Science of Human Recognition-Behavioral Modeling-System

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Abstract

Human Self is an adaptation system to maintain homeostasis. The physical Self maintains physical homeostasis via the substantial modeling system, and the mental Self maintains mental homeostasis via the recognition-behavioral modeling system. Science organizes the recognizable targets of objects and phenomena in testable forms, and it functions to understand, define, quantify, visualize, or simulate properties of the target in the syllogistic hierarchy of framing, modeling, and explanation with sound inferences of language. In the present study, I analyzed the recognition-behavioral modeling system via the scientific procedure, and I considered that the recognition-behavioral modeling system performs information metabolism with the thinking codes of homology/simplification, clustering, operation, and modeling mounted in the Modeling layer of the Neuronal Network with an economic and stubborn manner coming from biological characteristics. I also analyzed the significance of meta-modeling in a neuro-psycho-pharmacological frame of the poly-framing verbalized world, and I comprehended that an emergent understanding in a frame is induced by completing the meta-model in the frame, and that the significant single-/meta-modeling codes are transmitted as the symbolical figures shared in philosophies belonging to different cultures.

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Introduction

I am analyzing a principle/prototype of the human thinking system. Humans recognize the thinking targets of objects and phenomena in the frame of the verbalized World. Single properties of the target are represented as the single models of terms and formulas, and the single models are integrated into the meta-model of concepts. Compatibility of the formulas has been induced in the logical manner of Mathematics, and reproducibility of the concepts has been maintained in the empirical manner of natural language. The structure of the meta-model is symbolically figured as a complex network of the single models, and the symbolical figure contributes to a holistic understanding of the target in the frame. Science is a human thinking system which organizes the target in a testable form to understand, define, quantify, visualize, or simulate in the syllogistic hierarchy of framing, modeling, and explanation with language inferences. In the present study, I analyze a human recognition-behavioral modeling system via the scientific procedure, investigate the significance of meta-modeling, and furthermore, explain the realities of the recognition-behavioral modeling system and meta-modeling in the verbalized World.

Human Recognition-Behavioral Modeling System

Framing

The human self is an adaptation system to maintain homeostasis in the world. The physical self maintains physical homeostasis in the physical world via the substantial modeling system, and the mental self maintains recognition-behavioral homeostasis in the mental world via the recognition-behavioral modeling system. Naturally, both of the modeling systems function under the biological characteristics of the human being. In this section, I scientifically analyze the recognition-behavioral modeling system not only in the frame of biology but also in the frames of cognitive linguistics, computer neuroscience, and logics.

Modeling

1. Substantial modeling system of the physical self

The physical Self maintains the physical homeostasis. The physical Self is organized as a topological complex network of the physical Circulation-system, physical Adsorption-system, physical Excretion-system, and physical Central Nerve-system, and is protected with the physical Immune-system filling the space and the physical Skin-mucosa-system covering it. The Central Nerve-system is placed in the center of the complex network to integrate the functional activities of the physical systems via the neuron fibers, and the centroid is distinguished as the Adaptation-centroid. The physical Self is symbolically schemed in (Figure 1). The functional activities of the system-modules are maintained via the substantial modeling-system mounted on the bio-membrane of cells configuring the system-modules. Foreign macro-molecules/proteins are digested to micro-molecules/amino acids by the catabolic enzymes of the Absorption-module, and the micro-molecules are sent to the system-modules via the Circulation-system. Cells configuring the system-modules intake the necessary micro-molecules via the transporters of the bio-membrane and synthesize inner macro-molecules via the metabolic enzymes mounted in the bio-membrane. Both the transporters and the enzymes are expressed corresponding to the codes mounted in the genome, and the validity of the synthesized inner macro-molecule has been empirically decided via enormous trial and error of animals to maintain the physical adaptation. Namely, the physical Self maintains the physical homeostasis via the step-by-step substance-metabolism of the substantial modeling-system, which involves the genomic codes expressed in the bio-membrane. Nevertheless, some foreign micro-molecules of drugs and toxins directly affect the substantial modeling-system.

