

“Dual State”, “Double-Perspective” and “Cartesian-Like Dualism” Are Three Forms of Dualisms Emerging in Mind Like in a Matrioska

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Abstract

After a long time, people are still debating over “Cartesian-like Dualism” (CLD), i.e. towards the separation of “*res-extensa*” from “*res-cogitans*”. Since we suspect that this is due to a general attraction of mind towards the darkness of metaphysics, we have investigated the mental origin of this attraction. In human mind, we can envisage three different functional levels emerging one from the other like in a Matrioska; the three levels cause the arousal of as many forms of “dualisms”: 1) The 1st-level corresponds to the “Dual-state” of mind, an archetypic dualism made of Unconscious Mind (UM, the domain of biophysical/biochemical signals) and Conscious Mind (CM, the domain of thoughts, images and sounds), genetically committed to reciprocal and fruitful interactions. 2) the 2nd-level corresponds to “Double-perspective” dualism; it emerges from CM’s splitting into two opposite perspectives: the 1st-order perspective (1PP) (subjective, emotional, Self-oriented, etc.) and the 3rd-order perspective (3PP) (rational, objective, Self-detached, etc.), that are in psychological contraposition. During individual growth, Ego-sense installs in CM with the illusion of possessing FW, and dominates 1PP. Conversely, 3PP is typically interested in scientific argumentations and investigations; so, 3PP confutes 1PP’s convictions on scientific bases (e.g. 1PP’s conviction that the binomial Ego-FW is real). Yet, on the one hand, 3PP hasn’t got a scientific alternative to explain “who we really are”, on the other hand, 1PP exhibits a great success in everyday life cognition. Then, we necessarily step over the dualism of the 3rd-level, “Cartesian-like Dualism” (CLD). The emotional origin of this CLD holds back 1PP’s trick to claim its supremacy over 3PP.

Keywords

Dualism, “Dual-State”, “Double-Perspective”, “Cartesian-Like Dualism”, “The Bignetti Model”, Unconscious Mind, Conscious Mind, 1st-Person

1. Introduction

In a recent paper (Bignetti, 2019a, 2019b), we have established that “an unsurmountable conflict of interest” impedes consciousness to give an answer to “The Hard Problem Of Consciousness” risen by Chalmers (Chalmers, 1995, 1996, 2000); in other words consciousness cannot define itself in scientific, rational terms. A famous absurd metaphor that might well explain the concept above expressed, is the eye that cannot watch itself at work. Furthermore, it was proposed that the investigation of “Neural Correlates To Consciousness (NCCs)” will help in giving only a functional (operational) definition of consciousness and not a conceptual one, as expected by others (Koch et al., 2016). As a matter of fact, the investigation of NCCs unveiled important operative, physiological functions of mind with important spill-over effects on basic and applied research; as an example, the detection of a “dual-state” activity due to separate but cooperating Unconscious mind (UM or “Implicit mind”) and Conscious mind (CM or “Explicit mind”) was of great importance in Neurosciences, in particular in light of the growing Cognitive Sciences (please note that UM and CM we are discussing about have nothing to share with Psychoanalysis).

Recently, the growing experimental evidence of the existence of a dual-state activity in mind, has been carefully reviewed (Baars & Gage, 2019). In a specific table of the review, the distinctive functions, relative to CM and UM, are summarized; short-term memory and long-term memory are respectively exploited by CM (Explicit) and UM (Implicit). In conclusion, we have proposed that CM is the domain where thoughts (as well as images and music) can be consciously managed and interpreted; while, the underlying biophysical/biochemical activities are exhibited by UM. In order to communicate with each other, a transduction of their languages should reciprocally occur (see Figure 1). However, this transduction that is occurring in a hypothetical interface, is incomprehensible to CM; that’s why the question about “The Hard Problem Of Consciousness” is unsurmountable (Bignetti, 2019b).

If we proceed our reasoning on the base of these premises, we might open up a door to secret aspects of a hidden path from brain to mind that could be a disturbing experience. To this aim, we are encouraged to make the first step by this statement: “We cannot exclude that UM activity may underlie CM activity”. Immediately, we are frightened by the idea of being at the mercy of an unconscious will, like a marionette in the hands of a hidden puppeteer; we are pushed by fear a further step ahead, towards a world of uncertainty. So, we perceive a mood of irritability and instability and our personal identity starts crumbling into a series of levels that account for just as many dualisms; the levels progressively range from physiological (the 1st level) to psychological (the 2nd level) and,

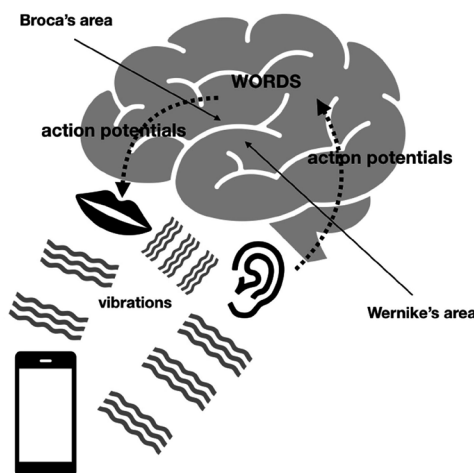


Figure 1. UM and CM cooperate and dialogue to each other in order to interact with body and world. UM utilizes a Biophysical language made of electrochemical potentials, while CM utilizes a mother's tongue language made of words. The dialogue between UM and CM is occurring by means of a reciprocal translation of one language into the other that is unknown. In this example, it is schematized the circuit of different energies that are implicated in a conversation with a mobile.

finally, to metaphysical (the 3rd level), originating one from the other, like in a Matrioska, a special case of fractal.

2. Dualisms of Mind

The vivid sensation of the lack of knowledge of our inner nature and functionality, together with the deep inability to manage our life according to our will, trigger a cascade of instable levels in mind that account for just as many dualisms:

- 1) "Dual-state". This 1st-level corresponds to the dualism between UM and CM that is a-priori genetically committed;
- 2) "Double-perspective". This 2nd-level exhibits a 1st-order perspective (1PP) in psychological contraposition to a 3rd-order perspective (3PP);
- 3) "Cartesian-like Dualism" (CLD). This 3rd-level exhibits a classic dualism by means of which our mind creates juxtaposed philosophical and metaphysical categories like "Mind-Body", "Individual Self-Universal Self" or "Spirit-Matter" etc.

Here below, we'll discuss about the three levels in detail (see also **Figure 2**).

