of the brain, are not based on a single fundamental model. In this way, as my theory will be accepted, all what it was already written in the

actual sciences associated with the functions of the brain, have to be re-written or forgotten.

This attempt of total revolution is necessary because the actual sciences on the brain don't use normal definitions of the terms; there are only descriptions associated with them. Because the definitions of the terms are not generated by a single fundamental model, the logical correlation between them is not possible. So, the actual sciences associated with the brain cannot evolve to become positive science anymore.

In psychology, for instance, about any scientist has his/her own list of descriptive definition associated with the terms used by him/her. In this way, it is not possible to make a logical structure to integrate all the terms used in that field. So, the psychology, for instance, is not a positive science.

Another example: Let's consider a classical positive science, as Newton's Mechanics is. In this symbolic model, all terms have exactly the same definition for all the scientists. These definition are not changed since 340 years ago when they were generated by the symbolic model of Mechanics. For instance, the term "speed" is defined as $v=s/t$. That is, "speed" means that the "space" is divided by "time". This definition is a normal definition generated by the symbolic model of Mechanics not a descriptive definition.

Let's suppose now that a symbolic model associated with the basic hardware function of the brain is already created or it will be created. The first consequence is that all the terms used in association with the functions of the brain will be generated by the model by logical and mathematical procedures, together with their normal definitions. There is no reason to suppose that any descriptive definition which is already used in the present sciences of the brain will be compatible with the definitions generated by that symbolic model.

So, all what is already created in the present sciences associated with the brain has to be re-written or forgotten.

Regardless of the fact that MDT theory will be accepted or not, a symbolic model which covers the basic hardware function of the brain will produce this total revolution in all the sciences associated with the brain, including psychology, psychiatry, gnoseology, epistemology, many parts of social sciences and so on.

Let's consider that a symbolic model to cover the basic functions of the brain is created and is already accepted. The persons who already work in these fields have to re-start everything about from zero. Their opposition will be enormous and I have no illusion in this direction.

This theory was created about 10 years ago. Based on my personal experience, the theory is easily understood by persons with special orientation on positive sciences, including children's over 12 years old. Also, the persons who already work with symbolic models (mathematicians, physicists, engineers and so on) have a high capacity to understand it.

Let's see what MDT offers.

First of all, MDT treats the brain as a device which processes the information. In this way, MDT has no direct connection with the medicine.

MDT is concerning only with the basic functions associated with information processing and it is not interested by problems as "what part of the brain is doing something" or "how a function is implemented". MDT is a theory associated with the processing of the information and so it has no direct interference with the hardware implementation of the physical brain.

As a symbolic model associated with the basic function of the brain, it generates precise definition, based on logic, of all the terms used in association with the basic hardware functions of the brain. In this way, all the terms are logical correlated between them.

Examples: MDT generates normal definitions for: knowledge, consciousness, to imagine, to think, intelligence, emotion, to be irritate, love, happiness and many others. E.g. the "consciousness" is the facility of a brain to make and operate a model which contains the being itself as an element. MDT defines, than, 6 different types of consciousness which are, of course, defined in the same precise way. Even more, based on MDT, it is possible to design a logical structure to implement the function called "consciousness".

MDT explains the basic functions of the brain up to the level to make a logical design to synthesize all the brain's functions (human or animal). Of course, a technological implementation of that functions is not possible now because the computers, for example, have yet a very low power to process the information and this situation will last, I think, at least in the next 25 years.

In fact, the brain is treated by MDT as a technological product. So, there are defined the main design goals and also, the main deficiencies (by design or given by technological implementation).

There is analyzed the problem if, by evolution, it is possible or not to evolve from animal brain to human brain.

There are analyzed the design and technological problems, including the functional illnesses of the brains.

The theory treats also the paranormal phenomenon and suggest some methods to develop such activities.

The Application section (ETAs) contains also many items as a history of the evolution of the brain, the evaluation of the problems of psychological tests and performance tests for a brain, some problems associated with the present and future levels of evolution of the brain, some long range problems associated with the development of the human society (including the terrorism) and many others.

The basic elements of MDT occurs in 1993 and the first written form (on WEB) in 1997. In 2003 a printed edition of the theory was published (in Romanian language) by the Romanian Publishing House "Editura Albastra" and in 2004, in the frame of Gutenberg Project, a new edition also in Romanian. The process of developing is continuing.

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THE BASIC FUNCTIONS OF THE BRAIN

ABSTRACT

This theory, called by me as MDT (Modeling Devices Theory) considers that the basic hardware function of any brain (human or animal) is to make and operate image models (or analogic models) which are associated with the external reality. In this frame, for the human brain only, there is an additional hardware facility: to make and operate symbolic models.

FUNDAMENTAL TERMS (KEYWORDS)

Image model (or analogic model), symbolic model, simulation on model, information, truth, reality, input reality (IR), external reality, image, harmony, logic, general communications language (GCL), logical and mathematical language.

DEFINITIONS ASSOCIATED WITH THE BASIC TERMS

This theory is a symbolic model. Any symbolic model has a limited number of fundamental terms. For these terms and only for them, there are accepted descriptive definitions. A descriptive definition is, usually, not precise enough for a scientific approach. This lack of precision is due to the fact that it uses terms which must be defined before. The terms used in the definition must also be defined using already defined words. This process seems to be endless.

In any positive science, the descriptive definitions are accepted only for a very limited number of terms. These are called "fundamental terms".

For instance, in the symbolic model of Newton's Mechanics, the fundamental terms are mass, space and time. None of these terms have a normal definition (i.e. generated by the model). They have only descriptive definitions.

Once the fundamental terms are introduced by description, all the other terms have normal definitions, which are generated by the symbolic model, by logical and mathematical operations.

Let's see the definitions of the terms used by the MDT theory.

Model: this is a term used on large scale in science and technology. The MDT theory accepts the definition used there.

A model means some fundamental elements and some fundamental relations between the elements.

The elements could be of any type (physical objects, the representation of any object in any form, including pictures of any type or images of any type or mathematical symbols of any type and so on). In fact, an element could be associated with anything which can be considered as an entity. The elements have some properties, which must be specified somehow. There are a number of relations between the elements, which must also be specified.

An image model (or analogic model) contains an unspecified number of elements and an unspecified number of relations between the elements. An image model is just given as it is. It is not possible to specify in explicit and precise ways which are the elements and which are the relations.

Examples of image models: maps, models of an object of any type, an assembly of such models including any material elements (water, air and so on), any representation in any form of such elements.

A symbolic model uses as elements letters, numbers or words. The relations are of logical or mathematical type.

The most important symbolic model is the General Communications Language (GCL). The elements are usually nouns and the relations are usually verbs.

Warning: GCL is not really a symbolic model. The GCL just contains all the elements and all the relations. When a symbolic model is made (a sentence, for instance), elements and relations from GCL are used. Thus, because there is no available word, I decided to consider, by extension, the GCL as a symbolic model. In this frame, GCL has to be considered as "symbolic model".

Once a model given, it is possible to simulate some situations on it. For simulation, a change must be made to the model. After that, the entire model will be changed because all the elements have some relations between them.

Any implicit or explicit information which is generated by simulation by a model, is called "truth". Any truth must be associated with the model, which generated it. This is the definition of the term "truth" in the MDT theory.

All the information, which is or could be generated by a model by simulation, is called "reality" associated to that model. This is the definition of the term "reality" in the MDT theory. We also see here that before declaring the reality, one needs to declare the model which generated it.

We already used the term "information". This term is a fundamental term. It has no normal definition. MDT accepts the descriptive definition from common life and from science. The same situation is for the term "entity".

Warning: in connection with the term "information", something is considered as information after that "something" is processed somehow by a device which takes and processes that "something".

This somehow confuse situation is normal for any fundamental term. Just think, for instance, how one can explain what is "time". The only possibility to explain what is "time" is to use examples that already use the term "time". In fact it is impossible to define terms as "mass", "time", "space", "information" or "entity".

Let's introduce two new terms: "harmony" and "logic".

Once a model is given, it is possible to make simulations on the model, as it has already been explained. By simulation, it is necessary to change an element or a relation. The model goes into a temporary unstable situation because all the elements are connected between them. The model will evolve to a new stable situation. For an image model, the evolution to stability is based on harmony laws. For a symbolic model, the evolution to stability is based on logic. Thus, a stable model is a harmonic or logic model and, after a perturbation, the model will regain the stability based on the laws of harmony (image models) or logic (symbolic models). The evolution of any model toward stability (to become harmonic or logic) is also a basic hardware facility of the brain.

Because some situations from external reality can be associated, sometimes, with both types of models, there can be a corespondence between harmony and logic.

Thus, the implicit definitions of the terms "harmony" and "logic" are associated with the methods to regain the stability of an image model (harmony) or symbolic model (logic). An "implicit definition" means that we are able to recognize the effect of harmony or logic in an informational structure.

We are now in the situation to present the basic hardware function of any brain, based on the terms, which have already been defined.

The basic hardware function of any brain (human or animal) is to make models associated to external reality and to predict, by simulation, the possible evolutions of the model. Because the model is associated with external reality, it is possible to predict by simulation some probable evolutions of the external reality.

We already used the term "external reality" which is not defined yet. This fundamental term is considered as a source of information, which is not localized in the structure of models of the brain. I want to emphasize that the external reality is not a source of information, but is just considered so by any brain.

Thus, one of the main hardware functions of the brain is to make models of the external reality and to predict, by simulation on the model, the possible evolution of the associated external reality.

We already defined the reality as all the information which is or could be generated by a model. This means that we understand the external reality by the reality, which is generated by a model, which is associated with the external reality.

Example: For a given external reality, any person makes an associated model. Any person has his/her own model associated to the same external reality. We think and act based on our own reality and not based directly on the external reality.

In fact, external reality is rather an invention of the brain to explain its structure of models.

THE BASIC HARDWARE ELEMENT

Let's see what is the basic hardware element of a brain (human or animal). There are some image-type models called M-models, which are associated with the sense organs (eyes, ears and so on). M-models work in association with some YM-models, which already exist in the brain. YM-models are concept models. A concept-model is a simplified model which, in this way, fits a large class of similar models.

Example of YM models: "dog", "table" and so on.

M-models have to discover as many as possible entities in the external reality and to associate a YM model to any entity. Once an entity was firstly associated with a YM, M-models will predict its evolution based also on that YM.

Example: if an entity was associated with a YM-dog, the M-model is able to predict how this YM performs in connection with all the other YMs of it.

Any prediction of M with that YM included is compared with the information obtained by M from external reality. The information obtained by a M-model from outside during the comparison process, is called "input reality" (IR).

We just introduced a new term as "input reality" or IR. IR is the information obtained by an M-model from outside (from external reality or from other models) to improve its predictions.

If the prediction meets IR, then M will try another prediction to improve its quality. If one or more predictions do not meet IR, then M will replace that YR with another, and the process will continue. This process will continue so that all the entities which are discovered by M-models will be associated with some YMs and all the predictions of M must confirm the M-model, unchanged. Such a model is, thus, a stable model. When M is stable, all YMs are integrated in M in a harmonic way.

The main function of M-models is to make a preliminary harmonic model (stable model) associated with an external reality.

Conclusion: a M-model interacts with a section of the external reality. M will be a model made in an informational way by analogy with that section of the external reality. Because M is a model, all the elements are connected between them in a harmonic way, so that the model is stable. This stability is verified on and on in an automatic way, as long as a specific external reality is in interaction with the specific M-model.

M-models interact with some other type models, called ZM-models. ZM-models take some information from one or more M-models and continue the construction of models associated with the corresponding external reality. To do this, ZM-models interact with the other ZM-models of the brain to improve M-

models.

M-models are just preliminary models based on YM-models. A ZM model will take any information from any other M and ZM models of the brain, to improve it.

Example: an M-model is associated with a bus that transports people. A ZM- model takes this information and tries to see if this bus transports tourists or is a public transport vehicle. To do this, it will use information taken from any other ZM-models and M-models. The aim is to make a ZM-model, which reflects as well as possible a section of the external reality. Because ZM is a model, it is stable and because this model is integrated in a structure of other ZM-models, the structure of ZM-models is stable too. This problem will be treated later in details.

ZM-models are long-range models. This term will be explained later. Here, the "long-range model" is understood as a model, which already developed its elements as self standing models.

ZM models are the main models, which reflect the external reality.

We define now two very important terms: knowledge and consciousness.

Knowledge is associated with the facility to predict the evolution of the external reality based on a structure of harmonic/logic models. This structure was made by a large number of interactions with many sections of the external reality and so it already generated a large number of good predictions. This means that the only guarantee of the correctness of the knowledge is the confidence in that structure of models. This issue will be developed in details later in the book.

The consciousness is the facility to make and operate a model, associated with the external reality, where the person itself is an element of that model. When such a model is activated, it will also find the position of the person in the model and so it will predict the position of the person in the external reality. This issue will also be developed in detail in another part of the book.

We will now develop some issues associated with the term "knowledge". We already defined knowledge as the capacity to predict in a correct way the evolution of the external reality.

Here we use the term "correct". Let's see what it means. This term has two definitions. One situation is when a model makes a prediction and the prediction is compared with IR. If the prediction meets IR, then the prediction is "correct". Unfortunately, there are very few situations when the comparison between prediction and IR is possible.

For instance, building a bridge. A problem is, for instance, if the bridge will be stable or not in case of an earthquake. Here we need a guarantee that the bridge is properly built and there is no possibility to verify this based on IR.

The second definition of the term "correct" is: the brain will consider as "correct" any prediction based on a harmonic/logic structure of models. To be harmonic, the structure was already verified, based on IR in many other situations. So, the only guarantee of a "correct" prediction is the confidence in that structure of models.

MDT is associated with the basic hardware functions of the brain. Once we described the hardware structure, everything what the MDT predicts is based on what the hardware is able to do. What MDT says about knowledge is not another theory on knowledge but what the hardware is able to do.

Any experiment is based on a model. That model tells us what we are doing and the same model tells us what we get and what we see. Any model that makes the experiment just improves itself. An improved model will make better predictions and that is all. There is no guarantee associated with the knowledge except the confidence in our own structure of models.

Let's see another aspect. We saw that any experiment is based on a model. The model tells us what we did and what we get and see. If there are many persons who participate in an experiment, everyone will make his/her own model based on his/her own structure of models. What everyone gets and sees depends on one's own structure of models.

Example: up to around year 1500 everybody knew that the Earth was the center of the Universe. This idea was supported by direct observation of the sky but also by a powerful structure of models. So, in that period, the astronomers were able to calculate Sun and Moon eclipses, understand and calculate many parameters associated with the movement of the Moon, Sun and stars. Even the Holy Book supported this idea, at least in an implicit way. In that period, the idea that Earth is the center of the Universe was correct.

I want to emphasize again that the situation is generated by the work principle of the brain. It does

not matter if we like or not this situation! The situation will be the same forever. For instance, Newton's Mechanics considers that there is a fundamental field of forces called "gravity". Everybody considers that the gravity exists. But Einstein says that there is no such a field of forces; what we see is just an effect of the distortion of the space due to mass. If Einstein is right, the idea that there is gravity is not correct anymore. See also the applications.

So, in every moment, the brain will consider as correct everything which is generated by its structure of stable models.

Some scientists could consider these assertions as unacceptable, but regardless of the fact that we like or not such a situation, the brain is able to do only what the hardware structure is able to do.

There is another term that has some associated problems. This term is "wrong". If a model makes wrong predictions, this usually does not mean that the model is wrong. It means just that the model is not suitable to the given external reality.

Faced with a new external reality, the brain will activate the model which makes the best predictions associated with that external reality. If a model makes wrong predictions, we have to change the model with another one or to modify the model.

Example: Newton's symbolic model of Mechanics makes wrong predictions associated with the objects moving at a speed comparable to the speed of light, but its predictions are good (correct) at lower speed.

In any situation, the terms "correct" and "wrong" must be associated with a model or with a structure of models.

We already described the first basic hardware facility associated with the brain (human or animal). It generates truth, reality, knowledge and consciousness. Now we will describe the second basic hardware facility of the brain. This is the action on the external reality.

We already saw that faced with a section of the external reality, the brain makes at least one ZM model. A ZM model works in association with any available (or several) M-model and with any other ZMs of that brain. The main ZM is able to predict in a correct way the evolution of a section of the external reality. Such a ZM is able to make a new class of long-range models called ZAMs.

ZAMs are artificial and invariant. An artificial model is made without any direct interaction with the external reality. An invariant model is a model, which cannot be changed by direct interaction with the external reality.

A ZM model will make a ZAM model in order to modify the external reality. Once a ZAM is made, it becomes a reference model in changing the external reality. To do this, the ZAM-model works in connection with a number of AZM models. An AZM is a model which is already connected to the execution organs of a being (for human beings these are legs, hands and so on).

Once a ZAM is activated, it will simulate the requested action using any information from all models of the brain. Based on simulations, ZAM will determine if it is able or not to meet the goal. If the simulation shows that the action is possible, then the ZAM will activate AZM models for action on the external reality. The ZAM will control the AZMs to act on the external reality exactly as in the successful simulation, with good chances of success. If by any simulation the objective is impossible to reach, the brain will be blocked to do that activity.

Example: if a person has to jump over an obstacle, that person will know very fast if the jump is possible or not. The person knows this, because a ZM makes a ZAM-model, which is associated to the external reality (the person itself, the supporting surface and the obstacle, as main elements). The ZAM then simulates the jump on the model. If the simulated jump fails, the brain is blocked to do the action. If the jump is done with success in the simulation, the ZAM will control the body during the jump exactly as it was in the simulation, with good chance of success.

No action on the external reality is possible without a successful simulation of that action. The action will be as in the successful simulation. Both in an immediate action and in an activity that has to be done in the future, any brain follows this procedure.

We shall add some considerations about the speed of action on external reality. So, when we walk on a plane surface, for each step there is at least one simulation before the step is done. Due to a large number of internal and external factors, any step is unique. Thus, if we walk on a raw surface (a stony trail in the mountains, for instance) not only every step is based on a simulation but even during the

execution of a step, it is possible to make a new simulation based on new data and so a step in execution can be modified at all time to meet the goal as ZAM requires. Thus, a very complicated activity as walking on a mountain trail, can be done very easily and even elegantly, based on continuous predictions and simulations associated with every step.

As it was already emphasized before, this procedure to simulate in advance any activity on external reality is followed in all situations, regardless if the activity is immediate or it has to be done in the future.

We have already described the two main hardware facilities of the brain (human or animal). Here is a preliminary abstract of the main hardware models of the brain:

M-models: these models are associated to sense organs. The brain tries to make a preliminary model of the external reality. To do this, it uses a number of YM concept models. The main activity is to find the entities of the external reality and to associate to any entity a YM model. Then, by simulation on the model, M-models try to integrate any YM model in the structure in a harmonic way. That is, any simulation of interaction between a YM and any other YM- model must confirm the M-model, unaltered.

If, for instance, some predictions of an YM1 model in relation with an YM2 model are not compatible with the prediction of the YM2 model in relation with the YM1 model, then M has to change YM1 or YM2, or some relations, or some other YMs, so that the M-model is stable. M-models work in an automatic way, trying to be stable in interaction with the associated section of the external reality.

YM-models: they are concept models associated with all the entities, which have already been discovered by the brain by M-model activity. When a new being is born, there are practically no YMs. They are made by direct interaction with the external reality.

ZM-models: they are the main long-range models of the brain. They generate knowledge and consciousness. Also they make YMs, ZAMs and AZMs. They are able to take any information from any other model of the brain. ZMs can replace a YM-model with another if something is not OK after an advance prediction and simulation based on any available data. They also control ZAM-models during their activity.

ZAM-models: they are artificial and invariant models. An artificial model is not generated by direct interaction with the external reality. An invariant model is a model, which cannot be changed by direct interaction with the external reality. ZAMs are models, which act on the external reality. Once a ZAM was made and activated by a ZM, it will simulate the activity, using any information from any model of the brain. By one or more simulations, the ZAM will find the right solution. If it fails to find a solution, then the ZM will make another ZAM and the process continues.

AZM-models: they are associated in a direct way to the organs which can act on external reality. They are ready-made when a being is born, but, to be used, they have to be dynamically calibrated by the activity of the ZAMs. That is, a ZAM has to know everything is association with the external organs of a body (e.g. hands, legs for a human). When a ZAM has to make a simulation, it has to know all the parameters of the muscles, for instance. An AZM has to know and transmit such parameters. To do this, AZMs keep a model of any external organ of that being.

All these models are associated with the hardware implementation of the brain. We will see later some others types of models which are associated with the software implementation of the brain.

SOME PRINCIPAL PROBLEMS

When an M-model is activated it does not know how many entities are in the external reality. Even more, it does not know which are these entities. The device will try to find them based on the facilities of the sense organs, but there is no guarantee that M-models have found all the entities and no guarantee that the right YMs are associated to such entities. This is a basic deficiency.

The camouflage and dissimulation are methods which use this deficiency. By camouflage an entity is not discovered and by dissimulation M-models associate a wrong YM to an entity.

Let's see another basic problem. Any model evolves to be harmonic with itself and so, to be stable. This means that, after any change in the model, it has to regain its stability. If a model has a disharmony, it has to correct itself based on IR or based on an internal change (IR is not available in any situation). Thus the model regains its stability, but in some cases the model could be not suitable anymore to reflect the external reality. There are many cases when a model is stable but its predictions associated with the external reality are wrong.

We already defined reality as all the information that is or could be generated by a model by simulation. The guarantee of a correct reality is the stability of the model but the stability of the model is not a guarantee that the model is capable to accurately reflect the associated external reality.

That is, there is no guarantee that all the entities of a given external reality are discovered, there is no guarantee that the right YMs are associated with these entities and so on. The stability of a model is just a guarantee that all the available information is correlated in the right way.

There is another class of basic problems associated with the changes in a model. If a model has to be changed, sometimes there are small chances to do that. In fact, the only possibility is to make a new model from scratch, using or not elements and relations from the old model. This activity could be sometimes so complex that it can exceed the technical capacity of the brain.

Indeed, a new model must be accepted by the whole structure of models. That is, any other model of the structure must accept any prediction of the new model, so that the new structure is stable.

If the new model is good in interaction with the external reality but the structure of the models is not good enough, then some other models of the structure have to be changed too. As I said, this process can exceed the brain's technical capacity of processing. This can be considered as a design deficiency too.

This explains a lot of situations in common life, when logical arguments or facts taken from external reality cannot change wrong models some people have.

As we know, a stable model is a model which correlates in a right way all the available information. But, there is no guarantee that we gain enough information to make the right model. This basic deficiency is attenuated by the fact that there is a structure of models. The structure of models helps a lot when we interact with a new external reality because it can make predictions based on the previous interaction with other external realities. On the other hand, the structure of models is like a brake for evolution if the structure has problems.

Example: The astronomer Copernicus made a model of the Universe based on the idea that the Sun is the center of the Universe, not Earth, as everybody knew at the time. Around the year 1543, very few persons were able to change the whole structure of models, based on this new model.

We continue with other basic problems and features.

In the normal activity of the brain, any ZM-model has full access to any model of the brain. That is, a ZM model can correlate information from many M-type models and from any other ZM of the brain. This is true for any ZM of the brain.

In the complex interaction between a brain and the external reality, there is a single ZM at a time, controlling that being. This ZM is called a local-ZM or an active-ZM. A ZM can be changed to another in a dynamical way, so that the being does many activities in time-sharing.

This activity is not simple. So, when a local-ZM is deactivated, it has to store the conditions, to be able to resume when it takes control again. There are problems associated with this activity. Some of the information can be lost or the external reality may evolve in the mean time so that the stored information will be of no use. In this way, any model, which takes control of the being, has to initialize before being able to regain full control. This activity of initialization is very complex and in some situations it might contain errors. Thus, it is rather difficult to do many activities in time-sharing.

There is also a basic problem associated with the term "knowledge". As we know, the knowledge is associated with the predictions of a structure of models.

So, the knowledge is associated with the structure of models and not with the external reality, as we'd like it to be. We should never ever forget this thing. Even more, knowledge is a non-sense if we do not declare the structure of models.

Example: in any positive science, it is usual to say that something is true based on a specified theory (model).

HOW M-ZM MODELS ARE MADE

For a given external reality, the brain makes a structure of models, using information taken from the external reality or from other models.

We will see how this function works in a specified situation: how a new M-ZM is made in interaction with a new external reality. This function is described for a normal and mature brain. The term "normal brain" will be treated later. Here, a "normal brain" is a brain, which is able to work as it was already described in the section of hardware facilities. A mature brain is a brain, which has enough YM and ZM models made during a long time of interaction with the external reality.

An image is an information which is received as it is, in the same way as it would be generated by a TV-camera for instance. This kind of information, without any meaning in fact, has to be integrated by the brain as an image- model.

As we already know, M-models have to find some entities in that image. They start by making a 3D-image. This is possible in a rather easy way because almost all beings have two eyes. So there are two plane images and M-models will make a 3D-image. Now, the basic problem is that from a 3D-image it is not an easy task to identify the entities. M-models will use any supplementary information associated with this 3D-model, as color, contrast, brightness, the movement of some entities and so on. Anyways, M-models have to associate entities to YM-models. This process could be affected by mistakes, but, because M is a model, there will be a lot of crosschecks that will allow to discover and correct some of the mistakes.

For instance, if something round is discovered, it could be an apple (YM- apple) or a ball (YM-ball) or anything else.

Once a possible entity is associated with a YM, the M-model will predict how this YM interacts with the other YMs of the model.

For instance, there is a YM-apple. It has a relation (it is very close to) with a YM-table. So, from the predicted properties of the table, based on simulation, it results that it can support an apple, and from the predicted properties of the apple, it results that it can stay on that table. So, this relation seems to be good and thus, maybe the YMs are OK.

Now another example: an apple is on a thin branch of a tree. From the predicted properties of the branch, it results that it cannot support that apple. So, the chosen YM-apple or YM-branch is not good. M-models have to change something or to add something (maybe there is no gravity there...) to be stable.

The exact procedures and methods can be different. Anyway, MDT is a basic theory and it is not concerned with the technological implementation of the functions of the brain. It is enough to say that there are basic methods to solve the problems and also that the methods are not 100% safe, as everybody knows from his/her direct interaction with the external reality.

What is obtained by this interaction is a preliminary M-model associated with the external reality. This M-model is in interaction with, at least, one ZM- model, which develops the M-model based on any other information available in the brain.

These two processes happen almost simultaneously. As an M-model is made, a ZM- model takes some information from the M-model and improves itself. Also, ZM can change or add some information into the M-model, based on information obtained from other M-models or ZM-models. These two processes are performed, in fact, almost simultaneously due to this very close communication. They are called M-(YM)-ZM processes. The aim is to make a better and better ZM-model associated with a given external reality. As we know, such processes generate the knowledge and the consciousness.

Faced with the same external reality, every brain makes and operates its own structure of M-ZM models and so its own reality. For everyone, the reality is generated by his/her own structure of harmonic/logic models. From this mode of interaction, it does not result that faced with the same external reality, everyone makes the same structure of models.

Example 1: If a painter and a forest ranger look at a tree, each will make another M-ZM-model, and each will think and act based on one's own reality.

Example 2: When we drive a car in the city, M-models transmit the full information on what is around, but ZM-models, which control the car, will use only part of it. As the speed increases, ZM will process a smaller and smaller part of the M-model, to drive the car. This phenomenon can be called the narrowing of the consciousness field. It occurs every time when the brain is overloaded.

Basically speaking, everything what was already presented up to now is about the same for human and animal brains.

The exceptions are associated with symbolic models (which are based on logic).

The animals cannot make any symbolic models.

As we know, the basic function of any brain (human or animal) is to make and operate image-models. Let's continue with the basic differences between the human and animal brain.

THE HUMAN BRAIN (Introduction)

The basic difference between the animal brain and human brain is the capacity of the human brain to make and operate symbolic models. The animals are not able in any way or form to make and operate symbolic models.

We already analyzed how a human or animal brain interacts with an image to make an image-model. For the symbolic models the interaction is different.

A symbolic model, as we know, uses as elements letters, words or numbers. When a human brain interacts with such elements, the M-models will contain such elements as specialized YM-models. Such YM-models contain all the shapes of the letters, for instance. It is not necessary to discover the elements, because they are there in an explicit way.

All the symbolic elements are contained in a symbolic model called General Communication Language (GCL). There is a spoken language and a written language, as directly interacting symbolic models. This is true only for cultural zones which use alphabets. There is a specific application which treats this problem.

For a given written text, we have all the elements and all the relations between the elements, in an explicit way, as words. Usually, the elements are the nouns and the relations between them are the verbs. Any sentence is a symbolic model, for instance.

Example: the sentence: "I go home" has two elements "I" and "home" and a relation between the elements as "go".

The stability of the symbolic models is based on logic. When a symbolic model is stable we call it a logical model. A logical (stable) model can be understood by anybody who can make and operate symbolic models.

Sometimes there is a correspondence between image-models and symbolic-models as in the following example.

Example: Let's analyze the sentence "An apple falls from an apple-tree". We have two elements and a relation between them. On the other hand, we can make an image-model that describes the same situation: an apple falls from an apple-tree.

So, the logic could have been born in the process of translation from an image model to a symbolic model (when the translation is possible). As an image- model is stable based on laws of harmony, a symbolic model is stable based on the laws of logic.

Here we have in an implicit way the definitions of harmony and logic, as the rules and methods to ensure the stability of an image-model (harmony) or a symbolic-model (logic). An implicit definition means that we are able to recognize the effect of harmony or logic in a structure of data.

THE HUMAN BRAIN VERSUS ANIMAL BRAIN

MDT is a theory that treats the human and animal brain in the same framework.

I present here a possible evolution of the brain, from animal brain to human brain. It is very important to specify that the theory is like a tool: it does not support and also does not reject the evolutionist theory. MDT just describes the situation.

For any external reality, the brain (human or animal) will make an image- model. This function is basically the same for human and animal brain.

In a given external reality many similar elements could exist. For any element, the brain has to make a YM-model.

For instance, a dog has to make a YM for any dog which it meets. Such a big number of models use a lot of the brain resources.

When there are many similar elements, a solution is to make a concept-YM. Such a YM will fit a big number of similar elements. This reduces the quantity of data to be processed by an animal brain, and so, the brain becomes faster and more efficient.

Thus, the first level of evolution of the brain (level 1) is the extensive use of the concept models. This level is, probably, reached by all animals.

Observation: the human and animal beings continue to use, for some special situations, pure image models. A pure image model is a YM-model associated with a single entity of the external reality. For instance, a cub has a pure image model of its mother.

The first step of the evolution of the brain is based on concept models. A concept model fits an entire class of entities of the external reality. During the interaction, the brain will use a concept model and then, in M-ZM, new properties will be added, or even new elements, if necessary, to understand better and better the external reality.

The evolution of the brain continues with level 2. This new facility is based on label-models. As we know, faced with a given external reality, the brain makes an M-ZM model that is able to predict the evolution of the present external reality. Such models are called local-M-ZM. On level 2, it is possible to make a new type of models, which are called label-models. A label-model is able to activate a ZM-model, from the available models of the brain, regardless of the local-M-ZM.

