**Chapter (4) Methodological Dualism (MD) and the Multi-Explanation Framework (MEF) (I): The development of a mentalistic explanatory procedure**

**Pat and Rick drank a lot of beer in ‘our bar’. They were frustrated from their research in the elusive phenomenon of consciousness. Pat said to Rick, "I think they have not grasped the elusive creature in ‘our bar’ yet, because they aren't equipped with the right tools for this kind of job." And Rick said, "Not sure. Maybe they didn't drink the right beer for this kind of elusive grasp."**

At the end of chapter 2, I discuss the question: Is CΨ (consciousness) explicable. I concluded that a TC (a consciousness theory), which attempt to base CΨ on neurophysiological processes in the brain, has not yet been discovered. In view of this, I suggested that it is justified (and worthy) to see CΨ as a primary factor that explains behavior precisely because it has not yet been explained. In the current chapter, I attempt to develop the idea that CΨ may function as a factor that explains behavior and not just a phenomenon that requires an explanation. Chapter 4 is based on my previous publications (e.g., Rakover, 1997, 2007, 2011/12a, b, 2018). I will start by presenting the justifications, the rational, for developing an explanation-approach based on the concept of CΨ.

* 1. **Rationale for developing MD and MEF**

The rationale is based on certain well-established empirical observations (see previous chapters) that can be conceived of as assumptions for the following justificatory-argument, an argument that leads to certain interesting consequences:

*Well-established empirical observations (assumptions)*:

* To date there is no TC that explains the relationship between mind and body, CΨ and brain;
* It is hard (if not impossible) to conceive mentalistic explanations (e.g., based on will, belief, intention) in terms of mechanistic explanations (e.g., based on events or processes in the brain);
* In the majority of the cases, behavior is saturated with CΨ.

*Some interesting consequences:*

Given the above assumptions, if one aspires to suggest a complete account for behavior, the following can be proposed:

1. If one uses only a mechanistic explanation for behavior (in the manner accepted by Behaviorism, Cognitive Psychology and Physiological Psychology), the explanation will be incomplete because it disregards CΨ;
2. If one aspires to present a comprehensive explanation of behavior, one has to offer mentalistic explanations in addition to mechanistic accounts. This complementary approach will provide a better account of behavior than the one proposed by a purely mechanistic explanation;
3. Since (1) to date there is no TC and a mentalistic explanation cannot be founded on a mechanistic one, (2) one aspires to offer a comprehensive account of behavior, and (3) there is no model or procedure in psychology for providing mentalistic explanations for behavior (because psychology offers only mechanistic explanations, such as behavioral, cognitive or neurophysiological), one has to develop a new model, procedure for a mentalistic explanation of behavior in addition to and in coherence with the mechanistic explanation;
4. In view of the above, the methodological dualism (MD) and the multi-explanation framework (MEF) were developed and presented here: MD in current chapter, chapter 4, and MEF in the next chapter, chapter 5.
   1. **Methodological Dualism (MD): some clarifications**

Before I begin to the describe of the MD, it is appropriate to clarify some concepts that I will use during the discussion of MD. All the clarifications and development of the mentalistic explanatory model will be made from one main point of view - from the methodological aspect.

(A) *Mechanistic & Mentalistic explanations*. What is a mentalistic model of explanation? And how one proposes an explanation? The answers are as follows. Any explanation is suggested with the help of a procedure or model for providing explanations. There must be a way, a procedure, a scheme, a model with which a specific explanation can be offered for the empirical phenomenon under study (e.g., Hempel, 1965; Rakover, 2018; Salmon, 1990). *Mechanistic* explanatory models use concepts common in the sciences that describe objectively the world such as, distance, time, weight, chemical reactions, and neurophysiological process to explain phenomena under study. These models can offer explanations for behavior of humans and animals by an appeal to physical, chemical, physiological, genetic, and evolutionary factors, and also to stimulus-response-consequence relations (without the use of mental terms in explanations), and to cognitive-computational processes analogous to the workings of a computer, such as symbolic (classical) models or neural networks (e.g., Bechtel, 2008; Rakover, 2007). In contrast, *mentalistic* explanations are based on an explanatory model, a procedure that uses mentalistic concepts that describe one’s inner subjective world such as, will, desire and belief, to explain behavior under study.