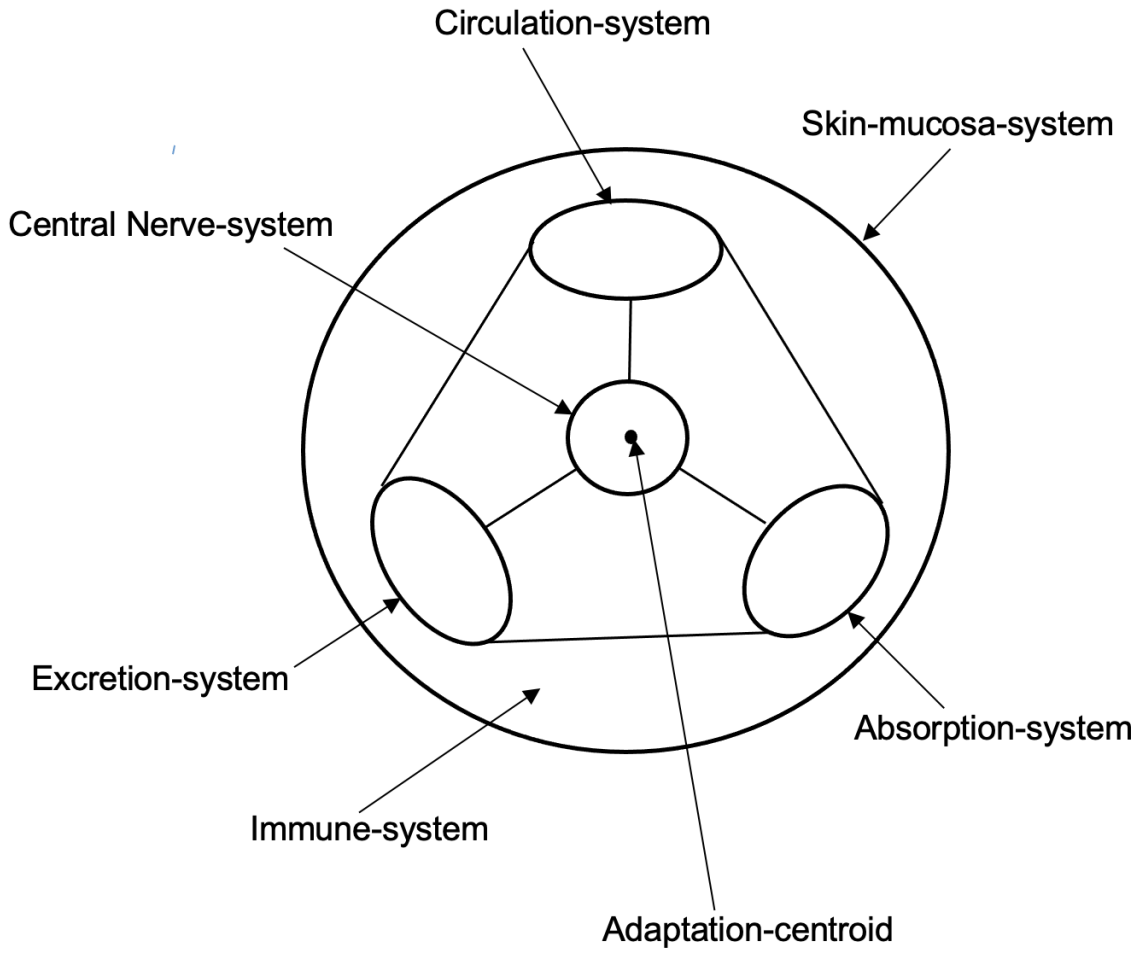

Figure 1. The physical Self. The physical Self is topologically organized into a complex network of the Circulation-system, Adsorption-system, physical Excretion-system, and Central Nerve-system, and it is protected with the including Immune-system and the covering Skin Mucosa-system. The Central Nerve-system is placed in the center of the complex network to integrate the functional activities of the physical system-modules via the neuron fibers, and the centroid is distinguished as the Adaptation-centroid. The activities are maintained via the substantial modeling-system mounted on the bio-membrane of cells configuring the system-modules.

2. Recognition-behavioral modeling-system of the mental Self

The mental Self maintains recognition-behavioral homeostasis. Previously, I indicated that the mental Self is topologically organized in the Central Nervous System (Masuda, 2020). The mental Self is a complex network of neurological behavior modules, neurological sympathy modules, neurological sensitivity modules, and neurological intelligence modules, whose functional activities are epigenetically determined. The complex network is protected by the mental Self-membrane, and the intelligence module is placed in the center of the complex network because of its integration role. The centroid is distinguished as the Adaptation-centroid. The modeling layer covering the intelligence module separates the mental Self into the inner modeling space and the outer information space, and the recognition-behavioral modeling system is mounted on the modeling layer. The mental Self is symbolically schemed in (Figure 2). Lately, I indicated that the mental Self produces verbal single-models and conceptual meta-models to maintain recognition-behavioral homeostasis (Masuda, 2023). Animals operatively abstract necessary circumstantial information and integrate the information into a meaningful signal via the first signal system of conditioning-reflection. The mental Self also works with the second signal system to develop the necessary signals to symbolical single-models of terms and formulas corresponding to the single-modeling-codes. The mental Self, furthermore, hyper-orders the necessary single-models to a meaningful meta-model of concept corresponding to the meta-modeling-codes. Compatibility of the formulas has been explained with the logical manner of mathematics, and reproducibility of the concepts has been maintained with the empirical manner of natural language. Namely, the mental Self maintains mental homeostasis via the step-by-step information-metabolism of the recognition-behavioral modeling system, which involves the modeling-codes mounted in the modeling layer.