Example: an animal senses a specific smell. This can be associated with food or with danger, for instance. In such a situation, the animal can activate a specific ZM-model, which has no direct connection with the local-M-ZM model. This is level 2 of the evolution of the brain.

At this level, a special kind of communication between animals occurs. This kind of communication based on label-models is used by human beings as well. It is not precise enough and is also very limited, but useful in many situations, and very fast too.

The level 2 is the highest level achieved by the animal brain. The evolution of the brain continues with level 3.

We already saw that, at level 2, a label-type model activates a ZM model. The next step is to activate not the whole model, but only some associated truth of the ZM-model. In this way, the brain has to manage a reduced quantity of information and so becomes more efficient.

This is a critical point, because it is the barrier to separate the animal world of human world.

Thus, there is a ZM-model and an associated label-model. The problem is to associate to the label-model only some truths generated by the associated ZM-model. A ZM-model is an image model, and so its truths are also of image-type. The problem is to record such truths in a different way, based on a totally new function.

MDT cannot indicate how exactly this facility works. The theory is not concerned with the technological implementation of the functions. The theory just says that some truths generated by a ZM-model have to be recorded in a different way. In this way, the label-models become words, and the associated truths become symbolic definitions of the words.

On level 3 a label-type model can activate an associated ZM model, but it can activate only a collection of truths as well, which are different from the 'ordinary' image-truths of the ZM.

It is possible that the General Communication Language (GCL) appeared based on this facility. The presence of a GCL in a brain will characterize that brain as a human brain.

Example: when the word "dog" is heard, it is very probable that we activate at least one suitable ZM. But when we use the sentence "I go to the forest with a gun and a dog", it is very probable that we do not activate any ZM-model. The sentence is understood based on symbolic models and based on logic and so we do not need any image-model. In this way, the quantity of information that has to be processed by the brain is reduced very much. The image models will be used only when we have to make a precise model of the action.

The human brain continues to evolve with level 4. On this level we have words and associated symbolic definitions, but no ZM-image-model.

Example: Let's take the following words: "this apple", "apple", "fruit", "food". "This apple" is associated with a pure image model. "Apple" is a concept type image model. "Fruit" and "food" cannot be associated with any image model (we cannot imagine what is fruit or what is food).

So, on level 4, the human brain can make and operate symbolic models without any connection with image-models.

On this level it is possible to develop logical and mathematical languages and, in this way, to make positive sciences associated to the external reality.

Example: Newton's Mechanics is a symbolic model associated with the physical bodies. The basic terms of this symbolic model are mass, space and time. None of these terms can be associated with image models.

The evolution of the brain continues with level 4+, but I prefer to call it level 5 (up to now it is the highest). This level was attained only 100 years ago. On this level the symbolic models break totally with image models.

Example: Newton's Mechanics describes the movements of physical bodies. But we can imagine such movements. Here Newton's symbolic model can be translated also in image models.

The pure symbolic models cannot be translated in any image models. The only symbolic model of this type is Quantum Mechanics.

Example: in association with Quantum Mechanics there is a "classical" problem called "the dual nature of light". There are some experiments, which prove that light is a wave. But there are also some other experiments, which prove that light is made of particles. It seems that we have big logical problems here. The aberration with "the dual nature of light" is supported also by some great physicists (R. Feynman, for instance).

Physicists in Quantum Mechanics already solved the problem of the nature of the light. The "dual nature of light" is not a problem of Physics, but a problem of thinking.

The problem occurs when the physicists try to explain to us what happens. At that moment, they use terms as "wave" or "particle" which are associated with image models. The same terms, in Quantum Mechanics, are associated with mathematical formulae. There is no connection between the world of Quantum Mechanics and the world of image models. If someone forces such a connection, then some big logical problems can occur.

As MDT says, any information is non-sense without declaring the model that generated that information. In the above example, the nature of light is well understood by physicists in the symbolic model called Quantum Mechanics. If we don't know Quantum Mechanics, then it is not possible to understand the answer. So, if we do not know Quantum Mechanics, then it is forbidden to ask any question associated with that field.

Let's evaluate the world based on these levels. There is a fraction of the population who is staying on level 2, and just occasionally goes on level 3. The majority of the population is on level 3, and occasionally goes on level 4. There is a small fraction, which is on level 4, and occasionally on level 5. This fraction produces scientific and technological advance.

To understand the MDT theory, at least level 4 is necessary.

HUMAN BRAIN: EVOLUTION OR EXTERNAL INTERVENTION

Some activities of the human and animal beings are similar. So, there is an idea that evolution from animal brain to human brain could be possible.

As we already emphasized, MDT is just a tool, which is used here to see if there is any possibility to evolve from an animal brain to a human brain. The theory does neither support, nor reject such a possibility.

Based on MDT, the main difference between a human brain and an animal brain is the facility of the human brain only, to make and operate symbolic models. The common part of the two types of brains is the facility to make and operate image models.

The evolution problem is to see if there is any possibility to change some parameters in the structure of image-model devices to reach the capability of making and operating symbolic models. On the other hand, a new hardware that should be added to the animal brain is considered as not compatible with an evolutive process.

As we saw in the previous section, the highest level reached by the animal brain is level 2. With a

peak on level 5, the superiority of the human brain is huge.

Let's see some arguments that support the evolutive process. For instance, let's analyze whether by increasing the level of conceptualization of the models, it will be possible to get closer to the ability to make and operate symbolic models. Thus, if a class of models is more and more conceptualized, such models should be so simplified that they could be very close to a symbolic definition. Therefore, a change from level 2 to level 3 could be reached by evolution.

But, let's analyze an example. So, we have "this apple", "an apple", "a fruit", "food". This is an example of increasing level of conceptualization with the last two items as symbolic elements. The animals have a shortcut by making a model to tell them if what they meet is or not food. In this way, the animals have a fast solution for problems based on image models. There is no advantage to increase the level of conceptualization. Thus the evolution could be blocked by a fast solution, based on image-models.

The advanced conceptualization should be supported in a group of vulnerable animals. To survive, the communication could be decisive. By increasing the level of conceptualization, the communication could be more and more precise. This seems to be the only serious argument for increasing the level of conceptualization. On the other hand, there is already a system of communication on level 2. Thus, a sound or a combination of sounds is associated with a label-type model. It can activate any ZM-model. This type of communication is faster than that based on symbolic models and usually precise enough for the normal necessities of a group of animals. Unfortunately, here we did not see again any advantage from increasing the level of conceptualization.

But, if, for a group of animals, there is a lot of information which comes in fast succession, then the animals will be forced to make more and more simplified models and this should force them to increase the level of conceptualization.

Let's see another example. A person goes somewhere in the desert. Without special equipment, his chance to survive should be very low. But, around him, could be some animals which survive without special efforts. For animals, it is more important "to invest" in "equipment" than to increase the level of conceptualization of the models.

Anyways, at least in theory, it is possible to evolve from an animal brain to a human brain based on an increase in the level of conceptualization. If the animals have or not the tendency to do this, is another issue.

Let's analyze again the evolution of the brain. A concept model is a model which fits a large number of entities. It has to be recorded, maybe, by the same hardware as the hardware that records a normal image-model. Also, there must be a connection between a concept model and every particular model covered by it.

By increasing the level of conceptualization (e.g. from "apple" to "fruit") the structure becomes very complex. The structure becomes even more complex when it evolves from "fruit" to "food". In theory, an evolutive process could produce this process but the increase of the complexity is so huge that it is difficult to believe that this could be produced without specialized hardware.

Level 2 is very close to level 3, but, as we see, no animal was able to reach level 3. Even the most advanced animals, like dolphins, have no tendency towards level 3.

The first drawings on cave walls were dated back to about 150000 years ago. Such drawings must be produced by some long-range image-models. But, such drawings are of no use without some explanations (symbolic messages). The reason is that the same drawing can be associated with a lot of situations. It is fair to consider that, at that moment, the primitive human beings were able to use a symbolic model for communication (a primitive language).

One idea is that the increasing capacity of the brain to make long range image-models was a support to make also symbolic models. This idea cannot be supported, based on MDT.

Indeed, the drawings made by 5 to 12 year old children are rather primitive drawings. At such age, children have very few long-range models. But they are able to make and operate symbolic models, including languages to communicate with computers.

Thus, it seems that the long-range image models are not necessary to make symbolic models. Also, this supports the idea that the symbolic models are made by a special hardware.

The existence of a specialized hardware is based on the following:

There is an image model and the associated label-model (a word). The word has a definition (based on other words). It is clear that there must be a hardware to record the image-model and another (associated) hardware to record the definition. On level 4, the image model does not exist anymore.

If this new hardware should be build based on evolution, it is difficult to understand why we have no intermediate stages. The dolphins, which are considered as the most advanced animals, have no tendency to build symbolic models.

There are some experiments with monkeys, which can be understood as support that some monkeys are able to make symbolic models. Such cases can be generated by a software implementation of the function to build and operate symbolic models.

As we already know, a model in PSM is very efficient but it blocks the evolution (the model is transmitted unchanged or with small changes, from a generation to another). If an animal builds, e.g. by accident, an advanced model of interaction with the external reality, such a model cannot be transmitted to the next generation. Only if a hardware implementation exists, a new model will be transmitted to the next generation. This seems to be a big problem for the evolution of the beings.

Without a hardware implementation, the solution is to transmit such models based on education. If there were groups of monkeys which lived together for a very long time, then a good model could be transmitted from a generation to another by education. In this way, a hardware implementation is built up also if the time available is long enough.

After many generations of monkeys who are forced to build symbolic models, it is possible, theoretically, that some hardware occurs to support the symbolic model building. This could be the process that generated the human brain by an evolution process.

The main argument against evolution from animals to humans is the fact that the 2 years old children are able to build and operate symbolic models. At that age they haven't either enough long-range models to understand the external reality and they are not capable to build such models. The maturity of a human being is reached around the age of 18, and thus the facility to build symbolic models is clearly a hardware facility.

Conclusions: 1. Long-range image-models are not an explanation for the occurrence of symbolic models. 2. The symbolic-models could occur from image-models by a huge increase in the level of conceptualization in very special conditions (e.g. large groups of monkeys which live together for a very long time). 3. The symbolic-models are built and operated by a specialized hardware.

There are two possibilities: either evolution if statement 2 is valid or external intervention if not.

BASIC DESIGN DEFFICIENCIES OF THE HUMAN BRAIN

The theory treats the brain as a technological product. So, the theory considers that a designer existed. He had to fulfil some design requirements. Any technological design has some deficiencies. We shall guess them in this section.

This theoretical and abstract designer is outside of the theory and we are not interested by it. It could be "Mother Nature" or God or an extraterrestrial civilization or anything else.

These deficiencies are described here mainly for the human brain, but some can be met also in the animal brain. The design deficiencies as MDT can detect them, are:

XD1: The tendency to associate an image-model to any situation met by a person. This deficiency is explained due to the "image nature" of the brain. This deficiency explains why so many persons "stay" on level 3, when level 5 is accessible since 100 years ago. This deficiency can be corrected by education.

XD2: There is no hardware protection to prevent the uncontrolled jump from a model to another, in interaction with a complex external reality. The stability in a model is a quality parameter of a brain.

Long-range models can stabilize a person. The XD2 deficiency is not related to them. XD2 is related to the capacity to stay in a model, when faced with a complex external reality. This deficiency can be corrected by software (education, for instance).

The lack of stability in a model can induce the illness called schizophrenia because this lack of stability has the tendency to favor short-range models. Indeed, when there is no stability in a model, the brain will make a specialized model for any particular situation met in the external reality. Such

models are not able to see that some different facts can be correlated. Only a long-range model can detect such correlation. So, the stability in a model is a parameter of quality for a brain and the lack of stability indicates a low quality brain.

This deficiency can be met in the animal world too. For example, a dog has to watch a perimeter. That dog can jump from watch-model to food-model, if it gets food from strangers. Such a dog is a low quality dog, due to the lack of stability in the model.

The dolphins have a good stability in a model, and so, we consider them as advanced animals.

For human beings, the lack of stability in a model is a major drawback. Such persons are not good for any complex activity.

XD3: This is a basic deficiency. Let's start with its description, based on examples.

So, the brain interacts with an external reality and makes a harmonic model with 3 elements. If, that external reality has, in fact, 4 elements, the missing element cannot be discovered based on the 3-element model. As a 3-element model has a number of wrong predictions, it is not easy to see what is the problem from the analysis of the mistakes. The reason is that, once the 3-element model is activated, the reality is just that one which is generated by this model. There is no other reality! We cannot be outside of our active model. In such a case, the brain tries to correct the model. Usually, it will try to correct the model by changing the importance of some elements or relations. Sometimes this procedure works, and the brain will continue to use the 3-element model.

Such a situation occurs when we have not enough long-range models. In the above example, the situation can be corrected if there is a long-range model, which contains a 3-element model as an element of it. But even so, by analyzing the mistakes, it is not easy to understand what is the problem.

A brain affected by XD3A is not able to predict that a model might be missing some elements. A person, who can fight XD3A, can predict such a situation and will treat any model as preliminary.

The brain makes models based on the available data. Such models are made in a harmonic/logic way, but the stability of a model is not a guarantee that the model is good in interaction with a complex external reality.

We define XD3A as a design deficiency, which means that a brain is not able to predict the possibility of a missing element or relation in a stable (harmonic or logic) model.

Another case: a brain has a stabilized model with 100 elements. This model already generated a big number of correct predictions. At one moment, the external reality is changed, and now there are 101 elements. As we know, to correct a model means to reconstruct everything from scratch, using or not components from the old model. This task could be so difficult that it exceeds the technical capacity of the brain. In such a situation the old model is fragmented, and the brain uses it in this way. Of course, this can produce a lot of negative effects, including induced psychiatric disorders.

We define XD3B as a design deficiency, which means that a brain is not able to reconstruct a model, once the model is detected as a wrong model in association with a new external reality. We can express this also as the impossibility of a brain to correct a XD3A deficiency, once it was discovered.

XD3-deficiencies are widespread in the current activity of human beings. There is no reference to know that all the entities of the external reality are associated with the right YMs in the associated model. For us, the external reality exists only if it is associated with a model. Once we activated such a model, the reality is what the model says. We cannot be outside of our active model.

Once we have a model associated with a specific external reality, the model is considered as a good model based on the predictions which are already done. There is no guarantee that the model will continue to be good in any situation and any time. A good quality brain has to know this and to predict some negative effects associated with such a situation. So, this deficiency can be controlled by software (education, for instance).

XD4: This is a deficiency associated only with image-models. It does not exist in a symbolic-model environment.

For an image-model there is no possibility to know the importance of an element or relation. The brain will choose in a more or less arbitrary way the importance. A model can be harmonic (stable) for any importance which is associated with its elements and relations.

A "lightly" negative consequence of this deficiency is the fact that, faced with a given external reality, almost any person makes a personal image-model associated with that external reality. We will see

later that, for extreme situations, such deficiency is associated with the psychiatric disorder called "paranoia".

The symbolic models do not have such problems. Once a symbolic model is made in a mathematical environment, the "law of the propagation of the errors" is able to predict the importance of any element or relation.

For instance, if we have a complex mathematical formula, the law of the propagation of the errors will tell us how much the result is changed if an element is changed with, let's say, 1%.

We already used the term "correct" associated with the importance of an element or relation in an image model. If there is an external reality and two associated models, one image-model and one symbolic-model, and if the two models have the same predictions, then the importance associated with the elements and relations of the image model is correct. If not, the right importance is that of the symbolic model.

The above method is not good in any practical situation. In fact, there is no method to know if we associated the right importance to any element or relation of an image-model. This is XD4.

XD5: this deficiency is a technological one. It means that there is no hardware or software method to erase a model of the brain. A model is made forever. It can be destroyed only in an uncontrolled way due to the biological deficiencies of the brain.

The consequence of this deficiency is huge in many practical situations. The problem is developed more in another section of this book.

THE STRUCTURE OF THE BRAIN, THE PSM MODEL

The Protection and Surviving Model (PSM) is the basic image-model of any brain. When a new being is born, it has only this model in its brain. This model is very complex and it will be described in this chapter.

There is a section of the PSM, which contains a collection of short-range models. They have to act very fast to provide minimal protection for that being (including newborn beings) in some specific dangerous situation. These activities are called "reflex actions".

The PSM contains also some basic models, like the model to keep in the eyesight a moving entity from external reality, or the model to touch by hand an entity in the range of the hand. There is also a collection of models associated with equilibrium and the general stability of the external body, together with a model of it, of course.

There are also a number of long range models which contain the instincts to survive unconditionally, forever (basic design requirement).

During the period of growing, others models can be included in the PSM, models which are associated with the educational process. Such models have to prepare the being to live in a specific external reality.

By accident, any other models can enter the PSM, but some of them can produce big problems for the future mature being, mainly paranoia type illnesses (see ETAs).

The basic characteristic of any model from the PSM is that such a model is invariant. It cannot be changed regardless of the information obtained from the external reality.

The main goal of the PSM is to ensure that the being will survive unconditionally, forever. To do this, the PSM is able to build elements, which are activated to self-develop as models.

So, when a new situation from the external reality is met, and there is no model to understand it, the PSM is automatically activated and tries to solve the problem, based on some reflex actions, or based on some instincts. It also makes a specialized element, which is activated as a model. The new model tries to understand the new situation by independent activity, in interaction with the external reality. When that situation is met again, the PSM is not activated, and the specialized model solves the case. So, as a being gains more and more experience, the PSM is not activated, but one of the specialized models is activated instead.

Regardless of how many models are in a brain, if a new external reality occurs and there is no model to understand it, the PSM will take the control in the way already described.

When PSM controls a being, this can be recognized by the fact that the consciousness disappears, as the normal structure of models is deactivated by the PSM. This situation is called as shock-status.

THE STRUCTURE OF THE BRAIN: FUNCTIONAL FACILITIES AND TYPES OF MODELS

A basic functional facility of the brain is that any model can develop any of its elements as a model. Once a model activates an element, that element is able to develop itself as a model, by direct interaction with the external reality and with any other model of the brain.

Another functional facility is described here. We see that a model can activate any of its elements to develop itself as a model. But, even if an element is already developed as a model, the main model continues to treat it as an element. This important feature will be developed below.

So, a main model has an element. This element has some properties. To integrate that element, the main model uses these properties. Now, the problems could be like: "why that element has such properties?" or "how such properties can be changed?" To answer such questions, the main model has to develop the element as a model. Once an element is developed as a model, its properties appear to be truths generated by the model. So, depending of the point of view, referring to the same entity, we discuss about an element with some properties, or about a model with some associated truths.

Once an element is developed as a model, the model can be changed. A changed model will have other associated truths, so that, when treated as an element of the main model, it has another set of properties. Thus the properties cannot be changed in a direct way, but through the changes in the model. In any case, a main model can operate only with elements, regardless of the fact that the element is or not already developed as a model.

We already use terms as "long range models" or "short range models". Let's define them.

A long-range model has already been defined as a model with its own elements developed as models. But here we will prefer another alternative definition. A long-range model is a model which reaches its aims by activation and deactivation of some of its elements. Such elements are already developed as models.

A short-range model reaches its aims by direct activation.

Example: to switch on the light in a room, a ZM model will make a ZAM. That ZAM will simulate the action. Based on this simulation it will activate an AZM which, in turn, will switch on the light. The ZM-model will confirm the success of the activity of the short-range ZAM model.

Example: To travel from a place to another, a ZM will make a ZAM. The ZAM will make some ZAMs. These ZAMs will make some others ZAMs. For any specific activity there will be a ZAM. Once a ZAM has reached its aim, it will be deactivated by the ZAM-model which activated it, and a new ZAM is activated. The general control belongs to the main-ZAM. The main-ZAM can be modified by the main ZM. Long-range models do such activity.

Example: we enter a room and switch on the light. The light really switches on. A local-ZM gets this information based on IR. But, a long-range ZM, which contains the local-ZM as an element, understands that the light had been broken, and now it is on. The local-ZM acts here as a shorter-range model. It does not understand the general environment. The main-ZM (which contains the local-ZM as element) is a long-range model.

We already saw that any model can activate any of its elements to self-develop as a model. Once an element is activated, it develops itself as a model. In turn, this new model can also activate as a model any of its elements. This "depth" has only technological limits. In fact, almost any model of the brain is a long-range model. The definitions, which are already given, respect this feature.

Now we shall present a list with the main models of a brain:

ZAM: these models are usually long-range models. A ZM model makes them. Their main function is to change the external reality. They are made for immediate activation (to drink water from a glass, for instance) or they could be models that give the orientation of the whole life of a person or anything between these very large limits.

Such models are not changed by direct interaction with the external reality. If a ZAM fails to do something, the upper ZAM or the local-ZM will build and activate another ZAM.

During their activity, they have full access to any resource of the brain (internal or external, by a ZM model).

AZM: these short-range models are direct-action models. They are connected directly to different organs which can act on the external reality (hands, legs..) They keep precise information about such organs. When a ZAM model has to make a simulation of a specific action, the AZM models have to give precise information about every feature of the associated organs.

Referring to ZAM and AZM models, any action on the external reality is based on a simulation. Without a successful simulation, the brain is not able to do any activity.

Once a simulation is a success, the main ZAM will activate the action (in connection with local-ZM). The action will be the same as the simulated action. This procedure is followed by any ZAM in any activity.

There are some exceptions. When the PSM takes control, some reflex-models are activated without initialization and without simulation. The reason is the highest speed of action, even if the action is not the right one.

ACTIVE-TYPE MODELS (normal ZM-models)

ZM models are made mainly by direct interaction with the external reality. They generate the knowledge and consciousness. They are self-activated in any situation when they are able to predict in a good way the possible evolution of a given external reality.

A ZM, which interacts directly with the external reality, is also a model, which controls the whole body. They build, activate and deactivate any ZAM, based on a set of goals.

A long-range ZM model also controls a local-ZM. This is able to modify a local-ZM model, based on long-range predictions.

The whole activity is supervised by PSM. Usually the PSM is activated only when all the available ZMs fail to control the interaction with the external reality.

A ZM model has full access to all the resources of the brain. It can take any information from any part of the brain and can make any model based on any available information.

By analyzing the normal activity of the brain, one understands that some activities use only a limited number of models. The access to some models is easier than to others. We can find very fast some information and find more slowly other. This suggests that some models, which are usually employed together, are grouped. We define a quasi-structure of models called MZM. A MZM is a group of models, which are used often together. They can be associated with some specific complex activities (job, hobby, family life, car driving and so on).

STORY-TYPE MODELS

These are transition-ZMs. When there are some information from the external reality, the normal activity of the brain is to build a normal ZM-model or to find the best available ZM to integrate that information.

When the quantity of information is high, the brain has no technical possibility to follow this normal mode of interaction. It is forced just to record the information in a string-type mode. Such a record of data is called a story-type model (S-M).

Note: some persons who already read this book were disturbed by the fact that there are many sequences which are repeated in different parts of the book. Unfortunately for such persons, this happened because they make story-type models instead of a normal model. If they make story-type models and if there is a repeated sequence, the local-ZM will jump back to the place where the information was previously met. At that moment, the story-type models are fragmenting. The person has lost the connection with the story-type model and is forced to make a new one. Also, the person could try to reconnect the old model with the new one, but this is difficult. For a person who makes a normal model, when a sequence is repeated, this sequence will only confirm the normal model and this is very good for the model.

Story-type models can be used as a source of information to make or develop, off-line, normal models. Any element of such models can be developed as a normal model later.

Although many people use this type of interaction with the external reality, this mode of interaction is not efficient and uses a lot of the limited resources of the brain.

Indeed, a story-type-model records the information in an explicit way, about the same way as it is recorded on a tape-recorder. This mode is a very primitive way of recording data. A normal model can generate a huge quantity of information by simulation. Such information is not recorded there in an explicit way.

Even more, a story-type model introduces non-normal relations between some elements. As we know, a story-type model is made by elements connected between them in the order of occurrence. So, two elements, which could have no connection between them, could be recorded with a relation between them if they occurred together. Anyway, there is no control and no long-range model to control the recording of a story-type model.

Unfortunately, such models are very spread out all over the world, due to the fact that there is too much information, and due to some big deficiencies of the education policy.

So, an education based on normal models will reduce very much the quantity of information, which has to be processed by a brain. The present education policy is based on assimilation of external models. That is, the capacity to build models is not used. So, faced with a huge quantity of information, the population is forced to make story-type models. This will reduce even more the capacity of the population to make normal models.

Example: a taxi driver must know any route in a city. There is a huge number of such routes and he has to learn each, both directions. If the normal model of the city is learned, then that taxi driver is able to find a route in any conditions. Except for the normal model of the city, it is not necessary to learn anything else. By story-type models (to learn routes) he has to increase the quantity of information with every new route. This is an example, but the situation is met in almost any field of activity. In practice, both methods are used.

Story-type models developed as long-range models are very dangerous, because they can stimulate induced-paranoia (XIP) or a schizophrenic-paranoiac complex (XSPC). This is so because a story-type model has special relations between its elements. Such relations are generated by the arbitrary occurrence of the elements and thus, to transform the story-type model into a family of normal models becomes difficult (the brain has to build from scratch several new normal models, based on the information generated by a story-type model, and this is not easy).

The story-type models are integrated in the normal structure of models and they are controlled by that structure.

SHIELDING MODELS

We already saw that any model evolves independently, by itself, based on the information taken from external reality or from others models. The aim of any model is to gain its stability. Once a model has a problem, it will continue to be active up to the moment when it regains stability.

There are some problems without solution. The model will continue to look for a solution forever. This activity can produce negative effects on the overall stability of the structure of models of the brain (it consumes a lot of energy).

The main problem without solution is death (human beings only).

This is a basic problem. So, there is a model which predicts the death of a person and that model has no solution to the problem. When there is no model to solve a problem, the PSM is activated. The PSM has no solution too and so it will make a specific model to solve the problem. But the new model has no solution either, and so, a dangerous loop is activated. This activity could be very dangerous for the stability of the structure of models of any mature human being.

Since the oldest times, the human beings found a solution: shielding models.

A shielding model is a model, which is made to prevent a normal model from activating the PSM and also to transmit to the model with problems some information to stabilize it.

The best-known shielding model is religion.

Observation: as a person becomes older and older, the prediction of death is more and more precise. The person has the tendency to become more and more religious. Also, when a population is under stress, it has also the tendency to become more and more religious.

A shielding model is associated to a normal model which has problems. A shielding model is not based on external reality. It cannot be included in a normal model, as the normal model cannot include a model which is not based on external reality.

The reality generated by a shielding model can be called "illusion".

The shielding model can be made for any problem without solution. Such models reduce the nonsense activity of a brain and so, there is more energy to solve the normal problems. But, such models could be also very dangerous. The activation of a shielding model also deactivates the protection structure of a person or at least some section of it.

The shielding models are the main models, which can pass from 'normal-to-PSM' zone to PSM. Such changes could be very dangerous for that being, because some protection models are deactivated forever.

The shielding models are partially integrated in the normal structure of models and so, the structure can, partially, control them.

ACTIVABLE MODELS (WBAM)

A ZM could predict a future situation of the external reality, which has no associated model. Such a situation can activate the PSM. To prevent this, the ZM can make a would-be active-type model (WBAM). Such a model is not created by direct interaction with the external reality. Such a WBAM acts as a shielding model up to the last moment before the activation. After activation, it becomes a normal ZM model.

A normal ZM is built in direct interaction with external reality. WBAMs can be associated with the external reality without previous interaction with it.

Note: the emotion is defined in MDT as a transient situation between the activation of the PSM and the moment when a normal suitable model is activated. The activation of the PSM can be prevented by a good WBAM (of course, if that situation was predicted by a main ZM).

WBAMs are included in the normal structure of the models and they are controlled by it.

ILLEGAL MODELS (XZM)

All types of models described up to now are normal models. They are included in a harmonic/logic way in the structure.

There are some models, which are not included in the normal structure of models, or they have lost their normal connection to the structure. Such models are called "illegal models" or XZM.

There are many situations which can produce illegal models. A case is when a new model is not finished because the specific external reality, which produced it, is no met anymore.

For instance, somebody has been involved in a car accident. A new model is started, but because such situation will not be met again in the near future, the model is not finished, because there is no external reality to finish it. Such model could evolve as an illegal model.

Observation: there is an empirical method of the "classical" psychiatry to stimulate or even to force a person (mainly children) to tell everything which is associated with a traumatic situation. MDT says that such a method is very good because, in this way, a possible illegal model will be forced to connect to the normal structure of models and so, the long-range negative effects are prevented. As we see, MDT can explain exactly why this psychiatric empirical procedure is good, as MDT was not even created specifically for the psychiatric field!

Another situation when an XZM could be created is when a model is too large. Such a model could be fragmented and some components can lose the normal connection with the structure. The fragments can evolve as illegal models.

The story-type models are also candidates to become XZM (at least some parts of them).

A major cause of the occurrence of illegal models is technological problems. As we know, a normal structure of models is made of many models, which are connected together in a harmonic/logic way. The models communicate between them but, if the communication is not good due to technological

problems, some models can become illegal.

Such process can also generate half-XZM models. Such models have little communications with the other models, or the communication can be only in association with some other models, or only in association with some specific situations of the external reality.

Because such models are no controlled anymore by the normal structure of models, they can contain anything. They can obtain information from the external reality or from other models, or they can create and activate models which can act on the external reality (ZAM and AZM).

XZM models could be dangerous, or even very dangerous, because a person can do some things outside his/her consciousness. A person that has such models does not know that such models exist in his/her brain. Some of these models can be detected during hypnosis practice.

XZMs can explain somnambulist-effect, double-personality, and many illogical or bizarre activities. They can also explain some crimes, including the serial-killer phenomenon or terrorism-related crimes. Such a person is just "remote-controlled" by the XZMs.

The illegal models can explain also some paranormal phenomena.

PARANORMAL PHENOMENA

Telepathy is considered as a direct communication between two brains. Even more, this kind of communication is performed at great distance between the two brains and through any kind of media.

Unfortunately, this kind of transmission of information is not possible, based on the laws of the nature. In order to transmit information, it is necessary to transmit energy at the distance. The known fields of forces (electric, magnetic, electro-magnetic and gravitational) do not meet the requirements for such a transmission. Even more, even if there is a field of forces which can propagate at large distance through any kind of material, in order to transmit information, modulation of the energy, depending on the information, is also necessary. At the receiver it is necessary to demodulate the energy changes, in order to get the message.

Some could say that the information could be transmitted by a 'shortcut', without transmitting the energy at the distance. This interferes with the basics of the sciences of nature.

Anyways, I believe in natural sciences, and the only conclusion is that, for now and forever, telepathy, as a direct transmission of information from a brain to another, does not exist.

MDT explains "telepathy" in the frame of the laws of nature, without any kind of transmission of information at the distance. The phenomenon is based on the huge capacity of the brain to process information and on XZM models.

As we know, the basic function of any brain is to make models and to simulate the possible evolution of them. A model, which is associated with an external reality, is able to predict the evolution of that external reality. So, at any moment, we make predictions associated with the external reality, and the majority of them are good.