2.1. "Dual State" (The 1st Dualism)

The first functional dualism we encounter in mind regards a "Dual State" activity corresponding to Unconscious Mind (UM) and Conscious Mind (CM). In a preceding paper, we have concluded CM cannot define itself in scientific, rational terms for an evident conflict of interest. Moreover, we have proposed that CM can dialogue with other minds since it is a domain of thoughts formatted and then translated into a comprehensible language, to other people. Dialoguing

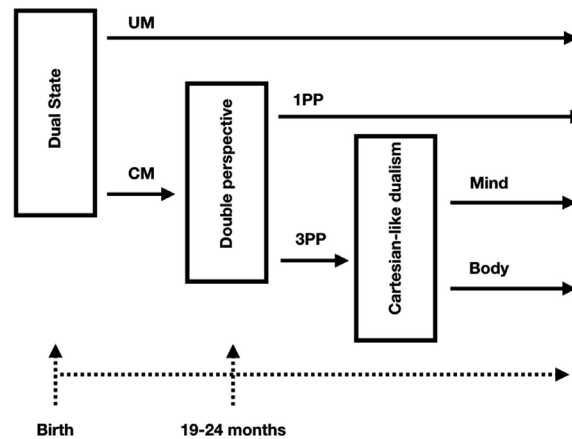


Figure 2. Three kinds of “dualisms” emerge in mind since birth, one from the other like in a Matrioska. The basic one (“Dual state”) is due to the splitting of mind’s activity into a “Unconscious Mind” (UM) and “Conscious Mind” (CM); this dualism is genetically committed. The second one (“Double perspective”) is due to CM’s splitting into two perspectives “1st-person perspective” (1PP) (mostly emotive and Self-oriented) and “3rd-person perspective” (3PP) (mostly rational and objective); at about the 19th-24th month, 1PP matures the idea of being a FW-possessing Ego; so, it detaches from 3PP (the objective witnessing of others’ action). This dualism is mainly psychological. The third dualism (“Cartesian-like Dualism”) emerges from the suspect of being incapable of catching the real essence of substances; paradoxically, this dualism emerges from the most rational part of CM (3PP) though is metaphysical.

is also a “voluntary action” as described by TBM: 1) Dialoguing by voice or by written messages are first elaborated by UM (by controlling various mechanical ACTIONS e.g. vocal cords, breath modulation, finger coordination etc.); the subsequent COGNITION is elaborated by its conjoint CM. The interpretation of voices, of written languages or of specific gestures may occur thanks to a mysterious translation of UM’s biophysical/biochemical language into the mother’s tongue language of inner speech comprehensible to CM.

Some examples of the distinct but cooperative activities of UM and CM are made:

2.1.1. The 1st Example

The first interesting example of “Dual-State” we can propose, plunges its roots in old MacLean’s work (MacLean, 1970) according to which the brain evolution shows a progressive pattern from the deep core of having reptilian-like origins, up to the superior rational layers. Despite a long, adaptive evolution, the brain of Homo Sapiens has preserved stereotypic reactions like rage, fear etc., deeply rooted inside the Limbic system whose primary role is self-defensive (Maren, 1999; Lutin, 2007). This system is provided with feed-back sensory inputs, a long-term memory for archiving all the individual experiences and a memory retrieving system that may modify subsequent behaviours (Gershman et al., 2017). In this regard, fear conditioning was exhaustively studied in Amygdala (Blair et al., 2001; Critchley et al., 2003); the studies demonstrated that fear con-

ditioning is a specific form of associative learning similar to Pavlovian reflexes. In this case, however, subjects expressed defense responses to a neutral conditioned stimulus (CS) that was paired with an aversive unconditioned stimulus (US). Moreover, it has been demonstrated that the complex articulation of this self-defensive thought required the interplay between conscious and unconscious nervous mechanisms. It's interesting to note that perception of a fear stimulus that is first intercepted by Thalamic nuclei and the subsequent defensive reaction of Amygdala occurred in two ways: the longer route mediated in between by cortex or the shorter route involving only a direct Thalamus-Amygdala communication. In the longer route, the intermediate role of cortex added a more detailed cognitive conceptualization of the signal, thus delaying the overall process; while, in the shorter one, the unimodal route provided a fast automatic response to repetitive alert signals that did not require a further conceptualization. Recent evidences have supported that the role of the Limbic system is to process negative (fear) emotions as well as positive one, such as reward-mediated learning of beneficial stimuli (Baxter & Murray, 2002).

2.1.2. The 2nd Example

Another extremely interesting example, stemming from the cognitive point of view, regards the striking data coming from Libet's EEG studies of the time course of a so-called "voluntary" action in humans. People instinctively consider this action as rationally guided by their own conscious will; yet, Libet's data demonstrated the appearance of two subsequent signals, the first one is unconscious (namely "readiness potential") and the second one is conscious (namely "intentional action") (Libet, 1982, 1983, 2005). By that time, Libet could not advance any convincing hypothesis on the role of the readiness potential and why it preceded the conscious intent to act (Bignetti, 2014); however, the possibility that this evidence could play in Free-will disfavour has prompted a rather heated discussion (Gomes, 1998; Prescott et al., 2016, Maoz et al., 2019).

2.1.3. The 3rd Example

A third example regards short-term memory (STM) and long-term memory (LTM) mechanisms correlated with learning processes. Recent experiences can be explicitly described and rationalized by means of inner and outer speech in order to fix them in STM; later on, depending on repetition and on the degree of subject's involvement, these experiences can be "crystallized" in the implicit domain of LTM. The mechanism by which LTM works and the nature of LTM's language by means of which the information is steadily memorized, have been thoroughly studied (Kandel, 1996). In summary, a memory is like a diffuse neuronal architecture assumed by a specific network by modulating the strength of their synapses; this process facilitates a recurrent and steady dialogue within the network. So, LTM language in Implicit mind is made of biophysical/biochemical reactions, though Explicit mind can recover this information whenever is needed for almost the lifespan, by means of a mysterious translation into a conscious message.

2.1.4. The 4th Example

A fourth example regards the proposal made by other researchers that Unconscious mind (UM) might play a fundamental role in action-decision making, even more efficiently than Conscious mind (CM) (Gonzales et al., 2008).

2.1.5. The 5th Example

A fifth example regards the data obtained through a series of cognitive “press/no-press” psychophysical test (Bignetti et al., 2016; Aimi et al., 2018). In line with the third example reported above, we have demonstrated the reaction of young subjects to repetitive trials were shortening so much until they become compatible with automatic reactions; they became so short that CM could not even recognize the test’s items. We came to the conclusion that the time required by an automatic reaction coincided solely with UM’s activity and mechanical pressing. These psychophysical data were interpreted according to “The Bignetti Model” (TBM), a human cognitive model that we proposed years ago (see **Appendix**) (see **Figure 3**). In TBM, UM and CM were introduced as the main actors to justify the cooperative but distinct contribution they played in ACTION and COGNITION, respectively the two compulsory phases of TBM (Bignetti, 2001, 2014).

