

Panpsychism and the Combination Problem

by

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ABSTRACT

Panpsychist double aspect theory, the most promising version of panpsychism, holds that the mental and the physical are mutually irreducible properties, or features, of ultimate matter, therefore they both are ontologically fundamental and ubiquitous. This version of panpsychism involves the following two notions: anti-reductivism and anti-emergentism. The former states that mental phenomena are not recordable in terms of physics. The latter implies that mental phenomena do not causally arise only from a certain macroscale physical condition, and the mental and the physical do not constitute an ontological hierarchy. From these notions, it follows that any macroscale mental phenomenon is the result of a combination of ultimate mental properties. Yet this idea creates the combination problem: how higher level mentality, e.g., human or animal consciousness, arises from lower level mentality, the ultimate mental “particles.”

Panpsychist double aspect theory purports to find the proper location of mind in the world without being vulnerable to typical mind-body problems. Nevertheless, since this version of panpsychism explains the ontological structure of higher level mentality as analogous to the atomic structure of a molecular physical entity, the combination problem arises. In Chapter 1, I explain the general conception of panpsychism. Chapter 2 shows the plausibility of panpsychist double aspect theory and how the combination problem arises from this version.

I discuss the history and implications of the combination problem in Chapter 3. In Chapter 4, I introduce some alternative versions of panpsychism that do not raise the combination problem, and point out their implausibility. The intelligibility of mental combination is explained in Chapter 5. The moral of these chapters is that our epistemic

intuition that mind is not composed of “smaller” minds fails to undermine the possibility that mind is structurally complex.

In Chapter 6, I argue that C. Koch and G. Tononi’s integrated information theory (IIT) is a form of panpsychism, and that the IIT can serve as a model for solving the combination problem. However, I am not committed to the IIT, and I point out theoretical weaknesses of the IIT besides the combination problem.

DEDICATION

To Kyungho.

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Chapter 1

PANPSYCHISM IN A GENERIC SENSE

Panpsychism refers to variety of theories that hold a doctrine, every thing has mind. In virtue of this doctrine, panpsychism finds its unique place among theories of mind. In this chapter, I will explain the given panpsychist doctrine and briefly introduce the theoretical background of panpsychism.

Introduction

The downfall of vitalism, a doctrine that there is distinct life force that cannot be captured in terms of laws of physics, stems from the development of biology in regards to explaining chemical compounds of living organisms. Nevertheless we still cannot draw a line that clearly distinguishes living organisms from mere matter: does a virus alive? Philosophy of mind often takes mind as a term that refers to consciousness in the sense that humans can relate to. In other words, many philosophers presuppose that the investigation of mind is restricted to the comprehensible mental features. This comprehensibility involves linguistic capacity, typical behaviors of a life form, or whatever features that bear, even a bit of, resemblance to our own mind. Consequently, at least to the majority of philosophers, it is obvious that an atom, a rock, or even a tree is not a mind being. Nonetheless, in fact, we do not have any story, whether it is philosophical or scientific, that draws a clear line between an entity that has mind and the one that doesn't. This indicates that, although the bottom up approach to human consciousness, e.g., neurophysiology, is available, we currently have no bottom up approach to mind per se, therefore the true nature of mind is still an open question.

Panpsychism locates mind among matter without forming an ontological hierarchy between the mental and the physical, thereby leading to the panpsychist notion of ubiquity: every thing has mind. Many philosophers find this notion unintelligible because it involves a very loose sense of conceptualization of mind, which amounts to the claim that even non-living entities have mind. Yet, whatever cutting-edge theory of mind we have in hand, it does not necessarily follow that mind is restricted to certain entities, such as organisms. This thesis argues that the panpsychist notion of ubiquity of mentality is intelligible, especially without contrasting to the contemporary understanding of not only consciousness but also the physical world. In other words, given that the true nature of mind is an open question, I will show that panpsychism finds the proper location of mind in the world better than any other theory of philosophy of mind.

What is Panpsychism?

Panpsychism is the theory of mind that holds the doctrine that “all things have a mind” (Skrbina, 2007) or “mentality is ontologically fundamental and ubiquitous” (Seager, 2009, p. 206). Skrbina and Seager explain the key terms of given doctrine as follows:

What does one mean by “all things”? some philosophers have argued that literally every object in the universe, every part of every object, and every system of objects possesses some mind-like quality. or that, at least, the smallest parts of things—such as atoms—possess mind (Skrbina, *ibid*).

Mentality is fundamental in the sense that it can neither be explained in terms of anything else nor be reduced to anything else. To say that mentality is ubiquitous

is to say that every aspect of concrete reality partakes of mentality in some way or in some measure (Seager, *ibid*, p. 206).

Although Skrbina and Seager both agree that it is essential for a panpsychist to take mentality¹ as something that everything has, they seem to differ in some respect. Skrbina thinks that panpsychism is a meta-theory that holds a framework of “however mind is to be conceived, it applies (in some sense) to all things” (Skrbina, 2003, p. 6). Thus, according to Skrbina, panpsychism can take diverse forms of theory of mind: for example, panpsychist substance dualism², panpsychist functionalism or panpsychist physicalism. The only theories that Skrbina thinks not applicable are those that deny mind (i.e. eliminativism) or restrict mind only to certain beings such as humans (*ibid*). Skrbina even claims, “It does not matter for panpsychism whether mind is to be viewed as reducible or non-reducible” for the ubiquity of mentality is compatible with both notions (p. 8). Skrbina’s point implies that, for instance, a reductive physicalist can be assumed as a panpsychist as long as he or she grants that the reduced mentality belongs to all things. As indicated in the previous passage of Skrbina, the term “all things” can be interpreted in a variety of ways.

Seager thinks that a panpsychist must endorse the idea of non-reducible mentality. According to Seager, the idea of non-reducibility indicates that a “panpsychist naturally regards mind as both explanatorily and ontologically fundamental” (Seager & Allen-Hermanson, 2010). Seager points out that there are, at bottom, only two positions that retain the fundamentality of mentality in question in accordance with the scientific

¹ I will use the terms mind and mentality without distinction.

² Skrbina says that panpsychist substance dualism is the case that “some Supreme Being grants a soul/mind to all things” (2003, p. 6).

worldview (Seager & Allen-Hermanson, *ibid*): panpsychism and emergentism. Although these two positions are alike, panpsychism is incompatible with emergentism with respect to holding the notion that out of nothing comes nothing.³ Seager seems to think that the virtue of panpsychism is to integrate mind into the scientific worldview without endorsing theories such as eliminativism, reductive physicalism, Cartesian dualism or emergentism. By the scientific worldview, Seager means a view that all things are ultimately constituted of physical atomic particles that are exhaustively explicable in terms of properties such as mass, charge and spin. (2009, p. 207). However, Seager continues, for the fact that some of the composite objects made from the atomic particles exemplify mental properties, one should accept either emergentism or panpsychism (*ibid*)⁴. In sum, Seager seems to claim that panpsychism is a conjunction of mental realism, in the sense that the mental is irreducible to and inexplicable by the physical, and anti-emergentism.

The difference between Skrbina and Seager stems from the ways that they distinguish the material realm and the mental realm. Seager thinks that a panpsychist should take features of the mental realm as strictly distinctive from that of the material realm whereas Skrbina is more flexible about it. However they both agree that panpsychism entails that the two realms are essentially connected to the extent that all things have mentality.

³ Here, I will not explain how panpsychism and emergentism are different in detail. It will be discussed in Chapter 2.

⁴ Or, one can choose to be a physicalist and reduce, or eliminate, mental properties in order to deny the reality of mental realm.

One of the widespread misunderstandings is that panpsychism absurdly entails that a rock has consciousness. However this is not a claim that every panpsychist must accept. Skrbina explains that panpsychism involves discussion of mentality in a broader and generic sense and it is difficult or impossible to describe non-human mental qualities in terms that humans can relate to (Skrbina, 2003, p. 5). Such involvement of panpsychism implies that mentality in the panpsychist sense does not entail that of a human being. Hence it is inappropriate to take the panpsychist notion of ubiquity of mentality as a claim that every thing is as conscious as a human being.

Still, it is too broad to define panpsychism only by appealing to the doctrine that all things have mind, or that mentality is ontologically fundamental and ubiquitous. However it is impossible to give a single unified definition of panpsychism for the variety of theories that renders different conception of ‘mentality’ in the panpsychist sense. Thus it seems better to distinguish theories that are usually assumed as panpsychist and those that are not, in order to find the proper location of panpsychism in the philosophy of mind.

Panpsychism Among the Theories of Mind

According to Nagel, “panpsychism is, in effect, dualism all the way down” (2002, p. 231). On the other hand, Skrbina claims that panpsychism is not dualism (2009, p. XII). To reconcile this disagreement, one needs to understand what each of them means by dualism.

Nagel mentions dualism in order to distinguish panpsychism from neutral monism (Nagel, *ibid*). However he also clearly states that panpsychism presupposes the notion that there is no soul, which indicates that panpsychism is not substance dualism (1979, p.

182). Consequently, Nagel's saying that panpsychism is dualism implies that panpsychism is property dualism or, at least, some sort of double aspect theory. Skrbina tries to distinguish panpsychism from theories that assume the mental as substantial as the physical. Although he thinks it is, in principle, possible for a panpsychist to be a substance dualist, he points out that "such a position is rare within philosophical circles; nearly all panpsychists are nondualist" (Skrbina, *ibid*). After all, Nagel and Skrbina both agree that panpsychism is not substance dualism, thus a plausible dualist version of panpsychism is panpsychist property dualism or double aspect theory.