Now, let's suppose that a person has a special relation with another person, as a mother and her child, for instance. The model associated with her child could have been active for many years. Such a model could become a XZM model. This XZM is active outside the control of the mother. Such an XZM could simulate the interaction between the child and different kinds of environments. When a negative prediction occurs, such a model can transmit a message to the local-ZM. The mother "receives" a message. The "receiver" cannot find the source and the reason for that message, because an XZM-model, not belonging to the normal structure of models, transmits the message. It is very easy to consider that such a message is transmitted by "telepathy".

So, MDT considers that such messages are generated by simulation on an XZM- model and so, they are just predictions. In some cases, such predictions could be correct (the predictions which are not correct are forgotten !!!). Such messages are not related with the external reality.

Some of such predictions could also be obtained during a hypnosis session, because hypnosis is associated only with XZMs.

The same basic explanation is valid for the clairvoyance phenomenon. In such a case, the XZM is associated with a specific external reality, or with an illness.

Such predictions could be correct for many situations, but, because they are just predictions, there is a limited guarantee on their correctness.

Example: a person was "seen" by a clairvoyance medium. This medium was asked on the status of the heart of that person. The answer was that the heart is in a good shape. The answer was correct. But there was a "little" problem: that person was wearing a pacemaker, which was not "seen" by the medium, in accordance with MDT.

MDT can be used to see how to develop such paranormal qualities. First of all, for it, let's remember that XZM are image models and so, developing the interaction with external reality based on image models is strongly recommended. Also, a natural tendency towards image models is mandatory.

Such persons must be well balanced, or able to obtain a stability status by different methods, so that the normal structure of models has a reduced activity. Such persons must have a reduced tendency to control the activity associated with the problem (to reduce even more the activity of the normal structure of models).

It is also very important to obtain as much as possible information by direct interaction (based on image models) with the problem. The information based on symbolic models could be useful too, after translation on image models.

MDT considers that XZM models are image models. But, there is a supposition that some symbolic-models could be illegal too. If so, an XZM-symbolic model could explain, e.g., how some persons can perform extremely complicated arithmetical operations.

THE NORMAL HUMAN BRAIN

This section was intended to treat the subject declared, but instead, it is just an evaluation of the problem. The reason is the inexistence of sufficient data on XZM models.

To make a local model on the normal human brain, we take some conditions from MDT, as follows:

C1: The PSM must act to protect the being and to ensure the unconditional survival, forever, of that being. The PSM must also contain some models associated with the society in which the being lives. The PSM must not contain ordinary models.

C2: Any model of the brain must be stable (harmonic or logic).

C3: The whole structure of models must be stable. That is, any truth of any model must be accepted (or at least not rejected) by any other model of the brain.

Let's develop a little this local model.

The main condition of normality is that the person has to be accepted by the society. That is, the person has to integrate in that society. For a cannibal- type society, the person has to integrate in that society. Otherwise he will be rejected by the society. The limits of normality are, as we see, very broad.

For a democratic society of our time, some of the conditions of normality are "not to kill", "not to steal" and so on. Such models must be in the PSM and this goal is achieved by education since many generations.

Let's consider that a person makes a model to kill someone. If this model is blocked by PSM, that person can be considered as a normal one.

However, if a person makes a model to kill someone and, in some conditions, the PSM does not work properly, that model can be activated. Based on MDT, such a situation is a hardware problem and so, that person is not a normal one.

In "classical" psychiatry, they make a test to understand if the person was or not responsible for his/her acts. Based on MDT, as I said, here we have a hardware problem and so, the fact that the person was or not conscious of what he was doing is not relevant. Even more, based on MDT, a model cannot be destroyed by any hardware or software facility of the brain. So, a punishment has no effect.

If a brain has a hardware problem, there is no solution to correct it. The main reason is the fact that any model is connected with almost all the models of the brain. Even XZMs must have some connections. In order to remove a model by external action, it is necessary to know the exact hardware

structure of that brain and this, as I think, will be not possible at least in the next 50 years.

C1 asserts also the condition that the brain must not contain ordinary models (O.M.). This condition is necessary because if an O.M. is included in PSM, that model becomes invariant (it cannot be changed by any information from the external reality). So, if an O.M. is included in PSM, any information obtained by IR from external reality must be compatible with that OMPSM. If not, that information must be distorted to meet, somehow, the condition requested by the OMPSM. When there is an OMPSM in the brain, this is an illness called "paranoia".

A person with an OMPSM must distort the information obtained from external reality to meet the conditions requested by the OMPSM.

Example: The authentic communists have included in PSM the OMPSM called "the working class is the leader of the society". Regardless of the external reality, they have a harmonic/logic structure of models based on this model. Fortunately, the absolute majority of the communists have no such model included in PSM and so, they are normal persons.

Example: Usually, drugs create an OMPSM called "use them". Such persons will continue to use drugs regardless of any information associated with their negative effects. This is a special kind of paranoia.

Example: smoking is also a form of paranoia, due to the same reason, as above. After many years of smoking, some persons can give up smoking. This could happen if, for instance, the person gets ill. The illness could make a non- smoking model, which enters the PSM too.

The C3-condition states that the whole structure of models must be harmonic/logic. This condition is not easy to meet. First of all, there is a limited capacity to refresh the whole structure of models. The refresh capacity for some persons could be under the requirements. Such persons could evolve to a form of schizophrenia.

Let's consider now a person-A, who meets the C3 criterium. At one moment, an important model becomes useless (for instance, an important person B disappears from the life of A). In such case, person-A has to refresh the whole structure of models. This task could exceed the technical capacity of refresh (mainly for older persons).

If the refresh capacity is exceeded, one possibility is to make shielding models. If a person has too many shielding models, such a person cannot be considered as a normal person. Such persons can be detected, e.g. due to the fact that they don't want, or they cannot discuss about some subjects.

XZM models are not taken into account because of the lack of enough data about them. XZMs can explain the somnambulistic-effect, multiple personalities or even some nonsense crimes.

There are killers who don't know why they kill other people. Many of them seem to be normal persons, as their friends can confirm and also they can be integrated in society. XZMs can be an explanation for their crimes. Indeed, an XZM is a model which is out of the control of the normal structure of models. Such models can become active-models in some situations (due to the hardware problems of that brain). The killer is so "remotely-controlled" by the XZM.

Such killers cannot be detected by a lie detector. The explanation is the fact that there is no normal model that makes the crime and so, there is no reason to pretend or hide something.

As I said, this section is just for evaluation. As new data will be obtained in association with XZMs, the section will be developed.

THE ABSTRACT OF THE FUNCTIONAL FACILITIES OF A BRAIN

Let's make an abstract about all the functional facilities of a human brain. Almost all the facilities, which are not related with symbolic-models, are the same for animals.

BF1: To make models associated or not with a section of the external reality

BF2: To refresh, on and on, the M-models by prediction and comparison with IR, so that M-models reflect better and better the dynamic external reality.

BF3: The continuous self-refreshing of some ZM coupled with M-models. The goal is that these ZM-models reflect better and better the external reality. For this, ZM must take into account any other ZM-

model of the brain as well.

BF4: To simulate, continuously, the possible evolution of the associated external reality, even when a ZM is not connected to M-models.

BF5: One of the main conditions, which must be fulfilled by any model, is to become stable (harmonic or logic). That is, any simulation on a model must reconfirm the model in the same shape. If a disharmony or logical contradiction is detected, the model must regain its stability by IR (from external reality or from other models). Moreover, as any model is already integrated in a structure of models, any other model must accept any result of any simulation on any model. This condition ensures the general stability of a structure of models. A real brain does not easily meet this condition.

BF6: Any ZMs are able to activate, in time sharing, many ZAM models to do many activities. However, there is a single ZAM which can act on the external reality at a given moment of time. The reason for it is that, before activation, any model needs to initialize using data taken from external reality. When a ZAM is deactivated, it needs to store data for future reactivation. This method is fast, but if external reality is changed too much, such data is no more valid. In this case, the activated ZAM has to find the new conditions of initialization, based on ZMs. The brain uses both methods. By description of the process, we see that it is not easy to do many activities at the same time (in time-sharing), and it is easy to make mistakes.

BF7: The facility of any model to gain information from any other model of the brain. However, due to the technological implementation, it is possible that some models have a better communications with some models, and not as easy communication with other models.

BF8: Any model has the facility to develop any of its elements as models. Thus, it is possible to have a nested structure of models. The "depth" of this structure has only technological limitations.

These facilities generate the knowledge and the consciousness, based on a structure of stable (harmonic or logic) models. Such structure is able to self-develop in an unknown external reality.

For a given brain, in interaction with an external reality, there are a number of features which will be described now. That is, as a brain has many modes of interaction with external reality, a particular brain could use mostly only some of them, as follows:

SF1: If there is a difference between reality (prediction) and the external reality (IR), a brain has some possibilities:

- SF1.1: to correct the model based on IR (knowledge)
- SF1.2: to modify the external reality (creativity)
- SF1.3: to store IR in a story-type model
- SF1.4: to ignore or to forget that IR

SF2: When a model is "correct", but it cannot be integrated in the structure of models, there are some possibilities:

SF2.1: to make a shielding model (the external reality is considered as wrong) SF2.2: to modify the whole structure of models (knowledge at any price, but sometimes this can exceed the technical possibilities of a given brain). SF2.3: to modify the model (i.e. to distort the importance of some elements or relations so that, the modified model can be accepted by the structure). When this procedure is followed, we have a paranoiac behavior. SF2.4: the model with problems is ignored, or it is recorded as a story-type model.

SF3: when there is an external reality and no suitable model, there are some possibilities:

- SF3.1: to create a suitable model, initiated by PSM
- SF3.2: to ignore that external reality
- SF3.3: to record that external reality based on a set of more or less fragmented story-type models.

THE PERSONALITY (HUMAN ONLY)

The personality is treated here for human beings only. However, some characteristics (which are not related in a direct or indirect way with the symbolic models), are about the same for animals.

The personality is given by the whole structure of models of a given human being. We shall develop this very complex concept. To do this, at the beginning, we shall see a number of features in a rather random way and then, based on these descriptions, we shall list some important parameters which

characterize the personality.

We know from the general theory that any brain makes models and simulates the possible evolution of these models. There are no restrictions in connection with the aims or goals of such simulations. Even for a simple model, the number of different simulations could be high. Of course, a model will not make all the possible simulations.

A characteristic of the personality is associated with this diversity of aims and goals of any model.

A structure of models could evolve in a chaotic way, out of control. Another parameter of the personality is associated with the capability to control such a diversity of evolution of a structure of models.

As we know from the general theory, the stability in a model is a brain quality parameter. Thus, the aims and goals of any model have to be controlled by a limited number of long-range models. Without such long-range models, the structure can evolve in a chaotic way (this is a form of schizophrenia).

Faced with a new external reality, the model which gives the best predictions of the evolution of that external reality will be activated. However, when the external reality is complex, the main model has to activate some other models, to be able to predict better and better the evolution of that external reality. A parameter of the personality is the capacity to keep control of the main activity even when the main model activates some others model. Thus, the stability in the main model is a parameter associated with the personality.

Example: there are some persons who start from a subject and evolve in a rather chaotic way to other subjects so that the main subject is sometimes forgotten.

Another parameter of a personality is associated with the fact that, although the structure of models has to be stable, the structure must be compatible with some models imposed from outside, by education. Without some main models imposed from outside (by education), a human being will be not compatible with the external reality.

By education, some models must be present in any brain (some of them must be in the PSM). Any human being is able to integrate into society, based on them.

There are now very big problems associated with education, in the present human society. The main problem is the fact that the society (including in most advanced countries) is evolving very fast based on symbolic models and the education is not able to keep the pace with this fast evolution. E.g. the usual method of education is to impose some story-type model (i.e. some models of "how to do"-type). This method has increased too much the number of models that must be stored by the brain and the brain is not capable anymore to store and use all of them. Based on MDT, the normal solution should be to store some normal models that can be tailored by each person to any specific situation.

Another parameter is associated with the tendency to think and act based on long-range models or short-range models. Some persons behave based on a number of long-range concept models (principles) which are used in any situation. Other persons have specific short-range models for any specific external reality. The personality parameter is typically situated between the two limits mentioned above.

From the general theory, we know that some models generate knowledge and others are used to modify the external reality. Thus, there are personalities oriented mostly to knowledge and others are oriented mostly to change the external reality.

There are persons who assimilate easily external models and others who prefer to make their own models.

Also, there are image models and symbolic models.

We can make a partial matrix associated with a personality based on the capacity to make/assimilate image/symbolic models, for instance.

Another very important parameter is associated with the content of the PSM. As we know, a number of external models must be included in the PSM, by the education process, so that the person is integrated in society. Unfortunately, a lot of models could enter in PSM, in an uncontrolled way. Some of these models could be bad models. They can be built, e.g. if a person is born and lives (at least in childhood) in a bad environment. For a person who has such bad models, there is still a chance to integrate in a normal society, by making some shielding models. However, a shielding model is, usually, not safe enough. Thus, in some situations, a person can act based on the bad models and not based on

the shielding models which had helped him/her to be accepted by the society. Unfortunately, it is very difficult to know in advance the content of the PSM, because the PSM acts only in very special and critical situations. To be understood, this subject needs a lot of further work.

Here we present a general theory. It cannot go beyond some limits because the technological implementation is, usually, not taken into account. However, based on the theory, it is possible to develop the subject for specific applications.

Now we shall list some parameters associated with the personality, based on the above discussion. Some of the parameters associated with the personality could be:

- The orientation to image models
- The orientation to symbolic models
- The orientation to knowledge
- The orientation to action on external reality
- The orientation to make new models
- The orientation to assimilate new models
- The orientation on short-range models
- The orientation on long-range models
- The parameter associated with the diversity of action
- The parameter associated with the stability in a model
- The parameter associated with the conformity to society requirements
- The parameter associated with non-standard models from PSM

A table could be made, for any person, with numerical values associated to the above parameters. To do this, a local model must be developed. That model has to contain a set of standard procedures to obtain such parameters.

This chapter, which is associated with the personality, refers only to normal, mature persons (as these terms are already defined). The pathological cases are not taken into account here. In fact, to study the pathological cases is a nonsense before defining the normal situation.

This general theory, as it will be developed for specific situations, is useful to understand also pathological cases. For instance, MDT defines XZM- models (illegal models) as models which are not integrated in the normal structure of models. Such models could be very important to issues related to the personality, but there are still few data about XZM models.

There is another very important parameter associated with the personality, which was not described above; it is a parameter associated to the consciousness. Because it is so important, it will be described in a separated section.

THE CONSCIOUSNESS

It is considered that there are some long-range ZM models (image or symbolic), which contain the being as an element. When such a model is activated, it has to initialize. That is, it has to find the positions of all the elements (including the being itself) and to find all the relations between the elements by interaction with the external reality.

The consciousness is the capacity of a brain to make and operate a model, which contains the being as an element.

It is very important to emphasize that such models are normal models, which are made by that brain in interaction with the external reality. Such models cannot be assimilated by education, for instance.

The level of consciousness is associated with the capacity of that brain to find and refresh, in a continuous way, the position of the being in a model.

Such models are long-range models. Their elements are already developed as models. Some models can also contain some elements associated with the person. The number of planes of consciousness could be high.

Example: I am a Romanian citizen. I live in Europe, so I am also European. I have a job; I have a position there. I live in a block of flats; I have also a position in relation with the others who also live in my block of flats, and so on.

There are some models, which does not contain the person in an explicit way. This is level-1 of consciousness. Only some parts of that person are taken into account. The consciousness is of level 2 when the person appears in an explicit way in relation with other persons. On level 2, the person is

integrated in a group; the person knows the aims and the rules of the group and acts accordingly.

Examples: when a person drinks water from a glass, the person does not appear in an explicit way; only some components of that person are taken into account. If the person knows what he is doing, and is able to predict his evolution, then he is on level 1 of consciousness. If a person plays a game in a team, and he knows the aims and the rules of the group and communicates with the members of the group, then that person is on level 2 of consciousness. On level 2, the person is integrated in the model, as an explicit element, as any other person of that group.

Problem: On level 2, a possible problem is to consider one's own activity as a good one, and to consider that some other members of the group are low quality persons. This could happen with a non-homogenous group, but also it is possible that the model is a low quality one (the person has made a low quality model associated with the aims and the rules of the group). As we know, any model is made to be stable (logical or harmonic). We also know that the stability of a model is not a guarantee that the model reflects in a good way the external reality. Thus, for a good level 2 of consciousness, it is necessary that all the members of the group have about the same basic model.

Observation: it is possible that faced with a new external reality, for which there is no available model, the PSM activates itself. As the PSM is activated, all the normal models are disabled and so the consciousness disappears. Such a situation is called "shock status". The consciousness returns only after the normal structure of models regains control.

The highest level of consciousness is level 3. There are few persons who are able to reach level 3 of consciousness. It is not easy to understand the explanations associated with this level.

On level 3, a person is able, e.g. to think with "the others' head". Also, on this level, a person is able to see how the others see him. This implies to make a model which contains the model of the group as an element in a longer- range model.

On level 3, the brain has to work very hard. There are few person who are able to do such an effort. It is harder to do such an effort on image models than on symbolic models. Usually, level 3 of consciousness is met on symbolic models. However, the word "empathy" can be associated on image models, with a low level 3 of consciousness.

Note: Level 3 requests a hard effort for a brain and at the same time, the personal advantage from such effort is not too high. Thus, the absolute majority of the population is on level 1 and 2.

The persons able to stay on level 3 are the elite of a group.

Example: let's see an example involving car driving. On level 1, a driver is reacting only when a situation occurs, or is about to occur. On level 2, a driver is able to predict what the other drivers will do beforehand. On level 3, a driver is able to understand every driver around him, and he is also able to take in account some possible problems, which can occur in association with the overall traffic problems. Of course, the best drivers are those on level 3, but the effort to stay on level 3 is so big, that, at some moments, the brain will not be able to do such an effort, and the driver "drops" on level 1, when he can cause accidents. This could be the explanation of some "inexplicable" accidents, with persons who are considered as very good from a professional point of view. Of course, this is a very general problem; it is not related only with car drivers.

We already defined the elite of a group as those persons who are able to stay on level 3. Let's consider that a person has to work in a position where one has to take care of the community. Such persons must anticipate what problems could occur in future, to be able to protect the community. Level 3 is absolutely necessary. But, there is a problem. When a person is to be selected for such a job, he has to gain some abilities. The problem here is that such abilities are, usually, obtained after some specific training.

The training courses have, as main goal, to ensure that the students have assimilated a number of models. When a problem associated with such models occurs, they will activate the suitable model, and so they will solve the problem. But, to be able to do the job in a good way, the main quality is not to have the right model, when the problem occurs, but to anticipate fast enough, what kind of problem will occur. That is, to be on level 3. I never heard that the selection of personnel is done based also on the level of consciousness criterion. Even worse, the persons who are able to assimilate easily new models, have a reduced capacity to make their own models (as level 3 requires) and so, the present system of education stimulates the students to have a low level of consciousness.

The present level of development of the human brain is too low to have, on a large scale, a level 3 of symbolic consciousness.

The consciousness based on symbolic models is requested in any situation when an elite group is necessary. In such a situation, every individual of the group is associated with a symbolic element. Such a symbolic element contains nothing which could be associated with the "human" part of an individual (no emotions, no feelings, no love and so on).

Let's see now the consciousness in the animal world. Some superior animals, which live in packs, know their position in the pack. So, there is a form of level 2 image consciousness for such animals. Of course, such a level is associated with a single model, which is made by every individual of the pack. Even more, the position of every individual could be changed in time.

But what about ants. There is very little probability that an ant is able to make models in interaction with the external reality. The ants are based on the models of their PSM, (which are ready made when they are born). For instance, level-2 of consciousness could be recognized when there is a competition between the members of the group, as it happens in a pack of mammals, or when an individual has to be trained. Such things cannot be met in the world of the ants. Thus, ants have no consciousness (except level 0) as a result of their incapacity to make models on their own.

Some superior animals, which live in association with human beings (e.g. dogs), are able to create on their own some models of interaction with the human beings. So, they could have level 2 consciousness.

ABSTRACT: MODEL DICTIONARY

M: these are models associated in a direct way with sense organs (M-eyes, M- ears and so on).

YM: concept models directly or indirectly associated with different entities of the external reality.

ZM: General long-range models. For any external reality, the brain makes one or more ZM-models. They generate the truths, the reality, the knowledge and the consciousness.

ZM-models are activated by the associated external reality. There are also ZM- models that are not associated to an external reality (e.g. when we solve a problem of mathematics).

Any ZM-model associated to an external reality works in association with some M-models, and also in association with any other ZM-model.

MZM: this term is not associated with a model, but with a structure of different ZM, YM, ZAM, and AZM models. These models are very often used together. Such a structure is generated by the technological implementation of the brain, and it optimizes the activity of the brain in a section of the external reality.

ZAM: these models are long-range models used to modify the external reality. They are artificial models (they are not generated by direct interaction with the external reality) and they are also invariant (they cannot be changed by direct interaction with the external reality).

AZM: these models are associated with the organs that can interact with the external reality (hands, legs and so on) in a direct way.

XZM: these models are called also "illegal models", because they are not included in the normal structure of models. A normal model is a model for which any prediction is accepted in a harmonic/logic way by any other model of the structure. XZMs are, thus, individual models which have no normal communication with other models. Thus, a brain is not able to detect such models. In some situations, such models can become active and gain control of the being. They can also transmit some information to the normal structure of models.

WBAM (would be-active models): such models are artificial models that are generated by a ZM-model. Thus, a ZM-model predicts a situation for which there is no normal model. If a new external reality occurs, and there is no normal model to understand it, the PSM is activated. A ZM-model can make a WBAM- model, based on its predictions, so that, when the new external reality occurs, the ZM will activate that WBAM and so PSM is not activated.

SHIELDING MODELS: Any model has the tendency to become stable. There are some models which cannot become stable. Such models can destabilize the whole structure of models due to some infinite loops performed in order to gain stability (the model with problems will activate some other models, including the PSM, in a continuous way). A shielding model is created by the main ZM. It intercepts some truths which can activate some other models (including the PSM) and transmits to the model with problems some information which stabilizes it. The reality generated by a shielding model is called

"illusion". The best known shielding-model is religion. This shielding model stabilizes any model which predicts the death of the person so it blocks the activation of the PSM.

STORY-TYPE MODELS: Faced with a new external reality, the normal tendency of the brain is to make a normal model, or to activate a suitable model from its collection of models. But, when the external reality is changing very fast, this procedure cannot be followed. In this case, the brain records the information based on short-range models. These short-range models are connected between them based on the order of occurrence. Such a model (string-type) is called "story-type model". Story-type models are used later ("off line") to make or improve the normal models.

PROTECTION AND SURVIVAL MODEL (PSM)

This is the fundamental image model of any brain. When a new being is born, the brain contains only the PSM. The PSM contains a collection of basic short range models (e.g. reflex actions) and long-range models (e.g. the instincts) for a minimal protection of that being and to ensure the unconditional survival of that being, forever (these are the basic design features).

The PSM contains also a model of the external body (bones, muscles, and so on) and also some basic models of interaction with the external reality (e.g. the model to follow with the eyes the movement of an entity from external reality, or the model to touch an entity from external reality, which is in the range of the hand). There are also some models to ensure the equilibrium of the physical body.

Faced with a new external reality, the PSM is activated and it tries to solve the problem, based on its short-range models (e.g. reflex actions), but it will also create a new element, which is associated to the new external reality. Once the new element is created by PSM, this element is self-developing as a model, in order to understand the new external reality. When such an external reality occurs again, the specialized model created during the first occurrence of the new external reality will be activated instead of the PSM. Such models are normal models (they do not belong to PSM).

Thus, as a new born being gains experience, the PSM will not be activated, but the models previously created in the interaction of that being with the external reality.

A model, which belongs to PSM, cannot be changed regardless of the information received from external reality (the PSM contains only invariant models). In special conditions, e.g. when a big danger exists for the being (as detected by PSM), it is possible that a new model enters the PSM. Basically speaking, any model can enter the PSM. For a normal brain, the PSM must contain only "standard models" (see the general theory and ETAs) because, once a model is in PSM, it cannot be changed regardless of the information received from external reality. Even more, any information from external reality can be accepted only if it can be accepted by PSM.

Example: Let's suppose that in the PSM of a person there is a non-standard model which considers that the frogs are very dangerous. Regardless of the information received from external reality, that person will be horrified when frogs are around.

The content of the PSM is very hard to be known because the PSM is activated only when there is no normal model to understand the external reality.

The PSM is an image model and it will remain so forever.

EXAMPLES, TESTS AND APPLICATIONS (ETA) ASSOCIATED TO THE MDT THEORY

These ETAs are intergrant parts of MDT and show how it works in some specific cases. The order of occurrence of the subjects is random. MDT tries to keep its generality as much as possible, independent of the technological implementation of different brains.

ETA 1: The Model

The model is a collection of elements and relations between the elements. There are two types of models: image models (or analogic models) and symbolic models. The elements and relationships are given explicitly for the symbolic models, and implicitly for the image models.

Image models (analogic) can't be given in an explicit manner. They are given as they are, as a whole. This is an intrinsic property of the image models.

To give a model in an explicit manner means to describe the elements and the relationship between the elements, but this takes us outside the analogic model. That means to translate the image model into a symbolic model (we need to use words to describe the image model). Even if the translated

model is associated to the image model, it is a different model.

Example: given an image model of an airplane, its elements are the main body, the wings etc. One of the wings could break in two, so it is made of two pieces. Actually, it contains an infinity of elements, as it could break in any way. In any real situation, it is by far easier to build an image model, than explain what had been built. This is why we say that an image model is just given as it is, and not defined explicitly. Anytime we refer to an image model, we need to take into account this fundamental issue.

Application 1:

Image models in poetry and painting

A poet imagines something- there is an image model in his mind. The poet will translate somehow this image model into several symbolic models (e.g. statements), trying in fact to associate the image model from his mind to a collection of symbolic models, materialised in the text of the poem. It is assumed that the text of the poem, together with other image-type elements (Rythm, rhyme, intonation etc) will be able to make the reader/listener to reassemble somehow the initial image model from the poet's mind.

In the case of painting, the painter has in front of him a subject (e.g. a person). This subject is perceived through all the senses the painter has. What results is an image model of the subject based on this complex interaction. This image model from the painter's mind will be translated into another image model that will show on the canvas. The translation means only to associate a model to another. The translated model can be built anyhow within very large limits, based on the complex image model from the painter's mind. It is supposed here as well, that the viewer will remake somehow as an image model the initial model from the mind of the painter.

Application 2:

Image models from the external reality

Long time ago, when people needed to build some complex structures (e.g. a fortress), in the first phase they had to make a sketch of what they intended to build. This is valid only for less complex constructions. For more complicated structures, the most used method was to build a 3D model. The model can be easily analyzed and modified. With the model in sight, the brain is able to simulate its behaviour for situations associated with the external reality and to correct the discovered deficiencies, on the model. This model can be used at the effective building of the external reality.

Nowadays, the image models are very highly developed. E.g. a model built based on complex specs can be used to simulate its behaviour during an earthquake. The data obtained can be used to predict the behaviour of the actual building.

The highly developed image models are used on large scale in technology (skyscrapers, suspension bridges, airplanes, and actually in any complex technological product). These image models can then be used to simulate possible situations from external reality, including extreme situations, before the actual construction of the technological product.

The symbolic models are built using GCL (General Communication Language). They have explicit elements and relationships. They can be built only by humans. The most important symbolic model is GCL itself. Its elements are in the first place the nouns, as the relationship between elements are mainly the verbs. Contrasting to image models, which evolve based on laws of harmony, symbolic models evolve based on logic (see general theory). The presence of GCL in a brain will define that brain as a human brain.

Important note: GCL is not really a symbolic model. It contains only components (elements and relationships). Whenever a symbolic model for communication is built (e.g. a sentence), one needs to choose components from GCL. As any use of GCL is materialised in a symbolic model and because there is no proper word for it, GCL is considered by extension a symbolic model.

Technology uses models on a very large scale. Image models have initially been used, but nowadays, due to the high costs of the image models and for other reasons, symbolic models and the use of computers are favoured (e.g. symbolic models are built currently for buildings, suspension bridges, airplanes and spacecrafts, with the help of computers).

For training purposes, symbolic models are built and used for simulation of nuclear plants, or flight behaviour, or anything, where it is necessary that future crew/staff to gain experience beforehand. Present technology is based in fact almost exclusively on symbolic models.

Application 3: From the iron to the space shuttle

Apparently an iron is too simple to require a design based on a symbolic model. False.

Let's take a simple technological detail: the holes used for steam exhausts for moisturising the tissue. Some questions are, e.g. how many holes it needs, where, what shape and dimensions are needed for uniform moisturising of the tissue with minimum water consumption and at lowest costs. Clearly, it is possible to build analogic models, which can be tested experimentally. Based on the analogic (image) models one can obtain certain results, but there is no guarantee that the optimal solution was found. The existing image model cannot be modified, as such. If we want to make any change in the image model we have to rebuild it from scratch, as we already know, which implies time and money.

The vaporisation and dispersion process of the steam through a complex structure as the surface of the iron, tissue and the support, is very complex. Physicists, based on symbolic models, with help of computers, solve this type of problem. The rebuilding of the model in order to find a better solution is far simpler on a symbolic model, than on an image model.

If in the case of an iron, the highest risk is that the customers won't buy the non-performing iron, in other cases the risks involved are unacceptable.

For instance, the space shuttle was 'verified' for reentering the atmosphere on a symbolic model. This phase of the flight, by far the most dangerous, would have been impossible to test before the actual flight. The crew was trained on symbolic models in all the phases of the flight, and in all normal and exceptional situations. The astronauts have learned to fly for reentering the atmosphere, based mainly on training on symbolic models.

Given a model (image or symbolic), it can be used to predict its further evolution. This is achieved by changing/ adding/ removing a parameter/ element/ relationship and following what happens. This process is called simulation on the model. As we know, the results of the simulation on the model are called truths associated to the model.

When a model is associated to external reality, by simulating on the model, we can predict the evolution of the external reality. These operations are done either by the human (image and symbolic) or the animal brains (image models only).

We need to note here- it is as important, as it looks trivial: We extend to the external reality the structure of symbolic and image models from our brain. This extension is done not only in the domain of science and technology, but also in all domains of life. For each of us, the world itself is given as a sum of all the projections to external reality of all the active models of the brain. This statement is true for animals as well.

Example: The laws voted in the parliament are long-range symbolic models; they are an extension of the structure of models from the brains of the authors of the laws.

The prediction of the evolution of external reality (see general theory) is the main requirement of design for the human or animal brain. Thus, this requirement is fulfilled by the facility of the brain to build and operate models.

ETA 2: Truth, reality, and communication

Any result of the simulation on a model is a truth associated to that model. As pointed out in the general theory, a truth is associated by us to a symbolic message (generated by a symbolic model); however in order to keep the terminology simple, in the case of image models, a result obtained by simulation on the model is also called 'truth', in spite of the fact that it is used 'as is', without the necessity to explain it.

Example: If an animal builds an image model of the external reality, predicting a dangerous situation, it is possible to find the solution to the problem by simulation on the model. This solution (the truth) might be, e.g. to flee. The truth will activate directly the preexistent action model, which is in this case to flee.