As one can see, TBM’s theory stands on two basic principles: 1) FW illusion; 2) The dual state of mind: Conscious and Unconscious Mind (CM and UM).

1) FW illusion

A relatively simple, thus quite popular definition of FW is: “FW is an art for a particular sort of capacity for the rational agent to choose a course of action from among various alternatives” (O’Connor, 2013). This sentence has been thoroughly analysed by the author, under many respects: philosophical, psychological, physical, neurobiological etc. (Bignetti, 2014, 2017, 2019a). The main conclusion was that our mind seems quite confused by two contrasting mechanisms:

a) On the one hand, mind believes that events are correlated by a deterministic “cause-effect” law; so, a perturbing stimulus is considered the “cause” that triggers a specific reaction with the intentional “effect” of removing the perturbation at best. The “cause-effect” relationship is not ontologically true in Nature, though it appears as psychologically true, since we are conditioned by the observation that events repeating with a constant dynamic, give identical or similar results.

b) On the other hand, mind also affirms that the action-decision mechanism to fulfil that intentional effect, is carried out by means of FW. According to Wegner (Wegner, 2002), the main point is that FW illusion is a subjective feeling that arises when the agent is convinced that he is doing an intentional action “free from causes”; however, we should precise “free from external causes”. We are so much obnubilated by this illusion that, paradoxically, we always delude to act according to our own FW; while, we hesitate to admit the intervention of FW in others’ actions (Nichols, 2011; Shepherd, 2012).

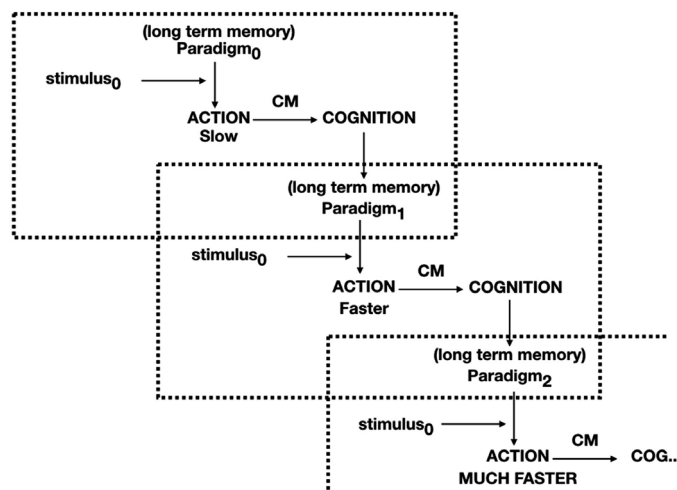


Figure 3. The Bignetti Model (TBM). The paradigm of a reaction to a stimulus is sorted by Unconscious mind (UM) through the paradigms used in the past actions and already memorized in long-term memory. Then, the outcomes of the reaction give to 1PP of CM, some new indications in order to update Long-term memory. By repeating this experience, the memorized paradigm becomes more and more efficient so the reaction progressively ameliorates.

It is evident that both a) and b) cannot simultaneously aliment our thoughts; so, our mind has excoited the way to avoid an inner psychological conflict by assuming two hypotheses:

- a) and b) may consciously emerge separately along the time course of a voluntary action. In practice, the action-decision mechanism is carried out on the base of a), first; then, another psychological activity revendicates to have carried out a) by means of b).
- a) and b) become somehow compatible according to a mind trick. By means of a sophisticated theory, a sort of rational “compatibilism” is invented by mind according to which FW takes the features of a “conditional FW”: actions that in principle might be considered under FW control, though are somehow conditioned by uncontrolled or unpredictable situations or by superior religious commitments.

Actually, at a first glance, we cannot easily explain why nobody is willing to renounce to a) and b); however, we strongly suspect that a) and b) may have a functional, irreplaceable role in the human cognition of everyday life. If we exclude the hypothesis of a Soul-inhabited Self (Bignetti, 2015), we should necessarily accept that brain mechanisms are underlying all the psychological functions. Then, to deeply investigate these functions, we should approach our studies of brain activities in a dimensional range spanning from neuronal cells below. However, at this level, FW has no suitable correlates and the deterministic law of the “cause-effect” relationship must be substituted by probabilistic-deterministic rules (Bignetti, 2003, 2014; Koch, 1999).

2) The dual state of mind: Conscious and Unconscious Mind (CM and UM)

In TBM, a dual-state of mind configuring CM and UM, seems to be compati-

ble with the presence of “Readiness potential” and “Intention to act” in Libet’s EEG. As a matter of fact, when the nature of the stimulus is unknown, UM must react against it on the base of a trial-error method (Bignetti, 2015). Initially, at least, the choice of a paradigm by UM looks like throwing dices, since there are no alternatives to be chosen in memory archives. However, trial after trial, the correct paradigm will be learnt and memorized by CM; so, by means of experience, a careful selection of the paradigm by UM will always more frequently possible (Bignetti, 2004, 2014, 2015; Aimi et al., 2018). In any case, action-decision mechanism is carried out by UM; so, necessarily, FW is a CM’s illusion. At this point, we should need a discussion on FW illusion since, most of the people fears that the lack of FW (or FW illusion) might coincide with “Indeterminism” (Schrodinger, 1936).

2.2. “Double Perspective” (The 2nd Dualism)

It rationally follows this question: “On which bases action-decision mechanism is carried out by UM”? The answers possibly are two: 1) “True determinism”; 2) “True indeterminism”. The first hypothesis is not functional to cognition; according to the famous metaphor of “Buridan’s ass”, positioned in the middle of two hay stacks, a deterministic mind would be so rigid that the donkey will starve, incapable to decide which stack eating first. Fortunately, there is a second option: “true indeterminism”; this kind of behaviour will encourage the ass to try eating everywhere, by chance, according to a brain dynamic that stands on a Darwinian-like (or trial-and-error) mechanism. Such behaviour might be governed by probabilistic-deterministic events, typical of the molecular and cellular domain (Koch, 1999; Bignetti, 2003, 2014, 2015, 2019a), thus undergoing the same rules of thermodynamically-driven chemical equilibrium, in accordance with LeChatellier’s principle. Differently from “true determinism”, behavior based on probabilistic-deterministic process, would exhibit resilience and adaptability.