There are several ways of putting panpsychism as monism. The first way is to take panpsychism as idealism. Ludwig explains that idealism is a reductive version of panpsychism (Ludwig, 2003). Sprigge also mentions panpsychist idealism in the sense of identifying to exist and to be experienced (Sprigge, 2002). However Skrbina is reluctant to take idealism as a species of panpsychism. Skrbina says that most panpsychists do not ground their panpsychist claim on the view that "everything is fundamentally, or ultimately reducible to, mind" (2003, p. 8). Although Skrbina agrees that there are panpsychist idealists, he does not think that panpsychism entails idealism (*ibid*). On the other hand, Seager seems to think that, although some radical versions of idealism make its panpsychist implication hardly interesting⁵, idealism in general can be assumed a species of panpsychism.

The second way is to take panpsychism as neutral monism. As I previously mentioned, Nagel distinguishes neutral monism from panpsychism for he thinks that

⁵ Seager mentions George Berkeley as an advocate of pure form of idealist panpsychism, and notes that such a radical form makes panpsychism technically true but uninteresting (Seager & Allen-Hermanson, 2010).

panpsychism presupposes irreducibility of mental properties (1979, p. 181). It seems true that neutral monism is incompatible with Seager's crucial notions of panpsychism: the ubiquity and fundamentality of mentality. As long as one takes neutral monism as a view that "the mental and the physical might both be understood in terms of something more basic" (Ludwig, *ibid*, p. 20), a neutral monist should take mentality as something reducible to more fundamental stuff, thus the fundamentality of mentality fades in the case of neutral monism. Mind in the neutral monist sense cannot be ubiquitous as well for the 'universal neutral substance' of neutral monism is neither mental nor physical.

Nevertheless it is possible to take neutral monism as follows:

Neutral monism [can be taken] as a double aspect theory, at least in the sense that it treats each of the fundamental things as a thing that could participate in a series of things which constituted something mental, as well as in a series of things which constituted something physical (Ludwig, *ibid*).

Strawson's realistic monism (2006) is similar to this line of neutral monism, which is the third way of taking panpsychism as monism.⁶ By redefining the meaning of being physical, Strawson tries to take mentality as the mental (experiential) features of the physical (p. 6-7). Thus, according to Strawson, there is only one substance at bottom, the physical, which has double features. The double aspect version of neutral monism is similar to Strawson's realistic monism with respect to taking mentality as a feature or aspect of the fundamental substance. In sum, at least some forms of idealism and double aspect theory (or realistic monism) are, plausibly, monist versions of panpsychism.

⁶ Strawson mentions that his realistic monism is not compatible with neutral monism (*ibid*, p. 23). However the version of neutral monism that Strawson conceives refers to the monist version, not the double aspect theory version.

As Skrbina notes, any attempt that eliminates mind or restricts mind to certain beings is, by definition, incompatible with panpsychism.⁷ One can add substance dualism, some radical versions of idealism, and neutral monism other than in a form of double aspect theory, to a list of theories that might be construed as panpsychist, although there is no consensus on this.

An Overview of the History and Arguments for Panpsychism

In the western philosophical tradition, panpsychism has a long historical background that can be traced back to ancient Greece. According to Seager, Thales (c. 624-545 BCE), who is one of the earliest panpsychists among presocratic philosophers, described creatures with mind as ‘self-movers’ and extended this claim to objects such as magnets (Seager, 2009, p. 208). Skrbina finds several ideas implying panpsychism in Plato’s last four works, *Sophist*, *Philebus*, *Timaeus*, and *Laws* (Skrbina, 2007). According to Skrbina, Plato mentions that the form of being, which is the term that applies to all real things, has an inherent psychic aspect (ibid). Works on panpsychism was diminished with the rise of ‘Aristotelian Christianity’ but it regained its fame by the birth of the mechanical worldview in the Renaissance. Seager explains that philosophers, who found Cartesian dualism unsatisfactory as a way of integrating mind into the scientific worldview, sought panpsychism as an alternative view of mind (ibid, p. 208). The most prominent panpsychists in this era were Spinoza and Leibniz. In the 19th century, panpsychism flourished in the form of idealism. For instance, Schopenhauer was one of the panpsychist idealists. From the 20th century to the present, panpsychism

⁷ To list some of these attempts, there are eliminativism, emergentism and special particle theory, “which holds that some basic constituents of things, which are at least spatially located, have mental properties, but not all” (Ludwig, ibid, p. 17).

has been held, implicitly or explicitly, by various philosophers, such as Whitehead, Russell, Griffin, Strawson and so on (Skrbina, *ibid*).

There are various arguments that ground the crucial panpsychist notions, namely the fundamentality and ubiquity of mentality. Skrbina sorts out arguments for panpsychism by focusing on the ubiquity of mentality, not the fundamentality. On the other hand, Seager puts more weight on the fundamentality.

Skrbina points out that most arguments for panpsychism rely on an analogy with the human. Skrbina says “The root assumption is that humans possess a mind, and this fact is taken in connection with other points to show that all things possess mind” (2005, p.251). Based on this assumption, Skrbina distinguishes arguments for panpsychism into two major groups, the argument for continuity and the argument for anti-emergence⁸ (2007)⁹.

The essence of the argument for continuity is as follows:

There is some critical thread of continuity among all things. We humans possess mind-like qualities that are a direct consequence of some substance, form, or structure; hence all things, to the degree that they share this common nature, have a corresponding share in mentality (*ibid*).

To put it otherwise, this argument derives the ubiquity of mentality from the thought that the universe is, at bottom, constituted of identical fundamental stuff, whether it is a quark or the four elements (fire, air, water, and earth) or something else. The argument from anti-emergence aims at disputing emergence of mind. Skrbina finds the essence of this

⁸ Skrbina calls the second group, the argument for Non-Emergence.

⁹ In his reading (Skrbina, 2005, pp. 249-55), Skrbina more specifically identifies a total of twelve arguments for panpsychism.

argument from the ancient Greek idea that “*ex nihilo, nihil fit*: out of nothing comes nothing” (ibid). This idea indicates that “mind cannot arise from no-mind, and hence that mind must have been present at the very origin of things” (ibid).

Seager divides arguments for panpsychism into three groups based on how each argument accounts for the fundamentality of mentality. Seager identifies the irreducibility of mentality with its explanatory and ontological fundamentality.¹⁰ Seager labels the first group of arguments as generic arguments, and divides them into a priori and empirical versions (2009). Seager says, “Genetic arguments assert that the best account of the genesis of mind lies in panpsychism” (Seager and Hermanson, 2010). A priori versions focus on the doctrine of non-emergence, saying that any non-epistemological form of emergence¹¹ is incoherent therefore mind must be fundamental. Seager says that Nagel (1979) and Strawson (2006) give the a priori version of the generic argument (Seager, 2009). Seager explains that success of this argument depends on showing incoherency of radical, or ontological, emergence of mentality. Empirical versions are grounded on Darwinism. In short, the empirical version of the genetic argument advocates an idea that, since “evolution is a continuous process that moulds pre-existing properties into more complex forms but which can not produce “entirely novel” properties,” mind must be fundamental (Seager and Hermanson, 2010). In other words, the empirical version of the genetic argument rests on the idea that it seems impossible to draw the line that clearly separates things that have mind and those do not.

¹⁰ In general, the term fundamentality indicates that the mental is taken as not dependent on any other things than itself, thus simply it is taken as primitive (Blamauer, 2011, p. 8).

¹¹ A non-epistemological form of emergence, or radical / ontological emergence, involves non-reducibility of the emergent. See page 14 for details.

The second group is the argument from analogy. According to Seager, this argument aims at finding “some features of matter which suggest some fundamental similarity with mentality” (2009). For instance, appealing to the indeterminacy of modern quantum physics to account for freedom of will is an example of argument from analogy (ibid).

The last one depends upon the idea of ‘intrinsic nature’. To put this argument in a nutshell, “matter must have an intrinsic nature to ground its dispositional properties” but “the only intrinsic nature with which we are familiar is consciousness itself” therefore mind is fundamental (Seager, ibid). Seager notes that the idea of Eddington and Russell that “science has nothing to say as to the intrinsic nature of the atom” supports the argument of intrinsic nature (ibid).

In this chapter, I explained the definition and implications of panpsychism. I explained why it is hard to clarify what panpsychism is for the variety of theories that are labeled as panpsychist. I also attempted to locate panpsychism among the theories of mind and introduced several ways of sorting arguments for panpsychism. In the following chapter, I will selectively introduce a specific version panpsychism and discuss its implications.

Chapter 2

PANPSYCHISM AS A SPECIES OF DOUBLE ASPECT THEORY

Among many versions of panpsychism, I will focus on panpsychist double aspect theory. In this chapter, I will introduce several philosophers who take panpsychist double aspect theory as the most promising version of panpsychism. In conclusion, I will show how panpsychist double aspect theory solves traditional mind-body problems, such as

mental causation and epiphenomenalism. Also, in transition to Chapter 3, I will show why the combination problem arises from this version of panpsychism.

Nagel and Panpsychism

Nagel's conception of mind. Nagel's distinction between the mental and the physical is grounded on his separation between objective reality and subjective reality. According to Nagel, objective reality is the world that is described from no point of view (1986, pp. 14-5). In other words, objective reality purports to be exclusive of any perceptual point of view therefore any rational conscious being can apprehend any description of it (ibid). Nagel explains that the work of physics concerns objective reality for even creatures that are perceptually quite different from us can understand the work in question "if they too were rational and numerate" (p. 14). However, Nagel says, the subjective mental process cannot be accommodated by the physical conception of objectivity but it seems to exist nonetheless (p. 15). Nagel criticizes attempts to reduce or eliminate subjective mentality for he thinks that it is a part of reality. Nagel's conception of mind is not idealist. He "thinks of mind, like matter, as a general feature of the world" (p. 19); consequently, when Nagel says that the mental is irreducible to the physical, he means that reality refers to the world that is described with both the physical conception of objectivity and the subjective concept of mind.

