KANT'S MIND AND ITS MATTER

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Thesis Abstract

Fatoş Bektaş, "Kant's Mind and its Matter"

Mind and body interaction has been a problem of philosophy and science for years. It is puzzling how the mind, which is something immaterial, finds a way to express itself in the material body. The subject of experience has both a material body and mind, which provides him with feelings, perceptions, thoughts, etc. Kant distinguishes between two aspects of this self: the phenomenal and the noumenal. The phenomenal self is the seat of mental phenomena while the noumenal self is the unknowable aspect of the self. Although different thinkers have speculated that various bodily organs such as the heart might be associated with the mind, it was later thought that the organ where it resided must be the brain. Interestingly, Kant's account of the phenomenal self has some relationship to such a view of the mental. His account of the mind in the *Critique of Pure Reason* does not explicitly state anything about the matter of the phenomenal self, yet some aspects of the account in question taken together with some passages from *Anthropology from a Pragmatic Point of View* suggest that Kant's account places the mind 'within' the brain. Moreover, this situation makes Kant's account of the phenomenal self compatible with physicalism.

The brain has been the subject of a great deal of research. New fields of study such as neuropsychology and cognitive science have opened a way of exploring the brain. Other fields of study such as biology and psychology also have studied the structure, functions, etc. of the brain. In this thesis I make use of the findings of some of those studies related to brain imaging and brain lesions. The reason why I use those studies is to strengthen the idea that mental phenomena are linked with physical ones. They emphasize the relationship between the mind and the brain by scientific findings such as recording brain activity or observing changes in one's mental functioning after a lesion in the brain. Those studies are used to show the need of investigating the brain to explain the phenomenal self. Moreover, Kant's position as compatible with physicalism is also compatible with the findings of those studies.

Tez Özeti

Fatoş Bektaş, "Kant'ın Zihni ve Maddesi"

Zihin ve vücut iletişimi felsefenin ve bilimin uzun zamandan beri süregelen bir sorunudur. Zihin gibi materyal olmayan bir şeyin vücut gibi materyal olan bir şeyde bir yol bulup kendisini ifade etmesi kafa karıştırıcı bir durumdur. Tecrübenin öznesi hem materyal bir vücuda hem de kendisine duyguları, algıları, düşünceleri, vb. sağlayan zihne sahiptir. Kant bu benliğin iki yönünü birbirinden ayırt eder: deneyimsel ve özsel. Deneyimsel benlik bu bahsedilen zihinsel fenomenlerin makamıyken özsel benlik benliğin bilinemeyen kısmıdır. Farklı düşünürlerin vücudun kalp gibi farklı organlarıyla zihni ilişkilendirme çabalarına rağmen, daha sonraları zihnin barındığı organın beyin olması gerektiği düşünülmüştür. İlginçtir ki, Kant'ın deneyimsel benlikle ilgili fikri zihinsel olanın bu şekilde düşünülmesine bir şekilde bağlıdır. Kant'ın *Critique of Pure Reason* kitabında yer alan zihin teorisinde deneyimsel benliğin maddesine dair hiçbir açık düşünce belirtmemesine rağmen, söz konusu teorisinin bazı özellikleri Kant'ın *Anthropology from a Pragmatic Point of View* kitabından alınan bazı pasajlarla birlikte Kant'ın teorisinin zihni beyne yerleştirdiğini önerir. Dahası bu durum Kant'ın deneyimsel benlik teorisini fizikselcilikle bağdaştırılabilir kılar.

Beyin hakkında yıllardır araştırma ve çalışmalar yapılmaktadır. Nöropsikoloji ve bilişsel bilim gibi yeni çalışma alanları beyni keşfetmek için yeni yollar açmış durumdadır. Biyoloji ve psikoloji gibi alanlar da beynin yapısını, fonksiyonlarını, vb. çalışmaktadırlar. Ben bu tezde bu çalışmalardan beyin görüntüleme ve beyin lezyonlarıyla ilişkili olan bazılarının bulgularından faydalanıyorum. Bunu yapmamın nedeni zihinsel fenomenlerin fiziksel fenomenlerle bağlantılı olduğu düşüncesini güçlendirmek. Bu çalışmalar zihin ve beyin arasındaki ilişkiyi beynin aktivitesinin kaydı ya da bir kişinin bir kafa darbesinden sonraki zihinsel fonksiyonlarındaki değişimin gözlenmesi gibi bilimsel bulgularla vurguluyorlar. Bu çalışmalar deneyimsel benliği açıklamada beyin araştırmalarının gereksinimini göstermek için kullanılmıştır. Ayrıca, Kant'ın pozisyonunun fizikselcilikle bağdaştırılabilmesi bu çalışmaların bulgularıyla da bağdaştırılabilmektedir.

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Contents

CHAPTER 1

INTRODUCTION

In the second chapter I am going to explain Kant's account of the phenomenal self by giving his account of the mind in the *Critique of Pure Reason.* In this book Kant explains human experience and knowledge of objects by referring to the functions and capacities of the mind. Those capacities are sensibility, imagination, understanding and apperception. They are essential both to knowing and to human experience. The subject of experience by using each of those capacities comes to know or think of an object. The self of this subject can be thought of both as phenomenal and as noumenal. While the former could be known, the latter does not reveal its secrets. The phenomenal self is the self which experiences mental phenomena.

The third chapter presents scientific findings about the brain. This chapter is aimed at displaying that there is more to the generally accepted idea of the link between the mind and the brain by examining two ways of studying the brain: brain imaging and research on brain lesions. I give a brief overview of research in these areas with examples of specific cases linking mental phenomena to certain areas of the brain.

The fourth chapter focuses on how we could make Kant's account of the phenomenal self compatible with physicalism. Kant's account of the mind is considered to be functionalist, and his depiction of the capacities of the mind, together with some passages from the *Critique of Pure Reason* and some from *Anthropology from a Pragmatic Point of View*, are used to show how this compatibility can be achieved.

The concluding chapter shows how the remarks made in the fourth chapter are important in supporting the compatibility between Kant's account and physicalism, but the support they give is not conclusive. Further research on both Kant's works of anthropology and scientific studies of the brain is suggested to be useful for strengthening the idea of the compatibility.

CHAPTER 2

KANT'S ACCOUNT OF THE PHENOMENAL SELF

Kant in the *Critique of Pure Reason* is concerned with giving an account of experience and drawing the limits of the sphere of the knowledge we can possess. In so doing, he defines the structure of the mind, that is to say, what its capacities, functions and processes are and how it operates on nature. His account of experience is a subject based kind; to clarify, he explores experience in terms of the subject of experience; experience mainly originates in the subject in question, and it is the subject who shapes the experience rather than the experience manipulating the subject.

The primary concern of this part of the thesis is giving an account of Kant's phenomenal self. Since this issue is tied with his theory of mind in general I will also talk about some basic aspects of the theory. I am going to explore the issue at hand by briefly mentioning *a priori* conditions of experience and the notion of self for Kant. *A priori* conditions include capacities of the subject of experience. These are sensibility, imagination, understanding and apperception. Human beings own those capacities innately; they are not gained through experience. The above-mentioned capacities constitute the mind and also make experience possible for Kant. A detailed exploration of these capacities is beyond the scope of this thesis, and is not necessary for its main purposes.[1] Instead, I shall briefly clarify their place, according to Kant, in the functioning of the mind.

[1] There are, of course, a number of excellent books dealing with all of those capacities in detail, and more than that; they deal with the whole book mentioned. These include Peter F. Strawson's book *The Bounds of Sense*, Norman Kemp Smith's *A Commentary on Kant's Critique of Pure Reason*, W.H. Walsh's *Kant's Criticism of Metaphysics*.

Sensibility

I would like to start with sensibility. Kant defines sensibility as "the capacity (receptivity) for receiving representations through the mode in which we are affected by objects."[2] Sensibility as such is the capacity to receive representations. The mind's sensibility capacity is designed as sensible, not as intellectual, that is to say, it needs an object for the process of sensation to take place; sensibility cannot originate its objects itself.[3] The objects are already out there; what the mind must do is to act on them. The mind is not required to originate objects from itself. By means of sensibility the subject's first interaction with objects of experience occurs. In the sensation process the mind is affected by objects, and so they are given to sensibility. The interaction between the mind and the object in the case of intuition is immediate. The interaction can be called a primitive kind since there is no thinking process going on at this level. This is the first step in the origin of the experience. We may even say that the raw ingredient of the experience is gained through sensation. Sensibility is based on the fact of adding the objects of experience to the mind's processes.

Objects undergo a further process in addition to intuition. The object is represented in intuition without being subsumed under a concept. Intuition deals with single objects, that is to say, it does not aim at a conceptualizing or thinking process, which is to subsume objects of experience under general concepts.[4]

Intuition may be either empirical or pure. If it is related to an object in general, it is called empirical, and if it has nothing to do with the sensible, then it is pure, to be found in the mind *a priori*. This distinction between pure and empirical is

[2] Immanuel Kant, *Critique of Pure Reason*, trans. Norman Kemp Smith (New York: Palgrave Macmillan, 2003), B-34/A-20.
[3] Ibid., B-72.
[4] Ibid., B-34/A-20.

actually very basic to Kant's philosophy. He describes "pure" as abstracted from anything concerning the empirical or sensation, and "empirical" as belonging to the sensible world, as is self-evident from its name.[5] This distinction concerns Kant's main aim in the *Critique of Pure Reason*. He tries to constitute a system of reason to explain how we human beings yield knowledge. He desires to do this by taking sciences like logic or mathematics as prototypes for his present system on account of those sciences having *a priori* grounds. At that point he is obsessed with basing human experience on *a priori* conditions since he believes that a real science must have *a priori* conditions to begin with. Therefore, this distinction is emphasized throughout the work.

The human mind has two pure forms of intuitions which precede experience. They exist independent of experience and make experience possible. Those two pure forms of intuition are space and time.[6] Space is the form of outer sense and it presents objects as outside us. The relations of objects to each other, their extensions, figures, and so on are presented by space.[7] Time is the form of inner sense. It enables us to order representations or inner states according to time determination.[8] If those two forms did not exist, we would not have the kind of experience we have. They are like cookie-cutters in terms of shaping the experience according to their forms. For example, the pure form of space enables me to represent the computer in front of me being in that exact place, having a certain shape and having relations with other objects around it. My experience of the computer gains meaning by this form. My intuition of space shapes the outside world and enables me to sense it in an orderly

[5] Ibid.
[6] Ibid., A-22.
[7] Ibid., B 37-A 23.
[8] Ibid., A-23.

fashion.[9] Likewise, time makes inner representations meaningful. It shapes inner sense, "by means of which the mind intuits itself or its inner state" in temporal relations.[10] We do have experience in relations of coexistence, subsistence and succession because of this pure form of time. To illustrate, I do bungee jumping and get excited during that special action. Before I jump off the platform into the air, I feel anxious about the height of the place and safety of the belt. After I jump off, I still feel scared but happy as well at this time. I represent those events of getting anxious, thinking about the safety issues, feeling happy in terms of time relations such as the coexistence of being scared and happy. If there were no such relations among such events, it is really hard even to guess what would happen. To speculate, I might not be able to figure out the relationship between feeling anxious and happy, that is to say, the succession of the two, during that particular experience.