We'll refer from now on only to symbolic models. If no model is specified, any truth is nonsense.

Example: The truth is "ã car crashed into a wall". This truth might be generated by any of the following models: -accident -test -movie/cartoon -computer game

In any of the above models, the specified truth is interpreted differently (it has a different meaning).

The theory underlines thus, that the model which generated a truth needs to be specified and accepted before the presentation of the truth. This basic requirement is always met in positive

sciences.

In common life, the declaration of the model is not always done, and often the model does not even exist in an elaborate and coherent form. Emerging from here a long line of conflicts between individuals, groups or cultural zones, which all have their own reality associated to the same external reality. This can be interpreted as a design deficiency of the brain. Some can compensate this hardware deficiency by software, e.g. the individuals situated on level 3 of consciousness (see the general theory).

There is a fairly common situation in external reality when a person states a truth, and then builds the model to support it. This happens usually for persons based on image models only, and when they interact with external reality, they only translate the image truth to a symbolic truth. Such persons are recognisable by their rudimentary logic and their tendency to fragment any discussion to particular sections of the external reality. Such persons can't discuss a single general subject.

Exercise: Verify yourself and others on the existence and status of the model, which generated any stated truth.

It is known from the general theory that a basic problem in the construction of a model associated to the external reality is that we do not know beforehand the elements of the specific external reality. These elements need to be discovered, and the discovered elements are the only ones we can operate with.

Warning: The external reality, as defined in MDT, can't have elements and relationships. The elements and relations appear only in the model associated to the external reality. However, in many statements we will use notions like elements and relationships of the external reality, but these need to be understood as elements and relations of the model associated to the external reality. For the external reality, one can use the term 'entity', which identified by the model will become an element of it. However, we have no word available to associate to external reality in the case of relations. By perfecting the language, such deficiencies will be solved.

A basic requirement for the existence of communication is the existence of a single common model accepted by both parts who want to communicate. Without a common symbolic model, there is no communication, as both sides will have their own list of definition of the terms associated to the words.

Usually, communication is done only on symbolic models. However, there are more primitive forms of communication using image models (between people, between humans and animals, between animals).

The reality is defined in the general theory as the sum of all truths generated, or possibly generated, by a model. As each person has his/her own collection of models, the reality as understood by each person is different from one person to another.

It is important to specify that in the domain of positive sciences, fundamental models generally accepted do exist. One of these models is e.g. Newton's Mechanics. As this model generates a reality, all physicists consider that the 'reality' is the one generated by Newton's Mechanics, within its limits of applicability.

Due to reasons associated to confusions of the science of knowledge, the reality generated by Newton's model is considered as 'objective'. Thus, "objective reality" is a term generated by a generally accepted model in specified conditions. From this point of view, the fact that the Sun revolves around the Earth is an "objective truth", at least at the level of the year 1500.

It needs to be stated by all means that without a model, the external reality cannot be perceived. After building a model associated to the external reality, what we perceive is what the model states as perception. If, e.g. we say that 'snow is white', this is the result generated by a model associated with external reality, external reality which contains the element 'snow'. One of the properties of the element 'snow' is that it is white. Under the microscope (another model) the same snow looks transparent.

As we already mentioned, reality is the one generated by the model associated to a given external reality. Each time we state a truth, we have to specify first the model.

Example: There are an A and a B person. A is taller than B, as it results from measurement. The term 'length' is generated of the model 'space', as Euclid's Geometry and Newton's Mechanics understand it. These fundamental models characterize this truth as objective. If we say that "A is more attractive than B", this is a subjective truth. However a model has also generated this truth, more or less elaborate/specified and more or less accepted by different persons.

The conclusion is that the term 'subjective truth' is resulting from a model, which is not unanimously accepted or insufficiently elaborated. In this case, it is clear that people should avoid such truths or should declare the model.

With the evolution of thinking, the term 'subjective truth' will be removed from the thinking system.

ETA 3: Fundamental problems associated to scientific knowledge

Computers are known as devices used to play complex games based on intelligence, to write texts of different types, to make calculations, to store and manage data, to send or receive information, to build and operate symbolic models, etc.

A question occurs however: which is the principle of work of a computer?

If we do not interact with the computer via a primary programming language (Assembler or machine language), I believe that it is impossible to find the principle of work of the computer either from in- or outside of it.

The fundamental function of a computer is to do logical and arithmetical operations with binary numbers with the help of an electronic device (register) called 'accumulator'.

If we are in a text editor, for instance, and we press a key corresponding to a letter, that letter will show on the screen. For the unaware, it is difficult to imagine that by pressing a key associated with a letter, a register-accumulator will make hundreds or thousands of logical and arithmetical operations on binary numbers, only to have that letter shown on the screen.

This example wants to illustrate that, based on the external analysis of what is happening, it is impossible to figure out the principle of work of a ridiculously simple device as a computer (ridiculously simple compared to the brain of a dog, e.g.)

The method used in positive sciences is not the analysis of primary data. The method of analysis works on extremely simple systems, which can be perceived on image models as well. The method used in positive sciences is to guess a symbolic model, based more or less on the interaction with external reality, and to verify the model.

It results that the method of understanding the brain based on the analysis of primary data is at least inefficient.

A fundamental problem of knowledge is that primary facts can be understood only if a model to integrate them already exists. Without a model, we are forced to build one on the spot. Thus, each fact of the external reality could be understood based on a local model. The correlation between facts, each understood in its local model is impossible. This is why a method of guessing a fundamental model was imposed. Based on the single fundamental model the facts are interpreted and reinterpreted. Such a method allows the correlation of the primary facts.

If the model does not make good predictions, it will be modified and the process restarted from scratch, until we find the model in which all the primary facts can be understood. The process stops when the predictions are true with an acceptable rate. In that phase we can talk about knowledge.

As a comment, we need to say that the analytical method is based on short- range models (can be affected by schizophrenia and XSPC), while the synthetic method is based on long-range models which allow not only correlation between facts, but also a cross-check between the local models.

The need for a single fundamental model comes from the fact that any used word needs to have a unique definition. This is true only in case of the existence of a single fundamental model.

Example: what would happen if in common language everybody used different definitions for the words used? The communication would not exist, everyone talking his/her own language.

The conclusion is that any positive science is based on a single fundamental model, stated from the very start. This symbolic model can be based on primary facts, results of the interaction with external reality or on theoretical principles (e.g. the principle of inertia in Newton's Mechanics cannot be visibly connected by facts seen in the external reality).

However, as in the external reality there are a huge number of facts difficult to correlate, the method to find the fundamental symbolic model is guessing. Once the model built, this will order in a univoque manner all the primary facts. Moreover, it will make predictions that will lead to new discoveries or confirmations of itself.

As we have shown in the general theory, we reflect sections of the external reality in models. The models make predictions. If the predictions are good, we will use the model a next time too, as it proved to be useful.

Now we have the normal answer to a fundamental question asked for long time: 'why do the laws of nature exist?' or 'Why the world has an order?'

As it results from MDT, we reflect the external reality based on symbolic models. These symbolic models need to be logical in order to be stable. If a symbolic model associated to external reality will not reflect it correctly, we will build a new model.

Example: The external reality can change due to the movement of some objects. Then we will build a symbolic model containing the term 'velocity'. This symbolic model will make good predictions provided the objects move at a constant velocity. If the velocity is not constant, the model will not reflect correctly the external reality. Then we will build a new symbolic model, introducing a new element called 'acceleration'. This model will make correct prediction for the objects that move at variable velocities as well. Thus, by building of adequate models, the external reality is reflected by stable models.

It is very easy to confuse the external reality with its 'image' generated by a stable symbolic model.

As we know, we have no direct acces to external reality. We perceive it based on some associated models. Thus, as a conclusion, the impresion that nature is a structure based on stable laws and order comes from the fact that we reflect the external reality based on logical and stable symbolic models.

ETA 4: General Communication Language (GCL), dictionary

GCL is the first symbolic model generated by the human brain. At the beginning, only its spoken form existed, later it appeared as a written language too.

As the purpose of the construction of models is to predict the evolution of external reality, GCL was always associated directly or indirectly with external reality.

GCL is a very special symbolic model. It is used both for general communication and for building other more precise symbolic models.

Examples of developed languages included in GCL: diplomatic language, juridic language, logical and mathematical language, languages based on gestures and signs, computer languages.

GCL can be used to build symbolic models that are associated to external reality, e.g. the positive sciences.

It is supposed that GCL occurs by spontaneous interaction between people but this is an abnormal mode of occurence. It is not clear to me that a language can start from scratch, but let's suppose so. The abnormal mode of occurence is associated with another aspect. The language for any device used to process information (as the brain is) is made of a collection of terms and relations. Any element/relation of the symbolic model (language) must be associated with a component/function of the hardware. That is, the hardware must be known before the language is built. This is the normal situation, e.g. when a computer, which has no associated programs, has to be used.

But, as it is believed, the language used by the brain appeared without knowing the hardware. The main consequence is that all the words, which have to be associated with the basic feature of the hardware, have no precise definition.

Thus, we find in dictionaries what I call "external definition" of the words. That is, such definitions are not based on the hardware. MDT as a theory associated with the hardware, generates "internal definitions" of the words. Some such definitions will be given below.

Dictionary of internal definitions for some words:

1. To believe: there is an incomplete (unstable) model. Such a model could become stable (harmonic/logic) if some artificial elements/relations are included (artificial means that something is not generated by the interaction with the external reality). After such changes, the model becomes stable. Any truth generated by such a model must be associated with the word "to believe". Also, the artificial changes must be specified before.

2. To know: there is a stable model (harmonic/logic) which is integrated in a stable structure of

models. Any truth generated by such a model can be associated with "to know". I want to emphasize that from this does not result in any way that the truth is correct, when compared to the external reality. "To know" means just that the whole structure of models of the brain supports that truth, and nothing more! As one can see, "to know" is associated only to the structure of models, and not to the external reality.

3. As I know: there are some models which support a truth but some other related models are not good enough to support that truth.

4. Correct, to be correct: this term has at least two meanings. 4a. There is a model generating a prediction in association with the external reality. This prediction is compared with IR. If the result is positive, then the truth is correct. 4b. There is a stable structure of models. Such a structure has already predicted a large number of correct (4a) truths. In such a situation, any truth generated by the structure is considered to be correct (see also the definition of the term "to know").

To be correct based on definition 4a means to make an experiment (any comparison between a prediction and IR is called "experiment"). There are a very limited situation when an experiment can or may be done (e.g. if the problem is to verify if a bridge will survive or not in case of an earthquake, then such a problem cannot be solved based on an experiment).

Let's analyze now a little the word "wrong". If a model generates wrong predictions based on IR, this does not mean usually that the model is wrong. This word is usually associated to a model, which is not suitable to a specific external reality.

For instance Newton's Mechanics is wrong for objects, which travel at a speed comparable with the speed of light, but is correct at low speed.

5. To understand: there is an incomplete model and there is an IR (from external reality or from other models). The model is selfimproving based on that IR. The term "understand" is used when a model is improved in such a way.

6. To imagine: is the main term associated to any operation on image models.

7. To think: it is the main term associated to any operation on symbolic models.

For human beings, usually, the symbolic models are mixed with image models but when "to think" is used, the general frame continues to be a symbolic one.

8. Intelligence: is the facility to make and operate a long-range model. There is a kind of intelligence based on image models (human and animal) and one based on symbolic models (human only).

9. To represent: there is a complex model, which is too big to be used as a whole. Such a model can be associated to a simplified model, which on its turn is associated only to a section of the main model. Such a model represents the main model on the restricted domain. We should never forget that a representation model is based on the main model, and the main model only is fully associated to the external reality.

10. Emotion: this is a temporary state which occurs when a new external reality appears, and no suitable short-range model is available. Emotion is associated ONLY to a lack of a suitable SHORT-RANGE model. In such a situation the PSM is activate. But the activated PSM does not consider this external reality as a dangerous situation. Even so, it builds a suitable element. Such an element is self-developing to understand the new external reality. The emotion starts when PSM is activated, and disappears when a new suitable short-range model is activated. Because emotion is associated with the activation of PSM, in an emotional status, the conciousness disappears or is at least attenuated.

The brain can predict the possibility that an emotional status occurs. Sometimes such status can be prevented by a suitable WBAM, built in advance. That is, a ZM will build a WBAM based on the available information about a future new external reality. ZM will activate that WBAM when the new external reality occurs (see also the general theory).

We already emphasized that emotions are associated to the lack of a short- range model, when a new external reality occurs. The word "angry" can be associated with the lack of a long-range model associated with a full section of the external reality (for instance when a person lives in an environment, which he/she doesn't fit in). In such a situation, the PSM is activated as well, but it has no solution. In fact, PSM can't build a long-range model. A long-range model is difficult to build, because it starts from a general model which is not directly associated to a specified external reality. The lack of a suitable long-range model means that many short-range models can become unstable, due to a lack of correlation between them. Such a person has a feeling that there is a problem, but he/she cannot

identify it. Such a person is in an angry-status. About the same considerations can be associated to the word "anxiety". Here we can see a class of problems associated to the fact that the words in common life are not associated to the hardware and so, the external definitions are not precise enough. As the language will evolve based on internal definitions, the quality of the language will improve.

MDT is able to generate a definition, and then a word has to be associated to that definition. Unfortunately, the words have already an external definition. Thus, there are two possibilities: to invent a new word, or to use an already existing word. In the latter situation, two definitions associated to the same word could exist: an internal one generated by MDT, and an external one, as we can find in dictionaries. My decision was to use as much as possible the already existing words, with the risk to have two different definitions associated to the same word. As MDT will be accepted, all the words associated to functions of the brain will be associated only to their internal definitions.

11: To be irritated, to be under stress Such a phrase is used when there is a temporary situation of instability of the structure of models. Such a status can affect the short-range models (to be irritated) or the long-range models (to be under stress).

In the following, we will describe some situations when such a temporary instability can occur.

11a. There is a normal model associated to the actual external reality. The problem occurs when such external reality evolves in a cyclical way, for very long time. In such a situation, the prediction of the evolution of the external reality is identical with IR, forever.

If the external reality is a sound, and if the sound contains a sequence which is repeated on and on, this uses a lot of energy of the brain for a nonsense activity (due to the hardware design, it is impossible not to hear a sound). Because the activation of other models becomes difficult, there will be an instability of the structure of models, and so there is an irritation-status.

Examples: the use as weapon of the rattlesnake's rattle and of the "Chinese drop"

It is important to observe two parameters: the length of the sequence and the repetition interval. The musical piece called "Bolero" by Maurice Ravel contains a sequence, which is long enough to produce no irritation. In fact, every time when the sequence is repeated, there are other musical instruments. In this way, this musical piece is not too close to the irritation limit. Even so, at the end of the piece, the repeated sequence ends, producing an instant relaxation.

Let's see this problem in the case of visual arts. Let's suppose a large white surface. Such a surface can produce irritation, because in any point of this surface, the IR is identical with the prediction. There is a natural tendency to put some elements on that surface, to reduce the irritation. But, if the details are randomly spread, the prediction will be different of the IR in most of the points. This also can produce some irritation. The solution found in about all cultural zones and times was to have some sequence made of identical elements, but every element has to be complicated enough so that sometimes the IR is identical with the prediction, and sometimes not. When such a surface is explored, the brain seems to have a pleasure. The pleasure can be defined as a situation when the prediction is close to IR, but about never the same. This can be seen mainly on cultural products of ancient cultures, but also nowadays.

We can see this also on the shape of the Christian cross: a Christian-Orthodox cross has more detail than a Christian-Catholic cross because the Orthodox religion is mostly oriented to image models while the Catholic religion is more oriented to symbolic models.

The modern cultural zones are based mainly on symbolic models. There is a reduced tendency to see all the details in a symbolic environment. Thus a perfectly plane surface, without details, will produce no irritation. This is so because, in a symbolic environment, the interaction based on image models is not important anymore.

11b. The lack of stability of the structure of models could occur when the external reality is unchanging for a very long time. Here, the prediction is also identical with IR, but there is an additional technological feature, which will be described below.

As we know from the main theory, any active model will predict in a continuous automatic way the possible evolution of the external reality (this is a basic hardware feature). Now, the problem is how often this prediction is made. My supposition is that the speed of this activity is variable, and depends on the speed of changing of the external reality. That is, when the external reality is changing very fast, the new predictions are made also very often.

Now, if the external reality is not changing anymore, there could be a problem: the model has to make a new prediction, but there is no reason to do this. Such a situation can also produce a temporary

perturbation of the stability of the structure of models, i.e. irritation.

In such a situation, the brain could activate other ZMs, (e.g. ZMs which are not connected to the unchanging external reality) up to the moment when there will be a change in the main external reality. This activity could be a source of mistakes or even accidents, as the local-ZM becomes, temporarily, one, which is not connected to the main external reality. The accidents can occur, for instance, when the external reality is changing and the suitable local-ZM has not enough time to reinitialize.

Example: a driver is in a hurry and stops at a stoplight. The external reality is not changing for a while and so there could be an irritation. Under stress conditions, the driver could activate another model (associated or not to the external reality) and so, he/she is not properly prepared for the moment when the traffic light changes to green. Because this is an important source of irritation, in some cities there is an additional display, which counts the time for red or green status, and so the irritation is diminished.

Thus, time flows with a variable speed, depending on the speed of change of the external reality (see ETA about "time").

11c. The word "irritation" is used also when an external factor interferes with the activity of a main model. This external factor could also activate the PSM. Such a situation can also affect the stability of the structure of models and so, produce irritation.

As we know, faced with a new external reality (for instance a strong noise), the brain will switch from the actual-ZM to another model, which understands the new situation. When such external perturbation occurs on and on, the brain is forced to switch the ZMs very often. Such activity can be affected by mistakes, because switching from a model to another is a very complex activity. When a model is deactivated, some information has to be stored to be used when the model will be reactivated. Sometimes, the external reality can change so much that the stored information becomes of no use. But the brain does not know easily if the stored information is good or not at the new activation. So, there could be mistakes, and the stability of the structure of models can also be affected (irritation occurs).

Because the activation and deactivation of a symbolic model is much more complicated than for an image model, the switching between a symbolic model and an image model, or even worse, between two symbolic models, is very dangerous (don't use the mobile phone when you drive, e.g.)

12. Love, to love

The main model of any brain (human or animal) is the Protection and Survival Model (PSM). If something (a person, an animal, an object, an idea...) is included by a person in his/her PSM (as a model, of course), the relation between that "something" and that person is a love relation. That is, e.g. a person A includes a person B (as model) in his/her PSM. The person A will treat person B in the same way as he/she treats his/her legs, hands, eyes etc.

Here we use the convention that A indicates the person who is in love and B is the person included in the PSM as a model.

The most important love-relation seems to be between a mother and her children.

As we defined the term "love" the fact that A loves B is totally independent on the fact that B loves A.

We already described love based on PSM. There is another type of love, which is not based on PSM. Thus, the person A makes a structure of models which contains B in about all of them. If B disappears, the models would become obsolete, which produces a large instability of the structure. The problem could be solved by another "B" or by a shielding model or by suicide.

Because love is based mainly on image models, about all of the written above is true for animals too.

13. Happiness, to be happy MDT considers that there are two basic modes of interaction of the brain with the external reality: to generate the reality based on the external reality and to modify the external reality.

Continuous happiness is associated to the status of the brain which builds action models (ZAMs) based on ZMs-only. That is, to do and want only what is possible (as ZMs predict). So any activation of a ZAM is a success (ZAM is able to reach its aims). The happy persons have a big contribution to the stability of the society, but small contribution to its advance.

We already defined the disharmonic person as the person who builds and activates ZAMs without taking in account too much the predictions of the ZMs. Usually such persons are unhappy, but

sometimes they are able to reach their aims and so, at least for a short time, they are in a status of high level happiness.

14. Intuition

Based on MDT, intuition is associated to the capacity to obtain image information in a symbolic frame.

That is, when we are in the frame of a symbolic model and there is a problem without a solution, an image model can be activated automatically on its own (as we already know). Such image model is able to make a prediction but there is no proof or reason for it (because an image model generates image-truths!). There is just a feeling that such information is true. The symbolic model can use this information to solve its problems. In this case, we speak about intuition.

The intuition is similar to the extra-sensorial perceptions: we gain some information without any explanation about the source of it and there is no proof to support it. The difference is that an illegal model generates the extra-sensorial information, and a normal image model, which is activated in a normal symbolic frame, generates the intuition.

Note: everything which is associated to the consciousness is generated by the local-ZM. In the case of intuition, the ZM is a symbolic one. When an image model generates information, it is just transmitted to a symbolic local-ZM. Because the consciousness is generated by the local-ZM, that ZM is not able to find the source of the information, and the proof for it because it was not generated by the ZM or by any normal model.

15. Consciousness

The consciousness is associated to the facility of a brain to make and operate a model, which contains the being itself as an element.

Two types of consciousness exist: image consciousness and symbolic consciousness. The absolute majority of the population has only image consciousness. Also, on animal level, at least the mammals have some level of image consciousness.

Level-1 of consciousness: on this level, the being is able to predict the evolution of the external reality, based also on its activity in that external reality. This facility ensures the success of the defense or attack activities in interaction with the external reality.

Level-1 consciousness is generated by short-range models.

Level-2 of consciousness: this level occurs only in a group (some packs of mammals, any human group...). To be accepted by that group, any being must assimilate and operate a long-range model associated to that group. Such beings must communicate with one another to meet the above requirements. For humans only, long-range models generate the rules, the laws, the methods and the aims of the group.

Level-3 of consciousness: on this level, a human being is able to predict the evolution of the group, based on a model which contains the group as an element, while he is a member of that group. The appartenance to the group is a basic condition here.

There are few persons, which are able to reach this level. The effort of the brain to stay on level-3 is huge. The persons who are able to stay on level 3 are the elite of the group. There are few direct personal advantages from being on level-3, but without an elite, the group is a low quality group.

The advance of a society is given by the power given to the actual elite. It is important to note that there are some positions in a society, which must belong to the elite. Many times such positions are occupied by level-2 persons. This happens usually in a low quality group or society.

ETA 5: NULL model

Let's consider that an M-model transmits no information (e.g. our eyes are closed). A local-ZM takes the information from that M-model. Because the M-model transmits no information, the ZM must receive no information. What is really received is called NULL-model. For a normal brain, in the above condition, the local-ZM must receive a completely dark surface. What is really received is an indication about the overall status of the brain.

For instance, in the above conditions, we can receive a dark surface with some randomly moving points. That is, the local-ZM detects a bright point in a place, but at the second scan the point is not

there anymore. This means that there is a noise, but no important hardware problems. A stable image is generated by a hardware problem of M or ZM models.

Application: In the first seconds after wake up, with closed eyes, look towards a moderately bright surface. Usually, one should perceive a dark surface full of grey points moving randomly. After a few seconds, the surface becomes a uniform dark-grey one. This is a typical situation for a brain in a normal status.

It is also possible, in the first moments, to see big bright points or shapes, moving randomly. They evolve to dark and small grey points, and then to a uniform grey surface. In such a situation, the brain is not in a good shape (maybe the person did not sleep enough...)

Anyways, if the final status of the NULL model is a uniform grey surface, the brain is OK.

This case has been illustrated for the eyes, but NULL models exist for all senses.

ETA 6: Time

Excepting when specified otherwise, the subject is the same for human and animal beings.

Based on MDT, time is not a parameter for the functions of the brain. This is a basic deficiency.

But there is a problem: as the brain predicts on and on the evolution of the external reality, how often is this activity done?

Of course, this problem is associated to the technological implementation of every type of brain, so it is outside the field covered by MDT. Even so, based on MDT, we can make some assumptions.

Because the brain is an optimized device as to its energy consumption, we assume that the predictions about the evolution of the external reality are done at a speed which depends on the changing speed of the external reality.

That is, the brain time flows with variable speed. This is also our feeling based on our own experience. For instance, when we are involved in a complex activity, time seems to flow too fast and when we have nothing to do, time seems to flow very slowly.

This is a big design drawback. Without time, the long-range models could be inefficient or unusable. So, the brain is forced to compensate, somehow, this drawback.

One method is to use story-type models. They are not able to keep the control of time, but they are able to record the order of occurrence of some information. Even so, this method is not very efficient. A story-type model could fragment. Once it is fragmented, the correlation between the primary information is lost.

Note: when a story-type model is fragmented, there is the tendency to reconnect the fragments, based on logic. Many times this reconstruction is wrong, but the impression could be good.

The fragmentation of the story-type models can be seen when a person describes a complex situation. During this activity, one could change the order of some facts.

Another method, used by the brain to keep track of time, is to use some rhythm-models. Such models are specialized models, which try to guess when something will happen, based on what has already happened before.

For instance, if the brain receives a sequence of two sounds, a rhythm model tries to guess when a third sound will occur. The supposition is that such models try to find an algorithm, which will generate the sequence. Such algorithm must be changed on and on, in a fast dynamical way, to predict better and better when the next sound will occur.

Such rhythm-models can be used, e.g. to recognize the speech or to understand music.

The rhythm-models are not able either to solve the time problem, but they are able to solve some time-related problems associated to fast changing external reality in the field of sounds.

Let's analyze a bit this problem. First of all, the rhythm-models are very well developed for human beings, and they are of very low quality for animals. One assumption would be that, compared to animals, the human brain has a very high capacity to make and operate image models, and, due to this, the rhythm-models are so good.

But, there are some other facts: the European civilization invented the polyphonic music (the most advanced music). But the European civilization is developing based on symbolic models. It is fair to suppose that symbolic models support the rhythm image-models.

We can take into account another idea as well: as MDT considers that the capacity to make and operate symbolic models is generated by a specialized hardware (thus it cannot be produced by a normal evolution process), it is possible that the capacity to make and operate rhythm models was added in the same way. This supposition is supported by the fact that, while some animals are able to make and operate some image models above the level of human beings, their capacity to make rhythm models is unusually low.

The problem of the origin of the rhythm models is left open for the moment.

Another method to compensate for the time keeping deficiency is to record some pattern-models of the external reality. That is, to record some information based on many M-type models, to build a pattern-model at a specific moment of time, and to recognize the pattern later.

Such a pattern could be associated with the function of different organs of the being, or with some other information from outside the being.

The time problem is a big one for the brain. The brain will use any external reference to keep the time as the day/night cycle, the movement of the sun and moon and for humans only, clocks.

ETA 7: Music

Music is a long-range image model, which exists only for human beings. As a newborn baby grows, firstly, speech appears (a symbolic model) and only later, the qualities associated to understanding music. As music understanding capabilities appear after the brain acquires the ability to build and operate symbolic models, it is reasonable to suppose that the symbolic models support the development of music. This idea is supported also by the fact that European music (the most advanced in the construction of symbolic models) is superior compared to any other music from the point of view of its complexity (polyphonic music was invented in Europe).

Given a sequence of a few sounds, the brain will try to predict the occurrence of the next sounds. Sometimes the prediction is correct sometimes not. If the prediction is good too often, the impression is described in words like: boring, monotonous or upsetting. When the prediction is not correct (there is a large discrepancy between the prediction and IR), the sounds are uncorellated. If we have an acceptable difference (the sounds are considered corellated after modifying slightly the algorithm of generation of the sequence), then we can associate this to music.

The corellation is associated with the capacity of generation of a sequence based on an algorithm.

This automatic activity of continuous modifying the generation algorithm can produce a positive state of mind, which can be called pleasure. This means that the predictions are correct constantly, with high probability, and that the ones, which are not correct, are accepted, after an acceptable change of the algorithm. This activity is called currently music.

The corellation can be supported implicitly, as it happens in classical music or can be supported explicitly (e. g. by rhythm of drums).

If we accept the hypothesis of the existence of a facility associated with image models (a hardware facility) to build an algorithm of generation of corellated information, then we could try to see if this facility evolved in time or not.

Thus, in spite of the fact that the capacity of the brain to operate with image models diminishes relatively in time, the development of the capacity to operate with symbolic models generated new abilities of operation with image models. In consequence, music evolves based on two somewhat contrary tendencies. The capacity to build and operate image models decreases due to the increase of the capacity to operate symbolic model, and, on the other hand, the symbolic models support the image models in the domain of music.

The symbolic models, which were developed especially in Europe, determined the high level of complexity of the music. The European polyphonic music is one of the results of the "marriage" between image and symbolic models in music. Other civilisations, which did not have an extensive development based on symbolic models, have created in milleniums of evolution only a simple music.

Let's see in the following some elements of the evolution of music in Europe. The symbolic 'recipes' appeared in music composition in the time of J.S. Bach. The maximum complexity of the music was

attained during the times of W.A. Mozart. In that period, the music had several simultaneous musical lines, which, according to possibilities, were followed by those who were able to do it. E.g. in the "Great Messa", KV 427 by Mozart, several musical planes exist, which have to be followed simultaneously. Even nowadays, just the recording of this work poses technical problems. This musical work is one of the peak complexity constructions in music.

Approximately after year 1800, due to the increased capacity to operate with symbolic models, the capacity to operate image models decreased. Music continued to be polyphonic, but became simpler, with a single melodic line (L. van Beethoven, contemporary with Mozart).

This simplified music was called romantic music, and was a form of fundamentalism. The majority of the population lost their capacity to operate very complex image models, and so, such a simplified music was generated.

This tendency continued with the increase of the limits of predictions acceptability, due the increase of the capability of construction and operation with symbolic models. E.g. the music composed by Igor Stravinsky. When his music appeared, it was rejected due to surpassing the limits of acceptability. But, in a short time, other musicians and people accepted his music, as a consequence of the increase of the acceptability limits.

It is reminded that the increase of the acceptability limits is due to the increase of the capacity to build generation algorithms. An assumption is that these algorithms are supported by symbolic models.

Nowadays, music is so "advanced" that it contains just a rudimentary rhythm, and an endless text (hip-hop or rap music e.g.).

The children of our times have a reduced capacity to understand music. Around the year 1800, some 4 years old children were able to play the piano or violin, or even to compose music. In our days, this is not met anymore. But, some children are able to build and operate computer-based symbolic models.

As it is shown also, in some other parts of the book, there is a new form of fundamentalism nowadays: the rejection of the symbolic models by a fraction of the population. That is, some people return to harmony (there are many who prefer Mozart e.g.). The present music is balancing between symbolic-type music (hip-hop or rap e.g.) and harmonic music. This tendency will continue for a long time, because it is hard to believe that music will disappear (the brain is based on image models forever), but returning to the year 1800 type harmony is not possible anymore.

Music is defined as a special story-type model associated with sounds. This story-type model has elements generated by an algorithm generator.

The generating algorithm is able to build in a dynamically way the elements which will be recorded by this special type story-type model. Based on the algorithm, the model is able to predict the future sounds based on the sounds already received.

Sometimes the algorithm generator is able to make a correct prediction of the sound which comes (a hit), sometimes not (a miss). If the prediction fails, then the generator will modify the algorithm and continue to predict what follows. When the number of misses is low, this could produce pleasure to the brain. When the number of misses is zero, there is no pleasure (e.g. a boring music). When the number of hits is zero, there is no music (no correlation between the sounds).