Nagel's argument for panpsychism. Nagel claims that the crucial doctrine of panpsychism, 'every thing has mind', follows from the following four premises (1979, pp. 181-2):

1. Material composition: Everything is fundamentally a material composition, hence there is no such thing like soul.

2. Nonreductionism: Mental properties are irreducible to physical properties.
3. Realism: Mental properties are properties of the organism.
4. Nonemergence: Mental properties are not the result of pure, or ontological, emergence from the physical.

According to Nagel, a panpsychist argues that material compositions such as human beings have mental properties that are basically non-physical. And, Nagel continues, a panpsychist is committed to the notion of anti-emergence and the denial of substance dualism. Consequently, Nagel says that a panpsychist concludes that mental properties must be primitive properties of the fundamental matter of the universe.

Nagel thinks that panpsychism entails property dualism¹² and the enterprise of property dualism is to fit mental properties into a spatiotemporal world of things and processes (1986, p. 31). Premise 1 implies that all that exists is matter. Given premise 3, a spatiotemporal world of things and processes must embrace mental properties and physical properties. Consequently, given premises 2 and 4, panpsychism follows. To put this otherwise, Nagel thinks that panpsychism is a conjunction of mental realism, anti-substance dualism, anti-emergentism and property dualism.

Implications of each premise. Nagel notes that the first burden of a panpsychist is to explain why property dualism holds. Nagel says that a panpsychist does not take mental properties as reducible or identical to physical properties. Nagel points out that a panpsychist must explain why the processes of physics cannot, in principle, capture mental phenomena. Nagel also explains that the idea of dual-

¹² Nagel calls it dual aspect theory.

property in panpsychism might lead to the thought that there is a more fundamental source that is neither the mental nor the physical but grounds both. In other words, one can further argue for neutral monism from property dualism. It is true that “common ultimate properties underlying both the mental and the physical” better explain causal connections between mental and physical phenomena (1979, p. 184). Commitment to property dualism indicates that a panpsychist should show that panpsychism is a better choice over neutral monism or, at least, neutral monism entails panpsychism.¹³

Secondly, Nagel explains the implication of denial of emergence in panpsychism. One can distinguish two kinds of emergence: ontological and epistemological. Crudely, ontological emergence of mind indicates that the mental arises from the physical to the extent that the emergence is inexplicable in terms of physics due to ontological novelty of the mental.¹⁴ Epistemological emergence merely consists in that one cannot give a proper explanation of the emergence of mind due to lack of cognitive capacity. Nagel says that emergentism only grants an account of uniform psycho-physical correlations (p. 186). In other words, according to an emergentist, one can only explain ontological emergence of mind in the form of statement that “whenever an organism is in exactly physical state P it is also in mental

¹³ Nagel claims that neutral monism implies panpsychism in the sense that, according to neutral monism, mental properties were derived from the basic properties (1979, p. 185). However Nagel does not give a clear argument for his claim. Nagel even writes elsewhere that panpsychism is not neutral monism (2002, p. 231).

¹⁴ True emergence, radical emergence and ontological emergence all have the same meaning.

state M” (pp. 186-7)¹⁵. However Nagel says that such explanation does not satisfy a stronger view of causation (p. 187). According to a stronger view of causation, P causes M if and only if P somehow necessitates M. Nagel says that an emergentist claims that such necessity is literally inexplicable. Denial of ontological emergence or, to put it simply, anti-emergence leaves the causal explanation as an open question. According to Nagel, a panpsychist would say, “we must take the current epistemological emergence of the mental as a reason to believe that the constituents have properties of which we are not aware, and which do necessitate these results” (p. 187).

In sum, according to Nagel’s second point, an emergentist claims that it is causally inexplicable how the mental emerges from the physical, and claims that only nomological regularity of uniform psycho-physical correlations is intelligible. Meanwhile, Nagel explains that a panpsychist’s commitment to the notion of anti-emergence implies that a causal explanation for mental phenomena is rooted in non-physical properties.

Lastly, Nagel explains why it is hard to a panpsychist to account for mental realism. Nagel claims that mental properties are irreducible to physical properties for the latter concern objective reality whereas the former concern subjective reality. Panpsychists might think that mental realism is grounded on the assumption that physical organisms have subjective properties. However Nagel finds this assumption hard to accept for it is not an organism that has a point of view but a person or creature. Nagel thinks it is absurd to ascribe subjective states to a complex material

¹⁵ This is also called nomological regularity.

object that is composed of atomic constituents (p. 189). Nagel seems to think that ascribing subjective states to organisms is like ascribing them to, say, rocks.

Then what bears mental properties? According to Nagel, it seems neither an organism nor soul. Nonetheless Nagel finds an alternative way to account for mental realism without addressing the given question: *Philosophical Investigations* of Wittgenstein (pp. 190-1). In short, according to Wittgenstein, publicity is the least condition of being real and mental phenomena meet this condition for one's point of view is publicly identified by their connection with behavior and circumstances. For example, I can ascribe happiness to myself without any evidential ground, or without observation, but my state of being happy is as real as my firing of neurons for I can ascribe a similar state to another person by observing his or her behavior and circumstances.

However Nagel points out that a panpsychist cannot appeal to Wittgenstein's way of explaining mental realism because it "depends too heavily on our language" (p. 191). The publicity in question is basically grounded on propositions about mental states. Nagel says that although we apply our concepts of mental phenomena to conscious beings that are not capable of language, we cannot assume that they share the same reality and subjectivity with us, therefore the reality of the subjective states of non-linguistic conscious beings seem cannot be grounded on the Wittgensteinian publicity. To make matters worse, a panpsychist attempts to account for the reality of subjective states of non-living beings. In other words, a panpsychist even cannot appeal to the behavioral similarity, if there is any, between a linguistic mental being and a non-linguistic mental being in order to ground mental realism, because there

seems no such similarity between, say, a human and an atomic particle. Hence, Nagel concludes that it is difficult for a panpsychist to explain how is it the case that mental properties are properties of organisms in accordance with mental realism.

Panpsychism as an unacceptable solution to the mind-body problem. Nagel does not think that a panpsychist can ground the premise of mental realism. Nagel points out that even denying each premise can lead to viable alternatives, such as substance dualism, reductive physicalism and emergentism (pp. 193-4).

Nagel notes that it is not sensible to presume that “the components out of which a point of view is constructed” would have a point of view (p. 194). In other words, Nagel thinks that the unity of subjective mind seems not compatible with the idea that a single self is composed of many selves. However, Nagel suggests that there might be mental properties of all matter that are “less subjective than any of the specific forms” (ibid). In other words, Nagel thinks that panpsychism might plausibly hold not the doctrine of ubiquity of consciousness but that of ubiquity of non-species specific mental properties.

Summarizing Nagel’s argument. Nagel’s paper (1979) consists of three parts. At first, Nagel suggests four plausible premises of panpsychism: material composition, nonreductionism, realism and nonemergence. Secondly, Nagel explains the plausibility of the given premises except for the premise of realism. Lastly, Nagel claims that a panpsychist cannot account for realism.

According to Nagel, panpsychism is the view that “the basic physical constituents of the universe have mental properties” (p. 181). Nagel’s argument for panpsychism is as follows. First, things that have mind are basically composed of matter and matter is all that exists. Second, physics concerns objective reality whereas mind is essentially

subjective, thus irreducibility of mind holds. Third, emergentism cannot give a proper account for the relationship between the mental and the physical for it grants ontological emergence of mental properties. Consequently, since mental properties are the primitive properties of basic substance, mind is fundamental and ubiquitous.

Given the argument above, the mental and the physical equally participate in reality. However Nagel argues that a panpsychist cannot explain the reality of the mental. Nagel grants that organisms, e.g., a dog, and mere aggregations, e.g., a rock, are composed of identical ultimate matter, namely physical atomic particles. According to Nagel, if a panpsychist claims that organisms bear mental properties then it follows that matter bears mental properties. However Nagel thinks that mind in panpsychism is analogous to the subjectivity of human beings. Nagel finds the claim that matter bears mental properties absurd for the claim in question entails that the mere aggregation like a rock has the subjectivity of a human being. Nagel also points out that a panpsychist cannot appeal to Wittgenstein's way of grounding the reality of subjective mentality because such a way fails to account for the mentality of non-linguistic beings.

Nagel's discussion regarding panpsychism has three important implications. First, panpsychism cannot account for mind in terms of "an investigation into the nature of the language used in making mental ascriptions" (Clarke, 2004, p. 146). Second, a panpsychist must seek a way to account for sub-personal mentality. In other words, a panpsychist must make it sensible that organisms like a dog or even mere aggregations like a rock have "their own reality and their own subjectivity" (Nagel, 1979, p. 191). The first and second implications can be put together as follows: in order to ground the reality of the mental realm, a panpsychist must account for mind of, say, an atomic particle

without appealing to the linguistic analysis. Third, a panpsychist must make it intelligible that how sub-personal mentality of atomic particles combines into higher level mentality such as human consciousness.

Nagel's analysis of panpsychism focuses on whether panpsychism successfully locates mind in the world. Although Nagel pays little attention to whether panpsychism gives an acceptable explanation for the true nature of mind, discussing the location problem leads to discussing the nature of mind. Nagel points out that a panpsychist locates mind among basic matter in a way that is neither reducible to the physical nor stays over and above the physical. In other words, according to Nagel, mind in the panpsychist sense is the primitive property of the ultimate substance of the universe. Nonetheless, as Nagel points out, mind that is located in the world in this sense raises several problems: what is sub-personal subjectivity and how does higher level mentality arise from lower level mentality? In the following section, I will introduce Strawson's panpsychism and explain how Strawson solves the problems that Nagle poses.