Contrary to pure intuition, the manifold of empirical intuition is not like time and space which are the mind's own constructions or endowments. Rather empirical intuition is that of objects of experience. The undetermined object of an empirical intuition is called appearance. An appearance consists of matter and form. Matter is what corresponds to sensation in appearance, and form is what enables the appearance to be represented in certain relations. Matter is given to us *a posteriori* by way of experience while form is *a priori*.[11] I might clarify the relationship between the form and matter of the appearance in a more explicit way. The matter of the empirical intuition gives the object of experience to the mind and the subject innately possesses the form of appearances. The subject represents the world in accordance with the form of experience. Thanks to the form of experience, the subject adopts the

[9] Ibid., B-37.
[10] Ibid., A-23.
[11] Ibid., B-34/A-20.

appearance at hand to previous representations of objects. We could think of the collection of experience of the subject as a large jigsaw puzzle. The form of appearance in the mind of the subject enables different kinds of objects to be integrated into the whole puzzle of the experience. In spite of the various types of matter constituting the objects; forms possessed by the subject have found them a place in the subject's experience.

According to Kant, an object does not only consist of its appearance but also of its *thing in itself* nature. When we intuit objects, we do not represent their *things in themselves* nature but their appearances. They are given to us in a special way, which is peculiar to human beings. As I have stated above, we sense the world by two pure forms of intuition: time and space. Those are subjective conditions of experience; if they are abstracted from experience there remain no relations of place or of sequence independent of us, since they do not belong to the nature of objects but to the subject of experience, that is, to human beings. Yet, time and space are "empirically real". They have objective validity as long as objects of experience are given to our senses; they apply to objects of experience.[12] We do not have any other way to experience the world other than those pure forms. The two attribute the above mentioned relations to appearances. The objects provide sensation with the matter of experience *a posteriori*. Since we shape the experience of an object in general with our *a priori* capacities, and get the matter of the experience *a posteriori*, we can never know the thing in itself nature of an object of experience.[13] It is not possible for us to experience an object apart from those *a priori* conditions of the mind.

[12] Ibid., A 35-36 and B-44/A-28.
[13] Ibid., A 42-B 61.

Imagination

Imagination is “the faculty of representing in intuition an object that is not itself present.”[14] Thanks to that property, the mind can work on the manifold of intuition even in the absence of an object yet this is not the only work that imagination does. Imagination does its other work under the titles of productive and reproductive imagination. Those works are actually called syntheses. Synthesis means the act of putting different representations together, and of grasping what is manifold in them in one act of knowledge.[15] The capacities of the mind which make syntheses are imagination and understanding. The relevant capacity takes up the manifold of the representation, be it pure or empirical, and prepares it for the process of experience. For example, a pure synthesis of imagination, as I shall explain later, prepares the transcendental ground for apperception.

The role of the reproductive imagination could be expressed as bringing about mental images of objects and capturing the relations between representations. Thanks to that imagination, representations following one upon the other, or accompanying each other are put in meaningful relations with each other, and even in the absence of the representations mentioned the mind shifts from one to the other. Those relations are meaningful since they work in accordance with an empirical law: “the principle of association.”[16] When we have experience, we have different kinds of representations. The way in which how we bring those various representations together is explained by this law. By the principle of association we are able to prefer one representation over another to associate it with some other(s); we establish right relationships among the representations. This association is not some procedure that

[14] Ibid., B-151.
[15] Ibid., B-130.
[16] Ibid., A-121.

randomly takes place, but one that is subject to a rule and it has its objectivity from "the affinity of appearances." This rule of affinity is *a priori* and is that of every appearance belonging to the mind and subject to the unity of consciousness.[17]

We are conscious of apperception as our *a priori* condition of all experiences but this vital apperception can come into play only if the synthetic unity of the manifold in intuition is provided. That means insofar as representations are combined in such a way that they are ready to belong to one consciousness, and this synthetic unity is got by "the pure synthesis of imagination", or "productive imagination". Productive imagination prepares the ground for transcendental acts of the pure reason.[18] Productive imagination makes "the figurative synthesis." The figurative synthesis is the one through which space and time are unified.[19] In Kant's philosophy, time is a flow but nonetheless has parts. This synthesis provides us with the understanding of different parts of time as a unity. We are aware in the present time that there are other parts of time such as past or future that are related to the present time we are in. That is the same for the form of space. Kant himself gives the example of "line" which is related to the issue at hand.[20] When we are presenting a line in our thoughts we think of it as a determinate part of a unified space, not as a separate unit independent of space. Kant emphasizes that for manifolds to be thought together in one consciousness, they should be so related and that makes the synthesis at issue a necessary condition of the possibility of human experience.

[17] Ibid., A-122.
[18] Ibid., A 118-119.
[19] Ibid., B-151.
[20] Ibid., A-102.

Understanding

Kant defines the understanding as "the mind's power of producing representations from itself, the spontaneity of knowledge."[21] The mind turns to itself to add further representations to its data store; what I mean is that it increases the number of activities related to knowing an object by its capacity of understanding. Understanding in a way saves the mind from the dullness of just elaborating on the rough sensation of the manifold of an object, in other words, through sensibility objects are given to us and through the understanding they are thought.

Just as sensibility is concerned with intuitions, understanding is concerned with concepts. Intuitions and concepts are however tied to one another. If we were only to experience the instant manifold of intuitions, and not relate them to some general concepts or to a previous manifold of intuitions, we would have no knowledge of objects.[22] The intuitions would slip off our mind as soon as we intuit them. The relationship between intuitions and concepts prevents such an unpleasant situation. Concepts are functional components of knowledge. Understanding is able to process concepts by means of the faculty of judgment, since concepts are different from intuitions in that they have no immediate relation to objects.[23] Just as concepts belong to the understanding, acts of judgment also belong to it. Judgment is "the mediate knowledge of an object, that is, the representation of a representation of it", in other words, judgment is not like intuition having an immediate representation of the object. If the contents of judgments are taken away, only the function of thought in judgment remains.[24] A function is "the unity of the act of bringing various representations under one common representation." A function is the act of

[21] Ibid., A-51.
[22] Ibid., A-50/B-74.
[23] Ibid., A 68-69.
[24] Ibid., A-70/B-95.

classifying different kinds of representations of the subject under some general representation.[25] Act of judgment can be divided into four groups, quantity, quality, relation and modality, and each of these can be subdivided into three sections. The quantity of judgments consists of the universal, particular and singular; the quality of judgments consists of the affirmative, negative and infinite; the relation of judgments consists of the categorical, hypothetical and disjunctive; finally, the modality of judgments consists of the problematic, assertoric and apodeictic.[26] The faculty of judgment enables the subject to think objects by the help of concepts. One could think of an object belonging to a general class of objects, or relationships between different propositions, etc. To explain the former, the relevant judgment consists of a concept and a representation of an object in the form of "X is Y"; here two representations of X and Y are conjoined in my perception and combined in the object. Y is a general concept which applies to many representations, and X is an instance of objects which is to be judged in this specific example. The faculty of judgment enables one to classify X as a token of Y type. To explain the latter, for instance, under disjunctive kinds of judgments, one could think of the relationships of more than one proposition to each other.

I would now like to explore these concepts themselves more fully. Our chaotic experience becomes distinct and meaningful by the function of concepts. Concepts classify objects according to their properties. Consider an object of experience, for example, a book. As I look at an object of experience such as a book, I represent it by means of time and space in spatio-temporal relationships. I attribute to it extension, shape, singularity, etc., and finally apply the concept of body to it. I have more than one representation during that experience such as color, shape, etc.;

[25] Ibid., B-93.
[26] Ibid., A-70/B-95.

yet, I could unite those representations under the single title of the concept of body. Although this example of a book is illuminating, there is more to Kant's idea of concept. That is to say, concepts could also be either empirical or *a priori*. The concept of body could be an example of the empirical kind. On the other hand, *a priori* or pure concepts are called "categories". Categories shape our experience as time and space do. They are endowments of the mind. They are "mere forms of thought without objective reality", which means that they have no manifold of intuition. They wait for the given manifold of intuition to subsume it under one of those categories. They get the manifold from outside and put it under the relevant category.[27] There are also four main groups of categories which apply to objects of intuition in general and in each group there are three categories.[28] Under the main group of quantity there are categories of unity, plurality and totality; under that of quality there are those of reality, negation and limitation; under that of relation are those of inherence and subsistence, causality and dependence, and community; under that of modality are those of possibility-impossibility, existence-non-existence, and necessity-contingency.[29]All empirical knowledge of objects necessarily conforms to those pure concepts because only by presupposing them do they become objects of experience.[30] Any representation the subject of experience could have is applicable to those categories, or every representation is supposed to find its corresponding category or categories. To clarify how those concepts shape our experience, let us think about a table, which is an object of experience. Considering the quantity of the table as "one", our understanding categorizes it under the category of unity. Since it is an object of experience, it is a real object, that is to say, it does not *possibly* exist

[27] Ibid., B 148-149.
[28] Ibid., B-106.
[29] Ibid.
[30] Ibid., A 93-94.

but *really* exists. And finally, the table subsists in spite of some changes in its appearance, such as being colored or broken. The above-mentioned categories structure how the subject represents the table in his mind. The table is represented as a really existent singular substance. Since those categories are *a priori* in the mind, the subject sees the world as categorized. What I mean is that as the subject experiences the world, his mind automatically starts with the categorization process.

Apperception

> There must, therefore, be a transcendental ground of the unity of consciousness in the synthesis of the manifold of all our intuitions, and consequently also of the concepts of objects in general, and so of all objects of experience, a ground without which it would be impossible to think any object for our intuitions, for this object is no more than that something, the concept of which expresses such a necessity of synthesis. This original and transcendental condition is no other than transcendental apperception.[31]

"The original synthetic unity of apperception" is the most important principle of the subject's experience.[32] All our representations become meaningful if and only if they are treated under that one consciousness. We are conscious of apperception as our *a priori* condition of all experience As the words in the quotation in the previous paragraph state, objects of experience and experience of objects become possible thanks to the apperception, which means that transcendental apperception has "objective validity". To clarify what it means for transcendental apperception to have objective validity, transcendental apperception is an *a priori* principle of the human mind, and so does not originate from empirical conditions of the experience. It is the ground for possibility and necessity of all appearances belonging to the same subject of the relevant experience.[33] Moreover, when the subject has an experience, the subject firstly intuits the object of experience. Then, he synthesizes the manifold of

[31] Ibid., A-106.
[32] Ibid., B-132.
[33] Ibid., A-122.

the intuition in a determinate form. This form means that the object is both processed by sensation, imagination and understanding and is added by transcendental apperception to the previous representations. The present experience of the object is then synthesized into one. Not only do I know an object in this way but the object becomes an object of experience by that act of consciousness.[34]

Transcendental apperception is called synthetic since it synthesizes all representations of the subject into one as belonging to the same subject in question. The representations do not fall apart from each other but are brought together and structured as one.[35] If we could not associate representations of experience with each other, we would not have understanding or knowledge. Transcendental apperception enables the subject to be aware that everything that is going on in his experience all belongs to him. In spite of having various kinds of representations the subject unifies all of these as one; experience becomes one totality. If there were no such guarantee provided by transcendental apperception, representations would fall apart from each other; that is, experience would be impossible.

