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# The Unimind Metamodel & Therapy - An Unified Functional Framework of Mind that Explains all its Faculties and provides a Novel Treatment Methodology for Mental Disorders

Nitnem Singh Sodhi

*India's Youngest Researcher (recognized by India Book of Records at age of 15 years)*

*Independent Researcher – based in Lucknow, India*

*E-mail ID: nitnemsinghsodhi@gmail.com*

**Abstract:** *The "Unimind Metamodel" presents an unified framework/metamodel that provides the underlying infrastructure/mechanism of brain/mind which smoothly integrates with all sub-fields of psychology. The Unimind Metamodel "Therapy" provides a novel treatment methodology for mental/psychological disorders. The Unimind Metamodel is also a functional framework for developing Artificial Intelligence.*

## I. FUNDAMENTALS OF THE UNIMIND METAMODEL

The Unimind Metamodel states that within each brain/mind, there is a subjective representational model of reality, which consists of three parts - 'entities' or 'objects', a "database of algorithms", and a "database of associations".

### A. The Representational Model - Objects / Entities

Every brain/mind has a subjective representational model or a "map" of reality - and by 'reality' we refer to the sum total synergy of everything that the brain/mind can perceive through sensory organs. This map contains "entities" or "objects" which can be a representation of either 'things' (tangible or intangible), or 'living beings' (consisting of their physical attributes, overall personality, specific behaviors and the memories and emotions associated with that being), or 'abstracts' (which can be a generalized prototype of things, and also includes abstract ideas, thoughts and concepts i.e. specific elements of abstract information/knowledge), or 'words' (explained later in this paper), or the memories of past experiences. These objects/entities are created within the map on the basis of information received about them from the sensory organs. All the objects in our maps are multi-dimensional in nature; meaning that all the objects in our map can have multiple dimensions associated with them. The word "Dimension" comes from the Latin word *dimensionem* which refers to the act of "Measuring" something. Therefore a dimension shall be construed as a way of perception of an object ; as a way of looking at an object. An object in our map can have a shape, colour, visible texture, size, etc - namely the "visual" dimension perceived through eyes. The same object can also possess an associated sound or voice (being the "auditory" dimension as perceived by ears); the same object may also have an associated odour or fragrance (being the "smell" dimension as perceived by the nose); and similarly with the dimension of taste and touch (as perceived by tongue and skin respectively). All objects mandatorily possess the dimension of memory, i.e. the record (i.e. 'associations' as explained later in this paper) of all past experiences perceived through senses that are associated with that object. An inherent feature of these objects is that they are dynamic in nature - meaning the objects are continuously being changed (or "updated") with the continuous inflow of information from the sensory organs - subject to algorithms.

### B. Database of Algorithms

An algorithm is defined as a step-by-step procedure or a set of instructions. Algorithms contains such instructions/procedures about how to perform a task (action). Such task may be a biological process, psychological process or learned physical/mental work. Biological processes here refer to the body functions regulated/controlled by the central nervous system; and psychological processes here refers to all the abstract functions performed by the brain/mind. Learned physical/mental work refers to any externally acquired or self-generated ability of performing any specific task/work/action, either physically or mentally. Algorithms can also contain instructions / procedures of how to react (behave/act/respond) to specific stimulus or to a specific situation - such

algorithms are called as "behaviour". Algorithms work as programs (analogy can be drawn with softwares/applications) that run in mind, in collaboration with the representational model (map) and the database of associations, and thus execute various functions of brain/mind. Algorithms can be either running continuously in brain/mind or they can be executed as and when required. Algorithms are also dynamic in nature – meaning that all algorithms change or “update” but with the sole intention and purpose of achieving the biological goal of humans i.e. survival and reproduction. (Refer to 'The law of algorithmic evolution' explained later in this paper)

### C. Database of Associations

The Database of Associations is an abstract database in the brain/mind that contains all the associations between/among the objects of one's map; and also includes associations between/among one's map's objects and neurochemicals and hormones within one's body. One object can have multiple associations (i.e. with multiple other objects/neurochemicals/hormones).

The associations in the database of associations are also dynamic in nature – meaning that the associations can change or “update”, on instruction of any algorithm or due to 'The law of algorithmic evolution' (explained later in this paper).

