Chapter 4

First Attempts to Formalize Some Main Aspects of Psychoanalysis: Towards a Computational Psychoanalysis

ABSTRACT

In this chapter, we have tried to join Lévi-Strauss’ ideas with Matte Blanco’s ones, in that they have in common from the structuralistic standpoint and psychoanalytically aimed. To this end, we have mainly made use of some notions and methods drawn from elementary mathematics and theoretical physics, in particular the notions of groupoid and symmetry breaking, which are suitable, from a conceptual-analogical viewpoint, to formalize together Lévi-Strauss’ and Matte Blanco’s ideas. Besides to have mentioned as well other formalizations attempts turned towards psychoanalytic domain, what we have originally reached is that, the typical feature of human consciousness, is that of oppositional dichotomy, a basic distinguishing binary task typical of humans, formalized in the notion of ordering, in which besides falls the temporal dimension, another distinguishing feature of human psyche with its possible different senses. This basic oppositional feature is then in agreement with the unavoidable presence of phallic logic.

4.0 BACKGROUND

Matte Blanco’s ideas have been recently formalized variously. One of the first attempts made along this direction is that achieved in (Lauro-Grotto, 2008), a resume of its results being recalled briefly in the following section. Then, we outline other attempts to formalize psychoanalytic concepts on the wake of Matte Blanco’s work, making use of category theory, to be precise groupoids theory, in relation with some main concepts of theoretical physics: just by means of category theory, we may retrace useful link with computing theory. Hence, even along this pathway, we proceed with further formalizations of certain psychoanalytic patterns (among which is the Giampaolo Sasso’s model) involving further
advanced notions of category theory, dynamical systems and differential geometry, thanks to which it will be possible to delineate some new ways leading to logic domain, with the perspective to may think to further, possible applications to informatics.

Afterwards, we shall give a brief overview of a possible formal model of unconscious based on hysteresis, within solid state physics and condensed matter physics frameworks, whence we shall mention, along this route, possible applications to the origins of consciousness just in relation to the rising of the temporal dimensions. Then, we make a brief summary of the main psychoanalytic reflections on time, standing out those aspects of the variegated temporal dimensionality which are liable to be formalized suitably for computational aims. Anyway, the framework of a possible formalization of psychoanalysis as will result from what will be said in this Chapter, especially in the Section 4., together to what will be said in the next Chapters 6 and 7, will be the central portrait of our attempt to formalize psychoanalysis, mainly from the logic standpoint.

However, from an historical standpoint, the first attempts to formalize mathematically unconscious processes and concepts, date back to Andrei Khrennikov who, in 1990s (Khrennikov, 1998), used, for first, ultrametric and $p$-adic analysis methods to work out a formal framework in which to lay out main Freudian ideas. He proposes a mathematical model of the process of thinking based on $p$-adic dynamical systems over a configuration space of ideas. These dynamical systems are assumed to be placed into the human unconscious and are mainly controlled by human conscious (defence mechanisms of the Ego) which fixes parameters of the dynamical systems in the unconscious and transmits to the subconscious generating ideas which initiate iterations of the dynamical systems in the subconscious itself. Thus, Khrennikov presents a mathematical model which is not based on the rule of reasoning, which has opened a new way in modelizing psychological processes.

Mathematically, the configuration space of ideas is described by $p$-adic numbers, as a $p$-adic metric on the space of ideas corresponds to the following nearness between ideas: two ideas, say $x$ and $y$, are close if and only if they have sufficiently long common root (in the sense of $p$-adic number system). Along this line of thought, Khrennikov and co-workers (Albeverio et al., 1998) proposed as well a mathematical model of the human memory-retrieval process based on dynamical systems over a metric space of $p$-adic numbers, where the elements of this space represent ideas which are close if and only if they have a sufficiently long initial segment in common. They also assumed that this dynamical system is located into the unconscious and is controlled by the conscious, which specifies the system parameters and provides the ideas that initiate the related typical iteration of the dynamical system. Hence, they also show that even simple $p$-adic dynamical systems are able to describe essential features of the human memory-retrieval process.

Afterwards, Rosapia Lauro-Grotto (2008) discovered an underlying ultrametric structure owned by Matte-Blanco’s formal notion of structural unconscious and its relationship with his related bi-logic conception (see next section). She basically elaborates a suitable recontextualization of the formal theory due to Ignacio Matte Blanco, from either the point of view of neurocognitive science and psychoanalysis. Starting from an approach mainly based on information theory, she has provided a formal description of mental space in terms of a peculiar topographical structure laid out within ultrametric analysis framework. This formal structure is showed to fit as well the constraints of primary process thinking, as presented by Matte Blanco in his essays on bi-logic, so that Lauro-Grotto’s model is able to give an exact formal style to some main aspects of Matte Blanco’s theory.
68 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the product’s webpage: www.igi-global.com/chapter/first-attempts-to-formalize-some-main-aspects-of-psychoanalysis/195910?camid=4v1


Related Content

Practicing Philosophy, From Plato to Gadamer
(2018). Narratives and the Role of Philosophy in Cross-Disciplinary Studies: Emerging Research and Opportunities (pp. 91-100).
www.igi-global.com/chapter/practicing-philosophy-from-plato-to-gadamer/205279?camid=4v1a

Cyber-Victimization and Cyber-Aggression among Portuguese Adolescents: The Relation to Family Support and Family Rules
www.igi-global.com/chapter/cyber-victimization-and-cyber-aggression-among-portuguese-adolescents/171035?camid=4v1a

Sticks and Stones: When the Words of Hatred become Weapons – A Social Psychological Perspective
www.igi-global.com/chapter/sticks-and-stones/145529?camid=4v1a

A Qualitative Approach to Understanding Active Shooters
www.igi-global.com/chapter/a-qualitative-approach-to-understanding-active-shooters/212227?camid=4v1a