(B) *Explanatory CΨ*. What is meant by the idea that CΨ is a factor that explains behavior? And the answer is this. Consciousness is not conceived here as an explanatory entity in itself, but as an attribute, qualia, that accompanies different and varied appropriate MSs (note that not all MSs enter into conscious states). For example, I am aware that the cat is sleeping on the sofa; the sun is shining; the radio is playing a popular song; I am still in a state of fatigue; the phone is ringing; my leg is scratching; and also, I am aware that I have a new idea about the concept of CΨ, that I must write a letter of condolence to a friend who has lost his father; that a horse with a big horn on its forehead is a fantasy that does not exist; that superman does not exist, etc., etc. As can be seen from these examples and many others similar to them, CΨ does not appear alone, by itsef, as an independent entity, but it changes an uncoscious mental representation, a MS, into a conscious experience, into a certain content of which we are aware of. Some of these conscious mental representations, MSs, serve as components in an explanation for the individual's behavior. For example, David *wants* to eat and *believes* that a travel to a restaurant will fulfill his desire, therefore David will drive to the restaurant. The conscious mental states: *wanting* and *believing*, are used in everyday life as important components in explaining behavior, in the answer to the question of why David drove to the restaurant. Given that one is aware of a MS when CΨ is accompanying it, I will call this quality, which can be understood metaphorically as a ray of light illuminating darkness, the "Accompanying-Enlightening CΨ".

(C) *Conscious MS*. Since CΨ is connected to any appropriate MS and changes it into a conscious one, there is no distinction here between a MS that represents reality and the one that does not exist. In this respect, there is no distinction here between existing and non-existing intentions (the intentional-inexistence problem, see Jacob, 2023). If so, how can one distinguish between an actual representation and a representation that does not exist? Briefly, I propose that this distinction does take place in normal situations with the help of additional cues, most of which operate automatically. For example, a normal person does not have the desire to smell a flame of red fire, because it is immediately clear to him/her that this flame is not a rose flower – it is fire.

(D) *DM-MEF does offer*. What does the DM-MEF approach offer? The approach attempts to deal with the construction of a theory to explain a certain behavior. In contrast to common psychological theories that are based on mechanistic models of explanation, which were imported from the sciences, the theory proposed here is based on two models of explanation, the mechanistic and the mentalistic. These models are not reducible to one another and do not derive from a super-general explanatory model. The use of these two types of models for explanation behavior offer a better and complete understanding of the behavior being studied than the currently accepted use of a mechanistic explanation alone. While the DM attempts to develop a mentalistic model of explanation that meets most of the methodological requirements of science, the MEF attempts to develop a framework for building a theory for explaining a particular behavior, a theoretical framework that is based on the coherent use of both types of models of explanation: the mechanistic and the mentalistic.

(E) *DM-MEF does not offer*. What does the DM-MEF approach not offer? The DM-MEFdoes not offer a metaphysical-ontological solution to the mind/body problem, to the CΨ-problem. It is a methodological approach that circumvents the mind/body problem by developing means and proposing methods for constructing specific multi-explanation theories of behavior that harmoniously use mechanistic and mentalistic explanatory procedures together. Multi-explanation theories are not just a kind of instrumentalist theories, namely efficient calculating machines for predicting behavior, but are consistent with the realist approach. The concepts of these theories attempt to represent actual mentalistic, cognitive, and neurophysiological states and processes in the mind/brain system.

**(4.3) Methodological Dualism (MD): The development of a mentalistic model of explanation**

Where does understanding of mechanistic and mentalistic explanations come from? The answer is that the understanding of mechanistic explanation come from the theoretical-empirical anchoring. For example, at high school we learn the theories of physics including their language of mathematics, the connection between theoretical concepts and observations, the various experiments that support the theories, including the technology that has developed on their basis. That is, understanding of theories that explain physics does not come easy: these are not a kind of intuitive theories, but demand specialization lasting for years. Only after we understand the physical theories are we capable also of understanding the explanation that these theories provide for the phenomena under investigation.

However, the answer to next question: where does understanding of mentalistic theories come from, is different. A fraction of it comes from the theoretical-empirical anchoring, that is, from an understanding based on learning different examples of human behavior, especially family members and friends, and also animal behavior (e.g., Rakover 2007). On the one hand, this anchoring is not strong and valid as mechanistic explanations, precisely because we do not have direct objective observations of the other's mental states. On the other hand, a major and important part of understanding these explanatory concepts comes from the very fact of these concepts are one’s subjective and conscious experiences. They are understandable to the individual precisely because they are what that person is, his very essence. Let us examine the following example.

We explain David's trip to Tel Aviv by noting that this act of David's realizes his *will* to see Verdi's opera *Falstaff*, which is to be performed at the Tel Aviv Opera House. This explanation is based on David's subjective and conscious *will/belief*. That is, we should note that (a) the phenomenon to be explained in the present case is David's action: why David traveled to Tel Aviv; (b) the explaining system appeals to the *will* to see *Falstaff* and to the *belief* that a journey to Tel Aviv will realize this will. This will/belief therefore is an important part of the mentalistic explaining system. However, the very fact that we do not understand the phenomenon of CΨ (see previous chapters) the following question arises: How can a mentalistic explanation (*will/belief*) provide us with understanding given that we do not understand CΨ? My answer is as follows.