## II. LINGUISTICS IN THE UNIMIND METAMODEL

Before understanding the "Linguistics" or the language processing mechanism as per the Unimind Metamodel, we need to clarify the fundamentals of linguistics. Language has evolved in humans and various other life forms to enable communication among the members of a species, using arbitrarily decided symbols/sounds/visuals and body gestures, or a combination thereof. And by communication we refer to the process of transferring of 'abstracts' objects i.e. concepts/ideas/thoughts/knowledge/information (as mentioned earlier) from one's map to the map of another. Language uses "words" which are objects in one's map that can have multiple dimensions such as an associated visual/symbolical representation, an associated sound, an associated body gesture, etc., and in the 'database of associations', 'words' are associated with 'abstracts' objects and this association of words with abstracts are called as the "meaning" of those words. Language also uses "sentences" which are a combination of words used to communicate large pieces of information.

### A. Algorithm Of Meaning Identification

In the 'database of algorithms' exists an algorithm of "meaning identification" that is continuously running in brain/mind - whenever we get any sound/auditory input from ears or any visual input from eyes, or any input from any other sensory organ - the meaning identification algorithm tries to find individual objects/elements within the information received from sensory organs and then refers to the 'database of associations' to ascertain the 'abstracts' objects associated with those individual objects (i.e. their meanings) to obtain the understanding of that information received through sensory organs. In case of sentences, the meaning identification algorithm ascertains the meaning of individual objects and then combines them to find and ascertain a larger meaning/understanding, depending upon the sequence/arrangement/chronology of the objects. The rules of grammar of a language learned by the mind guides its meaning identification algorithm in decoding sentences of that language. The brain/mind uses the same mechanism to process larger pieces of information like paragraphs, chapters and books. The same mechanism is also used to interpret audio-visual sensory inputs such as videos/movies, and also to interpret "body language".

Whenever this algorithm processes/finds any new meaning(combination of words and correlated 'abstracts' objects) which is not stored already in map, then new objects/entities for such meaning ('words' and 'abstracts') for are created and stored in the map for future reference along with creation of necessary associations in the database of associations (i.e. associations within the word and abstracts as well as with the previous objects/entities from which this new meaning is processed/connected, if any).

## III. COGNITION (INFORMATION PROCESSING AND MEMORY) IN THE UNIMIND METAMODEL

Cognition can be defined as the mechanism of processing, storage, retrieval and manipulation of the information that is received from the sensory organs. Cognition is a synergistic collaboration of multiple algorithms running in the brain/mind.

Such different algorithms in the brain's/mind's database of algorithms that work together in synergy to produce cognition / cognitive abilities are as follows :

### A. Algorithm Of Attention / Filtration

Our sensory organs receive a lot more quantity of information than our biological brain could process – and thus is a need to filter out useless or irrelevant information and only allow the relevant/important information to be processed by brain/mind in any particular circumstance/situation. This very same process is called as “attention” or “filtration”, of choosing what information from

sensory-input is processed and the remaining is ignored. For this purpose, there is an algorithm of “attention/filtration” that is running continuously in the brain/mind - this algorithm gets input of information from all sensory organs and then sends it to the algorithm of meaning identification, which returns back objects (or their combinations) along with their meanings(associations as explained above) back to the algorithm of attention/filtration. Now this algorithm makes the decision - which information will be processed further by brain/mind and the remaining will be ignored. This decision is based on the “relevance” of the information – and by relevance we mean that if the information (objects or their combination thereof + their meanings) is in any way associated/connected with any of the other algorithms running in the brain/mind at that present moment. If the information is relevant, i.e. an association between the input information and presently running algorithms exists, such information is allowed for further processing and the remaining information is ignored.

Among the pieces of information (objects or their combinations thereof + their meanings) that are allowed for further processing, the algorithm of attention/filtration sends out the most relevant pieces of information first – i.e. to say the algorithm sends out the selected pieces of information for further processing on the basis of their relevancy – as relevancy can differ by degree; one piece of information can have a lot more associations with the presently running algorithms than another piece, and such most relevant piece of information is process first, then the next most relevant one, and so on.

#### *B. Algorithm Of Pattern Recognition*

The function of algorithm of pattern recognition is to identify patterns in a piece of information (or to identify the objects/entities in such information) and to predict / calculate the possible subsequent or previous extension to that piece of information. A "pattern" hereby means a set of repetition in any particular piece of information which can help in prediction/calculation of the information which could be a subsequent or previous extension to that piece of information.

If the given piece of information has similar sequence/chronology as any of past memory, then the prediction/calculation is based on such past memory, in case of multiple memories, the one having most degree of similarity; or else if no past memory association is present, then the algorithm of pattern recognition sends that piece of information to the algorithm of meaning identification, which returns back to the algorithm of pattern recognition with the objects or their combinations thereof along with all their meanings (associations), and then the algorithm of pattern recognition tries to find a sequence/arrangement or chronology within the meanings/associations, by referring to all the 'abstracts' objects it has in its map and then arrives at the pattern with most associations, subject to confirmation of that pattern by any 'abstracts' object or any past memory experience.