To this regard, it is interestingly to note the following logic steps:

1) the conclusion on “true indeterminism” can be drawn solely by an external reader or witness who is reasoning about cognitive mechanisms in a detached, rational, objective perspective; instead, the subject of the action could never succeed in doing this comment, since he would never come out of the subjective labyrinth of a) and b).

2) The comment made in point 1 can be drawn by a witness of his own thoughts, and this can be repeated again and again, *ad-infinitum* ...

3) So, the external witness of himself might pose the following question: “where does the witness of myself come from?”

A tentative hypothesis points to the existence of a “double perspective” dualism based on 1st-order perspective (1PP) and 3rd-order perspective (3PP):

- Subject and witness

The nervous system is genetically committed to interact with body and the surrounding world in order to maximize the life expectancy. So the target of the

genetic program is to make the neuronal network properly interconnected in order to make complex psychological functions emerging from the basic biological level. Since birth, the individual discovers to be confined in space and time within his body structures. Then, the psychological idea of being an Ego, separated from the rest of world, is growing very fast, together with the fear of the dangerous insults of life. According to the genetic program of development, a physiological priority of the central nervous system is to be capable either of recognizing aversive (pain) or attractive (pleasure) stimuli and of finding new equilibria in response to these perturbing stimuli. Moreover, in few months, the individual is able to self-recognize in a mirror and pursues strategies with Self-oriented finalities like, for instance, managing a fork to eat alone. Over the months, the more difficult and the more repetitive are the interactions with the world, the richer becomes computational ability to react positively to them; namely, not only physical skills and knowledge ameliorate but also Self-consciousness becomes deeper. Up to now, the experience we have learnt and memorized has occurred thanks to a process of others' action imitation. A typical example is learning and memorizing of mother's tongue language; so, by means of the "inner speech", we repeat letters, words, and then full sense phrases we hear from nearby people; then, we start speaking aloud to test our newly-apprehended ability, by simulating what "inner speech" is repeating silently in mind. By the way, "inner speech" will never leave us. A discussion of the possible roles of "inner speech" has been reviewed elsewhere (Vicente & Manrique, 2011; Langland-Hassan & Vicente, 2018). Up to us, this function always precedes our voluntary actions as if it guided our actions, step by step (Bignetti, 2001, 2004, 2014, 2019a).

In few months from birth, the more we repeat fruitful actions, the more a solid and steady Ego (or Personal Identity) is embodied with a double perspective of the world: 1PP and 3PP. 1PP is elaborating emotional, Self-referential, subjective thoughts; conversely, 3PP is objective and rational, i.e. without any personal interest in cognitive processes. With regard to 1PP, the genetic program has construed an individual that believes to be totally distinct from the rest of world. This feeling coincides with a narcissistic personality that feels growing inside the lack of a fundamental tool to complete its evolution: FW. The growing desire is to elaborate thoughts and decide actions, in full autonomy and independency. The lack of FW becomes a breakthrough so that the further step of a toddler is to undergo "temper" or "tantrum", i.e. a behavioural outburst by means of which children revolt to adults' directives and try to impose their own will (Mullen, 1983; Lieberman & Amaya-Jackson, 2005). This phase seems to be only a time- and voice-consuming exercise; however, this phase corresponds to a fundamental step in personality growth: in case children might avoid adults' compulsion, they might delude to possess FW, that's why we presume that "tantrum" may embody the first conscious manifestation of FW illusion. In conclusion, in about a couple of years, the binomial Ego-FW has completed the evolution of a Self-oriented 1PP, according to genetic instructions; from then on, the

binomial will be inseparable and will be subjected only to few epigenetic modifications.

Actually, Ego-FW believes to be capable of absolutely autonomous thoughts, but the idea of possessing FW is only an illusion. This point is well explained by TBM: in a so-called “voluntary” action, the paradigm of an action is not invented as new, rather, it is arranged by making a cut-and-paste of the paradigms already in memory (Bignetti, 2013). Actually, this truth cannot be evidenced during the action but only later on; in fact, during the action, 3PP cannot substitute for 1PP. In literary terms, we might say that: “During a voluntary action, the egocentric 1PP has good personal reasons to bias 3PP and keep it in a foggy space like in a sort of Maya”.

In conclusion, the binomial Ego-FW does not exist, is an illusion; it is a sort of Self-referential avatar, whose profile is featured by the individual experience accumulated since the uterine life. In this sense, it’s true that every profile delineates an individual; yet, the profile is produced by using the way of thinking of the binomial Ego-FW, a standard cognitive mechanism that is universally-adopted. TBM is the synthesis of this cognitive mechanism. Since this thinking mechanism points to the egocentric Self-preservation of the individuals, in a broader sense, we might say it is a success of natural selection; in summary, as we recently wrote in our last book, the binomial Ego-FW is a winning illusion in human cognition (Bignetti, 2019a).

- 1PP versus 3PP

In a Global Workplace Theory (Baars, 1997, 1998), the main interpreters of our life on the stage of CM are: the Self and the surrounding world. These two actors cause continuous quarrelling, made of contradictions and attempts to smooth them out. However, there is a disharmony of thoughts on their essence and relationship, from one scene to the other; this mainly depends on the interference of the unpredictable emotional mind. This lack of a constant streaming in CM testimonies that CM does not really see the actors as they are; rather, the suspect is that CM self-represents an illusion of the real (Blackmore, 2002). Something analogous was proposed by us by claiming the existence of two perspectives, 1PP and 3PP, both innate in CM. 1PP is subjective, Self-related, emotive perspective that is active in TBM’s COGNITION. Conversely, 3PP adopts a purely rational, scientific and objective thinking. So, the two perspectives will never share the same way of conceiving life. At 3PP’s eyes, 1PP’s scenario looks like a mystification of the truth; for instance, believing in FW is seen by 3PP as a hidden desire of 1PP of reaffirming his power over Nature. Moreover, according to 3PP, the idea of being able to premeditate ex-novo an intentional action is 1PP’s illusion (i.e. FW illusion).

It is interesting to note that this way of reasoning of 3PP may occur only when the action has already occurred; conversely, the very instant we do something, it is 1PP saying to us that we are beset with the sensation either of freely “wanting” it and of freely “choosing” the action paradigm from among various options (see the popular definition of FW above). This mechanism is the basic premise for

the existence of FW illusion in CM (Bignetti, 2014).