Strawson's Realistic Monism

Realistic physicalism. Physicalism in philosophy of mind is the view that, in whatever sense of "physical", it is true to say that everything, including mind, is physical (Melnik, 2003, p. 65). Generally, laws of contemporary physics bound the term physical. As a result, physicalism is often labeled as reductivism in the sense that the mental is exhaustively explicable in terms of physics.¹⁶

Strawson suggests a different conception of the term physical. According to Strawson, physicalism is "the view that every real, concrete phenomenon in the universe

¹⁶ The terms of physics include chemistry, biology, neuroscience and any field of science that is grounded on laws of physics.

is ... physical” (2006, p. 3). By ‘concrete’, Strawson means ‘spatiotemporally located’ and by ‘phenomenon’, Strawson means any sort of existent including all mental goings on (ibid). Strawson does not think that the nature or essence of physical beings is exhausted by laws of physics. Strawson claims that a mental phenomenon is essentially an experiential phenomenon and it cannot be recorded in the terms physics for physics only concerns non-experiential phenomena.

Strawson contrasts his conception of physicalism (realistic physicalism) with physicism. By physicism, Strawson means the view that every concrete phenomenon can in principle be captured in terms of physics (p. 4). Strawson claims that physicism would end up with either failing to reduce the mental to the physical or recklessly eliminating mental phenomena for laws of physics cannot capture mental phenomena. Although the term ‘physical’ in Strawson’s realistic physicalism indicates any spatiotemporally located phenomenon, including mental phenomenon, Strawson does not think that laws of physics can record mental phenomenon. In other words, Strawson distinguishes what is being recordable in terms of physics from the physical.

Strawson claims that reductive physicalists¹⁷ are committed to physicism (p. 5). Strawson claims that such commitment involves false understanding of Descartes. To quote Strawson’s words, “... the most fervent revilers of the great Descartes ... made the mistake ... some of them ... are so in thrall to the fundamental intuition of dualism, the intuition that the experiential and the physical are utterly and irreconcilably different” (ibid). It is hard to read from the passage that what Strawson intends to mean by ‘the mistake’. Strawson writes elsewhere that Descartes is not a substance dualist (pp. 199-

¹⁷ Strawson includes Dennett, Dretske, Tye, Lycan and Rey in the list.

216). It seems that ‘the mistake’ indicates that reductive physicalists falsely take Descartes as a substance dualist and criticize his dualism. To put this otherwise, Strawson seems to claim that reductive physicalists conceive mental realism as grounded on substance dualism.

Strawson claims that reductive physicalism eventually amounts to eliminativism (p. 5, footnote 6). Since reductive physicalism purports to expel any form of non-physical substance, reductive physicalists argue against mental realism that is, putatively, grounded on substance dualism. However Strawson thinks that mental realism does not presuppose substance dualism for he attempt to ground mental realism by his realistic monism¹⁸. Therefore reductive physicalists suppose to criticize realistic monism (or double aspect theory) in order to argue that the mental is reducible to the physical. However Strawson points out that, once reductive physicalists target realistic monism (or double aspect theory), reductive physicalism after all fall into eliminativism. Strawson says that what reductive physicalists are basically claiming by reduction is that ‘X exists, but it is really just Y’ (ibid). However, Strawson says, in the case that X is the experiential and Y is the non-experiential, the reductivist claim implies the denial of existence of X for there is no way for Y to include X. For instance, in order to explain happiness in non-mental terms, one must presuppose that any feature of happiness is reducible to non-mental features. Yet Strawson claims that reductive physicalists have no account for how non-experiential reality includes experiential reality. Therefore, according to Strawson, reducing experiential features implies, for example, eliminating

¹⁸ Realistic monism is Strawson’s version of double aspect theory.

one's "having phenomenally rich experience of Beethoven's eighth quartet" (p. 6, footnote 7).

To put Strawson's argument against reductive physicalism in a nutshell: in order to reduce the mental to the physical, reductive physicalists have to prove that realistic monism (or double aspect theory) is false. To do so, reductive physicalists must show that either an experiential phenomenon is actually a non-experiential phenomenon or there is no such thing like an experiential phenomenon. Strawson thinks that the former is absurd and the latter is reckless.

Realistic physicalism is not a species of identity theory. Identity theorists simply identify experience with the firing of neurons and claim that physics and neurophysiology suffice for recording mental phenomena. However Strawson claims that, although mental phenomena take place in our brain, "there is a lot more to neurons than physics and neurophysiology can record" (p. 7). For Strawson, identity theory after all amounts to eliminativism.

In sum, Strawson's realistic physicalism implies mental realism, anti-eliminativism, anti-reductivism and monism: mentality is real in the sense that the experiential and the non-experiential equally participate in reality. Mental phenomena cannot be eliminated for they are a part of reality. A mental phenomenon is essentially a physical phenomenon, yet it is irreducible in the sense that laws of physics cannot record mental phenomena. Realistic physicalism is monism in the sense that the physical is the "only one kind of stuff in the universe"¹⁹ (ibid). Although Strawson explains his view as

¹⁹ Strawson hesitates to fix the ultimate nature of concrete reality as the physical because of "the possibility that there could be other non-physical forms of concrete reality" (ibid, p. 8). However I don't think that the possibility in question is compatible with

monism, it can be labeled as a species of double aspect theory for he distinguishes double features of the physical, namely, experiential features and non-experiential features.

Anti-emergence. Strawson appeals to Russell and Eddington in order to explain the inability of laws of physics to capture mental phenomena (pp. 9-12). The idea is as follows: physics do not suffice to show the intrinsic nature of the physical world (Russell, 1948, pp. 224-31). “Our knowledge of the nature of the objects treated in physics consists solely of readings of pointers and other indicators” (Eddington, 1929, p. 258). For instance, when we say that an elephant weighs two tons, we are recording a feature of the elephant in terms of a measuring device. However we currently cannot capture mental phenomena of an elephant purely in terms of physics. All we know is that, for instance, an elephant is in pain when there is some firing of neurons in its brain. Russell says that physics only renders relational properties of the physical and has nothing to say about the intrinsic nature of the physical. Eddington says that the relational properties that are captured by physics are attached to some unknown background. Eddington claims that the unknown background should be taken as a background of consciousness. To put Russell and Eddington’s words in Strawson’s terms: the intrinsic nature in question must be experiential features of the physical. In other words, according to Strawson, physics is able to record only non-experiential features of the physical, and the inability of physics amounts to the irreducibility of the experiential to the non-experiential.

Strawson’s conceiving of the physical as the fundamental stuff of the universe. If there can be non-physical forms of concrete reality, then why not just take mentality as a non-physical form of concrete reality? However this particular uneasiness seems to hardly undermine the coherency of Strawson’s realistic physicalism because one can simply ignore the possibility in question.

Emergentists also grant the irreducibility in question but claim that a mental phenomenon is a non-physical phenomenon. According to emergentism, experiential phenomena are emergent phenomena in the sense that mental properties arise from physical properties. Strawson says that liquidity is often proposed as an example of an emergent phenomenon (p. 13). Liquidity is an “emergent property of certain groups of H₂O molecules” in the sense that it emerges from combined H₂O molecules although an individual H₂O molecule does not have liquidity as a property (ibid). However Strawson does not think that the emergence of liquidity is “an analogy of the right size” for the emergence of experiential phenomena (p. 15). Strawson notes that one should not confuse “liquidity as it appears to sensory experience with the physical phenomenon of liquidity” hence the emergence of liquidity illustrates that an emergent phenomenon is wholly reducible to its base (p. 14). In other words, the case of liquidity only shows that the emergence of non-experiential phenomena is totally explicable in terms of non-experientiality, namely physics. Consequently, according to Strawson, emergentists falsely assume that the case of liquidity analogously explains that the emergence of experiential phenomena from non-experiential phenomena reflects a metaphysical gap between the experiential and the non-experiential.²⁰

²⁰ Strawson does not give a clear distinction between an epistemic gap and an ontological (metaphysical) gap. To make Strawson’s argument easily comprehensible, I will introduce Chalmers’s distinction. Chalmers (2003) distinguishes an epistemic gap and an ontological gap. There is an epistemic gap between physical (non-experiential) truths P and the phenomenal (experiential) truths Q if, Q is non-deducible from P, or Q is inexplicable in terms of P, or P is conceivable regardless of Q (Chalmers, *ibid*, p. 107). An ontological gap is based on an epistemic gap. P and Q are ontologically related if, “P necessitates Q when the material conditional $P \supset Q$ is metaphysically necessary, or when it is metaphysically impossible for P to hold without Q holding” (Chalmers, *ibid*, p. 108). An ontological gap between P and Q holds if there is an epistemic gap between P and Q,

According to Strawson, an analogy of the right size must show the case that X, as an emergent, is totally dependent²¹ on Y, as a base, while there is a metaphysical gap between X and Y. However Strawson thinks that there is no such case. Yet an emergentist can bite the bullet and claim that the emergence of mental properties is the unique case that bears no analogy.

Strawson labels emergentists' conceiving of emergence as brute emergence in the sense that an emergent is non-reducible to its basal conditions. (p. 18). However Strawson claims that emergence cannot be brute. According to Strawson, "brute emergence is by definition a miracle every time it occurs" for Strawson thinks that brute emergence would be unintelligible, even to God (ibid). Strawson claims that a miracle in this sense entails that there is no law that relates an emergent and its base. However the emergence of X from Y entails the supervenience²² of X on Y. In other words, one can observe that X-type phenomena emerge from Y-type phenomena with nomological regularity. Strawson claims that the supervenience makes emergence strictly law-like. However, Strawson continues, since a law-like miracle is a contradiction, therefore there is no brute emergence.