In the second edition of the book in addition to transcendental apperception, Kant also uses "I think" for the same principle. Kant defines "I think" as "a representation which must be capable of accompanying all other representations, and which in all consciousness is one and the same."[36]

"I think" emphasizes the same principle as transcendental apperception in the first edition: that there is no representation such that it not subsumed under transcendental apperception. "I think" belongs to the subject of experience and *vice versa*. This "I think" brings about the unity of experience the subject has. In every

[34] Ibid., B-138.
[35] Ibid., B-133.
[36] Ibid., B-132.

representation of the subject, the representation "I think" is always in operation. The subject is not dazzled by various representations hovering before him since "I think" informs him that all is owned by the subject himself. Yet, he calls this kind of apperception original since it accompanies all of a subject's representations, but it is itself not accompanied by any other. It is the highest principle of the mind; each single representation is tied with this representation.[37]

There is another kind of consciousness other than transcendental apperception: empirical apperception or inner sense. It is "the consciousness of self according to the determinations of our state in inner perception."[38] In inner sense the subject experiences appearances in temporal relations. Those appearances are determined by empirical conditions. The subject is aware that he is having the experience at hand; he accompanies it but does not unify that experience with the previous experiences of the same subject.[39] Empirical consciousness as such has subjective validity but no *a priori* ground. The same experience, for example, of hearing a sound would create a certain kind of effect on one person but another on another person. Lastly, contrary to transcendental apperception acting as a unifier of representations of the same subject, the empirical consciousness is without the relation of the identity of the subject. Yet, it also needs to be recognized by the same subject, and transcendental apperception assists it for that purpose. Transcendental apperception also connects representations of empirical consciousness to the same subject.[40]

[37] Ibid., B-133.
[38] Ibid., A-107.
[39] Ibid., B-139.
[40] Ibid., B-133.

The Self

So far I have given Kant's account of how the mind functions, and now it would be appropriate to explore what is going on about the self who is the owner of those functions and processes. We seem to have the experience of the substance of "I" in both inner sense and transcendental apperception. Concerning the experience of "I", inner sense makes us fall into the trap of believing that we experience "I" as the thing in itself in immediate intuition among inner states of the mind. In transcendental apperception the form of "I think" makes us believe that what we experience at this level is "I" as a thing in itself. I would now like to consider what we can know about the self both in inner sense and in transcendental apperception.

Kant's distinction between the appearance and *thing in itself* nature of things is also in operation in the self issue. He distinguishes between phenomenal and noumenal self, or self as appearance and self as *thing in itself*. What we experience in inner sense is the phenomenal or empirical self, that is to say, self as it appears to us. Perceptions, feelings, thinking, believing, and other such mental phenomena belong to the phenomenal self. In all experiences of the phenomenal self we accompany the subject "I" with various predicates such as see, believe, desire, etc. During an experience of vision, we say that, for example, "I see a red building". Now, it is necessary to look one more time and more profoundly at Kant's distinction of phenomena and noumena to have a clear picture of the phenomenal self.

Kant states that we do intuit an object of experience; what we do experience is the appearance of the object; apart from that we do not intuit anything. We sense the world as such by means of our *a priori* forms of time and space. If those are removed from us, the structure of our experience is destroyed and no independent time and

space or such representation of the world on its own would remain.[41] So, we cannot reach the knowledge of the thing in itself. When we do have inner perception, the unknowability of the *thing in itself* is still valid. First of all, our minds work on what we intuit by means of outer sense. The raw ingredient of our experience comes from the world of objects of experience. Outer sense gets the first impression of the objects to be elaborated more by other functions of the mind but it cannot intuit the *thing in itself*, so the subject, from the very beginning, starts by operating on the appearances. In addition to the form of outer sense, inner sense also has a form of intuition: time. The subject has representations in inner perception in temporal relations; namely, subsistence, succession and coexistence. This form does represent something only when the mind takes something into itself by outer sense. It is "the mode in which the mind is affected through its own activity."[42] This means that the mind perceives itself only it is affected by itself. The form of time belongs to the mind as one of its essential constituents. This mode of intuition exists prior to consciousness of the self in inner perception. The mind inevitably is affected by this form of intuition. It cannot experience its inner representations independent of that self-activity. The mind's own constituent interferes with the subject's experiencing its own activity as intellectual. This is the only way the subject can have experience. Therefore, the subject cannot experience the *thing in itself* nature of the self during inner perception. Yet, it knows the self as it appears, that is, the phenomenal self.

Another important fact about the phenomenal self is its ever changing structure. The subject has many different kinds of representations through inner sense. His experiences are in the form of the changing flux of appearances. To illustrate, the subject touches an antique vase during a museum visit. The first

[41] Ibid., A-42.
[42] Ibid., B 67-70.

impression he gets by his hands is the structure of intricate handmade work, and then he has a feeling of admiring that work. Next, he associates this experience with his previous experience of his mother's hand made bed covers, etc. In a short amount of time, his inner perceptions continuously change from one to another, and because of this flow of appearances a permanent self cannot represent itself, so the subject cannot observe an enduring self during this flux.[43]

To understand what kind of knowledge of the self we get through transcendental apperception, it would be reasonable to look at Kant's words below:

> For through the "I", as simple representation, nothing manifold is given; only in intuition, which is distinct from the "I", can a manifold be given; and only through combination in one consciousness can it be thought … I am conscious of the self as identical in respect of the manifold of representations that are given to me in intuition, because I call them one and all my representations, and so apprehend them as constituting one intuition.[44]

If one expected to see a self in the manifold of "I", one would be disappointed since there is no manifold in "I". Such expectation might be caused by the presence of "I think" in each single representation of the subject. Since "I think" enables the subject to call all representations one and his, he attributes those to the same self. If there were no such principle of the mind, the subject would be conscious of a "many colored and diverse self."[45] "I think" is like the representative of the subject since it brings about the issue of a self owning the representations. It is simply "I think" accompanying all representations of the same subject and providing the subject to have knowledge of an object, and have experience. This situation may be likened to sensibility as it provides the forms of intuition; namely, space and time. "I think" acts like a form for every representation and shapes them to be in accordance with each

[43] Ibid., A-107.
[44] Ibid., B-135.
[45] Ibid., B-134.

other as constituting a system which functions in harmony. It transfers to each one of them the information that they enter into a process which belongs to one and the same main center, we may call it the self, and they will proceed together in the process just like different components of the same machine for a specific purpose.

If we compare this knowledge of the phenomenal self to that obtained by transcendental apperception, in this transcendental synthesis I am conscious of myself, "not as I appear to myself, nor as I am in myself, but only that I am."[46] This "I am" cannot refer to the *thing in itself* nature, as Kant already strictly denied that kind of knowledge of any objects, or the phenomenal nature of the self as it is already given by inner sense. "I am" may refer to the existence of the subject as it takes place in the knowing process and to the performer of the syntheses. It may also again simply refer to the "I think" accompanying every representation of the same subject and providing "I" with the status of a subject. In both probabilities "I am" has a formal meaning as it signifies the carrier of acts of the self. In the footnote to B 158, Kant defines "I think" as "the act of determining my existence."[47] What this definition implies is that "I think" is a representation that states that the subject in question exists; in accordance with this, the first possibility of what "I am" is meant is more appropriate.[48]

Neither by means of inner sense nor of transcendental apperception could we have knowledge of the *thing in itself* nature of the self. Nonetheless, rational psychologists claim to know this nature of the self. Kant elaborates those claims of knowing the *thing in itself* nature of the self in more details in the section entitled "Paralogisms of Pure Reason" in the book. Although Kant rewrote this section in the

[46] Ibid., B-157.
[47] Ibid., B-158.
[48] Ibid., B-157.

second edition of the book, I will discuss the issue using the first edition since this edition is richer than the latter. What I would like to do now is give very briefly those arguments of Kant concerning the self to clarify how strict Kant is about knowing the thing in itself.

The doctrine of rational psychology rests on four basic claims, which are all diagnosed as fallacious by Kant. The claims get their source from four basic categories, namely; substantiality, simplicity, unity, and modality.

The first paralogism in fact seems to be the basic one among all the four and is very similar to what I have stated in the general remark about pure reason falling into the trap of searching for what is behind all those representations. According to it, the rational psychologist claims that the self is substance since the "I" is the absolute subject of all its determinations and it is not itself determined by anything. This cannot be accepted since by just considering this point, it cannot be concluded that the "I" is an object. [49] For something to be entitled to the status of substance it must be an *object* of experience, but there is no perception of "I" as an object. "I think" is just a form to accompany all the acts of the understanding. According to Kant, only objects can be substances. As the appearances of objects change there is something subsisting behind those appearances which make perception possible.[50]

The second paralogism states that the "I" is simple, that is, it has no parts. The way the psychologist arrives at that conclusion is that since different kinds of representations are accompanied by "I think", "I" is considered as "the absolute unity of the thinking subject." To put it in another way, "I" is also considered as a unity in terms of being an object whose simple structure is not affected by its predicates.

[49] Ibid., A 348-350.
[50] The discussions of the First Analogy and the Refutation of Idealism in the relevant book focus on this proof of the substance of objects. I will not, however, go into details of this discussion since it is a separate and rather lengthy.

Such an accompaniment of “I think” to every representation is possible only just in the case of the simplicity of “I”.[51]

The third paralogism claims “I” as numerically identical over time. Transcendental apperception is said to be numerically identical in the Transcendental Deductions, which merely means the accompaniment of “I think” to every representation, which is also to say that no appearance can be taken into experience unless it is treated under the transcendental apperception. However, this formal and logical idea is mistaken for the numerical identity of a person by the rational psychologist.[52]

The final paralogism seems to be more like of a proof of the existence of objects independent of the existence of “I” than of a remark about the nature of the self as a *thing in itself*. It is another version of the discussion of the Refutation of Idealism in the second edition of the book. Kant tries to prove the existence of objects independent of the subject of experience in those places. Contrary to what Kant thinks, the rational psychologist judges the existence of the external world as doubtful since the existence of appearances is not immediately perceived but is inferred since they are causes of our perceptions. So, the existence of “I” is certain and prior to that of objects.[53]

On the basis of the four categories referred to, the paralogisms state that the “I” of “I think” is a substance, simple, numerically one and identical over time and distinct from the other bodies external to it. The supposed fallacy of those claims, as Kant asserts, is that they treat the self as an object rather than a subject. They apply to it concepts which are supposed to apply to external objects. This is fallacious since

[51] Ibid., A 353-355.
[52] Ibid., A 361-364.
[53] Ibid., A 366-368.