To this regard, Searle asks himself why we find the conviction of FW existence so difficult to abandon (Searle, 1997). To this regard, we have proposed that the feeling of exercising FW is fundamental to the sense of Self, since the attachment to this illusion is an egocentric affect that fosters cognition for the everyday life necessities; the illusion that the binomial Ego-FW might exist as an entity autonomous from the rest of Nature, grows in minds since the toddler's time (Bignetti, 2001, 2013, 2019a).

The evidence is that, in order to drive a voluntary action, a sane mind cannot split simultaneously into two opposite perspectives; so, when we are deciding and performing an action we are following directions delineated by 1PP; instead, when we are objectively analysing the past experience, we may intellectualize it under 3PP. This is the perspective which unveils FW illusion.

As anticipated above, 1PP will never renounce to a) and b); it's 1PP's conviction that a) and b) are primarily, unquestionable truths, on the basis of which our conscious can elaborate the emotive reactions to defend ourselves from outside aggressions (with "aggression" it is intended any new demanding or challenging situation of life. The conviction is furthermore reinforced by excogitating the trick of "Compatibilism" according to which the existence of "Conditional FW" would make a) and b) compatible to each-other.

Conversely, the purely-rational thought based on 3PP, is not Self-oriented thus it cannot exploit any obsessive attachment to a) and b); however, it must admit that 1PP exhibits a primary role in COGNITION just because exploiting a) and b). On the other hand, we know that the probabilistic-deterministic rules governing neuronal network activity underlie the so-called voluntary actions; so, is 1PP's role effective or pure psychological appearance? To this question, 3PP might give this answer: "the psychological role of 1PP is an echoing of the hidden neuronal network activity of UM, translated into a CM's language; Though 1PP's intervention seems to distort the real, it seems absolutely necessary and efficacious for the good result of everyday life cognition. A further 1PP's role in everyday life of an individual is that, by upholding the inner world of affects, the perspective of the 'Real' may be distorted thus making Personal Identity absolutely individual and unreproducible. In other words, the warm, affective perspective through the eyes of Limbic System, impedes us to behave like a robot".

In summary, the binomial Ego-FW exhibits a warm, emotive, self-referential, perspective; by this means, it intervenes in everyday life cognition and behavior. Conversely, the scientific, objective and rational way of thinking of 3PP is another matter: the Self in this perspective is absent; then, 3PP cannot directly intervene in cognition like 1PP. So, the question is: what's 3PP useful for? Paradoxically, 3PP by rationally analyzing 1PP's way of thinking, may introduce the suspect of a "Cartesian-like Dualism" in mind.

2.3. "Cartesian-Like Dualism" (The 3rd Dualism)

In the above paragraph, we have concluded that 1PP and 3PP belong to CM

though with different roles. 1PP is responsible of the so-called voluntary actions carried out during the everyday life of the Self (TBM clearly explains how this should occur); while 3PP is suitable to analyse objectively and rationally all the situations and events, including 1PP's activity (scientific research maybe a typical example of its role). The paradox now rising is that, on the one side, 3PP cannot share with 1PP the same description of CM, though, on the other side, it cannot give any scientific, objective definition of CM in alternative to what is proposed by 1PP; so, by lacking a well-founded Self-consciousness, a "Cartesian-like Dualism" (CLD) may sort out in mind.

In the past, CLD raised hard discussions within soft- and hard-sciences, in particular in the West. Since philosophers like Plato, Descartes and many others later, religious people and atheists were obsessed with this concept. Descartes believed his mind were *res-cogitans* but he was not certain his body were *res-extensa* of *res-cogitans*. Ambiguity and irreconcilability between mind/Soul and brain/body became a famous example of "dualism" that distressed human mind. In a recent paper, we have denied the possibility that CM (3PP) might give a scientific, objective and rational definition of itself; so, the question whether the "Cartesian-like Dualism" (CLD) looked real, should be a rhetorical question. Yet, the problem still on the table is that the perception of CLD (separating our mind from the rest of the world) psychologically arises as soon as it is engaged in a cognitive process. Among the major fears deriving from CLD, there is either the impossibility to know what we should expect after death and the impossibility of steering the events (destiny) of our daily life. To this regard, it doesn't mind whether a voluntary action is successful or not; what counts is the 1PP's illusion of being the controller of the reaction against the stimulus (or "the driver of the car" (Dennett, 1991)) that necessarily goes along with the idea of being a separate entity from it (i.e. the idea of CLD). Furthermore, by repeating the same voluntary action, a psychological conditioning effect will definitely fix the idea of CLD in consciousness.

The stereotypic mechanism of a voluntary action may be intellectualized by 3PP under a rational, scientific point of view (obviously, this would not be our case if the point of view were emotive instead of rational); however, 3PP's may criticize 1PP's behaviour only a-posteriori, i.e. when the action has concluded. So, 3PP will neither substitute for 1PP nor affect its role during a voluntary action; then, the possibility of CLD existence will never be confuted. Then, the questions 3PP should pose are: "What's my personal conviction on CLD? Is it real or not? The fact that 1PP's idea on CLD cannot be denied, is detrimental to my stability? Am I bewildered by an inner conflict"? In between a sequence of voluntary action, 3PP might spray few flashes of the Truth into mind, i.e. it might instil the suspicion that the arousal of CLD is caused by 1PP's reasoning. Actually, it's only a suspicion, since in the absence of any a-priori proof or dis-proof, 3PP cannot honestly pose a realistic alternative to 1PP's hypothesis.

The extremized aspect of this argument regards the relationship of man with

God. Our mind cannot even nominate God, yet it seems to have a psychological need of him; so, we look for traces of his presence everywhere. Most religions have their own “Holy book” that serves as testimonial of God’s existence. The serious questions 3PP should pose now are: “On which basis may we believe a holy book is saying the truth? How may we demonstrate that the source of a Holy book does directly or indirectly originate by God’s voice”? In the largest archive of sacred text (see: “[Internet Sacred Text Archive](#)”), there are about 1700 holy books; how may we decide which is the holiest? In human history, religious-base conflicts were incalculable; now, in a globalized world, the idea that different “Gods”, together with their “Holy books”, should stand side by side with the same dignity, in peace, is a guess. Furthermore, nobody has chosen his religion at birth; then, one should ask himself why should he follow or even fight for a religion? These are aspects of the society that leave us astonished; exceedingly astonished if we realize that there isn’t a scientific demonstration that the holy books may say the truth!