In regular and normal everyday life, the individual's *will* and *belief* are mental states that are well understood, since they are clear and self-evident – these mental states are truly an important part of one very existence. Given this 'self-evident' reason, I avoid entering into the difficult and complicated debate related to the question about the causes of the individual’s desires and beliefs, causes that sometimes an individual is not aware of. In other words, I am satisfied with the answer that in ordinary and normal situations, the individual's conscious desire/belief can be attributed the status of the main components for the explanation of behavior, i.e., in these cases one does need to explore “deeper” causes for explaining behavior. Nevertheless, it is worth emphasizing here that the use of a mentalistic explanation for behavior does not exhaust all possible explanations, because there are of course other important mechanistic explanations. Furthermore, Melle (2009) shows that folk-psychology includes not only will/belief explanations but also unconscious explanations that are based on certain causal history factors, such as one’s personality, cultural environment, and repressed desires.

Above I made a distinction between a specific explanation and an explanation model (procedure). A model of explanation is a general procedure for creating different specific explanations for different specific empirical observations. Only explanation procedures that fulfill the methodological requirements of science are approved and accepted by the scientific community. Various models of explanation have been reviewed for the natural sciences and for the social sciences (see Rakover, 2018; Salmon, 1990). Here I compare two different models of explanation: The Deductive-Nomological (D-N) model and the will/belief (purposive) model, which I will develop later. The first, the D-N model, widespread in the natural sciences (see Hempel, 1965), proposes that a specific explanation (prediction, called the dependent variable in psychology) is deduced from a law (or a theory) together with particular conditions (e.g., independent variables).

The second procedure (model) proposes a will/belief explanation, which is widespread in folk psychology. For example, as mentioned above, David drove to Tel Aviv because he *wanted* to see Verdi's opera *Falstaff* (which is to be performed at the Tel Aviv Opera House) and he *believed* that a drive there would realize his will.

Given this example, I propose to conceive the following as a mentalistic explanatory model, a procedure for creating specific *will/belief* explanations:

**[Will/Belief]:** If X *wants* G and *believes* that behavior B will realize his/her will, then X will perform B.

This is a new proposition, and it is central to the present approach. My main goal here is to use the everyday approach, folk psychology, to understand public behavior with concepts that represent conscious states and processes in the a person’s mind (e.g., Hutto, and Ravenscroft, 2021; Melle, 2009). A broad generalization of [Will/Belief] can be conceived of as a model of mentalistic explanation that meets most of the scientific methodological requirements. As one may see, this sentence,[Will/Belief], uses concepts that represent states and processes induced with CΨ (will, belief) that can be used to explain public behavior, that is, the performance of behavior B. This conditional sentence nicely expresses most of the explanations that use one’s inner world to explain public behavior. To see this, one needs to replace the words ’wants G’ with other words that describe other conscious motivational states. For example, if X is *afraid* of G and *believes* that behavior B will remove the fear, then X will do A. In general, then, the conditional sentence can be formulated in a very broad way as follows:

**[Motivation/Belief]**: If X is in a *conscious motivational state* aimed at achieving G and *believes* that behavior B will satisfy this motivation, then X will do B.

In this formulation, the concept of ’motivation’ denotes many and varied ‘conscious motivational states’ in which the individual may be. Given this, I propose [Motivation/Belief] as a general mentalistic model of explanation, that is, as a procedure for mentalistic explanation, by which conscious motivational concepts are used to rationally explain public behavior. To the best of my knowledge, this idea has not yet been proposed in the professional literature and it appears in different variations in Rakover (1997, 2007, 2011/2012a, b, 2018). This proposal demands some clarifications and justifications.

Although [Motivation/Belief] can be included in the framework of folk-psychology, there is a big difference between these two. The proposal here is to see in [Motivation/Belief] as a model, a procedure of mentalistic explanation, a proposal that differs from the conventional approach that sees folk-psychology as a theory, model or law that predicts behavior under certain conditions. Clearly, a procedure to present an explanation is different from a scientific theory or a law. It is impossible to disconfirm a procedure as one refutes empirically a scientific theory.

The general theoretical approach to folk psychology, known as ‘theory theory’ (TT), suggests that the average person predicts the behavior of others (and to some extent his own behavior) by attributing to others mental states (MSs) that make it possible to predict what the other person might do. This approach has undergone many criticisms, which includes, among other things, the proposal that folk-psychology is a wrong theory and will be replaced by an established scientific theory, and also the suggestion that TT should be replaced by another better theoretical approach, the Simulation Theory. According to this alternative theory, what the individual does is a mental simulation of the other: one manipulates her own appropriate MSs in her mind and according to the situation in which the other is, she predicts what the other will do (e.g., Hutto, and Ravenscroft, 2021; Jacob, 2023; Melle, 2009 ).

Some of the concepts included in folk-psychology, such as desire (will), belief and intention, were used as important elements in models for predicting an individual future behavior. For example, consider Bratman’s (1987) belief-desire-intention (BDI) model. An important target of this model is to describe and predict one’s plans to the future, one’s intentions for the future. While intention can be conceived of as a belief that the individual will behave in a certain way, Bertman apprehend intention as different from belief and desire, because intention exhibits greater stability than desire and belief that may change rapidly. Desire and belief contribute to intention that produces the predicted behavior. (For a similar idea see Melle, 2009, and for criticisms of BDI see Herzig et al. 2017.)