In sum, according to Strawson, there is absolutely no analogous evidence for the putative emergence of the experiential from the non-experiential. The putative

and the epistemic gap reflects lack of ontological relation between P and Q. Emergentists usually claim that the emergence of experiential phenomena involves an ontological gap between the experiential (mental) and the non-experiential (physical).

²¹ By totally dependent, Strawson means that nothing interfere in-between X and Y.

²² The supervenience thesis states that if X is supervenient on Y then whenever you have a X-type phenomenon you must also have a Y-type phenomenon (Strawson, ibid, p. 18, footnote 31).

emergence involves the case that A emerges from NOT-A. However there is no such case, for any emergent phenomenon that is rooted in concrete reality is reducible to its basal phenomena. Strawson also points out that it is incoherent to claim that the putative emergence of experiential phenomena is the only emergence that involves irreducibility. Due to the supervenience thesis, any emergence of experiential phenomena is law-like emergence. However the law-likeness in question is incoherent with the idea that there is a metaphysical gap between the experiential and non-experiential (or the experiential is irreducible to the non-experiential).²³ Therefore, Strawson argues, emergentism fails.

Sub-personal experientiality. Strawson says that the experiential is irreducible to the non-experiential for they are fundamentally different features of the physical. There are only two ways of grounding the fundamentality of the experiential, assuming mental realism. One way is to argue that the experiential radically emerges from the non-experiential. Strawson denies any form of radical, or brute, emergence. The other way is to argue that the experiential stems from the proto-experiential. The second way implies that the experiential is located at the same level with the non-experiential. In other words, according to the second way, the experiential and the non-experiential are irreducibly primitive. Strawson follows the second way of grounding the fundamentality of the experiential.

Generally the term ‘experiential’ refers to the experientiality of, for instance, human consciousness, yet Strawson explains that the experiential stems from the proto-experiential, or sub-personal experiential. Strawson’s ‘proto-experiential’ indicates that

²³ Strawson is basically claiming that the irreducibility in emergentist sense makes mental phenomena as nomological “danglers” that are somehow attached to the physical. Kim (1993) points out that the dangers in question can amount to epiphenomenalism in the sense that the mental as danglers can be taken as causally inert.

there is something “already intrinsically experiential, although very different, qualitatively, from the experience whose realizing ground we are supposing it be” (p. 22). For example, according to Strawson, just as an elephant’s body is constituted of atomic (or non-experiential) particles, the elephant’s mind is also constituted of proto-experiential “particles.” This line of thought shows that experiential phenomena and non-experiential phenomena are rooted in separate sources.

Strawson’s commitment to proto-experientiality does not entail a metaphysical gap between the experiential and the non-experiential. Strawson criticizes Chalmers’s dualism (ibid, Footnote 37). Chalmers suggests that a zombie that is physically identical to a human being but lacks consciousness is logically possible (Chalmers, 1996, pp. 94-6). According to Chalmers, the logical possibility in question amounts to a metaphysical (ontological) gap between the mental and the physical (pp. 123-9). However Strawson points out the implausibility of the idea that “an atom-for-atom duplicate of an experiencing human being could be produced and not have experience” (Strawson, ibid). In other words, Strawson asserts the strong supervenience thesis: a view that the mental supervene on the physical in every possible world.

The supervenience thesis is often taken as stating that mental supervenes on the physical. However Strawson grants not only the usual conception of the supervenience thesis but also a reversed version of it. In other words, according to Strawson, the following two notions are true: “[i] Physical qualitative identity entails experiential qualitative identity. [ii] Experiential qualitative identity entails physical qualitative identity (in the relevant parts of the brain)” (p. 220). Strawson’s conception of the metaphysical relation between the experiential and the non-experiential seems to reflect

the mutual supervenience between the experiential and the non-experiential. Strawson explains the irreducibility of the experiential by appealing to the inability of physics to capture mental phenomena. The irreducibility entails the epistemic heterogeneity between the experiential and the non-experiential. In sum, Strawson seems to endorsing the following statement: the experiential and the non-experiential are epistemically distinct but ontologically entail each other. Meanwhile, Strawson claims that the experiential and the non-experiential are causally distinct. Consequently, Strawson's conception of the relation between the experiential and the non-experiential seems to imply: an epistemic distinction, a causal distinction, and ontological (mutual) entailment.

Strawson claims that the proto-experiential cannot be grounded by neutral monism (p. 23). Strawson conceives neutral monism as a view that all concrete phenomena, experiential and non-experiential, are, at bottom, of the same kind. In other words, Strawson says that neutral monists take the experiential and the non-experiential as reducible to more fundamental properties. It might seem plausible that proto-experientiality emerges from the fundamental properties in a neutral monist sense, for such emergence is not brute emergence. However Strawson criticizes this view on the grounds that it makes the experiential and non-experiential mere appearances or seemings, for this view presupposes that only the fundamental property is truly real. Strawson claims that the experiential and the non-experiential must partake in reality, but being mere appearances or seemings is not sufficient for the partaking.

Strawson claims that experience like ours emerges from ultimates that are intrinsically experience-involving (pp. 24-5). This particular claim is compatible with

both special particle theory and panpsychism.²⁴ Strawson rejects special particle theory for it grants ontological diversity at the very bottom of things. Strawson thinks that special particle theory after all amounts to dualism or pluralism.²⁵ Thus Strawson's discussion of proto-experientiality leads to panpsychism.

Strawson grants that the experience of a human being or an animal involves a subject of experience. However Strawson claims that panpsychists do not need to hold the view that even things like tables are subjects of experience. Strawson seems to distinguish 'well-organized' proto-experientiality that characterizes the mentality of organisms like a human being from mere aggregations of the proto-experiential, such as a table. However this distinction raises two questions. First, how do we comprehend the nature of proto-experientiality, namely microexperientiality? Second, how does macroexperientiality, such as the experience of a dog, arise from microexperientiality?

Strawson notes that microexperientiality would be strange, or even incomprehensible to us (p. 24). Yet Strawson does not think that such incomprehensibility is a serious threat to panpsychism. We can commonly find an organism's experientiality that is radically different from ours.²⁶ Strawson says that as "there may exist sensory modalities unimaginable by us", so there may exist microexperientiality unimaginable by us (p. 27).

²⁴ Some basic constituents of things, which are at least spatially located, have mental properties, but not all (Ludwig, 2003, p. 17). Strawson labels this theory as micropsychism.

²⁵ Strawson seems to mean property dualism.

²⁶ This line of thought is well acknowledged by Nagel (1974). Nagel notes that we believe that bats have experience although we have no access to their subjective experience.

Strawson claims that the emergence of macroexperientiality from microexperientiality has an analogy of the right size. Strawson says, “the shape-size-mass-charge-etc. phenomenon of liquidity emerges from shape-size-mass-charge-etc. phenomena that do not involve liquidity” (ibid). Strawson points out that the emergence of given case shows that an emergent property, say transparency, bears no resemblance to a molecular entity, say H₂O, although the emergent is reducible to its base. Strawson finds similarity between the emergence of liquidity and the emergence of macroexperientiality, such as human experience. According to Strawson, although human experience is reducible to its base, namely microexperientiality, the emergent and its base bear little resemblance, therefore the emergence of macroexperientiality is as intelligible as the case of liquidity.

Strawson thinks that panpsychism can even naturally account for the evolution of consciousness: “Once upon a time there was relatively unorganized matter, with both experiential and non-experiential features” (p. 27). It organized into complex forms such as the moon or human consciousness “by many processes including evolution by natural selection” (ibid).

Evaluating Panpsychist Double Aspect Theory

Reviewing previous discussions. In the previous discussions, I attempted two different approaches to panpsychism. First, I introduced Nagel’s account of panpsychism. Nagel suggests four premises that ground the crucial idea of panpsychism, namely, the fundamentality and ubiquity of mentality (See pages 12-3 for details). Nagel also shows explanatory burdens of panpsychism that follow from each premise. In short, Nagel’s discussion implies that panpsychism is essentially property dualism and it is

necessarily for a panpsychist to explain what it means by sub-personal mentality and how higher level mentality arises from lower level mentality²⁷. Second, I reviewed Strawson's realistic monism as a basis for panpsychism. Strawson attempts to draw panpsychism from his own conception of physicalism, namely realistic physicalism. At bottom, Strawson claims that realistic physicalism entails panpsychism in the sense that the physical fundamentally consists of double features, the experiential and the non-experiential.

The first goal of this section is to reveal an idea that underlies the approaches of the previous sections. Specifically, I will argue that Nagel and Strawson, at bottom, both account for a certain version of panpsychism, namely panpsychist double aspect theory. To argue for this interpretation, I will show two things. First, Nagel's four premises are held in common among the majority of panpsychists including Strawson. Second, the difference between Nagel's conception of panpsychism and that of Strawson are merely verbal.

My next aim is to explain implications of panpsychist double aspect theory, especially the implication of anti-reduction. Specifically, I will discuss the metaphysical and epistemic relation between the mental and the physical in accordance with my interpretation of panpsychism.

Thirdly, I will point out the theoretical plausibility of panpsychist double aspect theory. I will claim that the theoretical plausibility stems from panpsychism that is naturalistically grounded. To explain naturalism, I will refer to Papineau's conception (2009). In brief, according to Papineau, naturalistic philosophy should satisfy the causal

²⁷ The second explanatory burden often labeled as the combination problem.

closure of the physical. Based on my analysis of the metaphysical relation between the mental and the physical, I will show that panpsychist double aspect theory satisfies Papineau's condition. Also, in order to clarify the theoretical strengths of panpsychist double aspect theory, I will introduce Chalmers's explanation that certain version of panpsychism²⁸ is free from the standard arguments against physicalism and dualism.