"I" has no content but a bare consciousness which accompanies all representations of the subject. Moreover, there is no such intellectual intuition that would make it possible to experience the self. The only kind of intuition we do have is sensible, not "intellectual" and it gives us the phenomenal nature of objects, not the noumenal one.[54]

[54] Ibid., B-68.

CHAPTER 3

BRAIN IMAGING AND RESEARCH ON BRAIN LESIONS AS TWO DIFFERENT WAYS OF STUDYING THE BRAIN

This chapter is aimed at drawing attention to the link between the physical brain and mental phenomena as it is presented by some scientific studies. There are, of course, various methods of studying the brain. Some of them are brain imaging, the study of the brain lesions, recording activity in the brain, brain anatomy, the electrical stimulation of the brain, examination of the brain in autopsies, etc. In general these methods aim to find out how the brain works or what region of the brain might be related with what mental event or function, such as the correlation of region X with vision.

I am going to focus on the findings of two of those methods; namely, brain imaging and research into brain lesions. I choose to work on two methods since it would take too long to deal with all of these many methods and also because the underlying principle of brain studies as I have mentioned above is similar: to explore the mysteries of the brain. Brain imaging must be mentioned since it is a huge advance to observe the activity of the brain in scans. This method is a salient method in the diagnosis of mental diseases, disorders, and so on. It provides direct access to the defective regions of the brain that cause problems in mental health. It also works for investigating processes such as perception, learning, etc. The study of brain lesions is also an effective method since it gives impressive information about the correlation between mental phenomena and brain regions. The criterion for this method is to compare the mental functioning of a person before and after a lesion. Usually, a lesion in a specific region results in more than one dysfunction. Lesion studies as such are beneficial since it enables more than one function to be

investigated at the same time. For example, damage to the frontal lobe might result in many different changes in mental functions. The cases of lesions are taken from people's life experience by clinical observation.

Since it is hard to cope with every single example of mental events such as hearing, learning, remembering, thinking, feeling, etc., I am not going to refer to all of these. Rather, I am going to consider certain examples of those as representatives of other various kinds of mental functions. I will do this with the help of the methods I stated above. For example, I will refer to seeing as representative of other kinds of sensation such as hearing, tasting, etc. I will also mention more complex mental phenomena such as defective mental states, for example, having obsessive thoughts. There is another reason why I choose to conduct my exploration in this way. Sensation needs to be considered, as it is very basic to other mental phenomena to prepare the ingredients for more complex mental activities and it occupies an important place in Kant's philosophy; however, showing that more complex mental functions are also brain-dependent strengthens the thesis of physicalism.

The Structure and the Functioning of the Brain

Before diving into these methodologies, it is appropriate to give some basic information about the brain. The brain is the organ placed in our skulls and it is as big as "a coconut." It consists of about 100 billion cells. Most of these cells are "neurons" which are the effective agents of the brain activity. A single neuron is connected to other neurons around it. This connection of neurons could reminds us of a spider's web. A neuron has a "cell body" and two branches placed opposite from each other that are tied to the cell body. The "axon" is one branch of the neuron that sends the information from the cell body, and the "dendrite" is the other one which receives the information. There is a gap called the "synaptic gap" where the axon of

one neuron ends and meets the dendrite of another. When a cell is affected by a stimulus, the axon of the affected neuron releases a chemical called the "neurotransmitter" into the synaptic gap. This chemical makes the neighboring cell fire up, and then as a result of this interaction other neurons in the brain are also affected. The movement or affection of neurons creates a kind of electrical activity. This transfer of electrical and chemical signals from one neuron to another and the affecting of neurons in the web is the general process which takes place in brain activity.[55] This activity is also based on a give and take kind of relationship both among neurons themselves and between the outside world and neurons. An understanding of how the brain works is important since it helps make sense of the relationship between mental phenomena and the brain, and of the essential idea behind the imaging technique.

I would like to give some further information about the structure of the brain, as this will be referred to in the following discussion. In fact this structure issue and the issue of the way in which the brain processes information discussed in the previous passage together constitute a method of studying the brain, known as "brain anatomy". Since my aim in mentioning those issues is to draw a rough picture of what the brain is and to make it easier to understand the rest of the chapter I did not mention this in the introductory part as a method to be explored; rather I consider it as a helpful tool for my end.

To start, the very back of the brain is called the "cerebellum", the larger area ahead of it is the "cerebrum". The cerebral cortex is divided into two equal parts: right and left hemispheres.[56] If the brain is sliced into two pieces, each module of the brain save for the pineal gland, which is in the centre base of the brain, is duplicated

[55] Rita Carter, *Mapping The Mind* (Italy: Weidenfeld &Nicolson, Seven Dials), p. 14.
[56] M. Deric Bownds, *The Biology of Mind* (New Jersey: John Wiley & Sons, 1999), p. 52.

in both hemispheres.[57] Both the right and the left halves of the cerebrum are divided into four lobes. The lobe at the very back of the cerebrum is the “occipital lobe”, the lower one is the “temporal lobe”, the top part is the “parietal” and the front part is the “frontal lobe.” Scientific studies of the brain attribute different functions to each of those lobes. The occipital lobe deals with vision; the parietal lobe deals mainly with functions such as movement, orientation, calculation and certain types of recognition; the temporal lobe deals with sound, speech comprehension and some aspects of memory; the frontal lobe deals with thinking, conceptualizing and planning.[58] Inside of the brain there are the sections the “corpus callosum” and the “limbic system”. The corpus callosum is the place where the right and left halves of the brain interact with each other. This interaction enables the brain to act as one. The limbic system is placed underneath the corpus callosum. This part is thought to be concerned with emotions, interaction between the parts of the brain, adaptation of the body to the environment, and memorization. Finally, “the brain stem” is the part that goes down below the cerebellum. This part regulates bodily functions such as breathing, blood pressure, etc., and determines the general level of alertness of the body.[59] There is another important fact about the structure of the brain. Although there are four so called lobes of the brain, some parts of those lobes are distinguished as primary areas and association areas. While primary areas such as that of the auditory cortex are concerned with just one modality such as hearing, association areas enable interconnection between information coming to the primary areas. For example, if one is presented with some sound, his auditory cortex processes the

[57] Carter, p. 16.
[58] Ibid., p. 15.
[59] Ibid., pp. 16-17.

hearing act but association areas equip it with concepts or emotions, etc.[60] I will not present the specific names of those areas such as the primary motor areas but I will refer to primary areas by the name of the main lobe, and refer to association areas by calling them merely association areas.

The human brain is said to be the most complex brain of all the animals. There are even considerable differences between the human brain and that of other mammals. The cerebral cortex, which overlays the limbic system of lower animals is a simple, smooth structure and it changes into a more complex one in the sequence making the transition from rat to cat, from there to monkey and finally to human. During that transition, the temporal lobe starts to appear and becomes shaped like a "horseshoe". In the sequence of the transition crenulations on the brain also increase; especially in the human beings this fact is at an extreme level. The crenulations expand the surface area of the brain. Another difference is the expansion of the frontal lobe in the transition to human beings.[61] Brain studies suggest that these regions deal with complex mental activities as previously mentioned. There are also suggestions about the correlation between the higher number of crenulations in a brain and the higher level of mental functions. For example, it seems that more association areas of sensation appear as this feature of the brain structures increases, which might mean that raw sensations such as those associated with thinking are processed further.[62] Those ideas could suggest that as those structures becomes more complex, the animal in question becomes more developed in terms of mental functions, in this case rationality. Those differences are important since they are thought to be related to human beings being rational animals compared to the rest.

[60] Bownds, pp. 51-52.
[61] Ibid., pp. 48-49.
[62] Ibid., p. 49.

They are also important for the point I will make in the next chapter concerning Kant's association of human rationality with the physical structures of their hands.

Brain Imaging

After some introductory remarks, I should start with an explanation of what brain imaging is. Brain imagining includes PET, fMRI, MRI, NIRS, EEG, MEG, etc.[63] What those achieve is to show us "a differential distribution of the electrical and chemical activities of cerebral regions that characteristically varies with the psychology of the subject".[64] For example, EEG (electroencephalography) measures brain waves that are created by the oscillations of the neurons. The waves in question exhibit some characteristics according to the type of the brain activity being investigated.[65]

Those imaging techniques provide us with information which we cannot get in the area of psychology or psychiatry. The scientist observes the neuron activity in the brain of the observed subject; he keeps records and interprets the activities. Those imaging techniques show for example the difference of vision of a subject when he is shown a white wall and a complex painting. Another example is that a PET scan "records the pain caused by illusory burns."[66] More than that, characteristic images of depressive states and hallucinatory states of schizophrenics have been recorded by PET scans. It can be understood when the patients are having hallucinations or epileptic fits by looking at the scans.[67]

Now, I would like to give some examples of brain imaging results which are thought to be correlated with different kinds of mental activities. First I am going to

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[63] Carter, p. 27.
[64] Jean-Pierre Changeux and Paul Ricoeur, *What Makes Us Think?,* trans. M. B. DeBevoise (New Jersey: Princeton University Press, 2002), pp. 52-53.
[65] Carter, p. 27.
[66] Changeux and Ricoeur, p. 55.
[67] Ibid., p. 56.

mention those of slow-wave sleep, hypnosis, dreaming, schizophrenia and meditation in a brief manner for the sake of giving examples of different kinds of mental activities to figure out what is going on with this method, and then an example of sensation (vision), and two cases of mental disorders in a more extended way: OCD (obsessive compulsive disorder) and depression.

During slow-wave sleep, compared to being awake the overall electrical activity of the brain is more passive, yet there is an oscillation observed in the brain. In addition to this, there is less activity in the limbic system. In contrast to slow-wave sleep, scans show that there is increased activity in the brain in the case of hypnosis. The increased activity is observed especially in the regions which are associated with motor (the area that is in charge of controlling movement) and sensory areas, which are thought to fire up imaginary thoughts. In the scans of schizophrenia hypoactivity comes across in some parts of the frontal lobes, which is thought to lead to "spontaneous behavior" and "social withdrawal"; and in those of the limbic system which might cause a person to "confuse inner voices of oneself with others", as that part is suggested to be in charge of distinguishing internal and external stimuli. Concerning dreams, while vivid visual dreams light up the visual cortex, nightmares activate the amygdala and hippocampus, two areas which are parts of the limbic system. The other areas that are active are the pathways carrying the signals from the brainstem: the supplementary motor area and the visual and auditory processing areas, which are thought to produce the virtual reality of dreaming. Less active areas are some parts of the prefrontal lobes and the frontier part of the frontal lobes, which are associated with "waking thought" and "reality testing." The scans of meditation

show decreased activity in the parietal, anterior and premotor cortexes, which are suggested to be associated with seeking stimuli.[68]

The sensations, namely, seeing, hearing, smelling, tasting and touching, have their specific sense organs, in the same order as the previous sentence states: eyes, ears, nose, tongue and sensory receptors in the skin. Each kind of sense organ works on different kinds of stimuli such as waves or vibrations. Yet the basic functioning of those organs is the same. They receive the kinds of stimuli specific to each of them and transfer them into electrical pulses. So, the stimuli of any sensation come to the brain as electrical pulses and those pulses are the results of neuron affection as previously mentioned. A sensory stimulus reaches some specific brain regions after being taken in by the sense organs. After the stimulus reaches the brain, it is processed by different brain modules. Some of those modules are in the cerebral cortex- the wrinkled outer gray skin- while the others are in the limbic system. In the cortical parts, different parts of a sensation are processed in different places of the relevant region; in the limbic system, the stimulus turns into bodily reactions such as smelling the cake. To illustrate, to see an object, the color, movement, shape, etc. of the object is treated in different parts of the visual cortex. After those features of the object are processed in different places, the separate processes are unified in the larger cortical areas or association areas. Moreover, in those areas sensation becomes meaningful by being united with appropriate cognitive associations. For example, the perception of a car joins with the concepts of driving, the brand name of a car, etc.[69] The brain carries out different kinds of acts as is seen during sensation, and as the acts change, so do the chemical and electrical activity. What is recorded in the scans are some kinds of expressions of those changing activities.