Part of the professional literature on folk-psychology has interpreted the will/belief sentence as a social scientific law that can be placed in the D-N model for generating explanation (they conceive of will/belief as a "teleological- purposive-law". Briefly, the D-N model infers rationally the behavior being studied from the assumptions that include natural law (theory) and certain initial conditions.). Researchers, such as Churchland (1988), Horgan & Woodward (1985) and Rosenberg (1988), suggested a teleological explanation by using a purposive-law. Rosenberg, who discusses profoundly teleological explanation as a scientific law in the social sciences, suggests, "This then is the leading explanatory principle folk psychology offers us" (p. 25). Accordingly, the explanation of the observation that David drove to Tel Aviv (because he wants to meet Ruth) will be given by an appeal to the D-N model and the (will/belief) purposive-law: if X desires G and believes that B will realize G, then X will do B, in the following way:

*Assumptions:* 1) Law, theory: the (will/belief) purposive-law

2) Particular conditions:

a. David wants to meet Ruth in Tel Aviv;

b. David believes that a ride in his car will fulfill his wish.

*Conclusion, Prediction*: David will drive to Tel Aviv in his car.

*Explanation:* There is a match between the prediction and the observation.

Hence, according to the purposive-law approach, the structure of the mentalistic explanation follows the structure of Hempel's model, which I will portray here very briefly. From the assumptions that include a law of nature and the initial conditions (the independent variables), one obtains a particular conclusion, prediction (the dependent variable) that is consistent with the empirical observation (David drove to Tel Aviv in his car). If this approach us correct, the suggestion that [Motivation/Belief] is a model and not a scientific law, seems incorrect. Why? Simply because a natural law describes a certain empirical relationship between at least two variables, whereas an explanatory model creates specific explanations. They are two different things and if (will/belief) is a law, it cannot be an explanatory procedure. My counter-argument is that the purposive-law approach is incorrect for a variety of reasons.

One of my counter-arguments is that the (will/belief) statement (if X wants G and believes that B will realize G, then X will do B) is not a law, an empirical law based on empirical generalization, but is a model, a procedure for mentalistic explanations. Were it a law, it would be subject to the procedure of empirical refutation. And since to date there have been thousands upon thousands of cases in which specific purposive predictions have been refuted, one may wonder why this so called purposive-law has not been changed or eliminated from the corpus of knowledge of psychology. Why has this refuted and incorrect law not been discarded? Why do people continue to use it? In short, as we shall see below, my proposition is that [Motivation/Belief] satisfies the accepted methodological requirements of a scientific explanation model and not of a law.

**(4.3.1) [Motivation/Belief] satisfies the requirements for scientific explanation:**

Reasons were developed for conceiving the mentalistic [Motivation/Belief] as a scientific procedure. It is revealed that [Motivation/Belief] fulfills most of the requirements of scientific methodology for providing explanations. Although it is very difficult to reduce a mentalistic explanation to a mechanistic explanation (see previous chapters), it is shown here that the scientific requirements for explanation are wide enough to encompass the mentalistic explanation model (procedure) [Motivation/Belief] too. Hence, according to the scientific game rules, mentalistic explanations are methodologically legitimate. In the following I present arguments that support the proposal that [Motivation/Belief] (A) meets the methodological requirements for a procedure (model) of scientific explanation, and (B) provide additional arguments that will/belief cannot be conceived of as a law in the sciences.

**(A)** *Methodological requirements for a procedure of scientific explanation*: Based on the literature on explanation, I propose that an explanation procedure (model) has four major characteristics (see Hempel, 1965; Lipton, 1992, 2001; Psillos, 2002; Rakover, 1990, 1997; Salmon, 1990; van Fraassen, 1980; Woodward, 2002). In addition to these four requirements, I add a fifth new requirement called "Empirical Irrelevance."

(1) *General procedure*: A mechanistic explanation model is a general procedure whereby the researcher proposes many specific explanations for numerous specific phenomena. The specific explanation itself is perceived as a particular case of the general theory, law or mechanism. This property is maintained in the mentalistic explanation too: the specific explanation that David waves in order to bid farewell to Ruth is a specific instance of the explanation procedure, [Motivation/Belief], according to which an individual will perform a certain act if she believes that this act will realize her motivation (desire).

(2) *Causes and reasons*: In most cases a mechanistic explanation model in the natural sciences assumes that the explanation for a phenomenon is associated with a general law, a theory, a mechanism, which answers the questions of *why* and *how* by proposing causes for the phenomenon's occurrence. Analogously, regarding a human's (or a supreme animal's) behavior the mentalistic explanation of behavior is accomplished by an appeal to internal mental processes that give reasons for its occurrence.