As this special story-type model is an image-model, its power is decreasing as the brain is evolving to symbolic models. On the other hand, it seems that the symbolic models support the algorithm generator. That is, there are two tendencies that act in contrary directions. One tendency is to make a simplified music, based mainly on symbolic models (texts) in the frame of a rudimentary rhythm (e.g. drums), as hip-hop and rap music and on the other hand, to make music based on complex algorithms (to enlarge the limits of acceptability). The present music is evolving between these two large limits.

The main tendencies of the present music are:

- The evolution based on symbolic models. This tendency increases the limits of acceptability of what are and what are not correlated sounds.

- The rejection of the symbolic models by a fraction of the population, i.e. people want harmonic music.

- The return to harmony is possible only partially because many abilities associated with the main story-type model are lost, due to the general tendency of conceptualization of the image models. That is, the algorithm generator is better and better, but it acts on recorded data, which are a simplified

copy of the external reality.

Let's see what is the situation with other arts. Almost all classical arts are in decline. Painting and sculpture are based on pure image models. The general tendency is to make concept models, and so people are not able anymore to perceive fine details. This tendency is very easily seen in contemporary arts. The tendency in visual arts is to make works based on symbolic models, and to increase the complexity. Some arts as poetry, painting and sculpture are on the way to disappearance as stand-alone arts. Theatre, because it is based on symbolic models, is surviving, as it tries to keep the contact with the tendencies of the society. Music is still in a good shape, as we already saw. The main ascending art is cinematography.

ETA 8: Cinematography

Let's make a symbolic model to understand the subject as follows:

- The importance of the symbolic models (thinking e.g.) increases
- A big fraction of the population has difficulties to evolve based on symbolic models (fundamentalism)
- Fundamentalism means to return to image models
- This return is possible only partially.

Because returning to image models affects an important fraction of the population, why is it not seen in painting and sculpture? The explanation is that the brain has lost a lot of its capacity to make and operate pure image models. The brain returns to image models, but it stops at the level of concept models.

Cinematography is one of the responses suitable to this situation. Thus, there are cartoons, based on concept image models. They are strongly attached to symbolic models. There are cartoons, in which symbolic models are more important than the concept image models.

Today's successful movies are image models, which try to develop and extend some of the incipient image models preexisting in the mind of the viewer.

We remind here that people have the tendency to expand their structure of models outside their mind. When the models can't be expanded to the external reality, there is the tendency to expand these models into a virtual reality. This is speculated by cinematography, depending on the profile of image models in different cultural zones.

From this point of view, movies can be very dangerous. They make these developments based on what people would like to happen and on the other hand, they favorize the fundamental tendencies of various social groups.

However, as they are attached to symbolic models, some movies are used to develop symbolic models and fight fundamentalist tendencies and as such, have a positive impact on society.

A huge danger associated to art movies is blocking the capacity of people to think independently (tendency towards induced schizophrenia XS1B). Each script is a long-range symbolic model; thus, the movie as a whole is logical. This long-range symbolic model is translated or associated to a long-range image model. If the translation is correct, the image model will be harmonic as well. Thus, an art movie is a logical and harmonical long-range image model. The fundamental problem is that it is not enough for a model to be logical and harmonical in order for it to have a good connection with the external reality.

There are movies that try to reconstruct an external reality that no longer exists, an 'external reality' which will never exist, or anything else in between these very broad limits. The only condition is that the model is harmonic and logical. We cannot see the degree of connection with external reality from within the model. This is where the danger originates. Independent thinking will be blocked by the large quantity of information structured harmonically and logically.

Many art films contribute largely to the aggravation of the level of induced schizophrenia (XS1B). At the same time, there are many movies which contribute to the construction of long-range models that stabilize society.

ETA 9: The fundamentalisms of the world we live in

The main fundamentalism is the return to image models, and thus, the refusal of symbolic models.

Symbolic models are based on extremely complex functions, which are not easily maintained operational. For a 'regular' brain, the energy consumption is higher for symbolic models than for image models. However, there is a fraction of the population of developed countries working more easily with symbolic models than with image models.

Example: There was a time in the evolution of the brain, when extremely complex image models were built and translated to a symbolic form. It was the time of the great novels (Balzac, Dostoevski etc.). Reading such works was a sign of cultural superiority. These books are not read nowadays. The main reason is the evolution towards symbolic models. The effort of the brain to understand and integrate the use of remote controls, cellphones or text editors is perfectly comparable as intellectual effort with the understanding of the great works of universal literature.

There are too many who have difficulties to operate symbolic models. There is a fraction of the population who refuses symbolic models; this fraction seems to be increasing.

Example: Microprocessors (the central part of a computer) have been invented in USA. At that time there was a tendency all over the world to produce or reproduce such microprocessors. The first microprocessor was called 8080. It was upgraded to 80286. These microprocessors were reproduced in Europe, former USSR and Japan. 80386 followed, which was reproduced with great difficulties, but starting with 80486 the tendency to reproduce such devices was extremely low. Presently there are two families of microprocessors, both designed and produced in USA. This is interpreted by MDT as a danger of a break between the most advanced in the domain of symbolic models, and the slightly less advanced ones (make your own comparison with the automobile industry). Even the advanced cultural zones (Europe, Russia, Japan) make big efforts to keep the contact with the most advanced (USA), but the danger of a break exists here as well.

The fundamentalist reactions of the individuals, nations or even cultural zones are a great danger for human civilisation. If the fraction of fundamentalists will increase too much, then, at the limit, two things might happen:

1. The world will fragment into nations/ cultural regions which can maintain the rhythm of assimilation and development of symbolic models, and nations/cultural regions which will return to image models (fundamentalist reaction)
2. The same type of break will appear inside a nation/ cultural region.

The evolution shown at no.1, pushed to extreme, could generate terrorism, and the one at 2 already generates 'escape' movements towards religions, antiglobalisation, ecology etc.

ETA 10: Terrorism

The evolution of society leads, for some nations, to an incapacity of further development based on symbolic models. These nations feel that the world is going towards something they can't follow and understand. The solution for them is to adhere to an invariant or universally accepted model, like a religion or a nature/tradition conservation movement, to orient their activity, and to offer them an easily understandable and attainable goal in predictable time (fundamentalist reaction).

Some individuals, who have strong fundamentalist reactions, could try to modify the society by direct action. A class of such reactions is terrorism.

The definition for terrorism considered here is: terrorism is an antisocial phenomenon, which implies attacking some persons without an explicit reason. It also means destruction of material goods without explicit reasons, when these goods do not belong to a state.

If the persons attacked are the representatives of a government and the goods attacked belong to the government, then we have acts of war. A state can defend itself from acts of war, but in front of a terror attack, the protection offered by the state is limited. The main reason is that the government officials accept the limitation of their rights, and they accept a certain discipline. These persons are well enough informed to understand that they could be the targets of an attack. The same is valid for defending the goods belonging to a state.

Many terrorist movements have tried to commit war acts and not terror acts. Thus, they try to obtain a legitimacy as liberation movements, who fight for liberty or independence against a state.

Example: ETA in Spain tries to attack only the representatives of the state or local administration, and the goods belonging to them. It is difficult however for ETA to comply with these rules, all of the time. IRA acts the same way, trying to delimit itself from terrorism. Both movements make notable efforts to be considered liberation movements at war with an oppressive state, and not terrorist

movements.

Al Quaida tried at some time to attack only American military targets (thus delimiting itself from terrorism), but the attack on WTC in New York is clearly a terror act. The people killed were not representatives of the state, the planes used were not military, and the buildings did not belong to the state). However the attack on the Pentagon was not a terror act, but a war act.

A practical aspect should be noted connected to the tendencies of terrorism: who has vocation to build, has no 'vocation' for terrorism. To build planes, buildings and so many other material goods supposes an immense effort on scientific and technological levels, in labour organisation, on the social and cultural level. Those who know how difficult these things are done, and how many causes can block easily this process, will not have the tendency to destroy material goods.

We change now the discussion and will refer to the individual terrorists existing in any society. Serial killers exist, and others, who kill randomly innocent people. By definition, they are also terrorists, even if they act alone, without any connection to a group.

It is clear that a society can't protect itself against terrorism through stricter laws. The tougher laws will determine the disappearance of exactly those facilities, which permitted the progress of the society. Multiple levels of security will produce the fragmentation of the society. Thus, due to the reduction of the capability to communicate, the level of generalised schizophrenia increases. This could lead to a disaster on long-term.

Not any person who refuses symbolic models will have terrorist tendencies. There are adaptation forms to a world that evolves in another direction than the one desired by some. In the attempt to find the individuals with tendencies towards terrorism, one can consider a few aspects:

1. Children who have been normal at birth, but have been abused during childhood, are on the highest level of risk. Individuals aggressed explicitly or implicitly by the environment, can build illegal models, which enter their PSM; the ones with difficulties of communication have the tendency to build too short-range models for understanding the world they live in (schizophrenia XS 1 and 2).
2. The stresses generating shielding models and illegal models can affect any person, as society is very complex. For persons from 'imagistic' countries, an important source of stress is the assimilation and operation of advanced symbolic models. Forcing them to evolve from an image platform to high level symbolic models can destabilize the structure of models. For the 'symbolic' countries, the same can happen on a more reduced scale.
3. The isolation or elimination from society of the individuals with clear tendencies towards the destruction of the democratic system.
4. Relaxation in the protection of privacy. The so-called right to privacy hides important sources of stress both for the people protected by this right, and the ones around him/her. If everybody would accept the opening of their privacy, the society as a whole would have less real problems.

The working principle of democracy should be somewhat modified, i.e. a democratic system protects only those who respect democracy. Thus, the individuals who fight against democracy should not be protected by the democratic system.

Conclusion: The evolution of society is based on symbolic models. Those who have not the capacity to follow this trend will 'run for shelter' into image models. Slowly a break will occur between 'symbolic' and 'image' people. The 'image' people, who are not those who push the society forward, will see that, from their point of view, society goes into a wrong direction. One of the extreme answers to this situation is terrorism.

Warning: The individuals based on image models do not accept logical argumentation, because logic is an exclusive characteristic of symbolic models.

ETA 11: Problems of human brain evolution

This problem is already developed in the general theory. A few additions will be given here. As we know from the general theory, we have an ability to build and operate image models [I], and one to build and operate symbolic models [S]. Generally speaking, [I] increased up to about the year 1800. [S] had a first increase with the spoken language. It increased further with the emergence of the written language. An important step was the development of geometry as a symbolic model by Euclid, about 2300 years ago. Then [S] stayed unchanged about up to the year 1666, when Newton's Mechanics marked the evolution of the brain, as the second important fundamental symbolic model appeared. From that moment, [S] started an accelerated increase which continues.

In spite of the fact that [I] decreased in percentage compared to [S], in an absolute mode, it continued to increase due to the support of [S].

Unfortunately, this evolution, which is true e.g. for Europe, is not true for some other cultural regions. Some nations refuse basically symbolic models, but are forced to use them.

There is a risk of splitting the world, due to the more and more reduced capacity of communication between the two parts of it. The same situation may happen inside one country with groups of people.

The two parts are not symmetrical. The ones based on [S] are the vectors of progress and power, in any sense. The others are unable to maintain a rhythm of evolution, but are, however, helped by the [S] nations, for stability reasons, and due to the lack of other solutions. The [I] nations accept this help, especially for practical reasons and opportunism. On long range, this problem has no solution within the frame of the generally accepted democratic system.

Within the [S] countries, a structure exists as well. Thus, some persons have a higher [S] than others.

In general, the [I]-type people in a structure of [S]-type detain the power. The time when the [S] people would have control is not within view. ([S]-type people are called technocrats).

Due to the large dispersion between [I] and [S] levels, there is no hope at the moment that a unique symbolic model will ever exist to describe correctly the whole social structure. As a consequence, the technocrats (the [S] people in an [S] type society) are not efficient yet, except in relatively narrow domains. The politicians of today are those who have qualities in both image and symbolic areas. They can cover approximately the whole society. However, the development of the society will force them to redirect more and more to symbolic models.

The basic problem associated with any society is the too wide dispersion between the [I] and [S] levels, and its increase as the society evolves.

Some explanations for this dispersion, based on MDT, are given below:

1. The models are built chaotically. The structure of models, including PSM, contains important and less important models. This is also a problem of education in early childhood.

2. Education and assimilation of new knowledge continues to be based on a too large scale on [I] models.

3. The structure of models, including PSM, is almost invariant and, as a consequence, the brain has not the flexibility required by a fast evolution of the society.

4. Education is chaotic. Too many image models are built in the period of development, and the symbolic models are not adequate to reality. For instance, mathematical calculations are preferred to the construction and operation of general symbolic models. Even worse, the students are not taught to think based on symbolic models. Terms like image model (analog) and symbolic model are not known at the level of general formal education. Image models should be taught starting in first class, and symbolic models with eight class. Even worse, those who work with symbolic models are not always aware of it. Many physicists are not aware that Newton's Mechanics is a symbolic model.

5. The design deficiencies of the brain are not shown or recognised, and as such, can't be compensated for (see general theory).

Conclusion: The brain evolves from image to symbolic models. The dispersion between the [S]-levels of people, countries and cultural zones is increasing. This increasing dispersion, together with the design and technological problems, creates fundamentalism (some can't continue their evolution). Fundamentalism is a threat for the world as a whole. The possible solutions are unacceptable within the frame of the democratic principles.

ETA 12: The rattlesnake

The rattlesnake produces a continuous strong sound when it is attacked or is attacking. It is also known that it has no hearing. MDT explains this attack and defense facility. The basic function of any brain (including animal) is to build automatically models based on the information from external reality. A repeated sound will activate continuously an image model, which will try to predict the occurrence of any new sound. It is reminded that this hardware function is active, and maintained active automatically, by any brain. There is no possibility to ignore, or not hear these sounds.

The sound produced by the rattlesnake will activate repeatedly (hundreds of times in a second) a sound receiving model at the animals around. These animals will use a lot of energy to update the model. Thus, the animals will have difficulties to build and activate a model, either for attack or defense.

The phenomenon is the same for humans. The sounds D repeated or not- diminish our capacity to do any intense intellectual activity.

ETA 13: The main psychiatric illnesses: paranoia and schizophrenia

The terms paranoia and schizophrenia have no definition in psychiatry. They have only descriptions. MDT is able to generate normal definition for these deficiencies.

In a scientific theory, the definitions are generated by the model and, as such, can't be compared to the descriptive definitions from present psychiatry. However, as in the common language we meet these two terms, as we do not want to invent new terms, they have been kept, but with the definitions as generated by MDT.

The general theory does not define, in fact, the diseases. It defines only status and parameters. A status is considered pathological, if some parameters have values beyond certain limits, more or less conventionally imposed.

Example: In MDT, the schizophrenia parameter of a normal brain occurs at any time having a different value. The value can be lower (better) or higher (worse), at different moments. Sometimes this parameter can reach the limit considered pathological, even if the person is not sick. The illness is declared if this parameter is permanently and significantly in the pathological zone.

We'll describe and then, define the two fundamental illnesses, as they appear in MDT.

Schizophrenia The characteristics from lighter to severe cases are: XS1: not enough long-range models exist in order to understand the external reality. The individuals interact normally with external reality, but the context to understand the primary facts is missing sometimes (missing long-range predictions). These individuals successfully integrate in society, not by all means in unfavoured positions (on the contrary, as we will see later).

XS2: Bad understanding of what is going on in front of their eyes, due to the fact that the necessary models are poor quality or inadequate. The capacity to build and operate short-range models is maintained. These individuals are mostly able to be integrated in society, if they have a model of interest for the society.

XS3: The person has no adequate long-range model for the external reality, short-range models are scarce.

Example: The person does not know where he/she is, even if in his/her own room.

Such a person uses only very low quality models, most of them being components of PSM. The chances of integration in society are very limited.

On static analysis, XS1 is situated in the non-pathological zone, XS2 is on the border, and XS3 is pathological.

The schizophrenia parameter is variable in time. A normal person can be temporarily in XS2 status, and if drunk, sedated or tired, even in XS3, without being declared pathologically schizophrenic.

We'll analyze XS1 in detail; two situations can occur:

XS1A: The person has several models, including long-range, associated with some domains of activity. These allow him to be integrated in society in a good positions. For such a person, some models associated to laws/rules of integration in an advanced society, based on long-range symbolic models, are missing, or of low quality. The absence of these models can lead to anti-social acts, of which the person can't be aware. Social problems occur when this type of individuals is in a large number in a society.

XS1B: The person can build long- and short-range models associated to any external reality, but in current life, he needs only very few of them. Thus the capacity to build long-range models is diminished. The long-range models exist, as imposed from the outside, by education. This is a society-induced schizophrenia. As long as the requirements of the society do not change, the individual is integrated perfectly in the society. If the requirements of the society change, the person has to acquire new long-range models, as they are generated by the society, to reintegrate into it. The capability to build own models is diminished to zero.

For both XS1A and XS1B cases it is characteristic that the capacity to build long-range models on their own is extremely reduced. The persons can in both cases assimilate external long-range models.

While XS1A has a reduced capacity to both build and assimilate models, XS1B had initially these facilities, but they were lost in time due to lack of use.

Induced schizophrenia (XS1B) is a great advantage for a person integrated in a stable society, as it ensures adequate models to that society. At any change in the society, the individuals are forced to acquire new models, as they have a reduced capacity to build their own.

Example: Driving style in an advanced country Authorities enforce the traffic laws for generations. Any personalised style of driving is punished. Thus, the capacity to build own models is reduced to disappearance. If the environment is non-aggressive, the drivers will have less and less self-protection capacity at mistakes made by others. Chain accidents are a direct consequence of induced schizophrenia (XS1B).

There are 2 possibilities: 1. We accept induced schizophrenia, and we build safer and safer cars and infrastructures. 2. We accept personalized driving (aggressive style is not punished anymore).

An aggressive environment stimulates the development of intelligence and, as such, the capacity of building and operation of long-range models. The aggressivity of the environment makes most drivers better or more capable to react correctly to unpredictable situations, including others mistakes. If the inexperienced drivers will feel aggressed, they become either experienced or they will give up driving. Society will come at some point to analyze both variants, with their advantages and disadvantages.

Now the method used is schizophrenic: we solve the problem which already occurred, with the hope that it won't reoccur in the future. This method is unable to predict what other long-range problems might occur after the change operated. Its only advantage is that it gives a personal assurance (including legally) to the person who initiated the solution.

The theory shows the existence of a basic dilemma connected to the problem described above: optimisation or capacity to face an aggressive environment.

The tendency of induced schizophrenia occurs in an optimised structure with slow changes. The individuals have optimal reactions as long as the environment is stable. At a change of the environment, they have a reduced capacity to become compatible with the changed environment. In a new environment, the favoured are the aggressive ones, as they have the capacity to build and operate their own long-range models.

We continue with the induced schizophrenia (XS1B). When one of these life styles is followed for a long time, the person is going to be affected by schizophrenia induced by the environment, which in time can become pathological. This negative phenomenon can be attenuated to a certain extent, because of the permanent changes in society. These changes are forcing the population in advanced countries to come up with new models every day. Even though society forces people to build and operate new models every day, some do not have the capability to do this. Because evolution is based on symbolic models, some people may not be able to build symbolic models of good quality. Thus, there might be a group of people that cannot fit anymore in the society, might isolate themselves or even oppose to the society.

This way, induced schizophrenia (XS1B) might build shielding models, which could act against society. If this group gains enough power, it could try to destabilize the society.

Schizophrenia can appear in an unlimited number of types, depending on the perturbations, which are associated with the fundamental process of the brain operation. The affected functions are: - The construction of new models and the continuous improvement in accordance with the changing external reality. - The integration of a new model in the structure of models of the brain. The long-range models must contain enough short-range models to handle the external reality, which is complex and changing.

Based on the above considerations, the normal definition of schizophrenia will be given:

Schizophrenia is a technological problem of the brain. The brain cannot build complex models that fit the external reality, and integrate them in a harmonic/logic way in its general structure of models. The function of building and operating short-range models is maintained.

Many times, schizophrenics on the first level (XS1) can be brilliant in the construction of short-range models.

In short, for humans, schizophrenia is short-range thinking.

We will continue to describe the schizophrenia of type XS1 A and B. This nonpathological form of schizophrenia can bring some big advantages to that person. Long-range models use a great amount of

energy in order to be suitable to the changing external reality, and are also developed to find the best solution to problems. In a stable society, many such models are of little use, because the society imposes certain models, that need only be assimilated. This way, a person who has XS1 A or B will use the energy only to make better and better short-range models.

Thus, a stable and efficient society favors the XS1 schizophrenia.

Let's see an important factor associated to the education system. The whole educational system is based on assimilation of external models and verifications of the assimilation of these models. The construction of new models is totally unfavored. Thus, the general education system favors the development of induced schizophrenia (XS1B). The effect is devastating for the society, if we take into account the consciousness issue. The theory defines consciousness as the capacity to build long-range models containing the person as an element. Thus, the educational system favors implicitly those who have a low-level consciousness.

The second main psychiatric illness is paranoia XP. Paranoia is defined as the inclusion of an ordinary model (OM) into PSM (OMPSM).

The basic characteristic of a model in PSM is its invariance. These models are practically impossible to be changed, whatever the information coming from external reality would be. When there is an OMPSM, all the models contained in the brain have to be in harmony with this invariant model as well.

When a new model is built, some information coming from external reality could be in contradiction with OMPSM. In this case, the only way to integrate the new information with the condition imposed by OMPSM is to distort the ZM which will intergrate that information. This is possible only on image models. On image models, there is no criteria to attribute to primary facts the correct importance. Thus the whole structure of models will be distorted in order to be harmonic with OMPSM (e.g. some facts will be minimalized and other exaggerated as importance).

This is why paranoia is to be understood as an illness, which affects personality. The personality in its whole is of paranoid type. The structure of models is or can be built partially harmonically; the associated symbolic models are built to be in accordance with the image models, and sometimes, the paranoid can have a brilliant harmonical and logical structure.

The detection of paranoia is very difficult, as the patients can have no logical contradiction in their thinking structure, and they can have a good coupling to the changing external reality.

Many paranoids are brilliant in thinking, with an infallible logic. The example of Hitler is eloquent. His OMPSM was 'the Arian race is a superior one'. What followed was based on logic. Communist personalities can be mentioned here as well. They had an OMPSM of the type 'the working class is the driving force of progress'.

When an OMPSM exists, then we have a case of paranoia. There is no treatment for it. Even if OMPSM could be destroyed, the whole structure of models in harmony with the OMPSM should be rebuilt, and this is impossible.

We will talk now of light forms of paranoia, undeclared as illness. As we know, when a model becomes invariant, all associated models will be distorted to be in harmony with it.

Let's suppose that a brain has a normally built model in accordance with external reality. This model could at some point become totally inadequate in the understanding of external reality due to a change in the latter. The normal solution is the reconstruction of the whole structure of models, but this activity would be beyond the technical capacity of reconstruction of the brain. Due to this, one of the possibilities is to leave the model untouched. In this case, we have a light form of paranoia, which manifests itself as confusion or avoiding discussions connected to the model with problems. Another possibility is to build a shielding model. Shielding models do not modify the inadequate model, but can deactivate it.

As this is not pathological, i.e. no OMPSM exists, the illness could be cured, especially at young individuals. This type of problem (important normal models which do not fit the external reality anymore) can occur at any time in lighter or more serious forms. Prevention of this light form of paranoia can be done with an adequate education.

ETA 14: Suicide

From the general theory we know that a basic requirement of design of the brain is unconditional indefinite survival. However some individuals commit suicide.

From the general theory we also know that models are so strong that they can predict that sooner or later we will die. As this prediction will activate PSM and PSM has no solution, this could destabilize the structure of models. The general theory also shows that the solution is to build a shielding model, e.g. religion. This model sends to PSM a less catastrophic message, which stabilizes the situation. Some religions are so strong that they can determine in their followers no fear of death. These believers can commit suicide very easily, if they have a 'serious' reason, without the possibility of intervention of PSM to block it. Fortunately, the Christian religion is not strong enough to eliminate the fear of death.

This risk of suicide was noticed very early, and this is why religions usually condemn suicide.

Whatever the shielding model would be (religion or another shielding model), PSM will be blocked in case of the activation of a suicide model. The presence of an adequate shielding model can therefore block the PSM, which wants to stop the activation of the suicide model.

A class of suicidal individuals consists of those people that after the disappearance of an entity included in their PSM (a very close person vanishes from their life), they are unable to correct the whole structure of models. The brain gets unstable, all-important models might become unusable and this can lead to suicide.

Another class of suicidal individuals is that of those who have all their models blocked (associated with general depression). The person can see that he/she can't evolve anymore, the predictions are permanently the same, and i.e. there is no hope to get out of a certain situation. This can lead to suicide, but the brain needs to build on the spot a shielding model, in order to have a 'successful' suicide. If not, PSM will intervene at the last moment to avoid it.

A classical example is when somebody who has a lot of money loses it all at once (the great depression in 1929 in USA, for instance). With all models blocked, the individual has no capacity to build new models adequate to the new external reality and suicide becomes an option.

There is a special class of suicidal individuals, under 18. This can be associated to the fact that teenagers have a limited amount of long range models with lots of imperfections. These models are insufficiently developed to show the whole host of directions of evolution open. These models can easily predict a situation of generalised blocking, and from here, the tendency for suicide. It is clear that only a simultaneous generalised blocking could be a cause for suicide. We repeat that without an adequate shielding model, PSM will determine the insuccess of the suicidal attempt in the last moment.

Obviously, there are persons who have psychiatric illnesses, as defined by this theory. In their case, additional factors will add up, associated to their illness.

ETA 15: Normality tests

Having defined schizophrenia and paranoia, we will describe two tests to detect these illnesses. T1 and T2 detect schizophrenia, and T2 alone detects paranoia.

T1. In front of a complex external reality, an individual has to be able to realize if he/she has enough information to build a suitable model. From the general theory, we know that the brain will build harmonic/ logic models based on the available information. This is the problem: we don't know beforehand how many elements are there in the external reality. The models are built with what is available. We could not realize that we have not enough information to build a good model (see general theory: Deficiencies in the design of the brain). The test wants to verify if we can compensate this design deficiency.

Example: The primary information is: 'a car crashed into a wall'. The person has to build several models. These models could be, in this example: - accident - test - movie - computer game - cartoon

This is just an example. In an actual situation, the person should not only build several models, but also develop them progressively, in parallel, along with new data adding to the initial information.

After a certain accumulation of information, the person might stabilize to a single model, but if he/she has not enough information, and does not realize it, this can be a sign that there could be a problem. The test is usually passed well, if the person maintains his/her flexibility, even after there is apparently enough information to get stable in a model. The existence of flexibility is understood as a guarantee that the person has the capability to build long-range models. And also that he/she has no OMPSM, i.e. is not paranoid.

There is a game based on this idea: one builds a model, and the other has to guess what the model is. To do this, he/she has to ask questions to be answered only by yes and no.

T2. Test for detection of paranoia.

An individual accepts a change in a stable model, if the external reality imposes it. In a practical situation, the person interacts with external reality and builds a model, which gives good predictions on the external reality. At some point, an element of the external reality is changed. If the person detects the change and corrects the model, as well as the other interconnected models, this is a good indication of normality. For a person suspected of paranoia, the model used would be the one supposed to be the OMPSM.

Paranoid subjects can distort the external reality unlimitedly to make it compatible with their OMPSM. As a consequence, the test tries to see if the person suspected of paranoia will modify the supposed OMPSM.

To be applicable, the test as described above, needs to take into account a design deficiency of the brain, as given in the general theory. Any image model has a basic problem: on an image model one can't see the importance of an element or a relationship. The image model remains harmonic for an infinity of values of importance, given to the elements or relations. Due to this issue, the paranoid subjects do not realize the presence of their illness.

Except these classical psychiatric illnesses, there are illnesses produced by dynamical and transitory instabilities of the brain. The illnesses given by dynamical or transitory problems refer to the loss of models stability in special conditions or at certain moments of time.

The XZM (illegal models) could also explain a series of problems. The general theory addresses this issue.

We'll make another note here. The theory is applied here in particular to normal individuals. The pathological cases are not generally considered at this level. It is actually absurd to study pathological cases in the absence of a good model associated to normal persons.

ETA 16: Dreams

The dreams are associated to image model development. Such models are built, based on the available data in the brain and not by direct interaction with the external reality. We call the source of data for the dreams as Quasi- External-Reality. QER could take information from any available model of the brain to build and develop the dream-model. QER is invariant during a dream.

A dream is a model, which is developed, based on an invariant QER.

We shall describe several classes of dreams.

1. QER is mainly based on the external reality, but contains also some artificial elements or relations. A dream based on artificial components, tries, by development, to modify the external reality to meet the dream.

Example: we dream a situation. Such a situation doesn't meet the external reality, because some artificial elements or relations are added. The dream can activate some models to change the external reality, to meet the specifications of the dream.

2. Technological dreams (wake-up dreams) The brain generates such dreams. They solve by software, some of the design deficiencies of the brain. The most important technological dreams are wake-up dreams.

There are normal wake-up dreams, emergency wake-up dreams and nightmare dreams. They are generated to wake-up a brain, because, due to a lack of a suitable hardware, the brain must generate the wake-up function based on software.

The main design feature of the brain, which is used by these technological dreams, is to activate the PSM. As the PSM is activated, the brain wake-up, i.e. a normal ZM, is activated. Usually, the PSM is activated by some unusual changes of the external reality (powerful noises, mechanical shocks...). The wake-up dreams try to activate the PSM by software. To do this, a wake-up dream sends to PSM the information that there is a situation and no suitable model to understand it. As we already know, when there is no model to understand a specific external reality, the PSM is activated. For a wake-up model, external reality is replaced by Quasi-External-Reality (QER).

MDT does not specify which component of the brain starts the dream (this is a technological feature). The components could be associated with the internal body or to the sense organs.

The content of the dream is not important. Any dream that activates the PSM is good. So an

important problem associated with the health of the being or an unimportant problem could build the same dream. Only the character of the dream is important.

In case of a wake-up dream the character has to be taken into account:

- imminent danger to the person means that there is a big problem associated to health or the environment where the person is sleeping. Also, it could be a problem associated with something which is included, as a model, into the PSM (close relatives, some objects or situations, some problems etc).

- there is a danger, but it is not associated to the person or close relatives.

- It is a neutral dream, no danger. This is a normal wake-up dream. For instance: the dream is associated with a flower. The person wants to pick that flower, but fails. This situation activates the PSM, which activates the wake-up procedure.

One problem could occur: how does the brain know that a certain dream will activate the PSM? A possible answer is that a dream will develop by simulation, on and on, up to the moment when the PSM is activated. When the wake-up occurs, the first active-ZM will be that one which activated the PSM and so, it will be remembered.

There is an important feature of QER to be presented here. QER is built on the spot, because it is associated to a problem, which has to be solved very fast. Thus, QER cannot be too complex. It is easy to simulate the development on a simple model, which cannot be solved by the dream model.

Example: The QER is associated with a room. If, during a dream, the person wants go outside the room, this is impossible, because the QER doesn't contain the exterior of the room. Thus, it is impossible to go outside and so the PSM is activated.