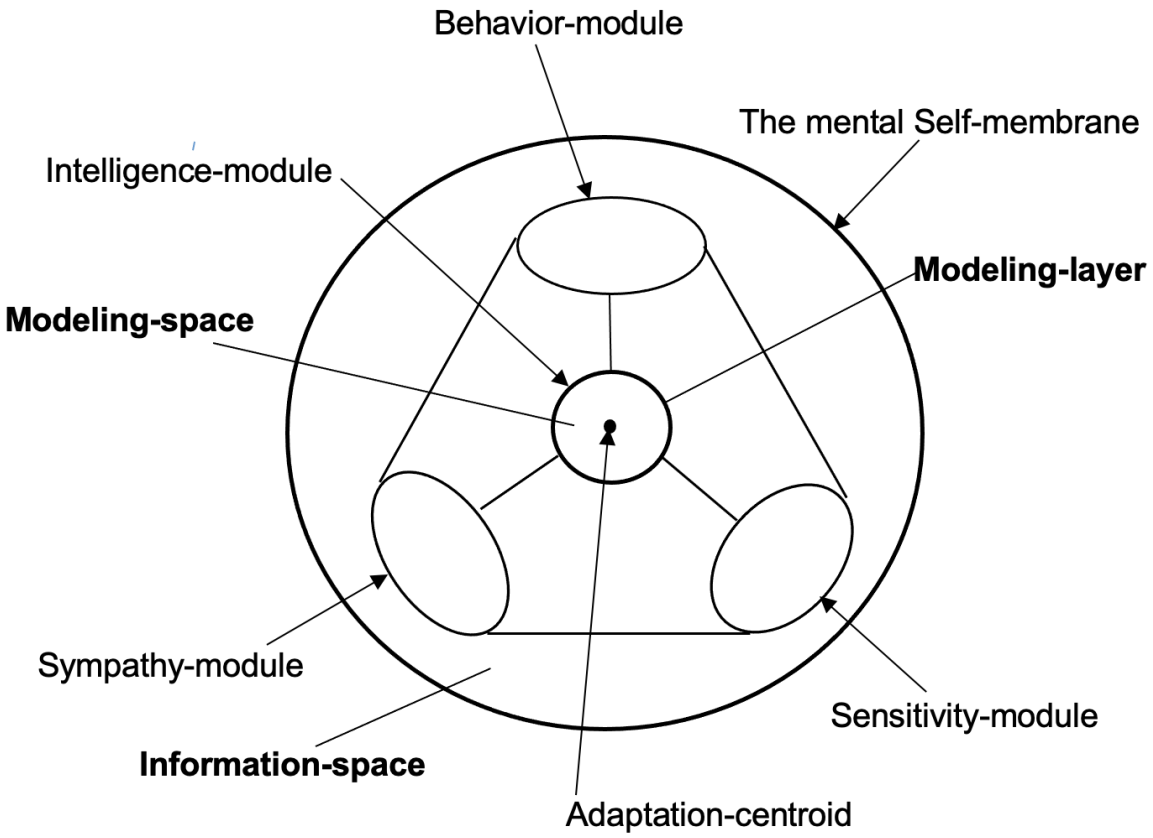

Figure 2. The mental Self. The mental Self is organized as a complex network of behavior modules, sympathy modules, sensitivity modules, and intelligence modules, and it is protected by the mental Self-membrane. The intelligence module places in the center of the complex network because of the integration role via the neuron-fibers, and the centroid is distinguished as the Adaptation-centroid. **Modeling-layer** covering the intelligence module separates the mental Self into the inner **modeling space** and the outer **information space**.

3. Performance of the recognition-behavioral modeling system

Human thinking is followed by language inferences of qualitative reasoning induction and quantitative reasoning deduction. The recognition-behavioral modeling system is also followed by the language inferences. Analogy is an inductive inference of homology/simplification to treat analogues of qualitative connotation. Algorithm is a deductive inference of operation to treat digitals of quantitative connotation. Pattern recognition is an inductive/deductive inference of clustering to perform the exchange of analogues and digitals. Artificial Intelligence (AI) was originally constructed to investigate information processing in the Neuronal Network of the human brain. AI is defined as a vertical algorithm unit which consists of artificial neurons, artificial synapses, and artificial weights for the information stream, and the components function similarly to those of the Neuronal Network. AI of Deep Neural Network (DNN) that has multiple layers between the input and output layers can be trained in the algorithm via multiple times of vertical information transverse between the input and output layers. AI of Recurrent Neural Networks (RNNs) in which data can flow in a horizontal direction could be used for language modeling followed by Machine Reading Catalog (MRC) which performs clustering like pattern recognition. AI of Generative Pre-trained Transformer (GPT) could work as a language generator

followed by Corpus which provides a catalogue of word connections like sentence models. Namely, the recognition-behavioral modeling system involves the thinking codes of homology/simplification, clustering, operation, and modeling as the specific informal logical structures in the Modeling layer of the Neuronal Network. The scientific procedure originally has the logical structure of a valid premise, sound inference, and compatible explanation, and the nature of language is set classification and map specification. So, the recognition-behavioral modeling system is constructed as a syllogistic hierarchy of framing for a valid premise, modeling by sound inference, and explaining with consistency, and the hierarchy is arranged with the set classification and the map specification. The adaptation centroid of the recognition-behavioral modeling system is connected to the Recognition centroid, and the connect line is distinguished by the Deduction axis building in deduction. The system is covered with a Definition face and differs from a 3-layer hierarchy. The lower layer is Information space to restore meaningful signals by forming an association network. The middle layer is the Modeling layer that consists of the Framing membrane, Modeling membrane, and the vertical neuronal network between the membranes. The Framing membrane and Modeling membrane mount the thinking codes of homology/simplification, clustering, and modeling, and the vertical neuronal network mounts the thinking code of operation. The upper layer is Model space to keep previously produced models. Now, meaningful signals of the Thinking target are operatively abstracted via the frame and are set as constituents of Premise in the Framing membrane. The constituents are organized into a single model of term/formula via the homology/simplification code and the single modeling code of Premise. Analogues of the single models are exchanged for digitals via the clustering code, and the digitals are customized via the operation code. The customized digitals are mapped to the Modeling membrane and re-exchanged for analogues via the clustering code. The analogues are hyper-ordered to a meta-model of concept via the meta-modeling code that complex networks the relevant single models. Thus, a new meta-model of concept is produced in the Modeling space. The recognition-behavioral modeling system is symbolically represented in (Figure 3).