(3) *Rationality*: In the natural sciences an explanation procedure creates from one sort of information (the *explanans, the explaining factors*) another sort of information (the *explanandum, the explained behavior*) by means of rules of logic (deduction, induction), mathematics and probability. Thus, the occurrence of the studied phenomenon is expected because it is predicted on the basis of certain information and rational rules. Similar things happen in the case of the mentalistic, [Motivation/Belief], explanation. For example, we expect that given David's wish to take leave of Ruth and his belief that waving is the proper response to realize his wish, it will be only reasonable for David, as a rational person, to wave. However, here the prediction founded on [Motivation/Belief] is not based on logic, on statistical probability, or on the necessity that derives from a natural law. Rather, it is based on practical reasoning, on the calculated opinion of the individual who takes into account, among other things, his ability, the physical, social conditions to which he is subject, and the significance of realizing his motivation (see Millgram, 2001; Newell, 1982; Samuels, Stich & Faucher, 2004; Schueler, 2003; von Wright, 1971).

(4) *Empiricism*: The specific explanation generated by the mechanistic explanation procedure must be attached to reality. This enables an empirical test of the theory, the law, the mechanism that the explanation model uses (e.g., the D-N model described above). This requirement is also realized for the mentalistic explanation, [Motivation/Belief]. For example, there is no problem in testing empirically the explanation that David waved his hand as a sign of his wishing to take leave of Ruth. One can test this explanation by presenting certain questions to the hand-waver: Did you wave as a gesture of leave-taking or to ease the pain in your shoulder? Do you know the person you waved to? Please choose from these five pictures the one at whom you waved; etc.

(5) *Empirical Irrelevance*: To the best of my knowledge, the methodological idea proposed here is not found in the professional literature that I am familiar with. To use the mechanistic D-N model, one has to set in (a) the model's assumptions various laws and theories (e.g., laws of the movement of bodies, laws in electricity or electromagnetism, theories or laws in biology) and (b) the relevant particular conditions, and then to derive from these (a & b) the specific predictions. This model, then, possesses the property of being an explanation storehouse for diverse theories and laws of many and varied fields of research. Similarly, one may suggest that a hypothesis (theory or law) is confirmed or refuted by the familiar Hypothetico-Deductive (H-D) method. (Very briefly, the H-D method is based on the comparison between (a) the prediction deduced from a certain theory and the initial conditions and (b) the empirical observation. If the comparison matches, the theory is confirmed, if not, the theory is disconfirmed.) This method also possesses the property of being a storehouse for empirical testing of diverse hypotheses, theories and laws. These properties underlie the present characteristic of an explanatory model: Empirical Irrelevance.

These properties suggest that the empirical observations do not relate to the explanation model and the method of testing themselves (e.g., D-N model, H-D method), but only to the hypothesis, the theory, the law, inserted into these procedures. That is, methodologically the empirical observations are not relevant to the explanation procedure (model) and the method of testing; they do not confirm/disconfirm the procedures for explanation or testing, i.e., they are empirically irrelevant. One may propose that if the empirical observations were relevant to the explanation model and the method of testing (i.e., “empirical relevance”), then just one discordant result (a clear discrepancy between the predicted and the observed) would have been sufficient to refute them, the explanatory model and the test method. However, in view of the research reality, I would not be wrong if I propose that these procedures for explanation and empirical test, received hundreds of thousands of negative results (with discrepancies between predicted and the reality), and therefore the researchers had to get rid of these procedures a long time ago. However, this dismal result means this: no theory could be tested and used for explanation, since the testing and explanation procedures are refuted and eliminated. These procedures would be perceived as incorrect, not worthy of scientific usage. Of course, there is the possibility of replacing the old method of explanation and examination with new and better methods. But if we accept that negative empirical results are relevant to these new procedures (empirical relevance), then it is clear that we will have to eliminate them rather quickly, because negative results are the bread and butter of scientific research. As a matter of fact, given the condition of empirical relevance, one may propose that any procedure of explanation or empirical test necessarily includes the possibility of its refutation. Why? Because this is their fundamental feature: sometimes to offer positive results that indicate good explanations or tests, and often to offer negative results. Hence, given that every explanatory procedure is intended for refutation, one may propose that this situation of refutation includes also a mentalistic model of explanation.

In other words, the question is this: Does the Empirical Irrelevance apply also to the [Motivation/Belief]? In my opinion the answer is affirmative. Consider the following example: David wants to meet Ruth in Tel Aviv and believes that a bus ride will realize his wish. Hence, a specific prediction may be proposed that David will travel to Tel Aviv. But David does not travel to Tel Aviv. According to Empirical Irrelevance, what was refuted was the specific hypothesis about David's travel and not the scientific method of testing or the procedure [Motivation/Belief], whereby this specific prediction was generated. The reason for this is similar to what was stated above: as the D-N model and the H-D method continue to generate specific explanations and specific empirical tests, so this mentalistic explanation procedure continues to produce specific explanations, specific predictions, which deal with other behaviors of David (and many other people). Otherwise, it would not be possible to use any mentalistic specific explanation and to put any specific purposive hypothesis to an empirical test. Why? Because in principle one needs only one negative result to refute the specific prediction, and according to the empirical-relevance approach to refute also the method of testing, and the [Motivation/Belief]. However, as explained above, the empirical results are not aimed at the procedures of explanation and theory testing, but they are aimed only at the prediction arising from the theory, model, mechanism or hypothesis.