#### *C. Algorithm Of Information Storage (Memory)*

The algorithm of information storage (memory) is a continuously running algorithm that governs the process of creation of memories. It creates five dimensional objects in one's map for/of each different "scenario" that is experienced. 'Scenario' here means a time period (situation or circumstance) where there is a definite number of objects / entities in the surroundings that are perceived by the sensory organs - any change in the number of perceivable objects / entities in the surroundings results in another 'scenario' (i.e. change of scenario).

These mentioned 'scenario' objects have the five dimensions that are the information input from the five sensory organs, after being processed by the algorithm of attention / filtration. Along with the creation of an object for complete scenario, the algorithm of information storage also makes new objects/entities in the map, for the objects/entities which were a part of the scenario and were not in the map earlier already.

It also makes the new associations in the database of associations, for each newly created object(scenario) (and the objects/entities within that scenario) with already existing objects in the map and/or with neurochemicals and hormones - depending upon the sequence/chronology as given by the algorithm of attention/filtration.

This algorithm also changes or "updates" the dimension of memory of each of the object/entity present in the scenario ("dimension of memory" as explained earlier).

#### *D. Algorithm Of Virtual Experiencing (Memory Retrieval And Imagination)*

All other algorithms work upon the input of information that is received from either the sensory organs or from another algorithm. The algorithm of Virtual Experiencing (memory retrieval and imagination) generates fictitious stream of sensory information which it can feed into other algorithms in the place of real information input from sensory organs. This algorithm is running continuously in the brain/mind and whenever any object/entities (any type including 'scenario') is remembered/recalled by any other algorithm

(referring to the database of associations), this algorithm generates the streams of fictitious sensory information based upon such object/entity and feeds it into the calling algorithm.

This algorithm can also merge/mix the streams of fictitious sensory information from multiple objects/entities, on instructions of any another algorithm, and thus create streams of fictitious sensory information that were never experienced before, and the same be fed into other algorithms in place of real sensory information input - is what is termed as "imagination".

#### *E. Algorithm Of Thinking (Thoughts)*

In The Unimind Metamodel, 'thinking' is defined as the process of creation of thoughts; and 'thoughts' can be defined as temporary multi-dimensional objects/entities that are created by the continuously running algorithm of thinking - on the demand of any other algorithm. After such temporary multi-dimensional objects are created, if such objects possesses 'meaning' and 'relevance' (as defined earlier), such objects are 'converted into permanent', i.e. by moving them into the 'map' and making the necessary associations for them in the database of associations.

This algorithm creates such temporary objects/entities using the algorithm of virtual experiencing - firstly, the algorithm of thinking receives instructions from any other algorithm that demands to create a new object/entity as per specific requirements, then the algorithm of thinking calls the algorithm of virtual experiencing to access the required already existing objects from map, and thus getting fictitious sensory information input as per desired requirements, and this new temporary object is created by the algorithm of thinking based on the fictitious input from algorithm of virtual experiencing, and then the algorithm of thinking calls up the algorithm of meaning identification, and if it finds significant 'meaning' and 'relevance' of this temporary object, it is 'converted into permanent' (as explained above).

The algorithm of thinking also takes help of algorithm of pattern recognition if it is required - if the new desired object demands some information which is not available or already existing in the map, of it there is some 'meaning' or 'relevance' but not sufficient enough for it's purpose, then this algorithm uses algorithm of pattern recognition to predict/compute information and thus "fill in the gaps" of information in that new object so that the desired new object can be created or the 'meaning' or 'relevance' of the created temporary object can be increased, as per the initial requirement of initial demanding algorithm.

### **IV. LAW OF ALGORITHMIC EVOLUTION**

The law of algorithmic evolution states that the brain/mind is inherently programmed to evolve by creating/developing new algorithms based on the requirements of survival and reproduction - either for the present 'scenario' or for a long-term duration (or both); and also by learning/acquiring new algorithms from any set of definite sequence of information/instructions processed by any other algorithm or received from any sensory organs, that may be useful/helpful in survival and reproduction. This also includes changing / updating of old algorithms if required.

All the necessary inclusions/changes in the database of associations relating to such new/updated algorithm are done automatically, as well as the necessary creation/modifications of objects/entities in the map as required by such new/updated algorithm are also done automatically.