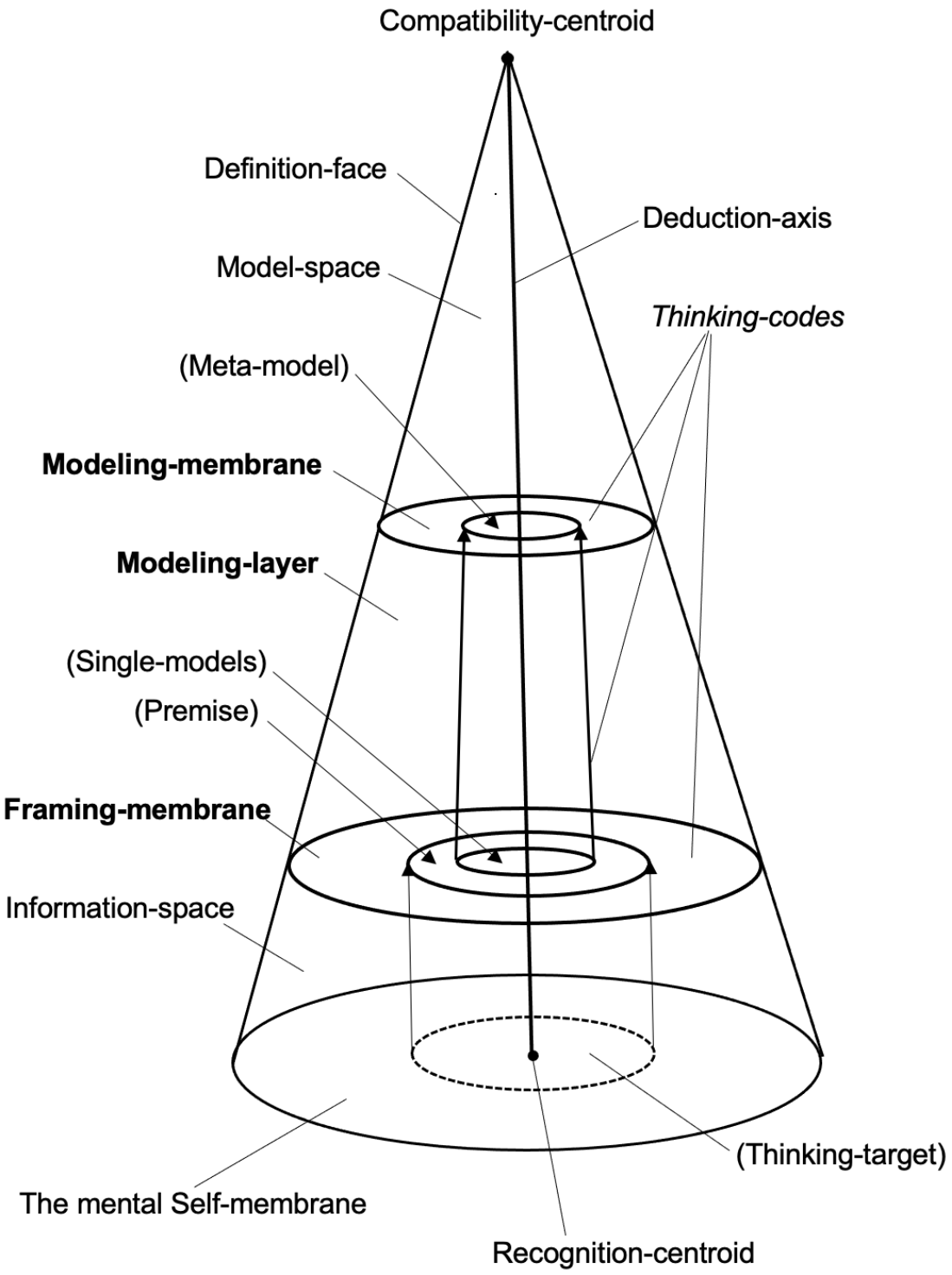

Figure 3. Human recognition-behavioral modeling-system. Human recognition-behavioral modeling-system is constructed in the Neuronal Network of the mental Self. The system is covered with a Definition-face, has a Deduction-axis to check logical compatibility, and differs into a 3layers-hierarchy. The lower layer is the Information-space to restore meaningful signals by forming an association network. The middle one is the **Modeling-layer** that consists of a **Framing-membrane** and a **Modeling-membrane** mounting *Thinking-codes* of analogy, pattern-recognition, and modeling, and the vertical neuronal network between the membranes mounts a *Thinking-code* of algorithm. The upper one is the Model-space to keep the previously-produced models. Meaningful signals (Thinking-target) are operatively abstracted via **Framing-membrane** and are set as constituents of (Premise). The constituents are organized into (Single-models) via *Thinking-codes* of analogy and single-modeling. Analogues of (Single-models) are exchanged to digitals via *Thinking-codes* of pattern-recognition, and the digitals are operated via *Thinking-code* of algorithm. The operated digitals

are mapped to the **Modeling-membrane** and re-exchanged to analogues via *Thinking-code* of pattern-recognition. The analogues are hyper-ordered to (Meta-model) via *Thinking-code* of meta-modeling. Thus, a new (Meta-model) is produced in the Modeling-space.

Reality of Human Recognition-Behavioral Modeling-System

Meaningful signals of the thinking-target are operatively collected corresponding to single-modeling-codes mounted in the frame which was empirically formed via the learning and experiences. However, all of the meaningful signals of the recognizable World are not verbalized as the single-models, and all of the single-models are not hyper-ordered to the meta-model. Brief is an intuitive single-model that directly stimulates the mental Self like Gestalt, and Meme coming from the brief instantly activates human instinctive recognition and conditioned behavior without consideration. Furthermore, the mental Self does not overwrite-save all of the new-successful single-models. The term Occam's razor indicates an algorithm-procedure to select a valid hypothesis from feasible hypotheses. As the algorithm-ability of the mental Self is more restricted than that of AI, the mental Self performs the algorithm-procedure not with an exhaustive search-manner but with an empirical guesswork-manner. Humans persist on a previously-successful thinking-frame, and easily accept the Pre-established Harmony of the previously-successful single-model. Namely, human recognition-behavioral modeling-system economically and stubbornly performs the information-metabolism. The economical and stubborn thinking-manner produces Selection Bias and Cognitive Dissonance. Selection Bias might result in Pseudoscience that insistently explains realities of the verbalized World with ad-hoc hypotheses, and Cognitive Dissonance might result in Fanaticism that insistently explains realities of the non-verbalized World with supernatural surmises. The economical and stubborn manner naturally comes from the biological characteristics of the mental Self maintaining the recognition-behavioral homeostasis.