3. The nightmare dreams are associated with a general instability of the structure of models. A nightmare cannot occur in a brain which is in a normal status. A nightmare dream might try to activate the PSM, but the PSM does not activate. Even more, if the PSM activates (the nightmare becomes the active- ZM) the nightmare continues. This problem is too closely associated to the technological implementation of the brain and so it cannot be treated by the theory only.

4. We shall introduce another class of dreams: premonition dreams.

There are many ZAM-type models, which work very well for a long time. But, as the person ages, some of them cannot meet the requirements due to the changes in the internal parameters of the execution organs (legs, hands etc). Such models self-activate during sleep (this is a premonitive-type dream) and find that they don't meet the requirements anymore. This result can activate the PSM too and produces the wake-up. The contents of such dreams is important but, unfortunately, it is difficult to make the difference between a wake-up dream and a premonition dream. Anyways, a premonition dream has to be taken as a serious warning.

The dreams are associated with the technological implementation of the brain. MDT, as a fundamental theory, cannot go beyond a limit. What was presented here has to be considered just an evaluation of the dream problem.

ETA 17: The history of evolution of the human species, based on MDT

The primary data are taken from different dictionaries, as this data is universally accepted. Only data associated with the development of the symbolic models have been selected.

Note: The dictionaries present the data mainly based on feeling, or based on local models, to select what is important or not. I selected only the data associated with the evolution of the symbolic models, as MDT understands this process. The evolution of the human species means the increase of power of the symbolic model. This history follows just this idea.

70 milions years ago: The first superior monkeys 4 milions years ago: Some monkeys walk. 2 milions years ago: Stone tools. This is associated with the appearance on large scale of the long-range image models.

200 thousands years ago: Homo Sapiens. Homo Sapiens was able to build easily long-range image models. Usually, when a model is good, there is the tendency to integrate it into the PSM. A PSM model is very efficient, but, because it is invariant, it slows down the evolution. Homo Sapiens seems to have evolved in a direction contrary to long-range efficiency. That is, instead of including them in the PSM, such models were changed on and on, and they were not transmitted to the next generation by heredity, but by social life of the groups. That is, the groups were stable for a very long time. It is not

clear if Homo Sapiens was able to communicate based on symbolic models, but, for sure, the communication was based on symbolic elements, at least in part.

130 thousands years ago: Art-type, religion-type activities. On such a level, it is clear that the construction of long-range image models was very easy and thus, the prediction of death and death itself were understood. Art and religion cannot be directly associated with the symbolic models, so we don't know if the language itself, as a symbolic model, appeared at that time.

Based on MDT, the human being is the being which is able to make and operate symbolic models (a language, as a minimal requirement).

Thus, I don't know, based on the data, when the language appeared, but the supposition is that it was under development, once the activities were so complex by comparison to the animal level.

Several thousands years ago: the cities.
A full language was already created and some elements of the writing too.

3700 years ago: the first phonetical elements for writing appeared, and later (about 2900 years ago), the first phonetic alphabet.

This is a crucial point of the evolution of the human species. The brain builds an image model. This image model is translated to a symbolic model by the spoken language. For writing, there are two basic possibilities: to associate a symbolic writing to the image model, or to translate the symbolic model of the spoken language to another symbolic model of the writing.

The Asiatic people chose the first possibility. They built an iconographic writing. The second possibility generated the phonetic alphabet.

The impact of the appearance of the phonetic alphabet was huge. The writing is not connected anymore to an image model, but to another symbolic model- the spoken language. Thus, writing becomes independent from the image model to which it is indirectly associated. Later, writing was able to influence the spoken language, and this tandem led to the 'symbolic' Man in Europe.

The Asiatic populations, who have used the method of description of image models in writing, remained stuck in icons associated to image models from their minds. This had a huge drawback in the development of symbolic models. This is why in this history, reference is restricted only to the world based on phonetic writing.

The phonetic writing has been a decisive step in the evolution of symbolic models, due to its non-association with image models. On the other hand, the Chinese spoken language can be translated into a phonetic writing, but this mode could not be used as such, as it would produce a break from the image models, which constitute the basis of the thinking/writing of this people.

1300 BC: Monotheist religion appears in Egypt. This type of religion marks the moment, when the logical analysis applied to religion generates problems and contradictions, associated with the existence of several gods. The desire for logical order determines an evolution towards a monotheist religion. However the appearance of the monotheist religion in Egypt was not a result of the increase of the level of evolution of human society in those times, but was created by the leaders of the society (one of the first monotheist religions created by the people is the Christian religion).

600 BC: Poetry. A poem is a symbolic model, which uses image and symbolic elements and relations. The poet has an inner image model, translates it to a symbolic model with symbolic and image elements, which build up the poem. The reader/listener will translate the poem to an image model in his mind. This image model is supposed to be similar to the initial image model in the mind of the poet. Thus, a poem is a way of approximate transmission of an image model from one creator to a listener/reader, using symbolic models with symbolic and images elements as a 'vehicle'.

300 BC: Euclid's Geometry This is the first fundamental symbolic model ever created (a positive science). It marks a very important moment in the evolution of the brain. This symbolic model continues to be used up to date and it is not changed for 2300 years.

The second fundamental model will be created only after 2000 years and it will be Newton's Mechanics. The evolution of the brain was very chaotic.

There is another symbolic model created in this period: chess. This symbolic model is a game (it is not associated to external reality) and it is not changed (just unimportant small changes) up to now as well. This game can be used as a test of the intrinsic capacity of the brain to make and operate long-

range symbolic models.

30 BC: Christian Religion starts to be created

The Christian religion appears and develops in the Roman Empire as a result of the increasing capacity to make and operate symbolic models, and due to the increase of the consciousness level of the population. The logical order requests a monotheist religion. The increase of the level of consciousness strengthens the prediction of death. A powerful religion is requested for this higher level of the evolution of the brain. Christian religion was created in accordance with this situation.

975 BC: The decimal positional writing of the numerals, taken from Arabs, appears in Europe. The Roman representation of the numerals is associated to image models. This new way of writing has no connection with the image models. To use such a representation of the numerals, one needs only the ability in the symbolic field (there is a total break from image models).

1250 BC: The decimal positional writing of the numerals is universally adopted in Europe.

1482 BC: The Inquisition is established. It lasted for centuries as an institution for punishment and basically speaking, it persists up-to-date in another form, as a list of forbidden books or ideas.

The brain development reached a higher level. The freethinking based on symbolic models opened the minds of a big fraction of the population. This entered into a violent clash with the invariant model of the religion. In that period, the first violent clash between the Christian spirit and European spirit occurred. The Inquisition eventually disappeared, but not because religion evolved, but because the European spirit was more and more powerful.

1543 BC: Nikolaus Copernicus published the theory that the Sun (not the Earth) is the center of the Universe. It is very interesting to know that for thousands of years, the official theory was that the Earth is the center of the Universe. This theory predicts the Sun and Moon eclipses, and also the equatorial and tropical lines were established with a fair precision. So, what was the problem? The main problem was the impossibility to understand why the planets have a rather chaotic movement on the sky.

Copernicus' theory was able to explain why the planets have that apparently chaotic movement (based on logic), but, when the astronomer J. Kepler has verified the theory, it failed. Kepler eventually discovered that the planets are not moving around the Sun on circular orbits (as Copernicus said), but on elliptical ones. With this change, Copernicus' theory was correct.

1585 BC: decimal fractions The decimal positional writing of the numerals was universally accepted but the fractions continued to be written based on image models (e.g. the fraction $1/2$ is easily understood based on image models). Only after about 600 years the decimal fractions were accepted. Even so, the opposition to decimal fractions continues up to date.

1607 BC: The composer Monteverdi composed the musical work called Orpheus. This marks a moment when the symbolic models supported image models in music. In the same period, the "recipe" to compose a fugue was also established. Europeans invented the polyphonic music.

1614 BC: the logarithms are introduced in mathematics.

1640 BC: Rene Descartes, scientist He considers that the world can be understood based on mathematics. This is a higher level in the developing of the symbolic models.

Mathematics is based on symbolic models only. In fact, any specific field of mathematics is a symbolic model. But, a symbolic model from mathematics cannot be used in a direct way to understand the external reality. Newton's mechanics appeared at first as a logical model, and then it was translated to a mathematical form.

Mathematics generates only numbers. They have no meaning without the calibration of the model. To calibrate a model means to interact with external reality and so, to go beyond the limits of mathematics.

The normal interaction with external reality of a symbolic model from mathematics is: prediction > comparison with external reality > change of the model > a new prediction. This loop has to continue as many times as needed, so that the difference between the prediction and the external reality becomes acceptably low.

It seems that Descartes did not understand this. This problem seems to be difficult to be understood even in our days, taking into account that the mathematician Godel "proved" the existence of God,

without any interaction with external reality.

1642 BC: Rembrandt van Rijn, the painter Rembrandt marks a moment when the human brain reaches a peak in building and operating image models.

1687 BC: Newton's Mechanics After Euclid's Geometry (about 2000 years ago) this is the second fundamental symbolic model created by the human mind. It is a big step in the evolution of the brain. Starting with Newton, the development of the capacity to build and operate symbolic models accelerates, and this process continues today.

Newton is not well understood even in our days. Some dictionaries say that Newton discovered the law of gravity. This law was introduced by Newton to save his theory. The inertia principle states that any material body, which is left free, is moving in a straight line, with constant velocity to infinity. But in the external reality such a phenomenon is not met. The planets are moving on closed trajectories in space. The only solution to save the theory was to invent a new force, which was called "gravity".

Einstein, for instance, says that gravity does not exist. The apparent attraction between the material bodies is generated by the change of the shape of the space. He is able to explain some phenomena which cannot be understood based on the Newton's gravity (the precession of the planet Mercury, e.g.).

Newton's mechanics continues to make good predictions on Earth and near space. It is not changed since over 300 years.

1749 BC: Sign language This is one of the first artificial languages (a symbolic model). It translates the GCL into another language, based on signs and gestures.

1781 BC: Immanuel Kant Kant was able to understand some basic things in association with knowledge, but although he knew Euclid's and Newton's theories (symbolic models), he was not able to understand the means and methods of a positive science. He did not build any symbolic model. In his books, one can find lots of definitions almost on any page, but Kant does not understand that such definitions cannot be correlated in a logical way, without the frame of a fundamental symbolic model.

1791 BC: Napoleon

MDT considers that there are two basic modes of interaction between a brain and the external reality: to predict the evolution of the external reality (ZM-models) and to act on the external reality (ZAM-models).

A war can start only if a big fraction of the population has almost the same ZAM, and if that ZAM is associated to war. War can be associated with an increase in the level 2 of consciousness of the population. I mean, when level-2 is high enough to believe that it will be better after a war, but not so high to understand that there could be some other alternative solution, then the tendency to war could really start the war. This idea seems to be interesting in explaining why so many people are so happy to go to war, and why this tendency is so powerful even today (e.g. WW1 and 2).

1834 BC: Braille writing 1837 BC: Morse code

1854 BC: The symbolic logic of George Boole The facility to build and operate symbolic models increased to such a level that the brain was not able anymore to keep the models in mind. George Boole invented a language to write symbolic models.

1859 BC: Charles Darwin

Darwin's evolution theory is not based on a symbolic model. It is rather based on the systematic of some primary data. Thus, it is not a positive science and so, its prediction could be good only on short range.

1867 BC: Das Kapital by Karl Marx This aberration sounds good on image models. The basic idea is that the "capitalist" takes about all the money and the "working class" is forced to work for peanuts.

The theory was based on some image models, which were understood easily by the population of those times. As we know, it is not possible to find the right importance of an element or relationship on an image model. Thus, an image model can be tailored to prove anything, based on external reality. Such a method doesn't build a theory, but an ideology. Ordinary people easily understand an ideology, because it sounds good, and is able to answer any question.

When Marx's theory appeared, the control of the economy was based on short range symbolic models. So, long-range problems were not predicted. The lack of stability of the society in that period was an effect of this problem. Later, society advanced to take into account the long-range problems too and so, social-democratic movements appeared.

1878 BC: Jehovah's Witnesses In time, as the capacity to make and operate symbolic models increased, the "classical" Christian religion was under pressure to change to meet the new requirements. It resulted in reform movements in the frame of the Christian religion. Instead, Jehovah's Witnesses make a new model starting from scratch.

1900 BC: Max Planck introduces Quantum Mechanics

Quantum Mechanics is the first purely symbolic model associated to external reality. Such a model is "pure", because it cannot be translated or associated with any image model. This is a very high step in the evolution of the brain (level 5 of evolution).

Based on data, it seems that Max Planck understood from the beginning that his theory was good, but he was blocked by the fact that imagination does not work in understanding it. It seems that Albert Einstein pushed him to publish the theory.

Quantum Mechanics cannot be translated to image models. If someone forces such a translation, aberrations or logical contradictions occur. The best known problem is the nature of light. Quantum Mechanics predicts that light is both wave and particle. This situation cannot be understood based on image models.

Quantum Mechanics pushed forward the evolution of society on a very high technological level (e.g. the transistors and the lasers are the basic components to build computers).

1905 BC: Albert Einstein, the theory of the relativity

Einstein starts from Euclid's Geometry and Newton's Mechanics to make a new theory, to extend the knowledge to atomic and sub-atomic levels, and to the far Universe. The "marriage" between Quantum Mechanics and the theory of Relativity builds the main tool to understand sub-atomic "Universe".

This new symbolic model was created based on a new Geometry and some new principles. Together with Quantum Mechanics, the Theory of the Relativity speeds up the evolution of society.

1914 BC: The First World War (The Great War)

1917 BC: Communism in Russia Communism is an ideology. It is based on an image model translated to some short-range symbolic models.

The main problem of the Russian society of that time was a huge dispersion between the level of understanding of the external reality from one person to another. Even worse, the level was low compared to Western Europe. Communism was only a fast solution to the problem, at least on short-range. Of course, an invariant ideology could be useful only on short-range. As we know, the communist system crashed due to the lack of economic efficiency, but the basic cause is associated to its invariance.

The problem of the dispersion between individuals, countries or cultural zones continues to be a big problem of human society. The problem has a tendency to get worse and worse.

1928 BC: Walt Disney As the evolution to symbolic models speeded up, the brain also increased the conceptualization level of the image models. The cartoons are based on such concept image models. Everybody (including childrens) easily understands them.

1938: World War 2

Both world wars starting in Europe occurred in a very complex set of known and unknown factors. MDT can be used to evaluate the problem.

Since Napoleon, there was a general tendency to war in Europe. MDT says that there must be a war-associated ZAM, which must be assimilated and accepted by the majority of the population. Also, the consciousness level has to be high enough to think that the war will solve all the problems, but not high enough to understand that this is not true.

One example of such a ZAM could be "we have better weapons" or "we are powerful enough to win". Of course, the attacked people have a ZAM as "we must defend our country". It is possible that such action models create conditions for a war. But, such models, even if they are assimilated and accepted by the population, are not enough to start a war. There must be also a big enough number of high-ranking persons to plan such a war, and a series of technical conditions.

Another factor, which is associated with the war start will be described below. The people who are in command are usually image-type persons, but symbolic-type persons make the weapons. Only symbolic-

type persons are able to understand the power of such weapons, but such persons are not in command. Once a war starts, the image-type leaders lose the control of the short and long-range consequences. For instance, the leaders of the Second World War understood the weapons, based on the experience of the weapons of the First World War. In the WW1 the tanks were "exotic" weapons and planes, too. Very soon the tanks and planes changed totally the manner of evolution of a war. It was not possible to predict the destructions on such a large scale by the WW1- type persons who started WW2.

This problem continues to exist even now. In some less developed parts of the world, the leaders and soldiers could be image-type persons, who are not able to understand the power of the weapons used by them. They are also not able to make such weapons. For instance, the war in Rwanda produced a huge number of victims. The different groups of population fought each other since the beginning of history and it was not a big problem. The problem occurred when they obtained advanced weapons without being themselves advanced enough to understand their power.

1948: The Cold War

Communist paranoia has slowed down some nations to understand basic concepts as "economic efficiency". Communist leaders have understood this problem, but Communist ideology, as any ideology, cannot be modified. Any change of any ideology will destroy it. The apparent reason why the Communist system crashed was a very low economic efficiency. The basic reason was the increase of the level of understanding of the external reality based on symbolic models by the population.

1979...1994: The fundamentalist Iran, Idi Amin in Uganda, famine in Etiopia, Iran-Irak war, famine in Somalia, war in Rwanda.

There are some nations, which cannot evolve due to internal or external factors. A slowing down of the evolution seems to be a general tendency in an important fraction of the world.

A typical situation was in Somalia. The facts are: 1. In Somalia was famine. Many died. 2. Western countries (USA included) brought them food. 3. When they obtained enough food, they attacked the US troops. 4. USA left Somalia very fast. 5. Western countries changed their basic principle "life is the supreme value" to a new concept as "we do not help those who do not help themselves too".

The first consequence of this change was ignoring the situation from Rwanda.

1993: Terrorist attack on WTC in New York City 2001: Another devastating terrorist attack on WTC (passenger airplanes crashed into WTC).

Individuals, groups or cultural zones where the evolution based on symbolic models is blocked, generate terrorism. In such a situation, fundamentalist action is expected. That is, people turn back to image models. As we know, it is not possible to know the importance of an element or a relation, on an image model. Thus, a person based on image models only, has a tendency for paranoia. The logical arguments are not taken into account, because the logic is associated with symbolic models only.

On the other hand, some important cultural zones are speeding up their advance based on symbolic models. They gain more and more power due to this.

This is the overall situation now.

Abstract: the evolution of the brain means the increased power of the symbolic models. The main steps are:

1. Spoken language (about 140 thousands of years ago)
2. Phonetic writing (3700 to 2900 years ago)
3. Euclid's Geometry (2300 years ago)
4. Newton Mechanics (340 years ago)
5. Quantum Mechanics (100 years ago)
6. Some cultural zone speed up their evolution based on symbolic models, but in other zones there is a tendency to turn back to image models (fundamentalist tendency). Some fundamentalist tendencies occur in symbolic countries too.

ETA 18: The organization of the human society

Faced with external reality, any individual builds and operates some models to predict the evolution of the external reality. The majority of the population is based on image models. One of the organization principles of the human society is:

The majority is seldom right.

This principle is a direct consequence of reflecting the external reality based on image models.

The evolution of society means that there is a dynamic (a continuous change in time). But, as we

already know, it is very hard to change a structure of models.

A second principle states that:

The persons who are able to lead the society must be changed from time to time, even if they seem to be able to lead the evolution process.

The first principle says that a team of "symbolic" qualified persons should elect the leading persons, and the second principle says that such persons must be changed from time to time.

The present democratic society is based on these principles, as MDT just explained why.

When in a situation associated with the evolution of the society, a decision has to be taken; on image models, the decision is based on feelings, or impressions, or some local models. On a symbolic model, such a decision is based on parameters and their associated values. So, the importance of every element or relationship is controllable.

Example: there is a law of the propagation of errors in mathematics. It says how much the result of a formula is changed when a term is changed, let's say, e.g. by 1%. The importance of every element or relationship is given in a very precise way.

In future (not in the next 50 years, I guess), there will be a single symbolic model associated to the society. Such a model will be able to characterize the society in the same way as the mechanical world is characterized by Newton's model.

Based on simulation, it will be possible to predict the evolution of the society, based on some basic decision. The population will have to know these predictions and choose one or another based on its short-range and long-range interest.

It is supposed that in some very advanced countries such models already exist. The main problem is that the political parties and the population are on a general evolution level that is too low for a "symbolic" understanding of the society.

ETA 19: The schizophrenic-paranoiac complex (XSPC).

XSPC is described only associated to non-pathological schizophrenic persons (XS1-type).

Based on MDT, schizophrenia means a reduced ability to build and operate long-range models.

XS1 schizophrenia is a non-pathological form, which is associated with the activity of a large fraction of the population in a normal society.

Paranoia XP means that there is an ordinary model in the protection structure of models. Such an OMPSM forces a person to distort the importance of the primary facts to be accepted by OMPSM.

Thus, an XS1-type person is not able to build long-range models, but he/she is able to build short-range models. The result is that such a person has a large number of short-range models, which are associated with almost all the features of the external reality. A XS1 person is able to integrate into a society, often in very good positions.

Schizophrenics can't build efficient long-range models, but can build very good short-range models. The incapacity of building long-range model means that they have many uncorrelated short-range models. When they are forced to couple/correlate several models, as they haven't got the capacity to do it, they will distort the correlation between them. It happens in the same way as for paranoiac persons, but for schizophrenics, paranoia is induced dynamically. (At different moments, there are different distortions). This is XSPC.

The present educational system has the tendency to create schizophrenic persons with XSPC symptoms. XSPC is generated by the classical educational system, where lessons are based on elements, without insisting on the relationship between elements. The capacity to make on one's own such correlation is not favoured by the educational system. As in school the construction on long-range models is not taught, the persons will lose more and more this ability. Thus, school, at all levels, favours the occurrence of XS1B, and also XSPC, in perfectly sane children. This characterizes school all over the world.

Application: Let's build the full history of Europe, for secondary school level, in a normal lesson of 50 minutes.

The main problem is to select what is important and what is not. The normal solution is to make a long-range model and to declare it in an explicit form. Such a model will be able to select, in a coherent mode, what is important and what not.

There is a development history of the human species in this book. This history is based on a long-range model, which says that all the evolution of the human species is based on the continuous increase of the power of the symbolic models. Thus, this model is able to select what is important and what not.

Some people could have other ideas. There is no problem. They must declare their long-range model and make another history. In every situation, there will be a correlation between the short-range models, which are the elements of the long-range model. This is the normal situation, according to MDT.

Conclusion: XS1 persons are based on a large collection of short-range models, which are built by direct interaction with the external reality. When such persons are forced to connect some models in between them (to cover a larger section of the external reality), they are forced to connect such independent models. This can be done only by the distorsion of some models to fit with one another. But, this is similar with the behavior of a paranoiac person. This is XSPC (paranoiac behaviour due to a schizophrenic structure of models).

ETA 20: Induced paranoia (XIP) and paranoiac-schizophrenic complex (XPSC).

XIP affects normal persons who are forced to use a basic model in every situation.

E.g. the members of the Communist parties are forced to accept that the "working class" is the leader of the society. This model is not in PSM (the person has no illness) but, they are forced to use this model.

This externally-imposed model determines that any data from external reality should be compatible with the externally-imposed model. Their structure of models evolves in a paranoiac-type structure (it is not possible to discuss freely with such persons).

A "soft" form of XIP occurs in people that are representatives of a state institution.

For the XP paranoiac persons (there is an OMPSM), the external data could collide with the OMPSM. The solution for them is to distort any external information to be compatible with their OMPSM. But, in a complex structure of external realities, this method cannot work (it is not possible anymore to build a harmonic/logic structure of models by distorsion). The only solution is to fragment the data. This means that the same facts from external reality have a different interpretation depending on the environment. This is XPSC.

Conclusion: a paranoiac structure of models evolves to schizophrenia too, as the external reality is more and more complex.

ETA 21: Disharmonies of the functions of the brain

We know from the general theory that two basic modes of interactions between humans and external reality exist. The first consists in obtaining better and better models of the external reality (ZM). The second is modifying external reality based on action models (ZAM).

Disharmonies are associated with the importance given to each facility. Thus, there are two categories of humans: more knowledge or more action oriented.

Without action on the external reality, knowledge is limited. On the other hand, people with a reduced knowledge of the external reality can't build good quality models, and so the capacity of action on the external reality is limited or inefficient.

Disharmonies are thus determined by the following factors: - the capacity to build models of the external reality - the capacity to build action models - the capacity to activate action models.

All these three factors are in a very close interdependency, whatever the interaction between the brain and external reality might be.

A disharmony cannot be associated with a psychical or a pathological status. The disharmonies contribute to what we call personality.

In this chapter, we will talk about people who have no disharmonies. The perfect situation is the case of those who build action models compatible with the models of the external reality. These people are those who do not intend to do more than they are able to. Such people will succeed in all they want to

do. They are happy people.

However the happy people have little contribution to the progress of society, even if they contribute significantly to its stability.

Example: A man wants to buy a very expensive car. Lacking money, the action model can't be activated. This man is unhappy. Another one wants to buy a pencil. He succeeds to do it, and as such, he is happy.

Disharmonic people move society forward. They are essentially unhappy people. If they succeed in the end to do what they wished for, soon their disharmonic structure will make them build other action models which are not suitable to external reality and the cycle restarts.

ETA22: Subliminal messages

When external reality changes, the local ZM won't make good predictions and the brain will in consequence look for/build a new model suitable to the new external reality. However some time to react is needed.

In the case of subliminal messages we have an image which will produce a new M-model. This will have to activate a ZM-SL (SL= subliminal), but before the activation of the new ZM-SL, the dominant external reality will reappear, which will immediately reactivate the initial ZM. Thus ZM-SL has time to be built, but will not be activated. This will have the effect on a person as an idea or tendency to something, without an explicit reason. Of course these thoughts influence methods can create big disorders in the structure of models of a given brain, as some half-elaborated models have to be integrated in the normal structure of models. ZM-SL can become illegal models. This is why subliminal messages are forbidden, at least in advertising, all over the world.

ETA23: How a positive science works

A positive science is a symbolic model (SM) integrated in GCL, which is associated to an external reality. Let's explain this statement.

1. The existence of a fundamental symbolic model called General Communication Language (GCL) is supposed. This symbolic model contains absolutely all words, together with their definitions. The definitions can be more or less precise, logically consistent or not, can be or not accepted by some or others. GCL is the common language formed spontaneously between people in their inter-relations along the milleniums. 2. We choose a word (term) T from GCL. 3. Let's suppose that there is a positive science SM, that could include the term T. 4. The term T, that should be studied by SM, has to be included in SM. For this purpose, T has to be redefined within the frame of SM. SM can integrate a new term only if this term is defined within SM. Thus T will have one definition in GCL and another generated by SM.

Example: The term 'force' has one definition in GCL and another in Newton's Mechanics. The predictions of Newton's Mechanics refer only to the term 'force' as it had been defined within Newton's Mechanics.

5. As soon as T has been included in SM, SM generates the relationships between T and other elements, and makes predictions that include T. These predictions can then be compared with external reality. 6. If the predictions of SM related to T prove to be acceptable, then SM is considered useful in understanding T. If the predictions are unacceptable, then SM is inadequate in understanding T. In neither case, SM can be considered correct or incorrect. 7. Any prediction connected to T has to be associated with the SM which produced it.

Example: Gravity is a supposition of Newton's theory. In his theory gravity is a property of the mass of a physical body. In Einstein's theory (another symbolic model), gravity is a property of space and mass. Both theories give good predictions in known specific situations.

8. As the predictions of SM related to T are proved acceptable, SM is considered suitable in understanding T and thus, the predictions of SM including T can be associated with the term knowledge.

Knowledge based on an acceptable SM is the purpose of any positive science.

We'll see now an extremely complex example. We have intentionally chosen a term which practically has no definition in GCL (the definitions is unclear) and has no associated direct data and facts from the external reality. The term chosen is 'alien' (ET).

To study within a positive science a term like ET seems impossible; we will see that this is not so.

According to the logical schematic presented, we need a symbolic model (a positive science), which in our example is MDT itself.

Generation of a definition of the term ET in MDT means that we accept that ETs have a brain and more, their brain works based on the same principle as the human brain. This can be difficult to accept, but independent of the used SM (MDT or another), the situation is the same: SM generates the definition of ET, whatever SM is, and whatever the definition of ET in GCL might be. We'll try to explain ET in MDT.

Let's activate MDT with ET included. MDT considers that the basic functions of the brain are the construction of image models [I] and symbolic models [S].

Let's define a human brain [H] with the parameters $I=1$, $S=1$. It is very likely that ET will not have the same parameters. Let's suppose a model of ET with the parameters $ET(1,10)$ (the same capacity to build image models as humans, but ten times capacity to build symbolic models). This is just a possible example. In a complete analysis we need to use a collection of values (I,S).

After having chosen a pair (I,S), we start operating MDT with ET included. We can ask a first question, e.g. how can the interaction between a human $H(1,1)$ and an $ET(1,10)$ look like? Which are the tendencies of the ET? Do they want to communicate, do they want to be friends or enemies, etc.

MDT can't answer these questions yet. We need to calibrate the model. Calibration is done asking questions with known answers.

For instance, a dog might be associated to $D(0.1,0)$ (10% of the capacity to operate image models compared to a human and zero capacity to operate symbolic models). We have the tendency to communicate with dogs and do not have an exaggerated tendency to exterminate them. On the other hand, we have the tendency to exterminate mosquitoes which have an extremely low I value and $S=0$.

We can go on with calibration studying the interaction among humans. For instance, the Asiatic have clearly a higher I value than the Europeans, and the Europeans have higher S.

Once the system is somehow calibrated, extrapolation to given situations is possible. Based on prediction, we can evaluate which are the limits for I and S for a friendly or unfriendly interaction.

Let's not forget that no prediction of the model can be verified yet in interaction with external reality. However, the fact that we have a collection of predictions, brings us a huge advantage. If some facts from external reality could be in the range of predictions of the model, we will be already prepared to interpret them in specific conditions. Thus, some facts can be explained if ET had a certain formula. Anyways, we already have a collection of probable behaviours, which represents a big advantage, when some facts from external reality could be explained by the existence of ET.

We can go even further. Depending on the formula chosen for ET, models of civilisation could be built for each type of ET. Again, the model can be calibration based on known types of human society, including those existing in the past, and extrapolating to various formulas for ET.

Please remember that even if ET existed in external reality, and even if MDT gave exact predictions, it does not result from here in any way, that ET have brains which function as MDT considers.

A positive science only declares the model and gives predictions. If, based on verifying the predictions, we get confidence in the model, then the model will be used in other similar situations, as useful. Never and with no positive science do we expect that it will show us "the truth" or it will offer guarantees or certainties. A positive science, as we have shown above, makes predictions. If the model makes good predictions, we will use it again, and that's all.

Let's see another possible direct practical application associated to the above example. We could build models to tell us what could happen with human society if $S=2$. Or, what would happen if the dispersion in S increases too much. This means to find out, for instance, if a danger exists for civilization if 50% of humans have $S=0.5$ and 50% have $S=1.5$. Perspectives look fascinating!

ETA 22: Direct demonstration of the function to create image models

The basic assumption of MDT is that the brain builds and operates models automatically (this is a hardware function). An exercise is described below which demonstrates directly this basic assumption.

The absolute majority of beings (human or animal) have two eyes. They generate two plane images but what we see is a single tri-dimensional image (photographic-type image model) in accordance with MDT. Moreover, if we have a single plane image (we look with one eye) the brain will continue to build

the tri-dimensional model.

But we have got a problem: with a single plane image we have not enough information to build a tri-dimensional image. However we have a "compensation": the brain is an extremely powerful system. It will use any kind of supplementary information to build first a tri-dimensional image and then, the tri-dimensional model. In the following, we will describe an exercise for beginners to demonstrate this.