Lastly, I will examine the theoretical vulnerabilities of panpsychist double aspect theory. The biggest challenge of panpsychist double aspect theory is the combination problem. Yet I will only briefly discuss this problem for it is the primary topic of next chapter. This last part will naturally transition to the third chapter.

Panpsychism as a species of double aspect theory. Double aspect theorists basically claim that a spatiotemporal world of things and processes must embrace mental properties and physical properties (Nagel, 1986, p. 31). This commitment leads to a general notion of double aspect theory: matter is all that exists, and the mental and the physical are different aspects of matter. As the notion indicates, double aspect theory focuses on explaining the proper location of mind in the world rather than explaining the true nature of mind (p. 30).

The given notion follows from some of Nagel's premises. Names of each premise are: 1) Material composition, 2) Mental realism, 3) Anti-reductivism (Nonreductionism)²⁹. In short, these premises entail that although mentality irreducibly partakes in the spatiotemporal world, it must be something that exemplified by a material

²⁸ Chalmers names this version 'constitutive Russellian panpsychism' (2013a). I will explain that this version is in effect identical to panpsychist double aspect theory in the latter part this section.

²⁹ See from page 12 to 17 for the details of these premises.

being such as a human. Therefore it is crucial for a double aspect theorist to explain the relation between the mental and the physical.

Species of double aspect theory vary by how a theorist gives the required explanation in question. Broadly, there are two strategies that a double aspect theorist can hold in regards to the given explanation. The first strategy is to locate mind among basic matter in a way that is neither reducible to the physical nor stays over and above the physical. The second strategy is to take the mental as fundamental properties and locate it over and above physical properties. Panpsychists hold the former strategy and emergentists hold the latter strategy. The variety of the strategies reflects that panpsychism and emergentism have different ways of grounding premise 3, anti-reductivism, because there is little dispute in regards to explaining premises 1 and 2.

By adding the premise of anti-emergence, Nagel concludes that panpsychism follows from the given four premises. Consequently, Nagel claims that panpsychism is (property) dualism (2002, p. 231)³⁰. Seager's conception of panpsychism is similar to that of Nagel. According to Seager, a panpsychist accepts not only the fundamentality and ubiquity of mentality but also the scientific worldview (see pages 4). This line of thought is exactly what Nagel's three premises that I listed above imply. Skrbina seems to hold, at least, Nagel's first premise. Skrbina points out that first, few panpsychists are substance dualists (2009, p. XII), and second, panpsychism does not entail idealism (2003, p 8). These points imply that panpsychism leads to the idea that mental phenomena are exemplified by material beings. On page 22, I explained that Strawson's

³⁰ I will take property dualism as a subset of double aspect theory.

panpsychism implies mental realism, anti-eliminativism, anti-reductivism and monism. And I concluded that Strawson's panpsychism is basically double aspect theory.

Nagel's conception of panpsychism as property dualism and Strawson's conception of panpsychism as double aspect theory are, in fact, not contrasting views. Nagel suggests that panpsychism entails the idea that there is the fundamental substance, namely matter, which has two kinds of primitive properties, namely the mental and the physical. Nagel's distinction between the properties refers to the distinction between subjective and objective reality. This distinction suggests that, in regards to panpsychism, Nagel does not take the term 'physical' as to indicate a substance. When Nagel says that panpsychism is basically property dualism, he means that panpsychism entails that the mental and the physical are epistemically irreducible to each other.³¹

Strawson takes the physical as the fundamental substance and claims that it has two primitive features, the experiential and the non-experiential. Like Nagel, Strawson's distinction between the experiential and non-experiential stems from the distinction between subjective and objective reality. In order to distinguish each reality, Strawson appeals to the inability of physics in regard to recording intrinsic nature of the physical. In other words, Strawson claims that the experiential and non-experiential are irreducibly difference, not because of an ontological reason, but because of an epistemic reason.

³¹ Yet I am not claiming that Nagel is committed to panpsychism. Nagel says that, although Russell's idea that the intrinsic idea of the physical must consist of the mental is attractive, he believes "that both mental and physical properties are intrinsic" (2002, p. 27). This line of thought shows that Nagel rejects the ubiquity notion of panpsychism because that he does not think that any physical being is intrinsically a mind being. Nagel also claims that we have no coherent idea to solve the combination problem (p. 61). My point only concerns Nagel's conception of panpsychism.

There are only verbal differences between Nagel's conceptions of panpsychism and that of Strawson's. Nagel's use of the term 'matter' resembles Strawson's use of the term 'the physical' in the sense that they both mean the fundamental substance by the given terms. Nagel's distinction between the mental and the physical is basically identical to Strawson's distinction between the experiential and the non-experiential. The only salient difference between these two philosophers is whether to take the mental as a primitive 'property' or 'feature'. Nagel thinks that the mental and the physical are mutually exclusive properties whereas Strawson thinks that only physical properties are primitive. Yet, as long as they share an identical methodology in regards to holding the crucial ideas of panpsychism, the difference in question are merely verbal.

Panpsychist anti-reductivism. Like emergentists, panpsychist double aspect theorists³² also hold the irreducibility of the mental to the physical. However, since panpsychists do not postulate a hierarchy between the mental and the physical, panpsychist anti-reductivism is quite different from that of emergentism.

Panpsychists grant an epistemic gap between the mental and the physical. According to Chalmers (2003), an epistemic gap reflects the idea that mental phenomena are inexplicable in terms of physics (see pages 24-5, footnote 20). The epistemic gap in the panpsychist sense stems from the impossibility of physically recording mental phenomena. This inability of laws of physics reflects the following idea: any description of physics only renders relational features of the physical (i.e., weight, height, temperature, and so on), so the intrinsic nature of the physical must consist of the mental.

³² For the sake of simplicity, I will call 'panpsychist double aspect theory' simply 'panpsychism' throughout what follows, sometimes using 'panpsychist double aspect theory' for explicitness.

An ontological gap arises when physical truths P fail to entail the phenomenal (experiential) truths Q. For instance, according to panpsychism, the firing of C-fibers and pain³³ are in an entailment relation, although they are causally distinct. Panpsychists claim that the firing of C-fibers and pain are properties or features that are held by certain basal conditions, namely matter. Since the basal conditions necessitate both of them, no ontological gap arises. To put this relation otherwise, the mental and the physical mutually supervene on each other. Given that the firing of C-fibers refers to a brain state that involves pain, a panpsychist would say that pain is the way that the firing of C-fibers exemplifies its intrinsic nature, and the firing of C-fibers is the way that pain exemplifies its extrinsic nature. This line of thought shows that pain and the firing of C-fibers are ontologically located at the same level and are not in a causal relation with each other. Consider the following analogy. The sound of thunder and a flash of light are properties of an electric discharge, namely lightning. They entail each other because they are ontologically bound to a same source, but they are causally distinct. Suppose that in a stormy evening, Rob simultaneously heard the sound of thunder noise and saw a flash of light. These two phenomena have different causal histories: the causal chain of the sound is a sequence of vibration and that of flash is a sequence of electromagnetic waves. This analogy illustrates that, in the panpsychist sense, a mental and a physical phenomenon can ontologically entail each other but be causally distinct.

Nonetheless panpsychism does not entail that a mental phenomenon and a physical phenomenon are in different causal domains. Suppose that a boxer got an uppercut on his jaw. In the macroscopic sense, a panpsychist wouldn't deny that the

³³ In this context, I will use the term 'pain' to refer to only the experiential feature or the phenomenality of pain.

boxer's pain is caused by a physical event, say the uppercut. Yet, in the microscopic sense, the boxer's phenomenal experience, namely pain, is not caused by the physical event. Rather it is entailed by the firing of C-fibers, which is caused by the physical impact on the boxer's jaw. Suppose that a referee, after considering the boxer's condition, called TKO. In the macroscopic sense, the referee's conscious consideration caused the referee's calling TKO. In the microscopic sense, the referee's phenomenal experience entailed certain firing of neurons and eventually led to the referee's calling TKO. In short, according to panpsychism, the fact that there is neither upward nor downward causation between the mental and the physical in the microscopic sense doesn't amount to the denial of macroscopic causation, or the causal relation between a mental event and a physical event.

Two things must be noted. First, panpsychism is not identity theory. Due to the panpsychist epistemic gap, the panpsychist notion of ontological entailment does not amount to identity theory. Second, panpsychism is not epiphenomenalism. One might suspect that the lack of causal relation in the microscopic sense amounts to the causal inertness of the mental. Consider the referee case. The fact that the referee's phenomenal experience entails certain firing of neurons indicates that the former is necessary for the latter. Hence, indirectly, the referee's phenomenal experience 'causes' a physical event, say, TKO. According to panpsychism, a mental phenomenon not only partakes in reality but also is necessary to raise its corresponding physical conditions, such as the firing of neurons. Given that epiphenomenalism is the view that a mental phenomenon is merely a collateral effect of a physical phenomenon, panpsychism does not amount to epiphenomenalism.

The panpsychist conception of the relation between the mental and the physical implies an epistemic distinction, a causal distinction, and ontological (mutual) entailment. The irreducibility of mentality follows from the epistemic / causal distinction. The conjunction of the irreducibility and the ontological entailment amounts to the ubiquity notion of the mental. Suppose there is a sub-atomic physical particle. According to panpsychism, the intrinsic nature of the particle consists of the mental. In that sense the ubiquity notion follows, for the existence of the physical entails the existence of the mental. Hence, according to panpsychism, the mental and the physical are ontologically located at the same level while being epistemically and causally distinct.

The theoretical strengths of panpsychism. Panpsychism is theoretically plausible for three reasons: first, it irreducibly locates mind in the world without ontologically expanding the world, second, it is naturalistic, and third, it does not fall into epiphenomenalism. The first point follows from the three premises of double aspect theory. In short, the mental and the physical are irreducible properties or features of the fundamental substance, namely matter. The second point involves Papineau's conception of naturalism, which I will consider next, and the third point follows from the second point.