As an example we report a paper appeared very recently on the opportunity that the practice of Yoga should be introduced in the West for its spiritual as well as healthy value. As expected, the West is mostly interested to Yoga whose practice and meditation are devoted to reach Divine (e.g. Raja Yoga). The spiritual distance in terms of idealization, between Brahma and other Gods of the monotheistic religions is dissolved when mind seems to discover a common superior consciousness. At least, people feel so in order to find interior peace, defensive against external insults and freedom from suffering in a permanent single state of divine unity (Munoz, 2020). Most probably, the illusion of a superior consciousness is simply due to the biophysical activation of limbic structures during meditation (Liou et al., 2007).

In this distorted message, it seems that the possibility of dissolving any form of dualism by creating a divine idea might be the glue unifying the West and the far East. The question, however, is that the true message of the early Yoga (e.g. Hatha Yoga) is just to recognize by meditating that mind is totally confused and noisy; it never stands on the present (i.e. it never lives the present deeply) since it oscillates from the “yesterdays” to the chimeras of the “tomorrows”. The book *Yoga Sutras* (a collection of 196 threads written by the sage, Patanjali, around 400 C.E.) contains what is thought to be the philosophical bases of classical yoga. Patanjali’s synthesis of Yoga definition is: “*Yoga-chitta-vritti-nirodha*” that means that yoga is the removing of the fluctuations of the mind. Then, according to Yoga, mind is chattering all the time thus confusing the research of “Truth” (White, 2019). The Psychiatrist Michael McGee has defined meditation a psychological state of active passivity and creative quiescence, i.e. a “mental silence” free of physical and emotional sensations. As we always say to scholars of Hatha Yoga, “*Yoga-chitta-vritti-nirodha*” should be the focus of meditation and not that of reinforcing the expectations of the Ego, e.g. the desire of unifying the individual Self with God. It’s a very dangerous dream to practice Yoga (or any

other religion) in order to achieve this kind of Self-realization by forcing mind! This is right the way to induce a typical dualism in mind, first, and then, try to overcome it.

At the end, the suspect rising is that 1PP (Ego-FW) might exploit the confusion in CM in order to take again possession of the scene.

3. Conclusion

The coexistence of the cooperative but distinct activities of UM and CM in mind has been already reported in literature as a “Dual State” of mind. We have made some examples of UM and CM activities by which mind physically and psychically can communicate with the rest of the world. The phylogenetic origin of this “Dual state” in mind seems to be very ancient, i.e. a sort of a-priori dualism; as if it were genetically committed to lay the foundations for social life.

Moreover, we have observed that CM undergoes a maturation process that starts with birth and ends few months later in a bifurcation: the first branch maintains the ability of analysing and elaborating thoughts under a rational, objective, perspective, while the second one installs the binomial Ego-FW that is suitable to analyse and elaborate thoughts under an emotive, Self-oriented, subjective perspective. These two ways of thinking correspond to very different perspectives: 3PP and 1PP, respectively. This bifurcation looks like a second dualism, namely: “Double-Perspective”. As a matter of fact, it emerges from the first one (UM vs. CM) as a compulsory event. CM, conditioned by 1PP, deludes to possess FW and believes to be the “driver of the car”. Paradoxically, due to the enormous success of 1PP in everyday life cognition (see TBM), this perspective will be naturally selected in mind for the rest of life. Conversely, 3PP knows well that the binomial Ego-FW is an illusion but cannot intervene in TBM; The only possibility of 3PP is to deny the existence of both Ego and FW under a scientific perspective. Therefore, when CM is influenced by 3PP, it may criticize the role that 1PP plays in a voluntary action but only a-posteriori, i.e. only when ACTION and COGNITION have come to an end. As a matter of fact, CM can alternatively utilize either 1PP or 3PP; while 1PP brings COGNITION to a successful end, 3PP is useful to explain all the physiological aspects of mind, i.e. those aspects that are usually considered in the scientific investigations of NCCs.

To this respect, we should notice that 3PP exhibits a witnessing ability, rational and far from any personal interest; so, 3PP can unveil the false 1PP’s point of view about the existence of the binomial Ego-FW. Nevertheless, 3PP cannot oppose any concrete, alternative hypothesis about human existence, Self and others hidden aspects of life and consciousness; so, CM begins to feel a creeping suspicion that the “Truth” is an unreachable matter, distinct from mind. So we came to discover the origin of CLD in mind. The CLD we are going to talk about, may put in difficult position many readers, since it refers to classic duality, counter-posing two separated realities like mind and body, the observer and the observed, body and Soul, God and Evil, etc. However, it should be noted that

we are not claiming that CLD is real; we are only highlighting that this is the third of a series of dualisms emerging from the others in mind, with no proofs of truthfulness.

In summary, the 1st dualism (“Dual State”) is a-priori physiological, the 2nd one (“Double Perspective”) appears typically psychological, while the 3rd one (“Cartesian-like Dualism”) produces metaphysical unsolvable problems. Interestingly, these forms of dualisms seem to emerge one from the other like in a Matrioska, i.e. a special fractal made of expanding envelopes. In a way, the continuity of mind within the different levels is preserved (Spivey, 2008); moreover, it emerges that an efficacious cognitive ability of mind goes necessarily in parallel with an egocentric and emotional IPP’s activity. Then, we suspect that the attempt to “mimic” some emotional aspects of mind will not be sufficient to obtain a truly-integrated intelligent activity of a Robot (Pessoa, 2017; Masuyama et al., 2018).

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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Appendix

TBM

TBM represents the pattern of a “so-called” voluntary action in response to a perturbing stimulus (see **Figure 1**). It is articulated in 5 compulsory steps divided in two phases: ACTION (pertinent to Unconscious Mind (UM)) and COGNITION (pertinent to the 1st-person perspective (1PP) of Conscious Mind (CM)). In ACTION, the paradigm adopted by UM to react to the perturbing stimulus is picked up from memory-encoded paradigms pertaining to a similar or analogous experience. In COGNITION, CM focus the attention on how the action evolves with few milliseconds of delay than UM’s activity. So, not knowing the preceding UM’s work, CM deludes to have freely and autonomously decided that action (free-will illusion). Moreover, CM feels the sense of responsibility of that action, thus self-attributing a reward or a blame, depending on action outcomes. Then, memory archives are updated of this new experience; the updating will be useful to UM for future actions.

The Bignetti Model (TBM)

ACTION

1) The so-called “voluntary” action is decided and performed by the agent’s Unconscious Mind (UM) in response to a stimulus. To this aim, the reaction paradigm that might have the best probability of success is retrieved by UM among those that are encoded in long-term memory store.

2) After a slight delay, the agent becomes aware of the ongoing action through feedback signals (somatosensory, etc.) that are conveyed to the brain as a consequence of action performance. Thus, the agent’s Conscious Mind (CM) (more precisely: the 1st-person perspective (1PP) of CM) always lags behind UM’s activity.