#### *A. Significant Consequences Of The Law Of Algorithmic Evolution*

- 1) *Morality/Conscience*: Morality/conscience (i.e. the ability to discriminate between good/evil or right/wrong and the inclination towards choosing the good/right) is an acquired algorithm (behaviour) that is an integral component of any individual that is a part of any society/culture, and, without such algorithm within a significant majority of it's members, any such society/culture will collapse in long run. The function of morality/conscience is to provide protection to each member of a society/culture from all its other members. Society/culture refers to a particular group of individuals of a single species, and all such individuals within that group share few common/identical algorithms (in their database of algorithms), objects/entities (in their map) and associations (in their database of associations). The function and the cause of existence/evolution of society/culture to ensure survival and reproduction of its members, and to help in their growth through collective effort. A society/culture is also subject to the process of natural selection (Darwinian evolution) and therefore it can survive in long run only a significant majority of its members possesses morality/conscience so that they don't kill or harm each other within the group. Morality/conscience drastically helps in growth of the society/culture as its members can now focus on various other works instead of defending themselves from others members.
- 2) *Personal Identity*: as an individual becomes a part of society/culture, such individual is assigned arbitrary "identifier" words (can be multiple - includes names, designations, nationality, descriptions, etc.) that are used to identify that individual within

the group. As a result of this, a new algorithm is acquired by the brain/mind - the algorithm of personal identity - which runs continuously in brain/mind and it continuously scans the information input from sensory organs for such identifiers and whenever it recognizes any such identifier, it instructs the algorithm of attention/filtration to process the related piece of sensory information input at priority.

## V. EMOTIONS IN THE UNIMIND METAMODEL

What we call "emotions" are the different neuro-biological states that are induced by release of certain neurochemicals or hormones within the body. The qualitative intensity of emotions are directly proportional to the quantitative release of associated neurochemicals or hormones. The database of associations contain the associations between the objects in one's map and neurochemicals or hormones - these associations are created and then processed by the algorithm of emotional response which finally results in what are felt as emotions.

### A. Algorithm Of Emotional Response

The algorithm of emotion identification runs continuously in brain/mind and decides which emotion to feel (i.e. which neurochemicals or hormones to release) in response to the present scenario that is being currently experienced ("scenario" as explained earlier).. If the present scenario that is being experienced is drastically similar to any scenario that has been experienced in past, then this algorithm automatically triggers neurochemicals or hormones that are associated with the that past experience in the database of associations - and if the present scenario is relatively new or has never been expericed before, then it calls upon the algorithm of emotion identification.

### B. Algorithm Of Emotion Identification

The algorithm of emotional response has the functions of deciding which emotion to feel (i.e. which neurochemicals or hormones to release) in response to a particular scenario and to add/include such association between the scenario and neurochemicals/hormones in the database of associations.

It can also changes or "updates" previous associations in the database of associations, if required.

How the decision of 'which emotion to feel' is taken by this algorithm, can be reduced down to two very simple conditions, that are -

- 1) If the scenario is positive for survival and reproduction = release serotonin, dopamine, oxytocin and endorphins + reduce release of cortisol
- 2) If the scenario if negative for survival and reproduction = release adrenaline and cortisol + reduce release of serotonin, dopamine, oxytocin and endorphins

The qualitative intensity of emotions are directly proportional to the quantitative release of associated neurochemicals or hormones - and the quantitative release is directly proportional to the level/intensity of positivity or negativity of the scenario for survival/reproduction. Such level/intensity is always subjective depending upon the memories of past experiences and the algorithms running during that time.

## VI. THE UNIMIND METAMODEL THERAPY

The Unimind Metamodel Therapy is a novel treatment/therapy for mental disorders, based upon The Unimind Metamodel.

As per The Unimind Metamodel Therapy, all mental/psychological disorders can be possibly treated by changing/altering associations in the database of associations. The mechanism and treatment methodology of various mental disorders under The Unimind Metamodel are as follows -

### A. Depression And Anxiety

Depression / anxiety is the result of constantly reduced levels of certain neurochemicals, that are serotonin, dopamine and endorphins (and oxytocin in certain cases). Such constant low levels of these certain neurochemicals are caused by an acquired "algorithm of depression / anxiety" .

This algorithm of depression / anxiety is an automatic result of either continuously having experiences for a long duration which were negative for survival and/or reproduction, or experiencing a single drastic negative traumatic event. This algorithm is a defence mechanism that is implemented by the brain/mind. A type of depression in which the subject experiences rapid changes in the neurochemicals or hormones is termed as "bipolar depression/disorder".