[68]Carter, p. 194.
[69] Ibid., pp. 107-108.

The example of OCD (Obsessive Compulsive Disorder) is a good example of brain imaging. OCD is "a neuropsychiatric disease marked by distressing, intrusive, unwanted thoughts (the obsession part) that trigger intense urges to perform ritualistic behaviors (the compulsion part)."[70] The OCD patient is "ego-dystonic", he seems apart from, and at odds with, his intrinsic sense of self. His mind is like it is controlled by a secret power apart from his own self. He obeys the commands of that power. The disease can show itself in different kinds of examples such as "an urge to wash their hands, for instance, while fully cognizant of the fact that they are not dirty, returning home to check that the front door is locked so often as to render them unable to get a job, even though part of their brain knows full well that it is securely locked", etc. Therefore, the typical situation is that there is a distressing thought which is accompanied by some ritualistic behaviors in the presence of the knowledge they have that the related thought is in vain.[71]A person with OCD is not happy with his intrusive thoughts. He is afraid of the thought when it comes his way and feels embarrassed and ashamed of such feelings, too.

Although many methods such as medical, behaviorist, etc, have been tried to cure the disease, they were not successful enough to give a complete account of the disease in terms of both its description as a defect in the brain and its treatment. The treatment put forward by a researcher at UCLA in the mind 1980's had important outcomes for this end. The aim of the research is to treat the disease by a cognitive-behavioral approach fed with mindful awareness, and to produce the changes in the brain activity which would mean "the causal efficacy of mental activity on neural

[70] Jeffrey M. Schwartz, M.D., and Sharon Begley, *The Mind and The Brain* (New York: Regan Books, 2003), p. 55.
[71] Ibid., pp. 55-56.

circuits."[72] A cognitive-behavioral approach fed with mindful awareness focuses on treating the behaviors of the patient by having him introspect himself with an objective view, that is, inspect what is really happening to him, and change his behaviors after having figured out that they, his behaviors prior to treatment, are not true and right ones.[73]

The study of the disease is made on the basis of the data of 24 patients studied in the same research. At the beginning of the treatment period, all the patients had PET scans taken. According to the scans, some (and the same in all patients) parts of the brain are pinpointed as hyperactivity in those people with the disease compared to people without the disease. The hyperactivity is detected in three different parts of the brain: namely, the orbital frontal cortex, the front but lower part of the frontal lobes, the striatum, in particular, the caudate nucleus, which is placed just below corpus callosum, and the anterior cingulated gyrus, which is in the prefrontal cortex.[74]

According to the experiments done before the one in question those specified areas of the brain were related to some specific mental phenomena. The previous researches suggested that the orbital frontal cortex acts as an error detector of the mind; it alerts the person when something is going awry, which leads him to change his behavior to do the normal one required.[75] What happens in the case of OCD patients is that the hyperactivity of the location alerts the patient to the presence of an intrusive feeling even when they know that there is no such thing; so in the absence of an error, the frontal cortex gives a message of error. The striatum receives input from the entire cortex. When it works properly, the result is a fine tuned mechanism

[72] Ibid., p. 61.
[73] Ibid., pp. 60-61.
[74] Ibid., p. 62.
[75] Ibid., p. 64.

that can precisely modulate the orbital frontal cortex. But in the opposite situation, the error detector in the orbital frontal cortex can hyperactivate and be "locked into a pattern of repetitive firing."[76] The brain cannot move onto the next thought but becomes stuck in obsessive behaviors such as constant washing of hands. The anterior cingulated gyrus is supposed to be responsible for the dread caused by the intrusive thoughts, and their obsessive thoughts that something bad will happen to them or their beloved ones in the case of not doing the pathetic behaviors.[77]

After the new treatment, the result was "the falling of the intensity of the OCD symptoms of the patients."[78] The healing is not only in the behaviors of the patients but also in PET scans taken after the treatment. They showed that there was significantly diminished metabolic activity in the parts of the brain mentioned here before.[79]

The last example of brain imaging I am going to mention is depression. During depression, a person has problems in his mood such as fatigue, sleep, pain, appetite disturbance and in his memory and thinking as well. Those disturbances affect his feelings, too, and he mostly become anxious, agitated and fearful. The depressed person as such is less active than normal people are.[80] According to the scans of the depressed people, there is underactivity in different regions of the brain. One of those is some parts of the frontal lobes; that part is suggested to be related to self-willed behavior and is also suggested to give us the feeling of "aliveness". This might be an alternative to explain why those people are fed up with living and consider life meaningless. Parts of the parietal and upper temporal lobes are found to

[76] Ibid., p. 71.
[77] Ibid., p. 73.
[78] Ibid., p. 88.
[79] Ibid., p. 90.
[80] Carter, p. 99.

be less active, too. The importance of those areas is that they are thought to be related to attention, including attention to what is happening in the external world, which could be tied with the idea that depressed people are much more concerned with their problems than they are with what is going on outside. In contrast to less active regions in the case of depression, there are more active regions than those of normal people.[81] The overactivity is observed in the outside edge of the prefrontal lobe, the amygdala, and the upper middle part of the thalamus as affecting the stimulation of the amygdala, and the anterior cingulated cortex. This part of the prefrontal lobe is observed to be active when they are dealing with retrieving something from their long-term memory. It is thought that the relation of that part to depression is due to its triggering the patient's remembering of sad memories in the past so often. The amygdala's activity in emotion tasks, its being hyperactive in the depression case, is suggested to be the reason why the person is almost always in a sad mood. Finally, the anterior cingulated cortex is observed to be active when we are concentrating on something especially in our heads such as thoughts or feelings. This overactivity might be the reason why the depressed person considers his pain in huge amounts.[82]

Brain Lesions

Brain lesion cases are important in working out the relationship between the brain and mental phenomena since damage to some specific areas of the brain is explained in terms of similar (sometimes even the same) changes in mental functions of those injured human beings. The more sophisticated parts of mental phenomena seem to be lighted up to some extent by associations of different areas of the brain. The studies for that kind of knowledge are got by working on people who have physical trauma,

[81] Ibid., p. 100.
[82] Ibid., p. 101.

strokes or cancer which have caused some damage to their brains. The region might cause activation, or deactivation, or complete destruction, etc., of the mental function(s) in question, so a part of the brain being studied might or might not completely or partially be in effect in a specific mental function.[83] Now, I am going to give a brief account of the relationship between lesions in some parts of the brain and possible mental problems that can result.[84]

Damage to the frontal lobe can have different kinds of effects. Damage to its rear part along the central sulcus can cause weakness or paralysis of some part(s) of the body. Lesions in supplementary motor areas might also result in speech and gesture problems like those in Broca's area, the posterior region of the frontal lobes of the left hemisphere.[85]

The prefrontal cortex is thought to be associated with "strategy and evaluation, abstract and creative thinking, fluency of thought and language, volition and drive, selective attention, capacity for emotional attachments, and social judgment". The prevalent signs of damage to the prefrontal cortex are distractibility and confabulation, that is, spurious comments or explanations. Some of those patients have difficulties in continuing a strategy, or storytelling.[86]

The limbic system correlates with emotion and memory. A lesion in this location may end up with an impairment of the formation of long term memory.[87] Lastly, the parietal lobes are involved in determining "the spatial aspects of sensation and the manipulation of objects in space." Lesions in this part also may lead to

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[83] Bownds, p. 56.
[84] Since there are many different regions and studies that try to constitute associations of mental functions with brain regions I will not be able to mention all of them but one could look at p. 129 of Rita Carter's book *Mapping The Mind* for more examples.
[85] Bownds, p. 56.
[86] Ibid., p. 57.
[87] Ibid., p. 57.

different kinds of changes in mental functioning. For example, agnosia is perceiving objects in a different way than perceiving them via the normal functioning of sensation; dysgraphia is writing disability; dyscalculia is not being able to do mathematical calculations or sometimes confusing left-right; anosognosia is to deny that a part of the body belongs to the patient in question.[88]

As I have mentioned before, the frontal lobes are put forward to be the regions highly complex mental functions are associated with, so I prefer to focus on specifically examples of frontal lobe damage. Since I have already mentioned associations of other parts of the brain with mental functions while explaining the other method and in general remarks about the brain and its functions throughout the chapter, I do not consider that this stands as a drawback for my project. Contrary to that, this attempt is desirable as it gives us an opportunity to deal with complex cases of mental states.