COGNITION

3) Owing to this delay, CM (i.e. 1PP) cannot know UM’s work that precedes awareness; thus, erroneously believes it has freely decided the action. Though objectively false, this belief is subjectively perceived as true, due to Free-Will (FW) illusion. It is so persistent and deep-rooted in the mind that CM (i.e. 1PP) is unwilling to abandon it.

4) The FW illusion satisfies a psychological need to secure the arousal of the Sense of Agency (SoA) and of Responsibility (SoR) of the action. Both SoA and SoR inevitably lead CM (i.e. 1PP) to self-attribute reward or blame depending on action performance and outcome.

5) Both reward and blame are motivational incentives that foster learning and memory in the CM (i.e. 1PP); the updating of Knowledge will provide new information and the skill required for further action (restart from point 1).

SUPPLEMENTARY WORKSHEETS

- TBM and Ethics

Even if FW illusion stands on scientific bases, it raises a crucial question in ethics, i.e. the one relative to the definition of “fault” and “guilt” and the moral

implications in law. Actually, sane people are considered responsible of their voluntary actions and, for that, they are judged by law. In case we reject this principle, and say that UM and not CM is responsible of any sort of “crime”, we shouldn’t anymore punish the criminals; obviously, this conclusion might appear unbelievable to the eyes of those people that are still fully conditioned by the idea that FW exists. In the past (Bignetti, 2014, 2019a), we have discussed this problem, thus proposing that individuals dangerous both per-se and for the community, should be necessarily isolated but not in common jails as the ones our society is used to. In fact, criminals should be put in jails not to be punished, rather to be psychologically and socially recovery. According to TBM, we should remember that the more the long-term memory of a subject will be enriched of new valuable experience and values, the higher is the probability that his UM might “decide” correctly and adequate actions per-se and for the community, in the future. In conclusion, the solution is quite simple from the technical point of view but it is not simple at all if we consider that moral rules, which are essential for our collective survival, are the product of natural selection; so, not only moral rules should be involved in a worldwide change but also our everyday way of thinking should be turned inside-out like a glove. Until people understand the scientific reasons for eliminating jails as they are today, the pretentious ambition to make jails as places of cultural, psychological and social recovery will remain ignored.

- Buddhism and FW

Karma is the law by which individual life is influenced by intents and actions carried out in the past; according to this spiritual law we cannot escape from the consequences of our actions that may bring to a continuous sorrow and reincarnation (Samsara). However, according to Buddhism, Self does not exist, so the question is whether it is possible to escape from samsara by means of a “voluntary action”. The issue about the existence of FW is another question which Buddha does not give an ultimate, precise answer about. The freedom of an action is considered by him as a speculative question. He considers human energy, effort and abnegation the right formula to fight against hate and fault, to interrupt the cycles of Samsara; yet, these qualities do not conciliate at all with an individual whose Self is inexistent and without FW (Radhakrishnan, 1940). To the “ancient” Buddhism, the solution seems quite simple: all we understand in our life has to be devoted to our own good! It must be finalized to redeem psychological condition and not to be subjugated. If the individual understands this, he will find himself on the right pathway to be helped by the Sky. So it’s a question of comprehension (mindfulness) and not of FW. Conversely, if the individual reaches enlightenment through a voluntary action (by FW), then he will fall down again into the Samsara (into the spiral of pains, sorrows, illusions, etc.) and into the dark time of Maya). In other words we cannot sail against our destiny; conversely we should understand the prepositions of destiny and let them cross us with the strength of truth. We will be ready to accept what destiny has reserved for us. Then, the will of Self-understanding in a peaceful and passive at-

titude is leading to real freedom: the modest discovery of being nobody but a raw terrain to be prepared for the next seeding season.

That is implicit in “ancient” Buddhism. However, over the course of time, his teaching has been misinterpreted; upon a specific request of the presumptuous binomial Ego-FW, the barycenter of the individual action has gotten back to itself. “Modern” Buddhism maintains the same empathic, sober attitudes towards humanity, always tormented by physical and psychological violence; though, the remedy to stand the stress, has changed since it points to reinforce Ego and FW. That’s why, nowadays Buddhism is diffusing more and more in the West.

- Samkhya and the issue of dualism

Samkhya is one of the most famous and ancient orthodoxic *Darsana* of the Hindu culture. The interplay with *Yoga*, another *Darsana*, determined a reciprocal influence, thus giving rise to a new psychophysical and philosophical school, namely *Samkhya-Yoga*. The fusion had the explicit intent of bringing human beings on the pathway of *Bhakti-Yoga*, i.e. on the knowledge of their own nature and the realization of spiritual and social duties. In *Samkhya*’s teachings, Universe depends on a dualistic manifestation of *Purusha* (passive consciousness) and *Prakriti* (active energy of Nature). *Ishvara* (God) has an insignificant role in this scenario.

For all these reasons, *Samkhya* is poorly esteemed in the West. Western people believe much more in our individual Self and its autonomy (*Purusha*), rather than in the destiny (*Prakriti*). Perhaps, because we believe that both intelligence and FW belong to our Ego and we have no intention to surrender them to determinism; our supreme God is the ultimate authority to judge actions.

At chapter 5 of *Bagavadgita*, the Holy Hindu text, *Samkhya* first clarifies the distinctions between the roles of *Purusha* and *Prakriti*; then, it highlights the evidence that mind’s slavery is just the incomprehension that our mind is in the hands of Nature (*Prakriti* or destiny), i.e. we are guided by Nature since *Purusha* is passive! We might be really free as soon as we unveil this trick. By lighting up mind, dualism will disappear. In other words, the conscious mind (1PP) deludes itself with a false perspective of the world. When *Buddhi* (the intellect) will give up supporting this illusion, the energy by which mind will keep identifying *Purusha*’s attributes with those of *Prakriti*, *Maya* will dissolve by unveiling the false dualism. The teaching of *Samkhya* is that mind confuses our perception by means of Ego’s presumption. The holy text says: “When *Gunas* [Nature’s mechanisms] have completed all the work, man whose Self has gone astray for the fault of Ego sense [*Ahankara*], thinks that it’s he who is operating!”.