In the case when depression / anxiety is the result of long-term negative experiences, a new algorithm has to be created which constantly reminds the subject of any positive experience (either a real positive experience from past memory, or a virtual experience created through counseling and hypnosis). In the case depression / anxiety is caused by a single drastic negative traumatic experience, such negative experience should be broken down into smaller details/parts and then these details/parts of that experience should be associated with various individual positive experiences through counseling and hypnosis.

#### *B. Schizophrenia*

Schizophrenia is defined as a disorder in which the subject loses the ability of, or experiences problem/difficulty in, discriminating reality from imagination or false beliefs. This disorder is a result of dysfunction in any algorithm that continuously runs in brain/mind. This disorder usually has neuro-biological causes, but many times it is also a result of a single drastic negative traumatic experience. Its treatment requires a comprehensive approach of counselling and hypnosis through which all the unreal or dysfunctional associations in the database of association have to be figured out and then changed/corrected, and all the unreal/dysfunctional objects in map have to be 'repaired' (repaired by replacing the previous object by creating a new and more realistic version of that object through counseling and hypnosis). Schizophrenia also includes psychosis.

Schizophrenia can also co-exist with depression or anxiety, and schizophrenia often co-exists with PTSD, therefore it may require additional treatment methodologies that are explained under the headings of depression/anxiety and PTSD.

#### *C. Post-Traumatic Stress Disorder (PTSD) And Phobias*

PTSD and all types of phobias are caused by a single drastic negative traumatic experience, either experienced in reality or experienced vicariously (i.e. by observing anyone else having such experience). PTSD usually results in constantly elevated levels of stress hormones and neurochemicals like adrenaline, norepinephrine and cortisol; whereas in all types of phobias is a sudden surge/release of such mentioned stress hormones and neurochemicals whenever the subject is reminded of (i.e. processes any information associated with) the causing drastic negative traumatic experience. Phobias also includes paranoia.

The treatment of PTSD as well as all types of phobias requires counseling and hypnosis in which the causing negative traumatic experience is broken down into smaller details/parts and then each such detail/part of that experience is given a new perspective or 'meaning', i.e. the already existing associations of such experience are proven false, and then they can also be associated with other positive experiences.

PTSD can also cause depression or anxiety, which requires additional treatment methodology that is explained under the heading of depression and anxiety.

#### *D. Personality And Identity Disorders*

as per The Unimind Metamodel, 'personality' refers to the unique set of algorithms that runs in an individual's brain/mind in any particular 'scenario'.

Therefore, under The Unimind Metamodel, in normal case, an individual does not possess a single personality, but rather a large assortment of personalities for a large assortment of 'scenarios'. On the other hand, "identity" refers to the set of all continuously running algorithms within an individual that remain constant in all scenarios. All the personality and identity disorders occur when the individual switches/changes between multiple such personalities, within a single 'scenario', or if frequent changes in identity are observed in such individual by others. False/imaginary changes within the 'algorithm of personal identity' are also considered an identity disorder.

Personality/identity disorders are not separate disorders in itself, but they are a result of another mental disorder such as depression/anxiety, schizophrenia or PTSD. The treatment of personality disorders requires identification and treatment of the causing underlying disorder. Many times such underlying causing disorder is asymptomatic in itself and personality disorder is the only observable condition, and thus its treatment requires a comprehensive approach.

#### *E. "Escape" Disorders*

In The Unimind Metamodel, "Escape disorders" refers to a number of acquired algorithms (behaviours) that function as an "escape" from, or a defence mechanism, against any other mental disorder.

Examples include addictions (i.e. substance abuse disorders and sex addiction), eating disorder (such as bulimia) and obsessive compulsive disorder (i.e. subconscious repetitive behaviors). While addictions and eating disorders are usually defense mechanisms against depression and anxiety (because they cause spike/increase in neurochemicals and hormones which are observed reduced in



depression/anxiety); obsessive compulsive disorder is usually a defence mechanism against an underlying phobia (as it provides a sense of security and comfort).

The treatment of such "escape disorders" requires identification and treatment of the causing underlying disorder. Sometimes such underlying causing disorder is asymptomatic in itself and the 'escape disorder' is the only observable condition, and therefore its treatment also requires a comprehensive approach.

#### VII. PROCLAMATION

The author (Mr. Nitnem Singh Sodhi) is currently working on developing further intricacies of The Unimind Metamodel. He is also working on developing a novel counseling and hypnosis methodology for therapy/treatment under The Unimind Metamodel.

These will be published by the author in a subsequent research paper on The Unimind Metamodel.

You can contact the author directly on the Email address given at the beginning of this research paper for clarifications and collaboration.

#### VIII. ACKNOWLEDGEMENT

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