I would like now to talk about Phineas Gage's case: a case of unilateral damage to the ventromedial quadrant of the frontal lobes, the lower part of the prefrontal cortex; and then four cases of bilateral damage to the ventromedial quadrant of the frontal lobes: "exemption from mutual contradictions", "primary process", "timelessness", "replacement of external by physical reality."[89]

The case of Phineas Gage is considered a classical one for lesion studies. Gage had an accident while he was working. He was "laying railway tracks" and, as a part of his job, was "pressing down a charge of dynamite into a rock formation using a tamping rod" when the dynamite suddenly exploded. The damage was great. The tamping rod got through his head from underneath his cheekbone to the frontal lobe of his brain. Gage's recovery period was short and he had no loss of

[88] Ibid., p. 57.
[89] Ibid., p. 101.

consciousness despite the great damage. However, a few years after the accident, his physician published an article which states that Gage's personality changed after the accident into one which is almost not similar to his previous character in any way. Before the accident he was regarded by his fellow man as "responsible, reliable, highly valued", but after it, "he was fitful, irreverent, indulging at times in the grossest profanity (which was not previously his custom), manifesting but little deference for his fellows, impatient of restraint or advice when it conflicts with his desires, at times pertinaciously obstinate, yet capricious and vacillating, devising many plans of future operation, which are no sooner arranged than they are abandoned…", which did not use to be his character. Now it is known that damage such as this one in the same area of the brain results in the same kind of personality characteristics just mentioned.[90]

The patient in the second case is one who had lived abroad for some years, and had lost a close friend who was also living there with him. When the patient was being treated in a neurological rehabilitation center, he told the staff working there that his friend, the one who had died, was in the hospital, and talking with him again was really nice after so long. When the staff asked them how it would be possible for a dead person to be there, the man approved what they said by replying that it would be a legal problem being dead in one country and alive in another. The problem is that the man accepts "two mutually exclusive facts as being simultaneously true."[91]

The third case is a really interesting one; the woman in this case had had many medical difficulties prior to her difficulty on the occasion at hand. When she started speaking she said that she was there because of a hysterectomy, and then said

[90] Mark Solms and Oliver Turnbull, *The Brain and The Inner World*, with a foreword by Oliver Sacks (New York: Other Press, 2002), pp. 2-3.
[91] Ibid., pp. 102-103.

it was because of a thrombosis, then of a stroke. In actuality, she was trying, and believing as well, to speak of her current medical difficulty, but unwillingly she was talking about her previous experience of illnesses by changing them in short intervals as if each of them at the moment of speaking was her current problem. Worst of all, she thought that she was hospitalized at all the other hospitals she had been in simultaneously.[92]

The fourth kind of damage case is similar to the previous one as it is concerned with spatial error, which is another important feature of experience we have in addition to time. This case comes from the patient's inner wish affecting his actual perception. Although there is a no smoking sign on the wall, the patient because of his inner wish does not perceive it as such but as a clock which points to 5 o'clock by taking the circle on the sign as the circumference of the clock and the diagonal as the hand of a clock.[93]

The last one is a woman who is being treated in a hospital. When her husband comes to visit her, she becomes very happy. When he leaves her at the hospital, she mistakes the patient lying next to her bed for her husband. Again inner wishes lead the patient to mistake her wishful thinking for reality.[94]

By contrast with Gage's case of personality changes, in those last four cases, the patients have problems in simple facts of daily life due to their lesions. The damage in parts of their brains affects their concepts of time, space, objects of experience, and relations of propositions with each other. The lesions destroy those concepts of the patients by leading them to proceed in a different way than they would do in a normal human being.

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[92] Ibid., p. 102.
[93] Ibid., p. 103.
[94] Ibid., pp. 103-104.

Briefly, imaging and lesion experiments aim to figure out what region of the brain can be associated with what mental functioning. On the basis of what I have said so far, even an elementary mental function such as vision is associated with more than one region, that is to say, the regions that deal with the color, shape, etc. of the object are in different places. As the complexity of the mental function increases it is associated with more than one region of the brain. For example, the scans of a depressed person's brain show that separate parts of the brain light up. Abnormality in more than one region is suggested to make up a unified disorder - depression. This seems to show that different regions of the brain work in connection with each other. Although I have not specifically mentioned memory before, the findings of the studies concerning memory also show different regions of brain to be active during memorization. Those are the temporal lobes in relation to long-term memories; the hippocampus in relation to laying down and retrieving memories; the amygdala in relation to storing of unconscious traumatic memories; and the caudate nucleus in relation to many instincts.[95] Moreover, the lesion studies also suggest an interconnection among the regions of the brain. A lesion in a specific part of the brain might result in more than one change in mental functioning. In the case of Phineas Gage, the man had the damage in his frontal lobe and had many different kinds of changes in his mental functioning observed after the event. This would suggest that in one specific region of the brain, more than one mental function can be associated. Those situations of one function being associated with more than one place and of one region being associated with more than one function point out a probable interconnection of the mental functions.

[95] Carter, p. 161.

Although those studies present a strong link between the brain and mental phenomena, they do not account for how the interaction really occurs. This is the question of how come a stimulus supposedly processed in the brain becomes a feeling, or memory, or mental disorder. Another question is whether there is a self underneath those mental phenomena. This case of the mystery is similar to that of the force of gravity. Newton discovered that the earth has a power entitled gravity which exerts a force on earthly objects and holds them on the crust of the earth. We feel the interaction between the objects in the world and gravity but we cannot see the gravity, the great force. Likewise, there exists a link between the mind and the brain but we cannot observe the force of the mental, that is to say, the transition from input to output, or material to immaterial, or immaterial to again immaterial. Newton commented on the mysterious case of gravity as "gravity must be caused by an agent … but whether this agent be material or immaterial is a question I have left to … my readers."[96]

Maybe this is the way we should understand the mental phenomena: like we do gravity. Nonetheless, I believe that this is still progress since at least there is the link between mental functions and the brain as it is emphasized by mentioned scientific studies. The brain as such might be likened to a computer. The brain is the computer and the stimuli of the external world are the input or data that are loaded onto the computer, and mental functions are the data processed. The web of neurons can be thought of as the wires in the computer where the processing of data is made. The parts of the brain such as the limbic system or temporal lobes can be thought of as corresponding to the components of the computer that make it up.

[96] Schwartz and Begley, p., 31.

The processing of the brain as a computer, the expression of mental functions by electrical and chemical activity observed in the brain, and the functions of the different regions might be all there is to mind-body interaction. To illustrate, think that you put a word into the search engine of your computer, a flashlight appears on the screen and starts to go around itself, which means that the data you enter is being processed, and the results appear in the form of a list of documents. To establish a link between the computer and the brain, the person is presented a sound. The sound passes through his ears and the stimulation affects the neurons in the auditory regions of the brain and the stimulation is processed there, and the result is hearing. Moreover, this hearing can be processed further and turn into a feeling of sadness in the presence of slow music, or the movement of body by dancing. This is also the way when you work further on the input loaded on your computer; you transform short independent records into a long movie by adding them to each other in a meaningful way by using highly developed movie software programs.

The malfunction of a computer is also similar to that of the brain. Just as a computer is infected by a virus sent via email, say, a person's experiencing failure in life seems to cause a dysfunction in the brain. As a result of this, he becomes sad and some changes occur in his brain as the input is processed and then the person ends up with depression as output. While the solution for a computer dysfunction after a virus infection might be reformatting the computer, the solution for the person might be anti-depressant pills or psychotherapy sessions. Yet, it should not be forgotten that treatment for mental dysfunction might not always work. This probably has to do with dealing with really complex and not sufficiently explored issues.

There are billions of neurons in the brain as a whole. Science has not yet found the way to distinguish each of those neurons and describe their identities.

Maybe if those single identifications are done in some day, the specific identities of the cells, say, which are responsible for forgetting, will be deciphered. Moreover, we might be able to solve the mystery of the interaction between the body where the brain is located and mental functions.

Before I finish this chapter, in the examples of brain lesions and brain imaging the cause and effect type of relationship might be of concern. First, about the lesion examples, damage to some specific area of the brain would result in some kind of mental dysfunctions. For example, damage to the limbic association cortex may result in some defects in memory as the region seems to be associated with memory. The examples state that after the damage the defects comes about, and in most of those cases the results or symptoms of dysfunctions would be similar. Since the damage in cases of brain lesions comes from outside, it is not convincing to claim that maybe the resulting dysfunctions cause the damage. Some examples of brain imaging, too, point out a similar kind of cause and effect relationship. For instance, the regions associated with seeing an object becomes active as the person is shown an object. The stimulus, the object in this case, affects the sensory organ first and then neurons in the related region of the brain are affected and the association about the relevant part becomes possible. Therefore, the brain activity in sensation is caused by some outside stimuli. However, in some cases of brain imaging, unexpected cause and effect relationships may take place, that is to say, instead of a mental problem causing an abnormality in the brain the abnormality might be the reason for the mental problem. In the case of depression, more than one region of the depressed brain displays hypoactivity in contrast to a normal brain. Depression is generally thought to be caused by some external or internal forces such as failure in the workplace or a feeling of loneliness. The person in question exposes himself to

the thought of his bad situation. He thinks himself poor, sad, etc. and isolated from the outside world. Such thoughts and feelings lead the person to depression and the outcome of those mental states is the mentioned pattern of the scans. Yet, there is a possibility that a person already has the abnormality of the brain activity prior to the illness, and as a result of this he becomes depressed. Furthermore, there are studies to support that possibility. The findings of studies of "family, twin and adoption" suggest that "genetic factors play a major role." There are even further studies suggesting the possibility of both genetic and environmental factors together.[97] The situation for OCD is also similar to that of depression. Cause(s) of OCD are not certain and it might be "familial, biological and genetic."[98] Yet, there are some cases of OCD patients the causes of which are not related to one of those causes, which would suggest that there might be environmental factors as well.[99] If the cause(s) are related to genetics, then atypical OCD symptoms lead to the mentioned situation of the brain but the brain as such causes the person to act and think like that. By contrast, if the person does not inherit the illness, then the outside stimulus might cause him to be mentally ill. No matter which way the direction of the cause and effect relationship, there seems to be a correlation between the brain activity and mental functions.

[97] M. Maj and N. Sartorious, eds. *Depressive Disorders.* Chichester: John Wiley&Sons, 1999, vol. 1, p. 54.
[98] E. J.L. Griez, C. Faravelli, D. Nutt and J. Zohar, eds. *Anxiety Disorders: An Introduction to Clinical Management and Research.* Chichester: John Wiley&Sons, 2001, p. 25.
[99] J.S.Abramowitz and A.C. Houts, eds. *Concepts and Controversies in Obsessive Compulsive Disorder*. New York: Springer, 2005, pp. 4-5.

CHAPTER 4

THE COMPATIBILITY OF KANT'S ACCOUNT OF THE PHENOMENAL SELF WITH THE FINDINGS OF THE SCIENTIFIC STUDIES OF THE BRAIN

In the first chapter I gave Kant's account of the phenomenal self. In the second chapter I talked about two methods to study the brain which point out that mental functions have some relations to the brain. In this chapter I am going to suggest that Kant's account of the phenomenal self can be made compatible with the main idea in the second chapter: mental functions are linked with the brain. I have got some remarks, I believe, that would support such compatibility. Those remarks are some functionalist flavors of Kant's account of mind, his depiction of capacities of the mind, some quotations from his two books: *Critique of Pure Reason* and *Anthropology from a Pragmatic Point of View*, and an original attempt of mine to map Kant's theory of mind onto the brain.

Kant's Account of the Mind as Functionalist

I will scrutinize Kant's account of mind as functionalist, basing this idea on two of the basic tenets of functionalism. Those are Kant's description of working of the mind as functions and the relations of the capacities and faculties to each other and the role of causality in cognition.[100]

In the *Critique of Pure Reason* Kant explores the questions of the mind and of knowledge. As he accounts for the working of the mind, he also explains how we get our knowledge of the world. What draws attention in this inquiry is his explaining

[100] Actually there are other features of Kant's theory of mind to consider it a functionalist one, such as multiple realizability of the mental phenomena. However, I will not deal with those since those are not related to the studies in the second chapter.

the faculties, capacities or processes as functions.[101]He mentions three capacities of the soul; namely, sensibility, imagination and understanding. These capacities are meticulously explained in the book in terms of their functions and roles in the processing of knowledge acquisition, and the relations of the capacities to each other.