A famous commentary of the dualism in *Samkhya* is given by Aurobindo (Aurobindo, 1997):

“Its original standpoint is in fact dualistic, not with the very relative dualism of the Vedantic schools which call themselves by that name, *Dwaita*, but in a very absolute and trenchant fashion. The cause of the universe should be explained not by one, but by two original, interrelating principles—*Purusha*, the inactive, *Prakriti*, the active. *Purusha* is the Soul, not in the ordinary or popular

sense of the word, but of pure conscious Being immobile, immutable and self-luminous. *Prakriti* is Energy. *Purusha* does nothing, but it reflects the action of Energy and its processes; *Prakriti* is mechanical, but by being reflected in *Purusha*, it assumes the appearance of consciousness in its activities, and thus there are created those phenomena of creation, conservation, dissolution, birth and life and death, consciousness and unconsciousness, sense-knowledge and intellectual knowledge and ignorance, action and inaction, happiness and suffering which the *Purusha* under the influence of *Prakriti* attributes to itself although they do not belong at all to itself but to the action or movement of *Prakriti* alone.”

It's interesting to note that the vision of *Samkhya* is, actually, only “apparently” dualistic. *Prakriti* (Natura Naturans) is the deterministic force that controls everything; though, *Purusha* (Soul or the intellect) may be temporarily confused by *Maya* (i.e. an unnatural perspective). Due to this confusion, *Purusha* deludes to resume all *Prakriti*'s functions, thus transforming the non-dual Self in a dual reality; when this trick of the mind is unveiled, the non-duality between the Self, *Atman*, and the highest metaphysical reality of the Universe, *Brahm*, is re-established.

Up to us, the Aurobindo's idea might be summarized in this way: man's conscious mind is genetically committed to become a passive, autopoietic structure. So, on the one hand, the individual's mind (embodied by the presumptuous Ego-FW) quite efficiently takes care of daily jobs, but, on the other hand, it surpasses cognitive borders, thus invading the endless territories of psychology and metaphysics; this sort of delirium corresponds to the illusion of being “the driver of the car”. In conclusion, the analogy between *Purusha* (confused by *Maya* in *Samkhya*) and 1PP (confused by Ego-FW in TBM) is evident.

- Autopoiesis and the binomial “Ego-FW”

Autopoiesis is the theory for minimal life on the base of which cognition depends on mutual interaction between a living element and its environment (Maturana & Varela, 1980, 1998). Maturana and Varela wrote that autopoiesis is necessary and sufficient to characterize the presence of life and that living as a process, is a process of cognition (Maturana & Varela, 1980). We may extend their hypothesis deducing that autopoiesis, cognition and living seem to be a triplet typical of a human being. The statement has been questioned by some authors (Bitbol & Luisi, 2004). In brief, it was proposed that, beside the example that a system is living when autopoiesis and cognition coexist, there could be also the case of a non-autopoietic system though cognitive, thus not alive (see for example robots) (Bourguin & Stewart, 2004). Others admitted that when there is a system minimally cognitive and, therefore, autopoietic, that system is living, but they also introduced the example of an autopoietic system that is not necessarily cognitive (Bitbol & Luisi, 2004). According to our experience, we can contribute to this discussion by saying that cognition is determinant for autopoiesis and thus for living. To this respect, we may say that, when the binomial Ego-FW of each individual has attained the maximal stage of mental and emotional de-

velopment possible, its cognitive mechanism is maximally efficient. Independently from individual differences, when the binomial Ego-FW is steadily Self-oriented, cognitive mechanisms exhibit egocentric, Self-defensive thoughts. If we accept the idea that Ego-FW is the product of a genetic program, *a-priori* instantiated in human mind, then, no doubts that human behaviour is autopoietic. In conclusion, we might say that life in humans is the necessary and sufficient condition to trigger cognition (that of Ego-FW) and that cognition as a process is an autopoietic process.

- Krishnamurti and human cognition

As it regards the mechanism of human mind and cognition, very few were the famous thinkers that seem to center the problem, in particular, should be cited: Jiddu Krishnamurti (JK), the Indian thinker famous for his anti-guru position. His discourses always start from the evidence that human mind is unstable, misleading, contradictory, incomplete etc.; so thought has created the main problems that torment humanity: wars, aggressiveness, brutality, devastation of Nature and all forms of egoism. He denounces that, everywhere in the world, there are people hesitant, frantic and suffering from all kind of deprivations; for instance, economic disparities due to few individuals that keep the major richness of the world and other forms of egoism and racism are even offensive. Opulent societies produce unhappy and antisocial people and divide man from man.

However, JK is positive by exhorting us to indagate carefully inside and outside us to bring up the reasons why our way of thinking does persist on the wrong way. The perception of life in man is shaped by the concepts already established in his mind. The content of his consciousness is his entire existence. Actually, the consciousness content that is common to all people, is the problem of individuality; this is a problem of the culture of the environment. Man can get rid of its conditioning situation if he pursues the “Freedom” from it; however, the kind of “Freedom” to put in action is not FW. FW is only a pretence of man that believes to be able to choose the right life’s pathway for some motives (Krishnamurti, 1978). Instead, the “Freedom” man needs, is pure observation, away from the usual reward-punishment mechanism of consciousness; the right “Freedom” is obtained in complete detachment from that content of consciousness which is common to all mankind.

For JK, human mind has created all the social disequilibria and individual suffering in this world, without being proposal towards a reasonable solution of them. Human mind has grown in this ambiguity, with a limited set of sensory organs and exhibiting a weak, imprecise activity. According to JK, a neat introspection should reveal that our thought is the product of our memory and our memory is the past experience: our thought is based on knowledge, i.e. on “Time” [i.e. the past] which is the enemy of man. That’s why cognitive processes are always bewitched by a Self-oriented thought, stuffed with past experiences and never Self-innovative (Krishnamurti, 1986).

JK travelled a lot and drew a lot of people participating in his conversations. Famous were the entertainments organized with young people, the dialogues

with Buddhist scholars and with David Bohm, the famous physicist. With Bohm, JK exchanged interesting opinions on human mind and knowledge. Both agreed on the idea that, at the early stage of a cognitive process, there is a crucial step by which knowledge assumes an absolute role; by activating this process, knowledge triggers a Self-defensive mechanism that clouds its destructive power to mind. Then, mind is dragged into such a confused state, so that it renounces to face the question (Krishnamurti & Bohm, 1985).

Then, by investigating the psychological aspects of cognition, JK proposed that the voluntary action might follow these compulsory steps: 1) “learning” means “experience”; 2) “experience” leads to “knowledge”; 3) “knowledge” is accumulated in “memory”; 4) “memory” generates “thought”; 5) then, “thought” coordinates the “action”. By means of the “action” we can learn a new experience, so that the cognitive cycle can restart (Krishnamurti, 1982). Evidently, this cognitive mechanism shares an extraordinary analogy with TBM.