Papineau says that naturalistic philosophy adapts the ontology of natural science, namely the principle of the causal closure of the physical (2009, p. 60). In other words, a theory is naturalistic if it grants that any causal explanation of the physical is rooted in the physical. Panpsychism satisfies this naturalization. As I explained by the lighting example, given the panpsychist metaphysics, the mental and the physical are causally distinct. Since they do not causally interact, at least in the microscopic sense, a

panpsychist can explain mental phenomena without violating the principle of the causal closure of the physical. Therefore the second point follows. The boxer and the referee cases show that the given causal distinction does not imply the causal inertness of the mental. As I explain by the referee case, the referee's phenomenal experience is necessary to bring about the cause of a physical event, namely the firing of neurons. Hence, at least indirectly, the mental is not causally inert, thus the third point follows.

According to Chalmers, the theoretical strengths of panpsychism stems from the fact that it covers the problems that arise from physicalism and dualism. I will first show that Chalmers's approach to panpsychism is actually identical to panpsychist double aspect theory. Chalmers explains that the most promising version of panpsychism is constitutive Russellian panpsychism (2013a). By the term 'constitutive', Chalmers means "macroexperience is metaphysically grounded in microexperience ... [therefore] macrophenomenal truths obtain in virtue of microphenomenal truths" (p. 7). In other words, constitutive panpsychism states that higher level mind, e.g., human experience, is explicable in terms of mental "laws" that govern constitution of lower level minds, or proto (sub-personal) mentality. This implication of constitutive panpsychism is in effect identical to the way that panpsychist double aspect theory explains how higher level mentality arises from lower level mentality: for instance, Strawson explains that macroexperientiality emerges from microexperientiality in a reducible way (see p. 30 of this thesis for details). By the term 'Russellian' Chalmers means what I mentioned as the idea of Russell and Eddington. Chalmers says that Russellian panpsychism states that "physics tell us what the mass role is, but it does not tell us what property plays this role ... quiddities are the fundamental properties that play the fundamental roles specified in

physics” (p. 8). Quiddity indicates the intrinsic nature of the physical, which cannot be recorded in terms of laws of physics. In sum, according to Chalmers, constitutive Russellian panpsychism is the view that “microphenomenal properties serve as quiddities and also serve as the grounds for macrophenomenal properties” (p. 9), which exactly corresponds to the implication of panpsychist double aspect theory. Hence, I will call Chalmers’s constitutive Russellian panpsychism simply panpsychism.

According to Chalmers, panpsychism explains the conceivability argument against physicalism away. In brief, the conceivability argument is as follows: (1) philosophical zombies³⁴ are conceivable. (2) If they are conceivable, then they are metaphysically possible. (3) If they are metaphysically possible, then physicalism fails. In sum, from (1), (2) and (3), it follows that physical base, i.e., a brain, does not necessitate consciousness, hence the metaphysical gap between the mental and the physical holds, therefore physicalism fails. Whereas, according to Chalmers, in the case of panpsychism, such zombies are inconceivable because we have no idea how to fix the quiddities, although we know how to fix the physical structure. In other words, since we have no conception of which allows us to duplicate the intrinsic nature of the physical, philosophical zombies are inconceivable³⁵.

Chalmers says that panpsychism explains the causal argument against dualism away as well. Chalmers explain this argument as follows:

(1) Phenomenal properties are causally relevant to physical events.

³⁴ Physical duplicates of us without consciousness (Chalmers, *ibid*, p. 11).

³⁵ Or it can be put as follows. Given panpsychism, since the mental and the physical are in an ontological entailment relation, the zombies that are physical-structurally identical but lack quiddities are a priori ruled out. “A claim is conceivable when it is not ruled out a priori” (Chalmers, *ibid*, p. 4): therefore the zombies are inconceivable.

- (2) Every physical event has a full causal explanation in physical terms.
- (3) If every physical event has a full causal explanation in physical terms, every property causally relevant to the physical is itself grounded in physical properties.
-
- (4) Phenomenal properties are grounded in physical properties (p. 5).

In brief, this argument implies that dualists cannot account for the irreducible mental properties without violating the principle of causal closure of the physical. Yet, Chalmers points out that, given panpsychism, microphenomenal properties ‘play’ the most fundamental causal role in physics in the sense that they are the subjects of physical relations, such as mass, charge, and so forth. This causal role does not violate the principle in question because “this sort of causation underlies the laws of physics” (Chalmers, *ibid*, p. 11). This micro-level causal relation amounts to that of macro-level for the microphenomenal properties are constitutively connected to macrophenomenal properties. Analogously speaking, “a billiard ball can inherit causal relevance from that of the particles that make it up” (*ibid*, p. 12). Consequently, given panpsychism, although (1) and (2) holds, (3) does not follow because panpsychism grasps the causal relevancy between the mental and the physical without violating the principle of causal closure of the physical³⁶.

Chalmers is suggesting that panpsychism covers the problems of both physicalism and dualism. And Chalmers’s points are not different from the implications of

³⁶ Chalmers’s explanation coheres with my point of view about the causal relation between the physical and the mental. I explained that mental properties do not causally interact with but ontologically necessitate physical properties, which implies that microphenomenal properties are causally responsible for microphysical properties for the former are the innate nature of the latter. In fact, Chalmers is giving more sophisticated version of my explanation.

panpsychist double aspect theory: I explained that panpsychism holds the irreducibility of mentality and the panpsychist causal relation between the mental and the physical neither violates the principle of causal closure of the physical nor raises epiphenomenalism. The bottom line is, panpsychism is theoretically plausible because it covers the weaknesses of not only physicalist but also dualist theories.

The theoretical vulnerability of panpsychism. In section 1, I explained Nagel's proposal of the problems of panpsychism. Largely, there are two major problems. First, panpsychism cannot account for mind in terms that humans can relate to. This problem arises because mind in the panpsychist sense refers to not only that of human beings but also atoms. Yet Nagel and Strawson both agree that such incomprehensibility is not a serious threat to panpsychism. In short, considering that we cannot comprehend the experientiality of many organisms, e.g., a bat's auditory experience during echolocation, it is acceptable that we cannot comprehend the intrinsic nature of mere physical aggregations, e.g., trees, rocks, or even atoms.

The second problem is that of combination. Basically the combination problem asks: how does macroexperientiality, such as the conscious experience of a person, emerge from microexperientiality or sub-personal experientiality? According to Strawson, the emergence in question is similar to that of liquidity. Strawson's idea seems to reflect the following analogy. Suppose there are some LEGO blocks with patterns drawn on them. We can put those blocks together and build many different shapes. Yet independent to the shape of assembled blocks, the patterns would be randomly distributed. Nonetheless, we might, coincidentally, have a bundle of blocks that has a meaningful overall pattern (e.g., an overall pattern that resembles a dog), or we can even

intentionally assemble the blocks in accordance with a meaningful overall pattern. Given that a sub-atomic particle is the block and its intrinsic nature, namely mind, is the pattern, the bundle of blocks that has a meaningful pattern would be an organism and the one that has randomly distributed patterns would be a mere aggregation like a rock. This analogy finds a way to explain the emergence of macroexperientiality in a reducible way. Also this explains why an organism can be a subject of experience while a mere aggregation like a rock cannot be the one.

However the given analogy does not seem to give a clear solution to the combination problem. This kind of explanation resembles Russell and Eddington's point: physics records worldly phenomena only relationally. Yet if a mental phenomenon is relationally comprehensible, then why cannot physics record it? Moreover the conscious experience always involves the subject of experience, which is typically characterized by the unity. Yet, in the case of liquidity, there is nothing resembling the unity in the case of conscious experience. This difference might amount to the disanalogy between the emergence of liquidity and that of macroexperientiality, because the emergence of liquidity doesn't seem to illuminate the emergence of a subject of experience. In the following chapter, I will scrutinize the combination problem in greater detail.

Chapter 3

THE COMBINATION PROBLEM

Along with a brief introduction to the history of the combination problem, I will discuss why it is necessary for the proponents of panpsychist double aspect theory to solve the combination problem, thereby pointing out that panpsychist double aspect theory is tenable only if we have the solution.

The Origin of the Combination Problem

As previously discussed, panpsychists think that higher level mentality is the result of the composition of lower level mentality. Strawson claims that this compositionality of mentality is intelligible because it is analogous to the compositionality of physical objects. However the problem with this analogy is that, whereas we have full-fledged scientific theories that explain how atomic particles compose macro-objects, we lack a conception of how composition of mentality could be true (Skrbina, 2011, p. 120).

This problem, namely that of combination, was first considered by Leibniz and Kant (ibid, pp. 121-123). Leibniz wrote, “Each monad, together with its own body, constitutes a living substance. every monad is a vital center, but not all composite bodies have a dominant monad: only bodies endowed with life have” (1714, p. 637, 642). The idea of the ‘dominant monad’ implies a single, higher order ‘soul’ or mind of a thing (Skrbina, ibid, p.122). Considering the given passage, Leibniz seems to distinguish mere aggregation of individual monads from the combination of them, which yields the dominant monad, or higher level mind. Although Leibniz thought that the combination in question is possible, he did not discuss how it is possible (Skrbina, ibid). Unlike Leibniz, Kant wrote, “even if a power of obscure conceptions [i.e. intelligence] is conceded to . . . matter, it does not follow thence that matter itself possesses power of conception, because many substances of that kind, united into a whole, can yet never form a thinking unit” (1766, p. 54). Nonetheless Kant also did not elaborate why mental combination is impossible (Skrbina, ibid, p. 123).