**(B)** *Folk Psychology and Desire/Belief explanations:*

In this section I expand the discussion on the question, which I dealt with briefly above, whether it is possible to conceive of the desire/belief conditional sentence as a law in the social sciences similar to the laws in the sciences. in this context, I discuss also the scientific status of Folk Psychology.

As mentioned above, several researchers have formulated the will/belief statement in a way similar to a law in the natural sciences—that is, in the framework of folk psychology the will/belief statement is viewed as functioning as a law (e.g., Churchland, 1988; Horgan & Woodward, 1985; Rosenberg, 1988). Folk psychology refers to people's ability to provide explanations for their own behavior and for the behavior of other people by an appeal to mental states and processes. For example, the question why did David travel to Tel Aviv is answered because he wanted to meet Ruth. Folk psychology does not just offer explanations for a behavior that has already happened, it also suggests predictions for behavior in the future. For example, one may predict that David will drive to Tel Aviv to see Ruth. However, several philosophers believe that Folk Psychology as a theory is incorrect and in the future this theory will disappear from the map of science because it will be replaced by a better theory based on developments in cognitive science and neurophysiology.

The philosophers (e.g., Churchland, 1988; Stich, 1983) argue that compared with cognitive psychology or neurophysiology, folk psychology is a spurious science at root, which in the end will disappear from the book of science along with all its notions, just as folk theories about ghosts disappeared. Here is what Churchland (1988) writes:

…folk psychology is not just an incomplete representation of our inner natures; it is outright misrepresentation of our internal states and activities. Consequently, we cannot expect a truly adequate neuro-scientific account of our inner lives to provide theoretical categories that match up nicely with the categories of our common-sense framework. Accordingly, we must expect that the older framework will simply be eliminated, rather than be reduced, by a matured neuroscience. (P. 43)

I don’t accept this ‘elimination’ approach. I reject the view that the concepts of will and belief have roles only in a laws or a scientific theory of folk psychology, and suggest instead that these concepts have crucial roles in the framework of a mentalistic explanatory model, [Motivation/Belief]. The use of the concepts will/belief, which constitutes an important part of the explanation and prediction of behavior in folk psychology, is not a kind of law or scientific theory, but a procedure for generating explanations. The [Motivation/Belief] produces specific predictions and explanations for specific behaviors. The question, of course, is what justifications do I have for supporting the claim that ‘will/belief’ is not a scientific law. The answer is in two parts: the first considers the requirement of Empirical Irrelevance; the second considers the issue of a law in science.

*Empirical Irrelevance*: If the Empirical Irrelevance characteristic holds, then [Motivation/Belief], conceived as an explanation procedure (model), is not empirically testable, whereas all laws, theories, and hypotheses are empirically testable. Therefore, the Will/Belief statement is not be conceived of as a kind of scientific law. Churchland (1988) maintains that folk psychology is unchanging because it is fundamentally bad science, and its fate is to disappear from the book of science just as popular theories about ghosts have disappeared. Against this, I argue, in accordance with Empirical Irrelevance, that [Motivation/Belief], as an important part of folk theory, is irrefutable, not because folk theory is bad science but because [Motivation/Belief] is a mentalistic procedure for generating various specific explanations and as such it is not affected by empirical results. In other words, the results of an experiment are not relevant to the explanatory procedure (model) since they do not confirm it and they do not refute it.

*Law in science*: The will/belief statement does not seem to uphold certain criteria of scientific laws (see Swartz 1985; Weinert, 1995; Woodward, 2000, 2003). In addition to these demands, I offer the criterion of "unit equivalency" (see Rakover, 2002) as another reason why is it difficult to conceive the will/belief statement as a law (let's call this conception "will/belief-law" for short).

I shall first examine whether will/belief-law upholds the generally accepted and important criteria that distinguish scientific laws from accidental empirical generalizations. To substantiate this distinction, I shall draw a parallel between a known scientific law, Newton's law of gravity, and an accidental empirical generalization, which I shall call "the law of Ruth's party." The Ruth’s law is based on the observation that everyone who was at Ruth's last Friday party had an IQ higher than 130. And Ruth’s law is: the IQ of all the people at Ruth's parties is higher than 130.Then I shall show specifically that will/belief-law, as a law in folk psychology, does not uphold several additional properties characteristic of a scientific law (see Rakover, 1990, 1997). Finally, I discuss the relationship between a model, the mentalistic explanatory procedure [Motivation/Belief] and the methodological requirements for scientific observation, requirements that are accepted by psychology as a scientific discipline.