We need to watch TV with a single eye in a room with no additional light source. The glass surface of the screen has to be absolutely invisible (there should be absolutely no reflection of light on it). We have to sit in front of a normal screen at least at 3 meters distance (we should not be able to see the pixels which build up the image). The screen should show a familiar picture, from common external reality, in normal perspective, and the image has to change slowly.

If, under these circumstances, we watch the screen with one eye, after some training, we will see a tri-dimensional image. This experiment proves directly that the basic function of the brain is to make image models.

The generation of tri-dimensional models by the brain starting from a plane image is known for a long time. This appeared at the same time with the expansion of art painting trade, many hundreds of years ago. Thus, a painter used to paint first the foreground, and later the background. A good painter had the whole tri-dimensional model in his head, and the background connected perfectly with the foreground, even if the background was painted a lot later. In some paintings, the background or some components of the painting do not match perfectly (a poor painter) and this could be noticed by art experts looking at the painting with one eye.

Rembrandt painted scenes with groups of people. However, some people in the group could be "closer" or "farther" from the viewer. When such a compact group is watched with a single eye, one can notice that the painter had painted them correctly (the persons farther out are slightly smaller). Our brain can notice tiny differences, because it reconstructs the 3-D model.

By the way: to build a 3D model based on a single plane image is an operation which requires an immense capacity of processing of information. In spite of its huge power, the brain has problems with the capacity of processing such a huge amount of information. As in principle there is not enough information for such an operation, the brain has to guess one or several probable models, which have to be verified. From my direct experience, in order to guess a 3D model from a plane image ones has to be in a very good physical and psychical shape.

ETA 23: Some basic parameters of the brain for measuring performance

Based on the fundamental theory, I have listed several basic functional facilities of the brain, exclusively as an introduction to the problem evaluation.

1. The capacity to build and operate image models (arts, many games, paranormal qualities...)
2. The capacity to build and operate symbolic models (positive science, technologies...)
3. The capacity to build and operate purely symbolic models (Quantum Mechanics...)
4. The capacity to integrate an image into a pre-existing image model
5. The capacity to translate an image model to GCL (description of an image model)
6. The capacity to translate a symbolic model to GCL (the symbolic model is associated to a certain case, translated to an image model and described in words)
7. The capacity to translate an image model to a symbolic model (general abilities in science)
8. The capacity to translate a symbolic model to an image model
9. The capacity to integrate symbolic information into an image model
10. The capacity to build concept-type image models from a family of image models
11. The capacity to build a concept-type symbolic model from a family of symbolic models.
12. The capacity to integrate symbolic information into a symbolic model
13. The speed to build/operate image models
14. The speed to build/operate symbolic models
15. The speed to build long range image models
16. The speed to build long range symbolic models
17. The speed/capacity to update preexisting models
18. The capacity/speed to build shielding models
19. The capacity to build a new model in front of a new external reality
20. The speed of finding a pre-existing model suitable to a new external reality
21. The speed of activation and deactivation by MZM of a preexisting model in front of a changing external reality. This implies both finding the suitable model and initializing it to the given external reality
22. The capacity to operate in time-sharing several models in front of a complex external reality

This list can continue, as the brain is extremely complex.

For instance: Endurance parameters (e.g. the quality of the technological implementation), dynamical parameters (e.g. the speed and stability of the operations, how fast one can switch from one operation

to another in transient and stationary mode).

In the general theory, the brain appears as having two basic facilities: to build and operate ZM models associated to external reality, and to act on the external reality, based on a ZAM model. The facility of action on the external reality has a number of parameters, starting from building ZAM suitable to the external reality and ending with the capacity of activation of the action models.

This possible list of parameters is far from characterizing completely the brain.

From this we can see the naivete and ridicule of the present so-called intelligence tests. These tests are ridiculous, because there is no fundamental theory, which could at least define and correlate the used terms.

My theory says that there are facilities associated to image and to symbolic models (there are arts and sciences, watches are analog or digital, on computer screens we have icons and text etc.) We also have facilities associated with obtaining information from the external reality and facilities associated with modifying the external reality. A minimum observation of the external reality suggests four independent groups of IQ tests: action/knowledge on image/symbolic models. As this is not the case, the present IQ tests are naive and ridiculous, not only from the point of view of MDT.

In the following we will give a structure of fundamental IQ tests based on MDT: 1. The capacity to build M image models 2. The capacity to build YM image models (concept models) 3. The capacity to assimilate image YM 4. The capacity to build symbolic YM 5. The capacity to assimilate symbolic YM 6. The capacity to assimilate image ZM 7. The capacity to build image ZM 8. The capacity to assimilate symbolic ZM 9. The capacity to build symbolic ZM 10. The capacity to assimilate symbolic ZAM 11. The capacity to build symbolic ZAM 12. The capacity to assimilate image ZAM 13. The capacity to build image ZAM 14. The capacity to activate symbolic ZAM 15. The capacity to activate image ZAM 16. The capacity to build image AZM 17. The capacity to activate image AZM

Example: For a person who has to be a public relations representative for a business, the qualities which will count, on first place, are the capacity to assimilate symbolic and/or image models and to act based on them. He has to have a reduced tendency to build own models, in order to be fit to the requirements of the position. A person who will work in scientific research has to have capabilities to create new symbolic models.

Among these capabilities, interdependence should exist. We can suppose that persons who have the tendency to build models will have difficulties to assimilate external models. Their tendency will be to modify any external model in a personal manner. At the same time a person with capabilities of assimilation of external models, will have difficulties in building own new models, and will not try to modify the assimilated models, even if they are not suitable to the external reality anymore.

Other parameters associated to the brain are connected with the stability of these capabilities, on long/ short term, and in normal or extreme conditions. These parameters will characterize the reliability of these capabilities in special conditions.

Based on this theory and further work, a collection of human types will be possibly established as a list of numerical parameters. As soon as a person is considered to belong to a specific type, he/she will know that his/her chances to socially integrate are big, if he/she will pursue the domain where he/she has adequate qualities.

The above examples are only as an illustration of the capabilities of MDT in this field. A fundamental theory as MDT cannot be used directly to solve specific problems. It creates a basis and a referential system, where specific problems associated with some sections of the external reality can be solved.

ETA 24: Animals

Bees

A basic characteristic of a bee is its flight beyond its visual limit. It can fly some hundreds of meters from the beehive, while it can identify objects only within a few meters distance. In consequence, the bee must navigate. Navigation means, in principle, the existence of a map, compass and of a dynamical system of finding the actual position on the map. If we can make only suppositions about the compass and the dynamical positioning system, as to the map, we find ourselves in the action zone of the theory. A map is an image model. The brain builds simplified models (maps) of the external reality, marking the position of the beehive and the position of the bee in flight and updating that all the time.

When a young bee comes out of the beehive, it will start flying around it, in wider and wider circles, but only on clear days. The explanation based on the theory is that, in this flight, the bee is calibrating

its navigation system. This means that it calculates its position relative to the beehive and compares the prediction with external reality, as given by direct view. When the instruments of navigation are calibrated, it can fly beyond the limit of direct visibility, and return successfully based on the predictions of its map model.

Migratory birds

In the case of migratory birds, we have again a navigation problem. This time the flight is done at thousands of kilometers distance. It is clear that the migratory birds should have a map added to the navigation instruments. The birds should have in memory a successful story-type model (map) of the wanted route. The bird will compare the wanted position (given by the story-type model) with the real position. The real position could be found e.g. by following the magnetic field of the Earth, by observing the position of cosmic bodies (Sun, Moon, and stars). It is clear that any supplementary information is welcome and added to the story-type model, to sustain a successful operation. The navigation story-type model has been built based on a previous successful flight. A bird, which has not this model, could record it, if it is a member of a flock in which at least one bird has this model.

However, if a bird, which has not yet the navigation map, has technical problems in flight, it could be lost. Examples are known of migratory birds, which having technical flight-problems, were eventually taken into care by people. After healing, they did not want to leave anymore. The theory explains this by the fact that without a map and their position on the map, they don't know where to go. However, if they see a flock in flight, they might follow that flock.

There is a situation reported by the media, when a whole flock lost its navigation map and remained stranded. In this situation, a plane resembling a bird was used to guide the flock.

Cats

Cats can communicate to some extent with humans. Another characteristic is that a cat hardly adapts to an environment after getting used to another. A house cat is jumpy at sounds to which it should be familiar. When a cat is disturbed, it is very likely that PSM was activated.

At first sight, cats have a brain with a reduced capacity to build new models. At the same time, due to a weak instinct of defending its territory (some cats accept mice around them), one can suppose that the cat's model of the territory is very primitive. The most probable situation is that a cat can build new models only when very young. After some time it loses the capacity to build long-range models and uses mainly short-range models, guided by primitive long-range models and many solutions based on the action of PSM.

In fact, all predators having few enemies have the tendency to use more short-range efficient models, than long-range models. Thus, intelligence, which is an indicator of the capacity to build and operate long-range models, is not stimulated in predators. Animal intelligence is stimulated by the presence and interaction with humans, and also by an aggressive environment.

It is important to note that in spite of the fact that the lack of external danger is not a stimulus to develop the functions of the brain, the potential of the predators brain is relatively high. This is why, even if predators do not look too intelligent, they can surprise us in critical situations.

Dogs

Dogs seem to build very precise models of the external reality, including sensing the mood of the master. Their relatively high capacity to build models, gives them a possibility to communicate based on these models, including with humans.

Let's analyze now a situation, as it was reported in the newspapers. A shepherd was walking with his dog in the forest. A mother bear with cubs attacked him. The bear attacked the shepherd, but the dog attacked the cubs. The bear left the shepherd, to save its cubs.

The theory can explain this behaviour in several ways. A first possibility is that the master is integrated in the dog's PSM. The dog builds a defence model of the master, which, at the simulation of the bear attack, fails to find a successful solution. Simulating the attack of the cubs, the prediction appears that the bear will save the cubs and forget about the shepherd. This explanation is clearly a sign of intelligence (long-range model). It is a bit too complex for a dog (it is even surprising even for humans).

Another variant is that after the model to attack the bear failed, the dog attacked the cubs because it was less dangerous. This means that the master was not in the PSM.

Another variant exists in which the dog has participated previously in an attack of several dogs against a mother-bear, and in that attack, it saw that the bear runs with the cubs when the cubs are attacked. This variant again does not consider the shepherd. This seems to be the most probable explanation.

Another variant exists in which the shepherd is not considered, and the dog attacks anything weaker than itself.

Let's continue the analysis of dogs. It is known that dogs are very faithful to their master. This suggests that they can introduce the master into their PSM. However, the fact that some dogs can be faithful to several masters (successively) suggests that they can rewrite the PSM. This is really unusual.

The fact that dogs introduce the master in the PSM is clearly demonstrated by the observation that some dogs die to save their master (they are not afraid of death). According to the theory, this can happen only if the masters are on the same priority level with their own being.

There are fights with dogs, when dogs fight to death. It is interesting to see if the motivation can or can't be given by a protection model of the master, or by an instinct, which does not take the master into account.

The elephant

The brain of the elephant could be bigger than the human brain. From this follows that its organization is primitive. A way to explain this is the reduced capacity of the elephant brain to build concept models. If this is true, he uses a huge capacity of the brain to build pure image models. The term "elephant memory" can be associated with this feature. Thus, if it built concept model, the elephant should be able to identify only limited landmarks of the places it passes by. Using pure image models, it memorizes each tree and each branch. This is a totally inefficient mode of brain functioning.

Monkeys

Experiments show that, in a controlled environment, some monkeys build and operate some primitive symbolic models. They might implement this function by software, based on image models. However, these very singular examples prove their incapacity to evolve towards a symbolic model, in fact.

One of the most striking characteristics of these animals is their lack of stability in a model. The most intelligent monkeys are those which have the capacity to stay in a model, when the external reality gives them many opportunities to change the active model. If the monkeys had stability in a model, then they could have better performance at building symbolic models, under the human control.

In spite of the fact that MDT does not sustain the evolution of man from monkey, the behaviour resemblance of monkeys and humans, on image models of course, is striking.

The dolphin

The dolphin is considered a very intelligent animal, next after humans. The dolphin can not only immitate the signs made by humans but they can integrate them into a larger context.

For instance, when the gestures of the trainer suggest a jump followed by a salute, the dolphin understands that it has to jump, and then, to greet the public.

However, even if dolphins seem to understand easily gestures, they do not seem to have abilities to associate an action to a symbolic message.

The dolphin builds easily normal long-range models, not only story-type models as some other animals.

At the same time, they could reach even level 2 of conciousness, if it could be proven that they build their own correlation models with the group to which they belong (as it seems to be the case for captive dolphins).

Note: many species of animals hunt in packs. Usually, the model of correlation is situated in PSM. The superiority of an animal is given by the capacity to build its own correlation model with the pack or with other beings, human or animals, (level 2 of conciousness). It is not easy to see this essential difference, as the apparent behaviour can be the same.

The theory does not exclude the possibility of level 2 conciousness, on image models (of course) for the dolphins.

This would mean e.g. that a dolphin anticipates the action of another and will act in advance, based

on prediction, in the frame of a normal model, imposed by the trainer (not a model of the PSM, as the ones associated to instincts). There could be some difficulties to understand what happens, due to the reason shown in the note above.

Some other things result from the theory. Thus, the basic characteristic of the environment where the dolphin lives, is the lack of landmarks. Whatever the capacity of interaction with external reality is, the dolphin in the ocean cannot build models of the environment in which it lives, due to the lack of landmarks. It can't mark the territory to use marks in building models of the territory. Even if it might make maps of the magnetic field of the Earth, these maps are not precise enough to have good landmarks. Even if it had precise landmarks (near the coastline), they could be used only for local navigation.

Using the terminology of my theory, one could say that the dolphin has schizophrenia induced by the environment.

Captivity should increase the level of intelligence of the dolphins, due to an environment with landmarks. These can stimulate it to use its brain to a higher capacity closer to its theoretical possibilities. However, experiments up to date do not show abilities to build symbolic models, as in the case of some monkeys, even if on image models, dolphin brain seems to be very advanced for an animal.

Observations about the limited survival of dolphins in captivity can be related to the fact, that, in captivity, they build very fast the exact model of the space available. After a while (see "stress") the space is known very well and this could be a cause of stress. A strong brain needs always new information. The solution could be a larger environment, in which, additionally, the configuration should be changed every now and then. Contrary to general belief, animals, including dolphins, should feel better in interaction with man in a controlled environment, in the above conditions, than in liberty.

The shark

The shark has the same environmental problems as the dolphin. Its behaviour is so primitive that, based on the theory, it should have only PSM, with extremely few models, given by the interaction with the external reality. Water seems to be a relatively hostile environment for the development of the intelligence.

The whale

The whale can navigate at thousands of kilometers of open sea and return to its start point. It is also known that they seem to communicate by sounds similar to a song.

It is believed about whales that they can use the magnetic field of the bottom of the ocean to build a map (image model). If so, they could find their position on this primitive map. However, if this map becomes incorrect, due to changes of the magnetic field, they could navigate in a wrong direction, including landing on ocean shores. Moreover, if taken back to the open sea, they will repeat the path that led them to trouble, because their navigation system indicates the same direction as before. Simply, the whales get lost, and have no means to find again their position in the ocean.

We can take a risk and say that, if the information of navigation associated with the magnetic field were recorded in a story-type model (equivalent to a map), then the whale would know how to return to the starting point by "rewinding the tape". Thus, it has to compare the story-type model with IR generated by the direct interaction with external reality.

If this is the method, a transfer of this itinerary model from a whale could be possible to another, which did not make this trip yet, through that "song". Seems fascinating, but also it is possible to check by experiment.

ETA 25: Very complicated operations on image models (walk, jumps, climbing trees) of humans

We will apply the theory to see the exact way of walking, jumping and tree climbing at humans. In accordance to MDT, an action on the external reality (e.g. walking) implies the existence of a long-range action model (ZAM). This model generates the approximate plan of the action. ZAM will build and activate a number of local models (ZAM and AZM) to reach its goals.

A local ZAM will simulate the movement of the leg for the first step. If the simulated step is successful, then ZAM will activate the action on the external reality. The leg will move in the same way as the leg 'moved' during the simulation. It is not possible to do any movement, if it had not been successfully simulated before.

Let's see the case of jumping. In front of an obstacle, which has to be jumped over, the brain will 'execute' a simulated jump. If the simulated jump succeeds, it can be done in the external reality as well, activating the model, which did the simulated successful jump. If the simulation does not succeed, there will be no model to activate the muscles of the body, and the being will be blocked to act. Any attempt to go against the internal decision will fail.

The conclusion from the previous analysis is that a more or less elaborate simulation precedes any action on the external reality. The result is that an extremely complicated activity, like e.g. walking, is executed with remarkable precision and elegance.

At first sight, walking seems to be a relatively simple activity. At a closer analysis, one can see extreme complexity. The first problem is keeping the equilibrium during walking. The stability of humans and animals during walking is a dynamical stability. This means that, if we "froze" the body in an intermediate position, the body would not be stable and would fall. During walking, the models anticipate the movements of the body through simulation and send suitable commands in advance. If there was no anticipation of the evolution and we counted only on the stability and position sensors, the information would get delayed to the device taking the decision and such, the system would have a reduced stability. This is how all the electronic stabilizer systems work: they wait for something to happen to make a correction.

In the case of the brain, the information from the stability and position sensors is used to anticipate the possible future problems and act before the problem arises. This is the dynamical stability and, I think, this problem cannot be solved in real time by any existing computer due to the low power of the present computers.

From here we can see the huge capacity of information processing of any brain, starting with mammals. The most primitive mammals, with brains of a few grams or tens of grams, are able of higher performance than humans, in running and jumping.

We should think of the fact that, for walking, a correlation of hundreds or thousands of muscular fibers is needed. Dynamically, i.e. depending on the specifics of any individual movement, on the previous behaviour, on the anticipated behaviour, on the goal to be attained and on the various external perturbations, all these fibres will be activated/deactivated in a precise order, each with the suitable intensity to solve the given problem. At any moment the problems which could appear are anticipated and the corrections are made, before the problems occur. The number of models (which are built or activated), associated with this type of activity, can be tens or hundreds in a second.

Example: The working speed of a model

Related to anticipation by simulation on a model, I have seen a photo of a baseball player that was trying to catch a fast ball in flight. The high-speed photo showed the ball flying directly into the glove of the player. The sensational in this picture is that the eyes were looking at the place where the ball had been some time before. The model for catching the ball has anticipated the position of the ball based on the previous information coming from the eyes. The action was a success, even if the eyes were unable to give the real time information, and in spite of the fact that the hand can not move very fast. This example illustrates the huge advantage of the construction and operation of models. The effective speed of action can be considerably higher than the intrinsic speed of action of the components.

Hikers who go on difficult treks with heavy backpacks, which change slightly their position, know that hiking can be done with exceptional stability. Personally, the immense capacities of the brain to process information, and the speed of execution of these incredibly complicated operations, have always amazed me.

Associated with the above issue, I had a situation on a trek, carrying a heavy backpack, when a stone slipped from under my foot and I fell. The active models were not able to anticipate this possibility. In this case, the capacity to build a new model suitable to the external reality is reduced. As we know, PSM is activated instead. However, I am still amazed that I was not hurt during that fall (it was practically a controlled fall, but outside my consciousness). Usually, PSM tries to save what can be still saved, and it is even possible, that it will accept sacrificing an arm, to save what is more important.

Connected with this specific problem, there is also another variant that a parallel model to the main model of walking was created. This parallel model predicted that the stone will slip and built a saving model outside the line of the PSM. However the theory predicts only two lines: one of the PSM and one of the ZAM which controls the global activity. Possibly, the ZM could let the main ZAM act, and build in parallel other ZAMs models for new situations, which would be activated in special cases. This type of behaviour is not specifically excluded by the theory, but in reality it is not met sufficiently clearly, so that it can be sustained. Building a parallel model is an easy operation, but the question is, how does

the main ZM know what other ZAM to activate, when the active ZAM does not correspond anymore. The implementation of this facility could be done if there were a 'pipeline' built by the main ZM, so that a specific order of activation of parallel ZAMs existed in special cases. But this would imply the existence of a new hardware. As I already said, the existence of this facility (pipeline of ZAMs) cannot be sustained yet, due to insufficient data, but could be a line of further hardware development of the brain.

The issue of walking, jumping and running is unimaginably complicated and I do not believe that in predictable future, robots will come close to the performance of a chicken a few days old, running on a difficult terrain.

Climbing trees is an even more complicated activity, than walking and jumping. The basic information is related to the lack of precise information about the resistance of the branches. The models are able to make an evaluation of the resistance of each branch, but the model will have enough simulations in which the branch will break. ZM will need to take this into account, based on various local models, in order to build a good strategy (the best ZAM reactualised very often). In this case, the stability in the tree will be given by the capacity of building alternative models, which could be activated, if a branch broke. The brain effort needed to ensure the stability of the person in a tree is huge. Not all brains have this capacity. Moreover the ZM should also build a 'saving' model, in which there should be at least three points of support at any moment, in the idea that if at least two will behave as in the simulation, the system will have an acceptable level of stability.

Walking on a difficult terrain, jumping and the stability in tree climbing are tests, which can show global performance of humans in the domain of image models. In animals these functions can be even more efficient.

ETA 26: The brain evolves under our eyes.

Generally all ETAs refer to the behaviour and evolution of the brain of a normal average human.

In 1900 Quantum Mechanics appeared. It marks the highest level attained up to now, in the brain evolution. However, people, who reached this extreme advance of knowledge, are ordinary people in everyday life. Independent of the level in the professional field, in everyday life, the brain continues to act to a large extent based on image models.

I have an example, in which one can see clearly, and above any doubt, the evolution of the brain towards more and more advanced symbolic models, at the level of the common person, in an issue always associated with image models: nutrition.

In all times, people have eaten based on analysis on image models. Associated terms to nutrition are taste, smell, colour, aspect etc. The decision to eat or not a certain food, is based on image models. It can be said that the whole being, with its whole structure, participates at solving the nutrition problem.

We have an explicit situation, when the process of evolution towards symbolic models in nutrition is clear. I have seen a person in a shop, who wanted to buy a certain product. The person had at hand a list of dangerous food additives (the so-called "E"s). A product was rejected because it contained such an "E".

Taste, smell, aspect and natural drive were overrun and a logical decision taken, totally independent of any image model. "E"s cannot be sensed based on image models. When a decision is taken exclusively on symbolic models, we have clearly a progress. This phenomenon, according to MDT, will increase on all levels.

Important note: the elite has imposed that any food should be labeled with the exact contents and other data, so that evolved people can take their own decision. This type of information is useless for the image-type public. The real problem is not the information, but the technical capacity of the brain to collect information and decide based on symbolic models.

As I mentioned, the attitude of the majority of consumers continues to be strongly anchored in a complex structure of image models. There is an infinite number of cases, in which the image models from one's mind, make the products more expensive, and also more dangerous.

Example: "good quality" butter might contain a substance, which confers it a Yellow commercial colour. Between butter with colorant and the same without it, many consumers choose the one with colour. There are several soft drinks (some very famous) which, without colorants, would have less success.

The brain follows its ascending course towards the increase importance of symbolic models, so that, as we have seen it already happening, the decision in nutrition will be taken with more and more contribution from symbolic models.

The guarantee exists on symbolic model, that, within the laws and the level attained by science and technology and the laws of economy, food is possibly the safest. Nutritional regulations can only impose what a certain product may not contain.

The evolution of the brain is, however, slow on the scale of human active life, even if the evolution accelerates. We are on a level development of the brain on which, in domains where image models were leading (e.g. nutrition), symbolic models are gaining ground.

ETA 27: Principial negative effects associated with the functioning of a brain

1. There is a principial problem, when we ask a question. In order to have an understandable answer, we need to be within the model which generates the answer. Without this condition, the answer will be nonsense. To put it differently: not any question is permitted.

Example: The nature of light can be understood only within the framework of Quantum Mechanics. If we are not familiar with Quantum Mechanics, the answer to the question about the nature of light is nonsense. From outside Quantum Mechanics, light seems to be both wave and particle, and this statement cannot be understood based on logic.

In case of children, the questions in the class "why..?" cannot generally have any answer, as the children haven't got the suitable models. However parents have an answer to any of the children's questions. The answer with the stork bringing the babies is famous. The educational system should take into account these issues. For instance the 'why' questions should not be encouraged, and favour the "what is this?" type questions. This means that, for children, parents should show them the elements associated with external reality and their relation/interconnections. Children will build alone models and they will find themselves the answers to the questions of 'why' type.

2. When you can't do what you want, you do what you can... Here we open Pandora's box. In the majority of cases in everyday life, we cannot do what we want or we can't turn back time after a failure.

These problems can generate building and activation of illogical action models starting with revenge and resignation as individual acts, and ending with wars. The reason is associated with the tendency of any model to evolve towards stability, in the conditions when the model cannot stabilize in any situation. For instance, by revenge, in a way or another, one can find a stability of the model, by attaching to it another model (this model is a shielding model).

Resignation means building a suitable shielding-type model associated to the model with problems. The most important and well-known shielding model, associated to resignation, is religion.

All shielding models are associated with the term 'illusion'. The illusion is defined as the reality generated by a shielding model.

The education system should take into account these classes of problems and find solutions to avoid them.

3. If an action model has been built, it could be activated, independent of respecting or not the social or moral laws. From MDT, we know that PSM contains a series of models imposed by education, which block certain models to activate. If the suitable models in PSM are missing, or if there are suitable shielding models, there are no limits in activating the most incredible models.

4. Translation of an image model into a collection of symbolic models to sustain an undeclared image model. This syndrome is recognised from the simple and imperative logic, but also from the incapacity of the person to have a dialogue, based on logical data and statements. On symbolic model, this problem does not occur, due to multiple cross-checks between elements and relations.

ETA 28: Free-Masonry

We start this theoretical discussion by building a local model. The main statements of the local model are:

1. The intellectual superiority of a person is given by his/her capacity to build and operate long-range

models.

2. The activity of the long-range models cannot exceed the lifetime of the person.

3. There are strong tendencies to prolong the action of long range models beyond the limit of his/her physical life.

If a person wants that certain long-range models be active beyond the limit of one's lifetime, one possibility is to activate such models within an organisation. However if we want a model to reach its goals in, let's say 100 years, the organisation should be a very special one. This condition is fulfilled e.g. by free-masonry.

Before going on, I want to point out that I have no direct information/ knowledge on any masonic organisation. The discussion is based exclusively on theoretical considerations, as they result from MDT, and the local model presented above. Moreover, for the discussion, the inner knowledge of a masonic organisation would not bring any useful information. According with the theory, the organisation should reach its goals beyond the limit of lifetimes of its members, and as such, the ordinary masons are generally unaware for what they are fighting.

A very general statement is needed here. Thus, a theory (any theory!) makes a prediction. In this specific case, MDT predicts the existence of a special organisation. Then we try to find in the external reality something that corresponds to the definition. Thus the fact that I attribute to masonry the definition generated by the theory, does not mean that this is complete, and in accordance with the external reality. The masonry in the external reality could have some characteristics in accordance with the theory, but it might have other characteristics, which have not been accounted for by the theory. This means that the theory can predict only the existence of a general structure, and so, it is possible that, in the external reality, one can find several types of organisations, which in spite of respecting the definition, can have structures and components not predicted by the theory. This situation is an extremely general one in all positive sciences and occurs every time when a theory is confronted with the external reality.

Let's go on with the description of a masonic organisation based on MDT.

Usually, ordinary members have no idea on the exact situation, and what they are fighting for. This happens due to the fact that masonry acts extremely slowly, modelling people from a spiritual point of view. Thus, when something happens, this will happen because the intellectuality has already the 'natural' tendency to act in a certain direction, and because the 'natural' tendency of the majority of people will be in the same direction or will not oppose it, at least. Thus, the masonic methods are very different from the classical methods of education, or from the political ones.

The states also want to persuade people to act in a certain direction, by propaganda or education. However, the political goals are short-term initiatives (at most a few legislative terms), while the masonry wants basic changes in the thinking structure of people, independent of the political orientation of each member.

As I have already stated, the goals of masonry are to be attained in several generations. This is why an ordinary member of masonry cannot detect the goals, which have to be attained. In this situation, masonry should be in very good relationship with any political and economical forces, independent of their orientation. It also results from here that the masonry will never campaign in any way (political or other) for any person (inside or outside its ranks) and generally for any political orientation.

Most masonic organisations will not accept political or religious discussion inside them, in accordance with their goals. Political discussions are associated with short-range models compared to the masonic goals, and the religious discussion are nonsense, as religion is based on invariant shielding models.

Masonic organisations are based only on individual personalities, independent of their orientation. This is why these organisations have the tendency to persecute the weak members, or those who wish the support of the organisation in their individual interest. The reason is clear: the masons have to be strong personalities, to be able to influence efficiently the others.

Masonry should be more complex than it was shown here, as somebody has to build and activate such very long-range complex models. At the same time, the existence of several corellated or uncorrelated masonic organisations is not forbidden.

Let's see the predictions of the theory connected with the future of masonry. For this, we will remind the basic problems of the world, in general, as MDT predicts them.

X1: The world is pushed forward by "symbolic" nations, while more and more nations cannot maintain the pace and have fundamentalist tendencies.

X2: Inside a "symbolic" society, larger and larger groups of people who cannot keep the pace with the symbolic orientation appear. These take refuge in fundamentalisms (antiglobalisation, ecological, religious movements, etc).

X3: It looks like there is a degradation of the technical quality of individuals, already at birth, especially in the "symbolic" countries.

X4: Many persons from "image" countries have very good symbolic orientation and are accepted and desired in the "symbolic" worlds. However, these persons do not have a structure of basic models compatible with the symbolic world, as they are coming from an image world, and thus, they cannot contribute to the strengthening of the structures of the symbolic-type societies.

Let's see now some possible problems to which masonry is obliged to react. Let's take e.g. X1. On long term, it could cause a break up of the world. Part of the world should become a ghetto. If this happened, then masonry would have the tendency to control this process, which is considered as inevitable. If ghetto-isation of the world were considered unacceptable, masonry should find and implement a solution excluding it.

Discussion associated with X1...X4 should finalize in long-range models, based on which masonry should act. We can see from here that masonry is the only organisation, which could work with this class of problems. States have too short-range models and above all, the representatives of the states are not preoccupied by such basic problems.

As the classes of problems of types X1...X4 are extremely complicated when associated to specific external realities, the prediction is that masonry has serious difficulties connected to its own structure of personnel, as well as with the ways of action in future.

It can also be supposed that presently some members of the masonry could not accept anymore that some goals are attained beyond their lifetime limit. If a large enough fraction of the masons think this, then the character of masonry will change.

Let's see a class of problems we could group under the name "Irak syndrome". This is about the fact that image countries do not adopt and respect the democratic-type structure, as it is understood in the symbolic countries. This would not be big deal, if these countries were poor. If they have natural resources for sale, those countries might be tempted to act dangerously for other countries, as there is no public control on what is happening. These countries may become, at the limit, a danger for human civilization.

This class of problems is far beyond the capacities and goals of classical masonry. However, as this syndrome will exist, for long time from now, masonry will have to act somehow to keep the connection with the external reality.