Function is concerned with the processes that are made real by the above-mentioned capacities. It says what the capacity in question does. For example, the function of a printer according to its model might be to print out, scan, copy, etc. papers that are loaded onto a computer. Likewise, say, imagination has different duties as it is stated in the first chapter. Those are creating the images of objects of experience, holding previous representations while moving on to the next ones and preparing the ground for transcendental apperception. If I am to give a functionalist account of imagination, I can start with stating that an object of experience causes the mind to be affected. As a result of this affection, vision takes place. Imagination creates an image of the object in question. Thereafter, it affects understanding. Here, for example, the object is categorized under the title of the modality of existence. And finally, another function of understanding – judgment states that the object in question is a real object, that is to say, it can be experienced. Moreover, this causal nexus of mental functions can lead to behavior such as reaching the glass of water after judging it to be a real object.

Another related point is the relations of the roles and functions of those capacities to each other in the formation of a complete cognition process. Three

[101] J-C. Smith, ed. *Historical Foundations of Cognitive Science.* The Netherlands: Kluwer Academic Publishers, 1991, p. 176. The article referred to in this book is Ralf Meerbote's *Kant Functionalism*. I take the quote in this article as inspirational with regard to the idea which is under scrutiny. The related quote is: '…that Kant analyzes the content and acts of the understanding into various components (species of cognitive synthesis). In a componential analysis, capacities and acts are described in terms of subroutines, as in the usual fashion of flow charts. Such subroutines are functionalistically described,…'

capacities are in a necessary relation to each other. To perceive an object of experience, the whole process starts with sensibility. The object is first intuited through pure forms of intuition: time and space. Then, imagination enables the process to go on by holding the former representation and reproducing it as moving onto the next representation. The world we cognize is not by itself sufficient for experience to gain meaning. The categories we have make it possible to classify object under some general titles, and put the experience we have in a kind of order. Finally, the last step is the subject's uniting the cognition process at hand and others as well under one consciousness (this is a kind of synthesis as well). This oneness of the experience provides the subject with the collection of cognitive processes he has had up to that time. The acts done up to that point are not isolated ones. They can get realized only if they occur together in an interrelated fashion. They are functionally interrelated to each other. Cognition starts with the functioning of sensibility and goes on with the functioning of imagination and understanding; they are tied together.

The relation of the object to the subject is a cause and effect type of relation. This aspect of Kant's theory and its association with his account being a functionalist account is highlighted by Patricia Kitcher in her *Kant's Transcendental Psychology*. The subject is first affected by the object of experience thanks to the capacities of the subject. The cause is the object but the properties of the subject make this affection possible. The object immediately affects the sensibility to start the knowing process. After the first interaction takes place, the causal connection goes on with intuitions affecting judgments. Intuitions are raw ingredients for judgments. Judgments occur as the understanding works on intuitions. As intuitions touch on the faculty of

judgment, the subject becomes able to talk and think about the objects of experience.[102]

Causality and the explanations of mental processes in terms of functions and relations of them to each other are some important essential properties of functionalism, and considering the above remarks about Kant's theory, it seems that although Kant strictly talks about the unknowability of the noumenal self, his account of mind in association with functionalism may allow us to relate the phenomenal self to the brain, since functionalism permits talk of mental phenomena by functions and leaves open the possibility that the substance of the phenomena may be anything whatsoever.

The Capacities of the Mind

In the previous section I have said that Kant's account of the mind has functionalist motifs. On the other hand, Kant speaks of capacities of the soul, pure forms of intuition and categories. Any subject has these capacities, etc. in order to have experience.

The subject has time and space as pure forms of intuition, which we may consider to be innate structures of the mind. They are like some essential components of a machine. If we think of the mind as a machine, pure forms of intuition are the components which work as shapers of the input of experience. In the *Critique of Pure Reason* Kant gives an account of human experience. The theory is a species specific one. Likewise, categories seem to me innate structures. The twelve categories are embedded into the mind of the subject. They are other components of the machine. They place different pieces of experience into those categories. The categories put the subject's experience in a given order. The capacities of the mind in

[102] Patricia Kitcher, *Kant's Transcendental Psychology* (Oxford University Press: New York, 1990), pp. 111-112.

general can be thought of in the same way. They are innate and unique to human beings.

They are like sense organs or embedded parts of the human body. We are born with those capacities or 'equipment'. Although Kant explains the mind in terms of functions, he also has some kind of inclination to account for the mind in terms of certain innate structures. He thinks that these aforementioned structures exist but does not speculate about in what form they may exist. He does not say that they are neurons in the brain or some specific places in the brain. Yet, they still belong to the mind and are essentials of it. His effort to define such structures and not explain them in relation to their substrate may allow us to look for correlations of those structures in the brain.

Kant's Words from the *Critique of Pure Reason*

In the A version of the Paralogisms in the *Critique of Pure Reason* Kant depicts the doctrine of the soul as the physiology of inner sense and the doctrine of the body as the physiology of outer sense. He states that we can know many things by both studies empirically.[103] This statement is beneficial for two purposes: an empirical doctrine of the soul permits a study of the phenomenal self and an empirical doctrine of the body permits the study of the brain as an object of experience.

The studies in the previous chapter can be named as the physiology of inner sense since they include exploration of events of inner sense and finding out whether we could obtain any knowledge concerning these events. The studies mentioned in the second chapter imply that there is hope for the discovery of important information about the phenomenal self. Accordingly, it seems that Kant's statement in the previous paragraph permits such an investigation. Furthermore, since the

[103] Kant, *Critique of Pure Reason,* A-381.

complementary object of the investigation is the brain which is an object of experience or of outer sense, permission by Kant becomes stronger. Not only does Kant claim that the physiology of outer sense is empirically possible but that it can also be known *a priori* synthetically. The concept of an object of outer sense *a priori* includes the concept of an extended impenetrable being. In that object much can be known *a priori* synthetically from the concept of an extended impenetrable being. That object is a substance which enables it to subsist despite its determinations. However, the soul cannot be known in such a way. There is no substance observable behind the idea of a soul. Contrary to this, there are changing appearances in inner sense. Feelings, perceptions, thinking, etc. are what makes up the phenomenal self and can be experienced. The study of the phenomenal self is possible with these ingredients. Moreover, when it is done by the help of the brain, it is appealing since the search is based on a perceptible object, an object of experience. Of course, there are still not conclusive facts about the relationship between the brain and phenomenal self but there are glimpses of hope that we may learn more about it.

Another important quotation I would like to make use of with regard to the possibility of such compatibility comes from the Third Antinomy:

> Man, however, who knows all the rest of nature solely through the senses, knows himself also through pure apperception; and this, indeed, in acts and inner determinations which he cannot regard as impressions of the senses. He is thus to himself, on the one hand, phenomenon, and on the other hand, in respect of certain faculties the action of which cannot be ascribed to the receptivity of sensibility, a purely intelligible object.[104]

We are familiar with the distinction Kant makes between the phenomenon and the noumenon. Kant claims that the world we experience is the world of the senses, that is, phenomena, and the world we cannot is noumena. He further states that we cannot

[104] Ibid., A-546/ B-574.

know the noumena in any way. However, in this quote he asserts that we know the noumena. Elsewhere Kant emphasizes that we have no intellectual intuition and so we cannot keep in touch with the noumenal self. We can only experience the world of the senses which is possible through forms of intuition. There is no kind of intuition we have that would provide us with the substance underlying "I think". In the above paragraph the subject is said to have the kind of intuition that enables him to see himself as a purely intelligible object. According to that passage, the subject moves to the realm of the noumena and experiences the pure object behind the appearances. Here Kant makes a big jump by entering the realm of the noumena, that is, he speaks of experiencing the noumenal self by pure apperception, which he avoids even speculating about through the book. Kant seems to be trapped by his wishful thinking that the noumena can be known in the passage just mentioned. In aiming to make the phenomenal self compatible with physicalism, I made use of the brain as an appearance. The brain belongs to the world of phenomena and can be known while the noumenal self does not. This compatibility issue does not seem to be dangerous since it is not as assertive as Kant's words in question on account of not dealing with the noumenal self.

Kant's Words from *Anthropology from a Pragmatic Point of View*

In the Introduction section of *Anthropology from a Pragmatic Point of View* Kant makes an interesting remark about the brain. He distinguishes between two ways of knowing the nature of man: the physiological and the pragmatic ways. The former gives knowledge of man as what nature makes of him while the latter is concerned with what man makes of himself as a free agent. I would like to quote the words exactly:

> He who ponders about natural phenomena, for example about the causes for the faculty of memory, can make sense (in the Cartesian fashion) of the traces of impressions which keep lingering in our brain; but, in doing so, he has to admit that he is a mere spectator in this game of his imagination and that he has to leave everything entirely to Nature, since he knows neither the cerebral nerves and filaments nor their operation when they carry out his intentions. Such speculative theorizing is a sheer waste of time. If, however, he distinguishes between those observations which have been found to hinder and those which have been found to promote memory in order to amplify it and make it more efficient, and if he needs for this purpose a better knowledge of man, then we are involved in a section of anthropology with pragmatic purpose, and this is precisely what concerns us here.[105]

The first thing worth paying attention to here is the phrase "the traces of impressions which keep lingering in our brain." If we take this sentence as expressing some kind of a physicalist idea, it would mean that memory occurs in the brain, or at least has a relation to it. It would imply that what we remember is stored somewhere as our memories in the brain. On the other hand, if we consider the word "brain" as a kind of metaphor for the mind, then we do not infer such a meaning. It would just mean remembering a memory without referring to how and where it happens. The next point is concerned with man's lack of knowledge of about the structure of the brain. Here, again it seems that there is a reference to the brain but here what Kant asserts is that we cannot reach any knowledge about what man makes of himself from the physiological point of view, which focuses on what Nature makes of man. To explain it more, we are given no clues about the intentions of the agent by way of this method. We cannot say that the subject, say, desires to drink water by looking at his nerves or neurons. Although we cannot discover intentionality in the brain, Kant seems to imply that there is something related to mental phenomena in the brain and nerves. I believe that Kant thinks that we could get some information about certain

[105] Immanuel Kant, *Anthropology From a Pragmatic Point of View*, trans. Victor Lyle Dowdell, an introduction by Frederic P. Van De Pitte (n.p.: Southern Illinois University Press, 1996), pp. 3-4.

mental states if we knew more about the brain and the aforementioned structures of the body even if not of intentional states of the mind. Yet, there is another way to comment on this part of the sentence. In this book, Kant aims at giving knowledge of man in terms of "what man makes, can, or should make of himself as a freely acting being."[106] In other words, this is about the capacities of man and the ways to use and improve them for the better. Taking this into account, the sentence could mean that the exploration of the brain can give some information, maybe such as the studies in the second chapter have done with regard to the correlation between the regions of the brain and mental functions, but not with regard to what man should do to be a better man. This seems likely to be true for now since there are many things unknown about billions of neurons in the brain. Still, there is hope for further improvement. Furthermore, the case of Phineas Gage can be thought of as a crack of hope for such future findings. After the accident Gage, who had been an easy going and respectful man turned into a fitful, irreverent person. This situation might be thought as the person in question became a morally worse person. This example gives scientific credence to the fact that there might be something related to morality in this region. There is another passage in which Kant states that we have no knowledge of the brain:

> The law of association is that empirical perceptions, which frequently follow one another, create an acquired habit in the mind, so that when one perception is engendered, the associated one also arises. It is futile to demand a physiological explanation of this phenomenon. We may use whatever serves as a hypothesis, like Descartes' hypothesis of so-called material ideas of the mind. At least any such explanation would not be pragmatic, that is, we cannot use it for any technical purpose, for we have no knowledge of the brain, nor of the sections of the brain in which the traces of impressions derived from perceptions might harmonize sympathetically with each other, so far as the parts are in at least indirect contact.[107]

[106] Ibid., p. 3.
[107] Ibid., p. 66.