(1) *Counterfactual situations*: What will happen if we throw a stone up into the air? What will happen if we discover a new planet? In these cases, the scientific law supports a fact that has not occurred: the stone will certainly fall to the ground, and the new planet will behave according the Kepler's laws, which can be derived from Newtonian theory. However, it is clear that the IQ of at least one of the participants at future parties given by Ruth is liable to be below 130. Why? Because Ruth's beloved has an IQ slightly lower than 130. That is, the Ruth’s law does not support a fact that has not happened, being counterfactual (that everyone who will be at Ruth's future party will have an IQ higher than 130).

It is reasonable to suggest that will/belief-law will not support a counterfactual possibility either, because, for example, X will find out that she does not know how to perform the action that will realize her desire. Rosenberg (1988) discusses such possibilities and finds that will/belief-law without the addition *ceteris paribus* (the condition of all other things being equal) is false. In other words, to make will/belief-law efficient we must add to it a very long list of factors that have to be held constant. For example, it is required that compared with other wishes, the current wish (will, desire) should be the dominant. The problem is that this list of additional *ceteris paribus* is so long and complicated that it makes the will/belief-law suitable only for a small group of people. The list is far in excess of what is acceptable in the natural sciences. For example, Galileo's law requires the falling of bodies in a vacuum.

(2) *Explanatory power*: A scientific law has the power to explain empirical phenomena. Why did the stone fall to the ground? Answer: because of the force of gravity. This does not hold with the Ruth’s law. On the assumption that the entry threshold to the law faculty is an IQ of 130, would anyone in their right mind admit to this faculty Michael, for example, simply because he attended Ruth's Friday party. The answer is obvious. Here we should add that the explanatory power of a scientific law stems from its fitting into the broad theoretical-empirical framework. (For example, the law of gravity is connected to Newtonian theory, the laws of Kepler and Galileo to Copernicus, and to an impressive collection of observations and results of experiments.) What is the theoretical-empirical basis of the Ruth law? Clearly, this law is not grounded in a theoretical-empirical network, like the law of gravity.

Similarly, will/belief-law does not have the same necessary explanatory power as the law of gravity: the behavior moves from one's wish into practice by means of practical considerations and reasons. The theoretical-empirical connections, into which will/belief-law fits, folk psychology, are not the kind of firm connections characteristic of the laws of the natural sciences.

(3) *Universality*: A scientific law must be generalizable beyond time and space. We assume that the law of gravity acted on the solar system and other systems a billion years ago, and will act on these system a billion years hence. Nevertheless, one may propose that all the laws of science are bounded by certain limits, by a certain physical system, and constitute an expression of abstraction and idealization. For example, the Newtonian law of gravity is restricted to terrestrial speeds and to objects that are not of atomic or subatomic size; and the laws of biology are limited to various evolutionary groups, for example, explanations of the amoeba's behavior cannot explain cats' behavior, and certainly not the highly complicated behavior of humans. The law of gravity refers to Earth ideally as a point of mass, without taking into account that Earth is constructed of different layers of mass that are not distributed symmetrically. Yet it is fairly clear that while the law of gravity applies to all the stars in the Milky Way, it would be hard to maintain that the Ruth’s law applies to other parties (of Ronit, Sue and David that at their parties celebrated people with lower and higher IQ than 130). This conclusion also pertains to Woodward's (2000, 2003) suggestion that in the special sciences (e.g., economics, psychology) there is no point in talking about laws in the usual sense in physics, but about stable empirical generalizations that do not change beyond certain relevant variables (e.g., different subjects and conditions). It is impossible to perceive Ruth’s law as a stable empirical generalization because at the next party it will already be apparent that at least one of the partygoers has an IQ below 130—Ruth's new boyfriend. It is reasonable to suggest that will/belief-law does not meet the requirement of universality or stable empirical generalization, because this law, without the condition of ceteris paribus, is false, and it changes extremely over a large number of relevant variables.

(4) *Interdependency*: The concepts of will (desire, motivation), belief and action show a certain interdependency, logical connections. For example, David's behavior is not just a motor movement but also a behavior, an action carrying meaning— David's desires and beliefs. By contrast, in a scientific law, such as the law of free fall of bodies, the distance of the fall is a term measured methodologically independently of the term time, the duration of the fall. Given this discussion, it appears that will/belief sentence cannot be interpreted as a law in science, because it does not maintain the property of independence between the measurements of the variables that compose it. One way to understand the dependence between the variables that will/belief is this. The structure of the concepts of will/belief is different from the structure of the concepts of a law in the natural sciences. The concepts that appear in Galileo's law are one-dimensional (time, distance); many other concepts in physics are combinations of one-dimensional properties (acceleration, work, energy). By contrast, the three concepts that appear in will/belief are names of very complex behavioral categories: there are different kinds of wishes, beliefs and actions. It is unclear how one may decompose these concepts into one-dimensional components and combine these components into will, belief, and action.