ETA 29: Problems associated with movie making

I have seen on TV a scene presenting a vehicle entering a street. The scene starts with a general view of the street. The vehicle enters the scene from left to right. During the sequence, two persons appear in the foreground who watch the movement of the vehicle. The problem is that the eyes of those persons follow (we suppose) the vehicle, moving from right to left. If the operator had not changed position, the eyes of the persons should have moved from left to right, as predicted by the general model, created during the previous scene.

Let's see what happened. The vehicle was recorded entering the scene from left to right, then the operator crossed the street and took some images of two persons watching the vehicle, and moving their eyes from right to left. This can produce confusion in the construction of the model. In a more complicated situation, the presented data would have been confusing and would be understood in fragments, stimulating the schizophrenic tendencies. It is reminded that, when the information cannot be correlated, the brain will "switch" from the construction of a normal model to a story-type one.

This is not an insignificant problem. If the scope of the presentation were transmission of information to help build a model associated to the recorded external reality, other rules to shoot a movie would exist, which should be different from the ones used nowadays.

People do not seem to be disturbed by this class of problems. They might be disturbed only if they want to reconstruct the normal model based on spread data. In this case I consider it as a form of

induced schizophrenia (XS1B), as clearly correlated events are presented as unconnected.

Thus, in a movie, as local models appear in a succession, they are related inbetween each other, in the frame of a story-type model, instead of been used to create a single normal model, associated to a unique external reality.

The perception based on story-type models is a primitive way of understanding the external reality, and it is unfortunately a typical way of the "normal" man in the civilized world. Understanding this problem contains implicately the solution. Of course, education in school will have an important role.

This problem (reflection of external reality in story-type models) appeared as an effect of overwhelming the brain. What happened is an avalanche effect: the presentation of a situation is confusing and, as such, the brain builds a story-type model. The structure of story-type models is consuming a lot of resources of the brain and determines more and more limited allocation of resources to building other normal models. The reduced capacity to build normal models causes that normal presentations are not detected and appreciated anymore. Even if the presentations were normal, it would be perceived through story-type models and so the circle is closed.

Reflecting the external reality in the form of story-type models is a special kind of fundamentalism. This conclusion should worry everybody.

The solution should be a strict control on the form of spreading the information, so that information could only be presented within the general frame declared at the begining. Thus, any specific information will be integrated in the general model. This is what is already happening in positive sciences, while, e.g. in newspapers, information is presented without any connection to the past, without any prediction of the future evolutions and even without presenting the context in which the information should be integrated.

ETA 30: Optical perspective and the quality of construction of image models.

The succes in constructing image models in the case of photography and movies depends on the optical perspective of the objects. The perspective is given by the angle under which one can see the subjects. This angle is given by the ratio of the maximum dimension of the image to the focal distance of the lens.

Example: for 35mm cameras (used typically) the 50 mm focal distance was found to give the same perspective as the eye.

It is important to know that in order to reconstruct correctly a 3D model, the perspective has to be the normal once as the eye is calibrated for its normal perspective. This means that YM models have been already built and recorded based on the normal perspective. If the perspective is changed, the M-models will not find the correct position of the YMs. Thus, the YMs have to be modified and this is an extremely complicated operation. In this case the brain prefers to build fragmented ZM models (several ZMs associated to pieces of the primary M-model). This also could favorize a form of induced schizophrenia (XS1B).

This problem appears e.g. when we watch a scene recorded in a place where we have been before and which we know. If the perspective is not normal, it is possible that we do not recognize, or recognize only with great difficulties, some elements and sequences which we should recognize easily.

ETA 31: Some times aggressivity may fight XS1-type schizophrenia.

The aggressivity is defined as a stronger than average tendency to activate ZAM models. An aggressive person has the tendency to easily activate models that act on the external reality.

Let's see some typical situation in common external reality.

Example 1: People who go to supermarkets have easily noticeable schizophrenic tendencies during shopping. This is understandable. Each product seen will activate at least one model, so, in a short time, the brain is overwhelmed by the multitude of models activated at the simple identification of the entities of the external reality. They need to correlate, in addition, the offer (price, quality..) with their (usually) limited financial resources. The effort of the brain is very big, so that little energy is left to take into account the surrounding people. Those who are in a hurry (have precise models to execute) will perceive the ones overwhelmed by the problem as "sleeping", blocking the flow.

However, as we have seen, schizophrenic tendencies are, up to a point, understandable. The local-schizophrenia given by a main problem which preoccupies too much the brain could be fought by the

aggressivity of the others (if it existed). When, for instance, the others disturb too much or too often the "sleepy" (as in the supermarket example) the latter will be forced to redirect part of their resources to respond to the many external perturbations. To do this, they need e.g. to build several concept (simplified) models for the products, and this is evolution (everything non-essential is discarded).

Thus, the aggressivity of the others can fight local-schizophrenia as it has been described above. If enough people will be aggressive with those attained by local schizophrenia, the result will be that the shoppers will have more precise ideas and will decide faster. Anyways, an aggressive environment will attenuate to disappearance local-schizophrenia with beneficial effects on everybody.

Example 2: the same type of local (temporary) schizophrenia appears when driving in busy city traffic. Many will be overwhelmed and will react slowly with excessive caution and this will upset the other aggressive drivers. If there are enough aggressive drivers, or if the law favours those drivers, then the "sleepy" will be either self-removed from traffic, or they will join the tendency to aggressive driving. The effect would be an increase in fluency and hopefully fewer accidents.

Connected to this paradox (aggressivity diminishing the number of accidents) the pros could be: the "sleepy" upset the aggressive. The aggressive could thus produce accidents. If the "sleepy" will disappear, the risk of accident will be decreasing significantly because of less sources of irritation. If the "sleepy" will vanish from traffic the occasions of the aggressive to show aggressivity will decrease. This can be explained by the fact that, if the one in front of me knows that I am aggressive, he will not risk to drive "lazy". Also, if I have an aggressive driver behind me, I will not risk to be aggressed, so I will drive more dynamically, without hesitation. The result is not only more fluency but also the diminishing of the effect of aggressivity.

We have shown how XS1-type schizophrenia could be fought by aggressivity, if the law favoured aggressivity e.g.

Let's see the reverse. A schizophrenic population reacts slowly and based on too short-range models to the permanent perturbation associated with everyday life. The dynamic individuals will be discouraged by an inert society and so they will "contribute" to the general bad status of the society.

ETA 32: Sex

MDT considers that there is no principial difference between male and female brains. The differences appear only related to the technological implementation of the beings, in general.

From the general theory we know that one of the basic design requirements of the beings is to survive unconditionally forever. This requirement is the goal of several image models of the PSM. In the technological implementation known, the living beings have a limited lifetime and the above condition is completed by reproduction.

Fulfilling in optimal conditions the reproduction in the animal world means the selection of the best individuals for reproduction and blocking the reproduction of the less performant, based on the available image models in PSM.

The models associated to sexual activities are in PSM and, of course, they are image models.

In case of humans, we remember that image models have dominated life until about year 1800, after which symbolic models have begun a strong ascension. As a consequence, sexuality, up to 1800, was based exclusively on image models (for the average person only), while after 1800, sexuality was influenced, more and more, by symbolic models (based on logical analysis).

For humans, as based initially on image models, sexuality modelled the man very differently from woman.

It should be noted here that the term "Man" means for the majority of us "a man" (male), which is not correct. The explanation for this confusion resides in the dominant position of the man in a society based on image models.

Reluctantly leaving behind the cultural environment based on image models, present sexual life is strongly influenced by symbolic models. In a symbolic model environment, there is no sexual difference. This could be expressed by saying that, in a symbolic society, there are no discriminations based on sex. All humans, independent of being male or female are equal, because this results from the analysis on symbolic model.

As already said, sexuality is associated with image models, and changing the structure of basic

models, from image to symbolic, has produced strong perturbations in the approach to sex.

In the present technological implementation of humans, the dominant position of the man is evident. This is the source of the present crisis of sexuality. A woman, knowing that she is equal or, many times, even superior to the male partner, will have difficulties in implementing her sexual life. Due to this problem, the number of non-usual sexual behaviour is high.

In this approach of evaluation of the problem, we will talk only about the "normal" situation, i.e. the situation which should be dominant in sexual issues in a society dominated by symbolic models.

Both men and women have to build a structure of symbolic models, in which the models explicitly related to sex (image models) should be controlled based on logic.

The basic statements of this symbolic model should be the following:

1. There is a perfect equality between men and women, including the explicit sexual interaction.
2. Faithfulness to a single partner is not an important feature in a structure dominated by symbolic models. On image models, faithfulness to a single partner, only for humans, is necessary and results implicitly from the way of choosing the partner ("pure love"... i.e. the partner is included in the PSM as an image model).
3. Sexual attraction can be strongly discouraged by the existence of a prediction that describes exactly what is going to happen during an explicit sexual interaction. From here results that a 'symbolic couple' needs to invent, if possible, everyday new ways of sexual interaction. Also, when routine appears (the prediction is confirmed too precisely), the couple breaks-up to avoid unsolvable stresses.

These things can be already met in the world we live in, especially in the most 'symbolic' countries (the most advanced from the economic, technical and scientific point of view).

The theory predicts the continuing changes of our sexual 'ways' based on the general shift from image to symbolic models. However, due to fundamentalist reactions (rejection of symbolic models of a large fraction of the population), the sexual life of those attained by fundamentalism is affected.

For 'symbolic' people, sexual activity can contribute to everyday happiness only if the partners are on the same level of 'symbolic' development.

There is a problem associated with the actual phase of brain development associated with sexual activity. Thus, several instincts are included in PSM, which are associated with sexual behaviour, too. These instincts will block for instance the tendencies towards homosexuality, incest and pedophilia. The evolution of the brain to symbolic models results also in the reduction in importance of the instincts with negative consequences, at least in a transient phase.

Thus, the speed of diminishing the importance of instincts is different from the speed of evolution towards symbolic models.

The protection structure based on symbolic models would predict the long-term effects of a sexual decision. When a prediction shows a negative effect, the decision is to avoid such activities. This method should replace the method based on instincts situated in the PSM.

At this point, we are in a relatively dangerous transient phase. The protection structure based on symbolic models is not implemented yet, while the protection system based on the instincts is less and less efficient.

On very long range (i.e. over hundred years from now) the whole protection structure will be implemented based on symbolic models. This means that any sexual activity will be conditioned by the predictions on symbolic models. The normal sexual behaviour, in 100 years from now, will be very different from today.

It is very likely that this prediction will be confirmed for the symbolic countries. For the 'image' countries, due to fundamentalism, one can assume that a fraction of the population, at least, will turn back to the protection system based on instincts. It is very difficult to evaluate the global effect of the mentioned behaviour on these countries.

ETA 33: The internal body

MDT is associated with the main brain which, among other functions, controls also the external body (hands, legs, etc). For the internal body (internal organs...), there is an extra brain, which is a

technological process brain. This process brain contains basically an image model of the whole internal body (its external reality contains the whole internal body). Its scope is to maintain the stability of the whole internal body. When a perturbation occurs, a model will simulate one or several solutions, in order to regain the equilibrium.

There is a connection between the main brain and the process brain, as it can be seen experimentally. Thus, a bad psychological state (many unfavourable predictions) can produce perturbations in the functions of the internal organs. The inverse influence also exists: a healthy psychological structure can improve the general health.

Situations exist when several perturbations appear among the systems of the internal body. In a complex situation, the model cannot understand anymore what happened, due to the too complex structure. Some nonconventional medical treatments exist, which can be used to control such situations.

MDT is not very much preoccupied with this problem, as extremely many factors exist, associated to the technological implementation of the whole being. This section wanted only to show that the functioning of the internal body is controlled by a technological process brain, which works in the same way as the main brain. The process brain is dedicated to the construction of a reality associated to our internal body, which represents its external reality.

ETA 34: The European spirit

The theory and the applications are associated mainly to the European cultural space. Europe is a cultural environment where the extensive development of civilization was achieved based on symbolic models, associated or not to image models.

Except geometry (created in a space in close communication with the European cultural space), Europeans have created the great fundamental models. We are talking here about Christianity, open sea navigation, the heliocentric model of the Universe, polyphonic music, Newton's Mechanics, Quantum Mechanics and Relativity theory.

Let's evaluate the European spirit based on some of these models.

The Roman Empire has been created through conquest, but wherever the Romans got, they created efficient organisation structures, which have been in favour of the conquered people too. Thus, Romans have been both conquerors and civilisators. This characteristic in the way of thinking is a permanent feature of Europeans up to our time. Thus, the large colonial empires did not bring colonisation of Europe with slaves. Independent of the injustice to the colonies, when leaving them, they were left in a good or very good general shape, e.g. Hong Kong. Nowadays, the European Union spends a lot of money earned by European work, to civilise Eastern Europe.

Europeans created Christianity for Europeans. This is why the Christian religion is tolerant and has reduced tendencies towards fanaticism.

A significant number of facts show that Europeans have an adventurous spirit (Marco Polo, Columbus, Magellan etc.) The spirit of adventure is associated closely with the desire of knowledge, the search for new ways of evolution, and the need to analyze everything, and never accept an invariant situation.

An example exists connected with the heliocentric model of the Universe. From Antiquity, everybody knew that Earth is the center of the Universe. This was proved by direct everyday experience and, at least, implicitly, by the Holy Bible. The scholars of Antiquity have left us precise methods of calculation for eclipses of the Sun and the Moon, and data on the ecliptic, and as a consequence on the position of the Equator and the Tropics. Then, why after year 1500, some Europeans did consider that something was fishy about the geocentric model of the Universe?

There was a small problem; from the billions of stars, seven had an apparently chaotic movement. The Ancient Greeks have called them rambling stars or planets. The European spirit could not accept this. Nikolaus Copernicus published in the last year of his life the heliocentric theory of the Universe. It was for the first time when the European spirit and Christian religion clashed. Giordano Bruno, a great European, has payed with his death the sustaining of the idea of the Earth not being the center of the Universe, and Galileo Galilei had to be humiliated to survive.

But, surprise! Kepler verified Copernicus' theory and discovered that it is wrong (the positions calculated for the planets did not correspond to the experimental data). Kepler was not discouraged and he discovered that, if the orbits were to be elliptical, and not circular as said by Copernicus, then, the calculations could be compatible with the experimental data. Later, Newton was able to find the

explanation of this situation.

The problem was solved beyond any doubt in the favour of the European spirit. After many centuries, the Christian Church admitted officially the situation and rehabilitated Galileo Galilei, but not Giordano Bruno.

The above considerations suggest the essence of the European spirit: liberalism and tolerance, the desire for knowledge and the tendency to adventure.

We will say a few words about a new issue. It appears now, that a European Constitution is to be written. The problem is associated with the protests of the Christian Church generated by the non-inclusion in the Constitution draft of a phrase on the Christian origin of the European civilisation. As we have seen above, Europeans have created Christianity for Europeans. In spite of this, in many cases the European spirit clashed violently with the Christian spirit. The main reason is connected to the dynamism associated with the European spirit, which cannot accept an invariant model (religion).

The European spirit always was victorious, but the Christian Church did not succeed to evolve fast enough to sustain always the European spirit. The Church doesn't seem to have learned anything along the centuries, if, even nowadays, it opposes the European spirit in problems like the same-sex marriages, abortion or accepting women as priests. Thus, there is, up to a point, a justification to the decision not to include in the European Constitution the reference to Christianity.

We need to note that accepting same-sex marriages is not, in principle, a good thing, and I believe that many Europeans have this point of view. However, the European liberal and tolerant spirit states that, passing over any pros and cons, there should not exist, in principle, any authority to oppose to the wish of the people to search and experiment new ways of life together. European homosexuals are Europeans, and have the right to live their life as they consider it right.

Note: The fact that the Christian Church, created by Europeans for Europeans, has come at times into violent conflict with the European spirit, does not mean at all that it is a non-European Church. During the 2000 years of Christianity, the Christian Church had a very positive role in keeping the stability of the world, and gave hope to a lot of people. Leaving faith behind, created monsters (e.g. Communism). This section wants only to show to the Church, that it should be more flexible and, independent of its great merits, avoid to get into conflict with the European spirit. The European spirit has always been victorious and will always win any battle with the Christian spirit.

Let's follow however some facts. The first fundamental symbolic model is Euclid's geometry. It was created about the year 300 BC and is unmodified up to our days. The scholars of the period left us a huge amount of scientific data kept in large libraries of the Antiquity. At 415 AD, the Christian leaders destroyed the great library of Alexandria, because the books have been considered contrary to the Christian religion.

The result was that scientific knowledge has been completely destroyed for a very long time (the European civilization entered in the Dark Ages), so that the next fundamental symbolic model (Newton) appeared over 2000 years after Euclid! It is clear that the Christian Church had an active role in this unacceptable big delay, by the destruction of the books and blocking freethinking. However, it is not clear that this delay was caused by the emergence of the monotheist Christian religion or it is associated with a characteristic of the development of the brain. I mean, any monotheist religion wants the control of the thinking system of the people. The main problem is if the people accept this, or not. The Christian Church used to keep up to fifty years ago a list of forbidden books and ideas, but very few people take it in consideration. The general problem is still open.

The evolution towards symbolic models reduces more and more the influence of religion on society, and this can be seen in the increase in the number of those who ignore religion.

Many people, who deny the existence of God, are considered 'atheist'. However, this term has another meaning, closer to its initial meaning, given by the ancient Greek, i.e. a person who can live without the help of God. We denote this term by "atheist-2" and we associate this definition to it: a person who can live without the help of God, without any other specifications. An atheist-2 could e.g. not deny the existence of God, but he doesn't need Him to live normally in a European-type society. This also means that an atheist-2 can enter any religious site (Christian or not) and respect the site, faith and the believers. This has been mostly the European spirit of all times.

One of the tendencies of Europeans, in accordance with the European spirit, has been to be atheist-2 (an effect of the liberalism and tolerance), but only lately, as an effect of the increase of the power of symbolic models, this shows, including in the statistical data. This tendency will grow and it will depend only on the Christian Church to change, and accept the atheist-2 as they are.

Europe has another problem: it started the most destructive wars of the 20th century and created horrible ideologies: Nazism and Communism. The wars, Nazism and Communism can be associated to the adventurous spirit specific to Europeans, but contradict liberalism and tolerance. The Europeans wars appeared when the relative importance of the 4 factors has been distorted. Thus, those who started the wars, those who applied the Nazi and Communist principles have departed from the European spirit. There will always be a high risk for Europe, when this spirit is distorted.

Let's see, for evaluation purpose, Europe's relationship with its main 'competitor', USA. The Europeans, who have formed mainly the population of USA, have been the Europeans with a strong tendency to action (they have been building easily ZAMs and AZM and they have been eager to activate them).

This explains the power and efficiency of the American society, but also the weaknesses of the USA (does not 'produce' top personalities and needs to 'import' them). This also explains the very high level of XS1-type schizophrenia in the American society.

As we know, in a stable and efficient society, the tendency exists to build suitable models to each problem. The Americans consider generally that there is only one optimal way to solve a problem. The specialists will find this optimal solution and will impose it to everybody. Thus the population reacts suitably to any problem.

However the price for efficiency is XS1-type schizophrenia; if the situation is changed, the people have no suitable solutions anymore, and they are blocked as they are not prepared to build on their own new models in front of a new changing reality (this problem has been presented in several other ETAs). From here emerge the differences between the two cultural environments, the European and the American ones.

Example: In any country, included USA, there is a white line in front of any traffic light. If the traffic light changes to red and somebody stops after passing the line by 10-cm e.g., this is illegal in the USA and the driver is called in court. In Europe this 'illegality' produces at most smiles. Europeans will never accept 'perfection'.

The American success is given by perfection, and perfection is in contradiction with creativity and the European spirit. The European spirit is knowledge oriented, while the American perfectionist spirit is goal-oriented.

Let's see some examples of the competition between Europe and USA.

In Civil Aviation, the Europeans came to sell more planes than the Americans do. This shows that the European spirit is efficient in the more and more symbolic world we live in.

In Nuclear Physics, Europeans have discovered two subnuclear particles, "W" and "Z" (Nobel Prize), when the Americans had the needed equipment (high- energy particle accelerators), but did not do the necessary experiment. The Europeans continue to be creative and efficient.

Let's see the reverse as well. The Europeans wanted to build a fighter-plane, to compete the US ones. Then they discovered that they haven't got the technology to make it 'invisible', haven't got enough money to build it and haven't got the background infrastructure to support this weapon system. Even the navigation system (GPS) is American. This is an example of the European adventurous spirit. This spirit can be seen in the building of the A380 (the biggest airliner in the world). We will see in a few years the result of the competition between the American perfectionism and the European spirit.

We have situations when perfectionism is in conflict with the European tolerance (the Americans are less tolerant than Europeans). The result is that in a few crucial problems of the long-range evolution of the society, the Europeans have a slightly reduced capacity of understanding what is going on.

E.g. in the Irakian problem, the European tolerant spirit produced a different reaction than the USA. I think that many Europeans are convinced that terrorism cannot be fought by dialogue, but their tolerant spirit made them sustain that. Here the Europeans have problems, which will grow along with the evolution of the society. The Europeans have no principal solution, as, actually, the Americans haven't either.

Let's summarize the European spirit.

The tolerant spirit, characteristic to Europeans too, has to be preserved as absolutely necessary in a symbolic society, but it can turn against the society in fundamental problems.

The liberalism, spirit of adventure and desire of knowledge are basic components of the European

spirituality, and they cannot be given-up, as long as Europe will exist.

Europe will be in great danger anytime when it will distort the European spirit, as it had been defined above.

This evaluation discussion should be ended here, but unfortunately all I have stated up to now is not really correct in a scientific approach. As we know, a scientific approach is based on the existence of a declared local model. This local model has to generate the definitions of the terms used. Let's start building a local model, and then we can return to read the above statements.

Let's begin with the 4 terms: liberalism, tolerance, spirit of adventure and desire of knowledge.

Liberalism is associated with the technical capacity of a brain to build several long-range models, associated to the same external reality. Moreover, that brain has to compensate for the design deficiency XD3 (with A and B variants, see MDT).

As several models exist, associated to the same external reality, the possibility exists to activate any of them or several at one time; these models can change dynamically. The liberalism and the spirit of tolerance are closely connected. Liberalism admits several ways of action, and tolerance makes possible the choice of several ways, alternatively or simultaneously. Liberalism and tolerance are characteristic to an evolved and high quality brain. It is very important to note that tolerance implies the knowledge of several models associated to the same external reality.

When the brain cannot build anymore several models associated with the same external reality, it will restrain itself to a single model, and intolerance appears.

The perfectionists (e.g. the Americans) can have a serious problem here. Perfectionism means rejecting basically all the models, except one created by specialists. Thus, the tendency to induced schizophrenia (XS1B) increases for the perfectionists.

Example: The prompter is used in some TV broadcasts. The persons reading the news are totally de-personalised and practically recite, sometimes without understanding what they are saying, even when they are the authors of the texts. When news is presented, both speakers and listeners have two problems: to read/listen to the message and to understand its meaning. When the perfectionism of transmission of the message is exaggerated, people will allocate less energy to understanding its meaning. Using the prompter is against the tolerance and the spirit of adventure characteristic to Europeans.

Let's analyze now the spirit of adventure and the desire of knowledge.

In front of a complex external reality, we need to build more and more complex ZM models. Without them, ZAMs can be built only approximately. This situation is practically very frequent, and the reaction to imperfect ZMs will characterize the spirit of adventure and the desire of knowledge.

It is clear that if we have no good quality ZMs, we cannot build good quality ZAMs, and this will block even more our possibility to build good quality ZMs.

A solution is to develop the ZMs and ZAMs (by simulation on suitable test models) up to the moment when we have enough guarantees that an action on the external reality will evolve as predicted. This is how perfectionists act. A second solution is to act based on the imperfect available models, evaluating the risk in a more or less precise way. The action in these circumstances characterizes the spirit of adventure.

The spirit of adventure is strongly related to the desire of knowledge. In fact, we can say that the desire of knowledge (to have better and better ZMs) is driven by the spirit of adventure (to activate ZAMs that we know to be imperfect).

Perfectionists are more goal-oriented, and not knowledge-oriented.

Example (effects of perfectionism): The Americans have imposed the operating systems for computers and many programs associated with them. Perfectionists have created them. Their scope is to attain a goal and not directly knowledge. This spirit is incompatible with the European spirit and many Europeans feel it. Forced to evolve in a perfectionist type environment, the computer user becomes slowly but surely an accessory to the computer.

Another example can be given associated with the negative effects of perfectionism. After the 9/11 events, the perfectionist American solution was the introduction of draconic customs and border rules and other homeland security rules, which are not efficient in any real situation. The perfectionists have

no other available method. In Europe, the spirit of adventure and desire for knowledge is manifest, which means that the Europeans do not act according to 'rules' as perfectionists do, but use their independent capacity of learning and acting in a new unknown environment.

We will see on long-term the efficiency of the European methods in a world in which, according to MDT, the dispersion of the human brain development level is increasing dangerously.

ENDNOTES

This book can create problems to the majority of readers. The main problem is connected to the assimilation mode of new knowledge. The usual way, promoted by the educational system at all levels is assimilation of story-type models (logically structured or not) in an image type environment.

This book offers no chance to those who expect a story-type model associated with image models. It cannot be in any way associated to any image model. The book presents a single symbolic model; it has to be understood as it is, as a whole, based on logic.

The basic requirement is to have the capacity to build and operate symbolic models. People who work in positive sciences (physicists, mathematicians, engineers...) are favoured, while others have little chance to understand anything.

Some 'test' readers of the book were displeased by the repetition of several issues in different contexts. This method is mandatory when a new symbolic model has to be assimilated.

The persons who have the tendency to build story-type models will be very much disturbed by the repetitions, as the repetition sends them back to the point where the statement appeared for the first time. This will fragment the story-type model. Once fragmented, it cannot be continued and a new story-type model has to be built. This produces irritation in this category of readers.

On the contrary, those who build normal models will consider repetition as positive, as it reconfirms the correctness of the assimilated normal model. The model is logical and thus can be developed by anybody who has abilities in building and operating symbolic models.

A short summary has been given at the beginning of the book. Based only on this summary and a few observations based on external reality, anybody could rewrite, maybe even better than I, this whole book. The reason is that any symbolic model is developed univocally based on logic.

Another aspect I want to underline is that this is a fundamental model. Based on it, one can build an unlimited number of local models associated with specific problems. Anybody who has assimilated the model can develop it with his/her own resources for specific problems. E.g. this fundamental model can generate a new positive science called "psychology".

Children starting with age 12 can understand the book. At this age, children can build and operate relatively complex symbolic models, including computer programming.

Humans have a basic problem related to the perception of the external reality. I have discussed with several people who have not been disturbed by the fact that, e.g. in psychology, the terms used have no normal definitions (only descriptive ones). There are people who believe that a positive science is a science that uses apparatus and gives precise results of some measurements. Even among physicists problems exist, most don't even realize that what they are doing is integrated into symbolic models. They know very well the models they build and operate, but some do not know the term 'symbolic model'. Many do not realize that any symbolic model is integrated into another symbolic one, until a fundamental symbolic model can be reached.

Example: Many will be surprised to find out that any computer program is a symbolic model. A program written e.g. in Java, is a symbolic model. The Java language itself is a symbolic model. Java is probably included in the symbolic model called C++. C++ itself is included in Assembler, which on its turn is included, together with all the programs, which have ever been written, and any program which will ever be created, in the fundamental symbolic model called machine language.

Whatever the level we are on, a computer program starts with the construction of the symbolic model. This means that we need to declare the elements, their properties and the fundamental relations in between them. This is valid for languages based or not on algorithms. Anything which follows is called simulation on models. Properties of elements or of relations can be changed, and we can see what happens. Once this symbolic model is stable (has no logical contradictions), it has to be calibrated, i.e. needs to be verified on cases where the result is known. In most cases, the calibration implies a larger effort than building the model.

What we obtain from any computer program is a prediction of the model. If the program is stable (logical) and if it passed the calibration tests, then its predictions will be compared with the external reality. We remind here that the assembly of all predictions of a symbolic model is called reality associated to the model.

It is not at all surprising that, in the same way as with the brain, terms as truth or reality can be associated to a computer program, with the definitions from MDT theory of the brain. The reason is easily understandable: we extend to the exterior our own structure of models of the brain. Seems to be impossible to do anything except this!

The above statement is interesting also under another aspect. Thus, no connection exists between the basic functions of the brain and a computer. However, we use computers to extend to the exterior the functions of our brain.

MDT makes a few predictions that are very difficult to accept. The educational system is based on assimilation of image and symbolic models, and verifying of the assimilation in specific tests.

This method has a problem. Based on the theory, those who have abilities to assimilate models have reduced qualities in building new models. The problem is related to the fact that the level of consciousness depends on the capacity to build new models. Thus, school has the tendency to promote individuals with reduced level of consciousness.

MDT shows that there are people knowledge-oriented and action-oriented. The action-oriented are not favoured by the educational system, and the ones oriented to knowledge are overappreciated. The action-oriented people move the society forward, and the educational system does not understand this many times.

The theory defines schizophrenia as the incapacity to build and operate long-range models. Long-range models are required not only for the formation of consciousness but also for the prediction of problems that might occur in the future. The schizophrenic method is to solve the problems as they appear, one step at a time. An 'elaborate' form of schizophrenia is called pragmatism.

The normal way of interaction with external reality is to have long-range models associated with the external reality. These models can predict the occurrence of future problems which can be prevented before their appearance.

Here is the English version of my book "Creierul o Enigma Descifrata" (in Romanian) which is also available in the frame of Gutenberg Project. I want to thank to Dr. Angela Vasilescu and Adrian Moisa for their help in the translation.

BIBLIOGRAPHY

There is no specific bibliography. MDT is a fundamental theory.

That is, all the terms and all the definitions of them are generated by the model. No book can be used because in any book there are used terms with definitions which are not compatible with MDT's terms and definitions.

Example: there is a book of a researcher named Titu I. Bajenescu with the title "The performance of the artificial intelligence" (Albastra Publishing House, Sibiu, Romania, in Romanian language). In the Bibliography of this book, the author has many hundreds titles, including 241 of his own. There is, in the book, a dictionary of the main terms used by author.

One of these terms is "intelligence". The author defines it by 16 different statements which contains at least 12 undefined words (to know, to understand, rational, conceptual knowledge, sensation, intuition, to discover, spirit, to adapt, character, to learn, problem, experience...).

Thus, to understand what is "intelligence" we need to know in advance the definitions associated with all of these terms. These definitions must contain only words which are already defined.... An endless proces starts in this way.

Of course, the author has no definition of the term "intelligence"; he has only a description of it. Even worse, based of the impressive bibliography, it is clear that this very important term has no definition. The authot himself recognize this by saying: "the intelligence is a hard to define concept because it is impossible to find a single definition to be accepted by all".

In association with the above example, MDT-model generates the normal definition of the term

"intelligence" as the facility to make and operate a long range model.

The book cited above cannot be used and the situation is the same with all the books associated with the function of the brain, available now.

I used only brute data associated with the history of the human species (e.g. dictionaries or press reports) which cannot be cited in a specific way.

Dorin Teodor MOISA moisa@zappmobile.ro October 2004

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