Significance of Meta-Modeling

Framing

Pharmacological findings are conventionally represented as a single-model of transmitter-receptor in the pharmacological frame of the poly-framing verbalized World. As the pharmacological meta-model complex-networking the relevant pharmacological single-models has empirically explained the pharmacological realities, the meta-model could be recognized as the physical Self in the pharmacological frame of the poly-framing verbalized World. In fact, the pharmacological meta-model of Chinese traditional medicine comes from the world-idea of Chinese philosophy, and Chinese traditional medicine provides holistic treatments for human physical dis-adaptation. On the other hand, the therapeutic mechanism of anti-epileptic agents on a neuro-psychiatric disorder, Bipolar disorder, was not clarified via the conventional neuro-psycho-pharmacological single-modeling procedure. In this section, I construct the neuro-psycho-pharmacological meta-model of the mental Self by referring to the pharmacological meta-model of Chinese traditional medicine, analyze the neuro-psycho-pharmacological meta-model of Bipolar disease, and clarify the therapeutic

mechanism of the anti-epileptics on Bipolar disease by referencing the commonly-accepted findings of Bipolar disease and other neuro-psychiatric disorders.

Modeling

1. Pharmacological meta-model of Chinese traditional medicine

Yin-yang is a concept describing the opposite but interconnected forces in Chinese philosophy, and Taiji, integrating Yin-yang, is a single-model of the physical Self in Chinese philosophy (Figure 4). Holistic Taiji develops functional modules of Zangfu (five organs) corresponding to mù (wood), huǒ (fire), tǔ (earth), jīn (metal), and shuǐ (water) of Wuxin (five agents) of Chinese philosophy. The organ-modules are complex-networked and are generating and overcoming each other. The activity of the functional organ-module is maintained with qi (life-energy), xiě (blood), and jīnyě (body-fluids), and the crude drugs selectively cultivate the qi, xiě, and/or jīnyě of the organ-modules. This is the meta-model of the physical Self in the pharmacological frame of Chinese traditional medicine. The physical condition depends on the activities of the organ-modules, and the malfunctions result in physical dis-adaptation (Figure 5). Crude drugs correspond to the organ-modules, and they selectively cultivate qi, xiě, and/or jīnyě of the organ-modules. Recipes of Chinese traditional medicine are composed of the crude drugs, and the recipes are treated to holistically correct mal-combinations of the organ-module activities.

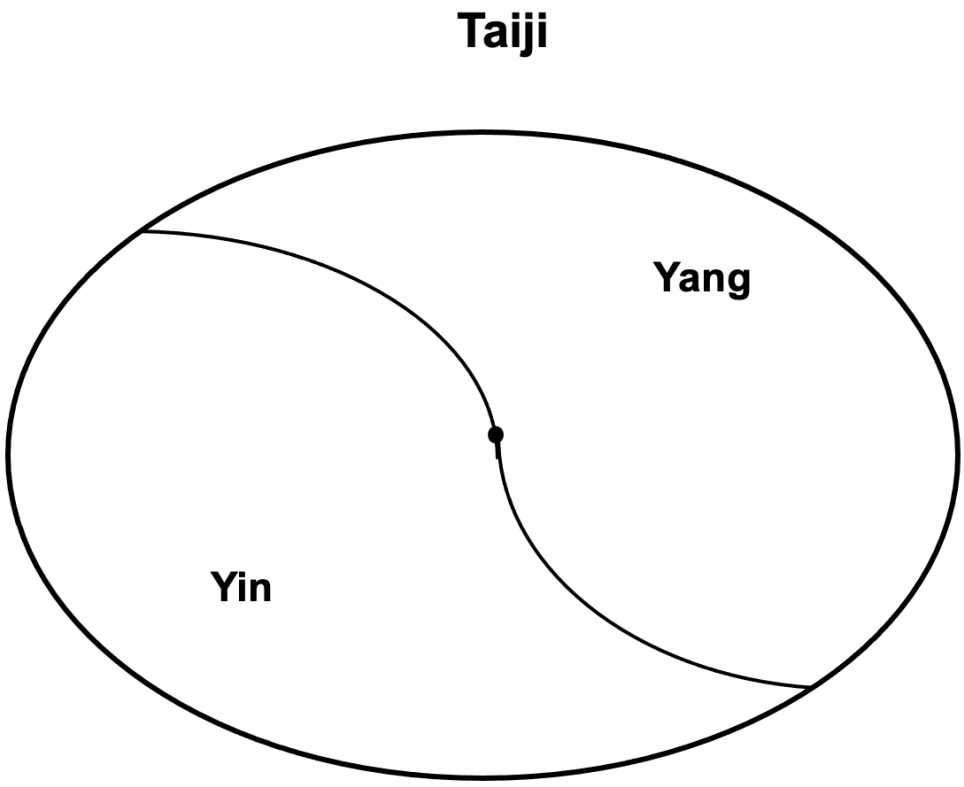

Figure 4. Chinese philosophical single-model Yin-yang and Taiji. Yin-yang is a Chinese philosophical concept describing the opposite but interconnected forces. Taiji, integrating Yin-yang, is a holistic single model of the physical

Self in Chinese philosophy.