The law of association is one of the important factors of human experience. This law is one of the laws with which imagination works in accordance. The law enables the subject to constitute a relation between different representations. Thanks to that law, the mind can move onto the next representation while making associations between the previous ones and the ones at hand. Here, Kant states that we cannot account for this law in physiological terms. There is no such explanation that would show that the firing of neuron X or Y is what we call the law of association. Kant develops the idea further by implying that our lack of knowledge about the brain causes this situation. Furthermore, if we had had such knowledge, we might have found how independent representations of the subject become associated by the interactions of some regions or neurons of the brain. Nonetheless, Kant again emphasizes that even if we have this information, it is still no use for the pragmatic purposes of his book. I also get an impression of Kant's being a little confused here. He both seems to be inclined to believe that the seeds of mental functioning, at least partially, lie in the brain and that this supposed fact would not work for his philosophical purpose in the book. The important thing anyway is Kant's words for association of the brain with mental phenomena.

These two quotations from the aforementioned book also reveal the extent of Kant's functionalism. They might merely state that a subject who has a brain as such can have the kind of experience we have. Nonetheless, it should not be forgotten that functionalism does not interfere with the compatibility of the phenomenal self with the brain. Kant's words about the gifts that Nature bestows upon humans can also be thought to have such functionalist tendency. He talks about three kinds of gifts that humans are born with, but I will only draw attention to the technical gift. Kant speaks of the gifts as species specific; they are innate and are what distinguish human beings

from other species. The technical gift of man is concerned with his physical structure or body such as his walking on two feet, etc. Yet the words which drew my attention are about the physical structure of the human hand:

> The characterization of man as a rational animal is found in the form and organization of the human hand, its fingers, and fingertips. Nature has made them, partly through their construction, and partly through their sensitivity, not only for manipulating objects in one particular way, but also in an open-ended way. Nature has made them, therefore, fit to be used by reason, and thereby Nature has indicated the technological gift, or the gift for skill, of this species as that of a rational animal.[108]

Kant refers to a bodily structure of man and associates it with the rationality of man. The design of man is in harmony with his reason. The design of man makes it easy to adapt his reason to nature. For example, by help of his hands, an artist can make his imaginary products real such as in painting. Kant associates the design of such a part with being rational. He says that man is designed to be a rational animal and that rational being is endowed with a gift in its physical structure as well. If Kant had the courage to associate the functional design of the hands with being rational, I think that he would not pass by the ideas mentioned in the second chapter. Human brains are different from other animals' as well according to brain studies. As I have mentioned in the second chapter, the parts and features of human beings different from other animals are suggested to be the reasons why the former group is rational. Taking this fact into account, the link between the brain and the phenomenal self seems to be a more convincing sign of rationality than the one between the hands and the latter.

[108] Ibid., p. 240.

Mapping Kant's Theory of Mind onto the Brain

One last thing I would like to do for the sake of compatibility is to attempt to locate Kant's mind in the brain, this is not to say, for instance, understanding occurs in the specific region X of the brain, rather a link exists between understanding and the X. If we are to adopt Kant's account of mind to the brain as a computer model, we can consider stimuli from outside as objects of experience. The mind elaborates on those objects in order to perform mental functions. Pure forms of intuition, categories, and capacities of the soul may be likened to the structures and neurons of the brain. It is hard to say which of those correspond exactly to what region but still I can suggest. The capacity of sensibility is easy to place since it corresponds to the sensation cortexes in the brain. As Kant's sensibility allow the subject to intuit appearances, the sensation cortexes becomes active in the presence of sensible stimuli. Yet, the equipment of pure sensibility, time and space, seems to be associated with some other regions. More than that, space seems to have another region, too, independent of the one it shares with time; that is, the parietal lobes. In the previous chapter I mentioned that the parietal lobes are involved in determining "the spatial aspects of sensation and the manipulation of objects in space."[109] So, some aspects of the spatial processes of the mind can be located here. For both of them taken together, the frontal lobes seem to be the place where they are located basing that suggestion on the examples of relevant cases in the brain lesion parts of this thesis. The representations of time and space of these damaged people seem to be defective. This is not a problem for the brain studies since they draw attention to the fact that different regions of the brain work in interconnections; neither for Kant, since Kant also pays attention to the interconnectedness of mental faculties to make up

[109] Bownds, p. 57.

experience. The regions of the brain to associate with the twelve categories are the frontal lobes, since those parts seem to associate with "thinking, planning and categorization."[110] Of course, the studies in the second chapter do not talk about the categories in the way that Kant talks about them, since those categories are peculiar to Kant's theory of the mind. Nonetheless, the general idea behind both those aforementioned studies and Kant's theory is to put the objects of experience in an order.

Imagination can be located in different regions of the brain. Imagination seems to be relevant to vision and dreaming as it works on creating images of the objects and keeping them in the mind even in the absence of those objects. As the studies suggest, in seeing and dreaming the same areas of the brain light up, that is, the visual cortexes.[111] To find out the other related region, the case of OCD seems illuminating. We have learned about the OCD patient's problem. The patient has some distressing and unwanted thoughts which lead him to perform ritualistic behaviors. For example, when the person leaves the house, he locks the door and leaves, but goes back and checks it again and again. Moreover, he believes that something awful will take place if he does not do that. He seems to have a problem in his reproductive imagination. His stepping out of the house, locking the door and leaving the house is a chain of events. Reproductive imagination enables the subject to experience those events as continuous parts of each other or as a whole, but the patient cannot do that. He has a problem between locking the door and leaving the house. He is in such a situation that he cannot tie these two events to each other; as he reaches the last step of the chain, he seems to drop the previous representation of

[110] Carter, p. 15.
[111] I do not refer to auditory areas, etc. since Kant accounts for imagination by seeing, yet if there needs to be an extension of imagination by other kinds of sensation, we might add those relevant areas of sensation into the account.

locking the door. Kant might speak of this person as having a defect in his imagination like his depiction of mental disorders in terms of his theory of the constructed components. We have seen that OCD to be associated with three different parts of the brain: namely, the orbital frontal cortex, the striatum, in particular, the caudate nucleus and the anterior cingulated gyrus.[112] And the striatum is associated with what we are now concerned with, so reproductive imagination might also be located in this part. Finally, understanding is the faculty of concepts and judgments. The representations processed by sensibility and imagination are transformed by understanding in order to make a whole experience for the subject. Understanding elaborates on the ingredients; it categorizes the representations and puts them into relevant places of the mind, and makes judgments about those representations. Understanding is the place where the experience becomes intellectual. Thinking of an object becomes possible by operations of the understanding. Since the frontal lobes are mainly concerned with the higher mental faculties, the probable seat of understanding seems to be in this region. However, it should not be forgotten that even a simple mental function such as vision lights up different places in the brain, so although those components and capacities of the mind are suggested to be in some specific places, they should be considered as taking place mainly but not entirely in those places. For example, even if understanding has to do with higher faculties such as thinking it still has some relationship to sensation as its raw ingredient.

[112] Schwartz and Begley, p. 62.

CHAPTER 5

THE CONCLUSION

My main concern in this thesis was the question whether Kant's account of the phenomenal self can be made compatible with physicalism. Kant's account of the mind can be considered as an integrated whole. The capacities of the mind and the self are strongly tied with each other. All of them together make his theory of the mind and of the self meaningful. This is why I had to represent his account of the phenomenal self together with that of the mind. Although I have mainly scrutinized Kant's account, I also allocated a whole chapter to the presentation of some scientific studies about the brain. The reason why I included such a chapter was not to benefit from it in order to explain Kant's account. In this chapter I presented the findings of some scientific studies about the brain. I talked about two of the ways of studying the brain, brain imaging and research on brain lesions, as some scientific evidence for the link between the mental and the physical. The findings of these scientific studies are important since they go beyond mere commonsensical knowledge of the relationship between the mind and the brain. Although we know the bodily organ to be associated with the mental must be the brain, those studies illustrate how the relationship really takes place. One of these, brain imaging, showed the activity of the brain in scans, while brain lesions provided us with some case studies of patients who experienced some changes in their mental functions due to some physical damage to their brains. The mentioned studies imply that the supposed relationship is not a random type but a solid one. The findings of the mentioned studies bring us closer to a realm of physicalist mental phenomena than to a realm of immaterial souls. Although Kant's account of the mind seems to be in line with functionalism, it can also be made compatible with physicalism. Functionalism can work both for

physicalism and immaterialism since it focuses on how the processes of the mind take place rather than on the substance of the mind. This attitude of the aforementioned view leaves a space for the substance of the mind to be anything, be it neurons or some immaterial thing like the soul. Especially since my main concern is the phenomenal self, functionalism enables the phenomenal self to be compatible with physicalism. However, defending this compatibility is not an easy task since Kant is known as a dualist. Nonetheless, the reasons and ideas counted in the fourth chapter I presented support such a view. Apart from Kant's functionalist account of the mind in the relevant passages from the *Critique of Pure Reason,* the quotations from *Anthropology from a Pragmatic Point of View* are significant since they could be interpreted as Kant's sympathy for locating mental phenomena in the brain and his disappointment about the impossibility of the situation because of the lack of knowledge of the brain. However, this is not the only way to understand those passages. They could also be interpreted as the continuation of his functionalist line of thinking; in other words; he might have thought of the brain as the necessary device for us to have the human experience we have. This means that it is a necessary device, though it is still not certain whether it is sufficient. If he thinks this way, his account can still be thought of as compatible with physicalism because of the point made a few lines before about the substance of the mind according to functionalism. Despite the importance of the remarks in the fourth chapter, they are unfortunately not conclusive. I do not know whether one could find some conclusive justification for the mentioned compatibility. Further investigation of *Anthropology from a Pragmatic Point of View* and Kant's notes and lectures on the issue of anthropology might help to strengthen the claim that Kant's account of the phenomenal self is compatible with physicalism. Also research on the brain studies is

necessary in order to bring to light more scientific facts about the deep relationship between the mind and the brain.

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