(5) *Measurements:* Measurement units for the concepts of will/belief – will, belief, and action—do not satisfy the requirement of "equality of units.” The conditional statement of will/belief can be formulated as a function: Action = f(Will, Belief). According to the requirement of equality of units, the combination of the units of measurement of will and belief is not identical to the combination of the indexes of action. While behavior is measured objectively by the performance of motor responses, will and belief are measured at best by verbal descriptions of one's subjective feelings, emotions, imaginations, and thoughts. It is clear that this discrepancy between the units of measurement puts will and belief in the status of a correlation and not in the status of a law in science.

(6) *Rules of inference*: Given the will/belief-law, it is not possible to infer logically, mathematically, the conclusion that X will perform B from X a wishe to achieve G and belief that B will realize her goal. The reason is that the transition from the assumptions to the conclusion in the case of W/B-law is not done logically, mathematically, as is the case in the Hempelian model of explanation, but the transition is based on practical reasoning. Similarly, Von Wright (1971) suggests:

Practical reasoning is of great importance to the explanation and understanding of action. It is a tenet of the present work that the practical syllogism provides the sciences of man with something long missing from their methodology: *an explanation model in its own right,* which is a definite alternative to the subsumption-theoretic covering law. Broadly speaking, what the subsumption-theoretic model is to causal explanation in the natural sciences, the practical syllogism is to teleological explanation and explanation in history and social sciences. (P. 27)

In this passage I have emphasized the words “*an explanation model in its own right*” because here von Wright expresses an idea similar to the fundamental thesis of the present chapter: will/belief is not a law, an empirical generalization, but a procedure, a model for producing specific explanations.

(7) *Objectivity, repeatability, and publicity*: So far, then, I have put forward several arguments in favor of the approach that conceives of the conditional sentence (will, belief) as a model of mentalistic explanation, [motivation/belief]. This approach meets most of the methodological requirements of science, so there is no obstacle for using this procedure within the framework of cognitive psychology research. However, I still have to answer the following question: How does the current approach deal with the three requirements for scientific observation: objectivity, repeatability and publicity? Objectivity is maintained when the process of observation does not affect the observed phenomenon and the phenomenon does not bias the observer. Repeatability is maintained when the same phenomenon can be observed in different times and place, repeatedly. Publicity is maintained when different observers can observe the same phenomenon (e.g., Rakover, 1990). Given these requirements, it is immediately clear that the subjective inner world of the individual does not fulfill them. For example, Mrs. Smith cannot experience her husband's feelings. The possibility that today Mrs. Smith will experience exactly the feelings of love for her husband ten years ago when she fell in love with him for the first time, is zero. And the possibility that Mrs. Smith will introspect her negative feelings thoughts with equanimity is very low.

Given this, if the subjective phenomena of CΨ do not meet the methodological requirements of scientific observation, then we are facing a very serious problem. It is clear that if I do not have a satisfactory answer to this problem, then it is possible to question the general idea that CΨ be considered a factor that explains behavior by conceptualizing of the conditional sentence (will, belief) as a mentalistic model of explanation, [motivation/belief]. The problem is this: even if we agree that every person is endowed with CΨ (i.e., we overcome the ‘other-mind’ problem), we will have still difficulty fulfilling the three methodological requirements for observations.

As a possible answer consider the following. A loving mother cannot but ask her crying son, why are you crying? Because it hurts me. Where does it hurt you? In the stomach Where in the stomach? Here, in the middle. Do you have strong or weak pain? And so on. What can we learn from this episode? It can be concluded that it is possible to know to a certain level something about the inner world of the other, about his/her conscious experiences. The question is this: does this conclusion allow a satisfactory development of the science of CΨ? And my answer is this. Just as in subatomic, quantum physics, it is impossible to know, according to Heisenberg’s law of uncertainty, at the same time the location and momentum of an electron because this is the essence of the world, this is how world is constructed, so we have to accept human reality as it is. Thus, within certain limits we are able to understand CΨ with the help of scientific means: verbal reports, behavior, neurophysiological processes in the brain etc. From a methodological point of view, therefore, it is possible to refer to the concepts that appear in [motivation/belief] as theoretical constructs that represent the inner world of each and every individual up to a certain degree of accuracy of description. It is not possible to participate with the CΨ of the other, but it is possible to investigate it using the research tools of science. (It is worth noting that here the epistemological demands of CΨ seem to contradict each other. On the one hand, the claim is that we do not have a well-founded justification to believe that the other is endowed with CΨ like us. On the other hand, we assume that the other has CΨ, but the phenomenon of CΨ does not meet the methodological requirements for scientific observation. I leave This problem for the reader to have fun with in his free time.)

In summary, given the above arguments, I conclude that although will/belief is an important part of folk psychology, it is hard to conceive it as a scientific law. It is best to view it as an explanation procedure, [Motivation/Belief], which generates different specific accounts of behavior.

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