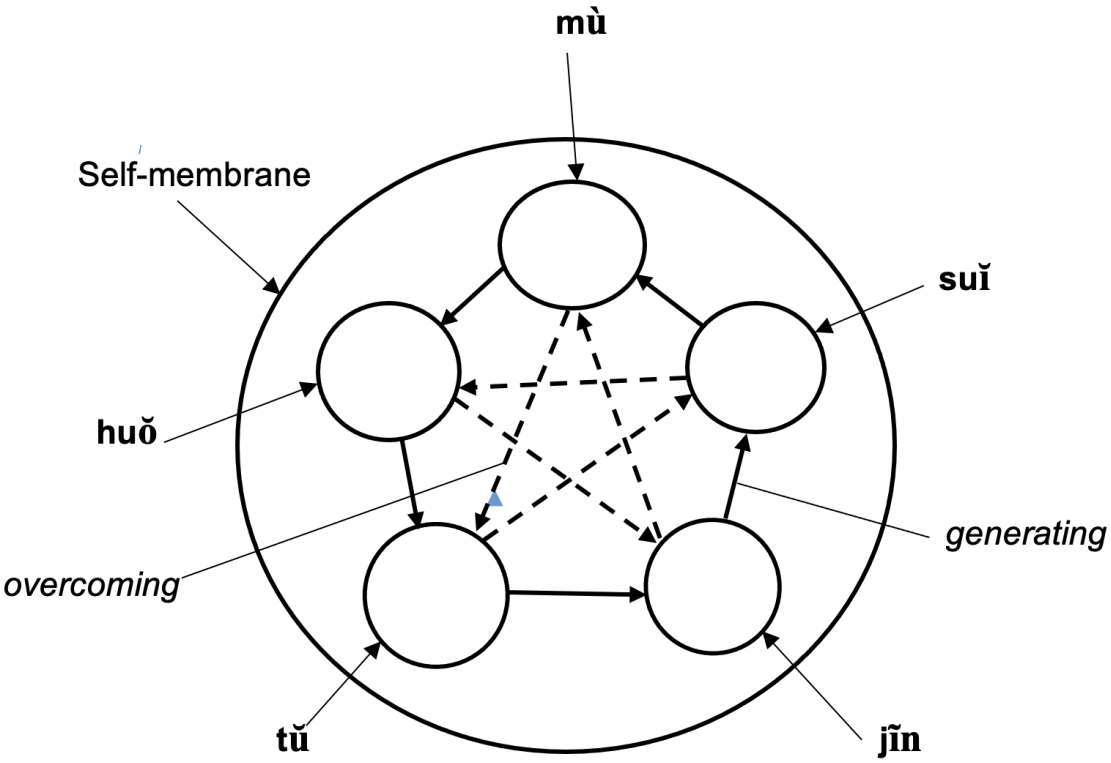

Figure 5. The pharmacological meta-model of Chinese traditional medicine Holistic Taiji symbolically develops into functional modules of Zangfu (five organs) corresponding to **mù**(wood), **huŏ**(fire), **tŭ**(earth), **jĩn**(metal), and **shuĭ**(water) of Wuxin (five agents) of Chinese philosophy. The organ-modules are complex-networked and are *generating* and *overcoming* each other. The activity of the organ-module is maintained with qi (life-energy), xiě (blood), and jīnyè (body-fluids). Crude drugs are corresponding to the organ-modules, and they selectively cultivate qi, xiě, and/or jīnyè of the corresponding organ-modules. The physical condition depends on the activities of the organ-modules, and the malfunctions result in physical dis-adaptation. Recipes of Chinese traditional medicine are composed with the crude drugs, and the recipes are treated to holistically correct mal-combinations of the organ-module activities.

2. Neuro-psycho-pharmacological meta-model of the mental Self

Neuroscientific studies have reported that the mammalian brain works via a complex network of adrenergic, serotonergic, cholinergic, and dopaminergic neuronal modules (Bullmore & Sporn, 2012; Perona et al. 2008; Sarnyai & Kovacs, 1994). A neurological meta-model of the mental Self is constructed as a complex network of the cholinergic neuronal module (C), preserving stress-coping memories; the adrenergic neuronal module (A), inducing stress-coping behaviors; the serotonergic neuronal module (S), keeping physical strength; and the dopaminergic neuronal module (D), integrating these module functions. A-C-D circuit induces learning behaviors and/or conditioning, C-S-D circuit induces emotional behaviors, and S-A-D circuit induces instinctive behaviors. The circuit of D-(C-A-S) induces voluntary learning to gain successful stress-coping. D recognizes successful stress-coping via assessment of dopaminergic neuronal activity. The meta-model is covered by the Self-membrane. Previously, human humoral stress-coping glycolipids were reported to follow the module activities (Masuda, 2020). Therefore, the module-functions are epigenetically determined, and the

module activity is represented as the module size corresponding to glycolipid production. The neurological meta-model develops into a neuro-psycho-pharmacological meta-model of the mental Self (Masuda, 2023). C and A of the neurological meta-model are united to the *Sensitivity module*, which is responsible for stress sensitivity. A and S are united to the *Behavior module*, which is responsible for social behavior resulting in fight and flight. S and C are united to the *Sympathy module*, which is responsible for social allies recognition. D, integrating information sent from the modules, evolves to the *Intelligence module*, which recognizes the integration-compatibility as dopaminergic pleasure. This is the neuro-psycho-pharmacological meta-model of the mental Self. Symptoms of neuro-psychiatric diseases correspond to deformation of the module shape.

3. Meta-model of a neuro-psychiatric disease: Bipolar disorder

The Sensitivity-module also works to control the input of stress information and is responsible for the Exceed Stimulation-amplification of the neuro-psychiatric disease Autism-Spectrum Disorder (ASD) (Tarver et al. 2020). The Behavior-module also works to control social fight or flight and is responsible for Hyperactivity and Inattention in the neuro-psychiatric disease Attention-Deficit Hyperactivity Disorder (ADHD) (Keulers & Hurks, 2021). The Sympathy-module also works to communicate with sympathy-allies and is responsible for the Communication disorder of ASD (Tarver et al. 2020). The Intelligence-module is responsible for the neuro-psychiatric diseases Intellectual Disabilities and Selective Learning Disability (van Rhijn et al. 2022). Patients suffering from bipolar disorder show the over-exciting ability coming from hypersensitivity of the Sensitivity-module. The amplified stress-sensitivity is not comfortable. The patients are required to engage in fight or flight for decreasing the discomfort. Failure of the fight results in depression, and failure of the flight results in abuse of substances, love affairs, eating, and/or self-injury, which induces quick and temporary dopaminergic pleasure in the Intelligence-module. The serious discomfort also induces agitation in the Behavior-module, and the patients might try to commit suicide to eliminate the unbearable discomfort. Anxiety of unknown origin also induces severe stress, and the stress produces hallucinations and delusions via the Intelligence-module, which is hyper-functioning to compatibly explain the anxiety.

4. Neuro-psycho-pharmacological action-locus of the anti-epileptics

Anti-epileptics such as Carbamazepine, Lamotrigine, and Valproate are used to treat bipolar disorder. The anti-epileptics are considered to induce the anti-epileptic effect via Na-channel blockade. The anti-epileptic agents do not significantly affect the adrenergic, the serotonergic, or the dopaminergic neurons; however, they were reported to protect the cholinergic neurons (Belli et al. 2012; Bozzatello et al. 2021; Eleuteri et al. 2009). Therefore, the neuro-psycho-pharmacological action-locus of the anti-epileptics on bipolar disorder is considered to be the cholinergic neuronal module (C) of the Sensitivity-module controlling stress-sensitivity. The neuro-psycho-pharmacological meta-model of bipolar disorder and the action-locus of the anti-epileptics are schematically represented in (Figure 6). Lithium, having Na-channel blocking activity, is also used to treat bipolar disorder. Lithium might protect the cholinergic neuron via the Na-channel blocking activity, like the anti-epileptics.

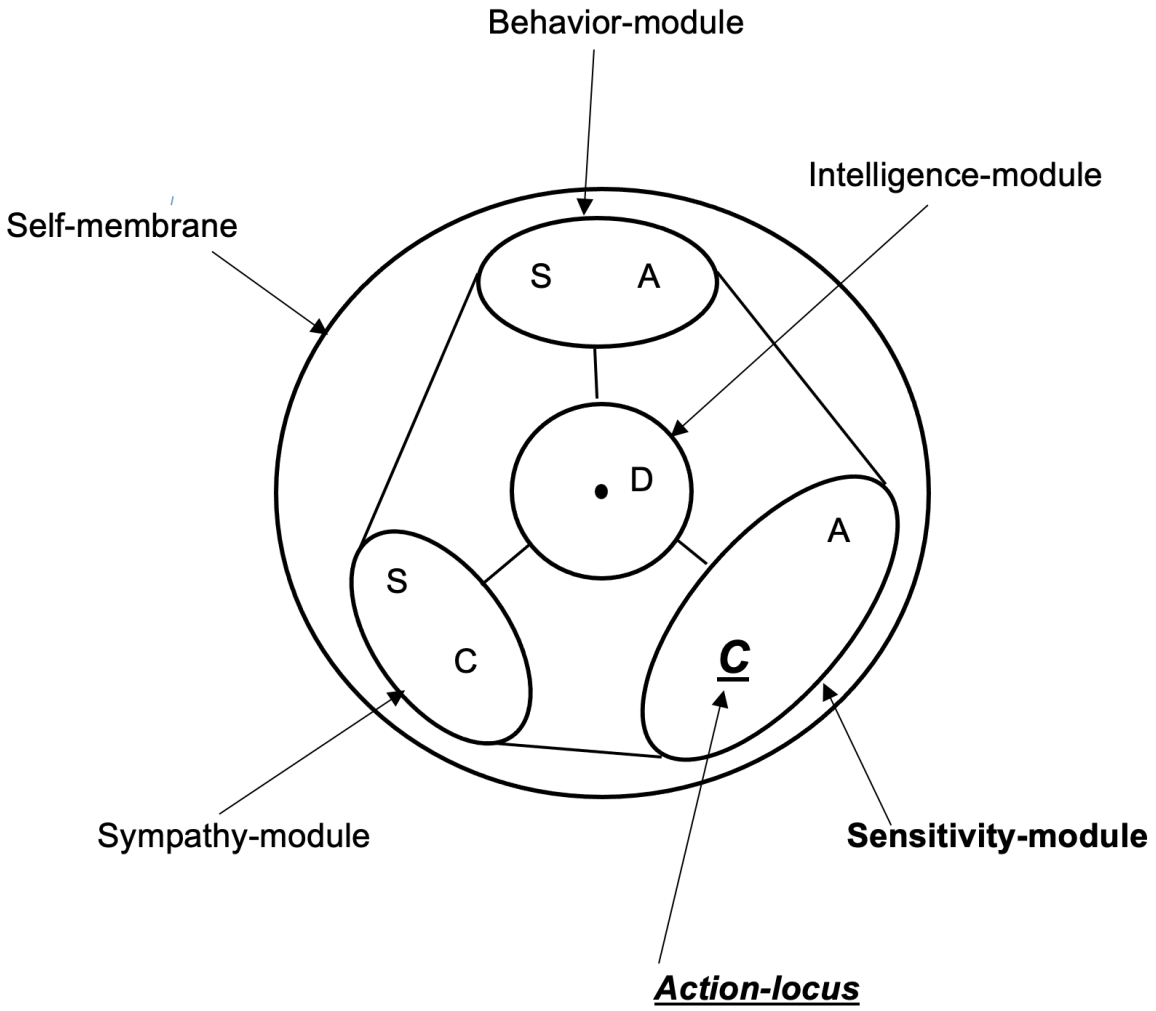

Figure 6. Action-locus of the anti-epileptics on Bipolar disorder. The neurological meta-model is constructed as a complex network of the cholinergic neuronal module (C) preserving stress-coping memories, the adrenergic neuronal module (A) inducing stress-coping behaviors, the serotonergic neuronal module (S) maintaining physical strength, and the dopaminergic neuronal module (D) integrating these module functions. C and A of the neurological meta-model are united in the **Sensitivity module** of the neuro-psycho-pharmacological meta-model of the mental Self, which is responsible for stress sensitivity. A and S are united in the Behavior module of the neuro-psycho-pharmacological meta-model of the mental Self, which is responsible for social behavior resulting in fight and flight. S and C are united in the Sympathy module of the neuro-psycho-pharmacological meta-model of the mental Self, which is responsible for social allies recognition. D evolves into the Intelligence module of the mental Self, corresponding to the acquisition of language operation. The neuro-psycho-pharmacological meta-model of the mental Self is covered by a Self-membrane, and the activities of the modules are represented as shapes. Patients suffering from Bipolar disorder have hyperfunction of the **Sensitivity module**. Anti-epileptic agents such as Carbamazepine, Lamotrigine, and Sodium Valproate do not significantly affect the adrenergic, serotonergic, and dopaminergic neurons but protect the cholinergic neuron. Therefore, the neuro-psycho-pharmacological ***Action-locus*** of the anti-epileptics is considered to be the cholinergic neuronal module (***C***) involved in the **Sensitivity module**.

Significance of Meta-modeling

Insights of mental disease are represented as terms of the symptoms in the psychiatric frame, and the necessary terms are integrated into the disease name. However, the disease name does not entirely represent the nature of the disease. The nature is emergently understood by completing the meta-model of the mental disease in the psychiatric frame. In the

section, the neuro-psycho-pharmacological meta-model of the mental Self was figured as a complex network of neuro-psycho-pharmacological single models, and the action locus of the anti-epileptics on the neuro-psychiatric disorder bipolar disease was identified by completing the neuro-psycho-pharmacological meta-model of bipolar disease. Therefore, I comprehend that an emergent understanding in a frame is produced by completing the meta-model complex-networking the relevant single models defined in the frame. In the section, I also indicated that the neuro-psycho-pharmacological single/meta-modeling codes come from the symbolical figures of Chinese philosophy. A symbolical figure of the Trimurti (trinity of supreme divinity) of Hinduism is another single-modeling code in the frame, and a complex-networking figure of the classical elements of Hellenistic philosophy is another meta-modeling code in the frame. A symbolical figure of Sefirot (tree of life) of Kabbalah represents the meta-modeling code of causality-hierarchy, and a symbolical figure of the Mandala of Hinduism and Buddhism represents the meta-modeling code of centering-hierarchy. The meta-modeling code of nesting-hierarchy of human recognition-behavioral modeling-system comes from a symbolical figure of Mount Meru of the Indian world-idea. Therefore, I comprehend that significant single/meta-modeling codes are transmitted as the symbolical figures shared in the philosophies of different cultures.

Discussion

Researchers desire to get the compatibility-pleasure by finding new meaningful single models in their special frames; nevertheless, the meaningful single-model codes are limited, just as the meaningful meta-model codes are. Scientific researchers map the previously known single-model codes to their special frames and investigate the validity of the single-model codes. Some philosophers map terms defined in other frames to their special frames to explain the phenomenological realities of their verbalized world. The explanations look to be successful with the help of formulas; however, they might create some confusions because of not showing the meta-model (Williamson, 2018). Here, I re-define some psychiatric/psychological terms by specifying the meta-model in the frame. Consciousness only means the recognition-behavioral modeling system which is monitoring its performance. Dependence simply comes from the recognition-behavioral modeling system repeating fruitless efforts to maintain invalid dopaminergic pleasure. Dependence finally results in anxiety and depression, which are representing malfunctions of the recognition-behavioral modeling system. Cognitive Behavioral Therapy has provided a clinical technique for treating anxiety and depression corresponding to the first and the second signal systems of conditioning-reflection of the mental self. The anthropic principle used in the physical/philosophical frame is the idea that physical observations are also performed under the limitation of the biological characteristics of the recognition-behavioral modeling system. Now, I suggested that the meta-modeling prepares an emergent paradigm shift in the disciplinary matrix of the specialists. Humans have formed society to satisfy social desires of sexuality, economic power, and honor, and the mental self has provided a social adaptation strategy which follows the social rules to maintain the desires. The social self could be also represented as a meta-model complex networking the social desire modules and the social intelligence module, compatibly integrating the modules. When the meta-model is mapped in the bio-psycho-sociological frame as the special disciplinary matrix, biopsychosocial researchers who are accustomed to the meta-modeling procedure coming from systems theory might holistically explain human bio-psycho-sociological realities.

Conclusion

In the present study, I scientifically analyzed the human recognition-behavioral modeling system corresponding to the human substantial modeling system. I considered that the recognition-behavioral modeling system performs the information metabolism with the thinking codes of homology/simplification, clustering, operation, and modeling mounted in the Modeling layer of the Neuronal Network of the brain, and that the information metabolism works in an economic and stubborn manner coming from the biological characteristics. I also analyzed the significance of meta-modeling in the neuro-psycho-pharmacological frame. I comprehended that an emergent understanding in a frame is produced by completing the meta-model in the frame, and that the significant single-/meta-modeling codes are transmitted as symbolical figures shared in philosophies of different cultures.

Statements and Declarations

Competing interests

The author declares that he has no competing interests to disclose.

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Ethics approval

Not applicable.

Consent to participate

Not applicable.

Availability of data and material

Not applicable.

Code availability

Not applicable.

Author Contribution

The author prepared all of the manuscript. He is responsible for all of the contents.

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