James first presented arguments against mental combination. According to James, a group of lower level minds cannot yield a single, unified mind for it is logically unintelligible (James, 1890, pp. 160-61). One of the analogies James wrote against the combination in question is as follows:

Take a sentence of a dozen words, and take twelve men and tell to each one word. Then stand the men in a row or jam them in a bunch, and let each think of his word as intently as he will; nowhere will there be a consciousness of the whole sentence (p. 160).

James's idea implies that, even if there is something like a sub-personal mental particle, it seems unintelligible that a group of such particles yields a single, unified subject of experience.

Contemporary philosophers hold an intuition similar to that of James. For example, Barnett writes as follows:

[F]or any pair of conscious beings, it is impossible for the pair itself to be conscious. Consider, for instance, the pair comprising you and me. You might pinch your arm and feel a pain. I might simultaneously pinch my arm and feel a qualitatively identical pain. But the pair we form would not feel a thing. Pairs of people themselves are incapable of experience. Call this The Datum (2010, p. 161).

Based on The Datum, Barnett argues against the idea that a human mind is composed of separable parts. Although The Datum does not target panpsychism, its implication seems incompatible with the combination of mind.

Implications of the Combination Problem

Arguments against mental combination. Blamauer explains that panpsychism follows from the conjunction of Chalmers's naturalistic dualism and the ubiquity notion of mentality (2011, p. 101). In brief, naturalistic dualism states that the mental and the physical are the fundamental and mutually irreducible features of the ultimate substance, namely matter. The ubiquity notion follows from two assumptions. First, any kind of radical emergence is impossible: out of nothing comes nothing. Second, "if we take physical properties to be ubiquitous, we must assume this of mental properties as well" (Blamauer, *ibid*).

According to contemporary physics, the world is constituted of subatomic particles³⁷. Analogously speaking, panpsychists endorse the idea that mental phenomena are the result of combination of mental "particles," which are conceived as having existed from the very beginning of the universe along with physical particles. This idea helps panpsychists to avoid problems that the notion of (radical) emergence involves, especially problems concerning the causal relation between the mental and the physical. Meanwhile, due to this panpsychist commitment, a new group of problems arise, namely various versions of the combination problem. Broadly, this problem concerns the following outline: if all mental phenomena are the result of the combination in question then, first, "how do selves 'combine' at all?" and, second, "how can my higher order self consist of, ultimately, a combination of billions of incredibly simple atomic selves?" (Skrbina, *ibid*, p. 122).

One of the underlying ideas of mental combination in question is that we can record physical phenomena only relationally, whereas we can grasp the innate nature of

³⁷ I will ignore any stories of quantum mechanics for the sake of this discussion.

our conscious experience by introspection. Panpsychists, e.g., Strawson, claim that this epistemic gap between the mental and the physical amounts to a metaphysical gap. To put this otherwise, crudely, from the radical difference in the ways of capturing physical phenomena and mental phenomena, the metaphysical gap between the physical and the mental follows: e.g., the mental and the physical are causally distinct. Goff questions this idea: why should we take this epistemic gap to have metaphysical significance? (2006, p. 56). Goff mentions the claim of the orthodox a posteriori materialist as an opposing view to this panpsychist idea. According to orthodox a posteriori materialism, although there is a conceptual distinction between the mental and the physical, mental properties turn out, as a matter of empirical fact, to be identical with physical properties. Goff points out that the given panpsychist idea is as orthodox as that of a posteriori materialism.

As The Datum states, it seems unintelligible that a single, unified subject of experience is constituted of billions of micro subjects of experience. Goff claims that mental combination in question implies the following scenario. “Consider a physical ultimate that feels slightly pained, call it LITTLE PAIN 1. Consider ten such slightly pained ultimates, LITTLE PAIN 1, LITTLE PAIN 2, etc., coming together to constitute a severely pained macroscopic thing, call it BIG PAIN” (Goff, *ibid*, p. 57).

Goff argues that what it feels like to be LITTLE PAIN 1 cannot be part of what it feels like to be BIG PAIN because the phenomenal characters of each PAIN are different: LITTLE PAIN 1 feels slightly pained, BIG PAIN does not. This line of thought suggests that mental combination in question forms some novel conscious state. According to panpsychism, any emergence of higher level mentality must be reducible to its basal conditions, namely the subatomic mental particles. However Goff’s scenario undermines

this notion of panpsychism because the emergence of BIG PAIN involves a novel feature that cannot be reduced to, or explained by, SMALL PAIN.

McGinn claims that, although there are so many possibilities of combination of physical primitives, “there is no analogous notion of combination for qualia” (2006, p. 96). According to McGinn, one cannot hope to derive all of human phenomenology from the arrangement of primitive, ‘grey’ qualia. Or, McGinn continues, “you can’t derive one sort of experience from another: you can’t get pains from experiences of color” (p. 96). Given mental combination, McGinn concludes that panpsychists have two options: rich phenomenology radically emerges from the combination of primitive qualia or mental particles are phenomenally rich per se. Since the former is incompatible with the panpsychist notion of anti-emergence, McGinn concludes that panpsychists should endorse the latter. However McGinn points out that this richness of mental particles undermine the need for a brain. Given the richness in question, even an atom can introspect whatever complexity a brain can have. Panpsychists should accept that even atoms are able to have the rich phenomenal states of human brains. McGinn criticizes that panpsychists cannot explain why we have fragile brains at all when it comes to possessing mental states.

Papineau criticizes mental combination as follows (2006, p. 107). If complex conscious states, such as the experience of seeing something green, are composed of simpler experiential components, then the complexity is supposed to be an essential property of our typical conscious states. “Yet phenomenal thinking about the experience of green does not reveal it to be some kind of structured complex” (p. 107). In other

words, “the unmediated epistemological access” to our conscious experience undermines the very idea of mental combination (p. 107).

The common way of distinguishing a thing that is a subject of experience from one that is not is to see whether it has sense organs, a nervous system, or behaves “intelligently in response to environmental contingencies” (Lycan, 2006, p. 70). Lycan points out that we do not take things like stones and tables as subjects of experience because they lack the listed features. However, according to Lycan, panpsychists cannot appeal to the given way of distinction for they insist that even mental “particles” are subjects of experience, which obviously do not have the features in question. Consequently, the only way that panpsychists can grasp the locus of experience is to appeal to the mysterious “laws” of combination. In other words, the notion of mental combination amounts to the idea that things like dogs and snails are subjects of experience because they are composed of mental particles in accordance with the “laws” of combination. And things like stones and tables are not subjects of experience because they are mere aggregations of mental particle. According to this panpsychist idea, any mind-relative feature, such as neural structures and intellectual behaviors, cannot be the mean to grasp the locus of experience. These features are, given mental combination, merely contingent by-products of the combination in accordance with the “laws.” However such a panpsychist implication seems implausible for it leaves all the important explanations to the mysterious “laws” of combination.

Higher level mentality as an extrinsic property. In sum, most of the arguments that stem from the combination problem are rooted in the following intuitions. First, two or more subjects of experience cannot be combined into a single subject of experience.

Second, no phenomenal experience is composed of other type of phenomenal experience. I label these statements intuitions, for none of the theorists that I have mentioned gives any argumentation for the given statements: they just take these statements for granted. Nonetheless there seems a way to ground these intuitions. Next, I will show that endorsing mental combination, or denying the given intuitions, leads to a claim that higher level mentality is an extrinsic property.

Two things must be noted. First, according to panpsychism, the mental is an intrinsic property for it is an intrinsic nature of the physical. Second, given mental combination, a higher level subject of experience, such as a human being, stems from the combination of primitive mental particles.

The following is Lewis's distinction between extrinsic and intrinsic properties. "We distinguish intrinsic properties, which things have in virtue of the way they themselves are, from extrinsic properties, which they have in virtue of their relations or lack of relations to other things" (Lewis, 1986, p. 61). For instance, being a house is an extrinsic property because a house is by definition a building or a place that is lived in by a family, group of people, or person. Given Lewis's distinction, each mental particle indeed has intrinsicity yet a higher level subject of experience does not, because the higher level subject stems from the relation of, or the combination of, each primitive subject of experience.

Sider characterizes an extrinsic property by maximality: "a property, F, is maximal iff, roughly, large parts of an F are not themselves Fs" (2001, p. 357). For instance being a house is a maximal property because a part of a house, such as a window or a room, is not a house. Being a higher level subject of experience is a maximal

property because any part of, say, my conscious experience cannot be itself a conscious being: a human being is a conscious being as a whole. Therefore being a higher level subject of experience is a maximal property, thereby an extrinsic property. Needless to say, this strategy works for the case of phenomenology as well.

It is hard to accept that the higher level subject of experience or the reach of phenomenal experience is extrinsically characterized. This idea is especially incompatible with panpsychism for the mental must be an intrinsic property according to panpsychism. Nonetheless, given Lewis's and Sider's ways of distinguishing extrinsic and intrinsic properties, it seems to follow from the panpsychist notion of mental combination that higher level mentality (whether it is a subject of experience or phenomenality) is an extrinsic property whereas lower level mentality is an intrinsic property. If so, the notion of intrinsicity of mind and the notion of mental combination are incompatible. This incompatibility grounds the intuition against mental combination as follows: higher level mentality cannot consist of lower level mentality because, if it is the case then the intrinsicity of lower level mentality fails to amount to that of higher level mentality.

Chalmers's Approach to the Combination Problem

Chalmers distinguishes the combination problem into three sub-problems: the subject problem, the quality problem, and the structure problem (2013b, p. 4). The subject problem asks, "how do microsubjects combine to yield macrosubjects?" (p. 4). I have explained that this problem holds due to the intuition that many subjects of experience do not combine into a single unified self. The quality problem states that "how do microqualities combine to yield macroqualities?" (pp. 4-5). A typical instance

of this problem is the one that McGinn suggests: how can the grey, or limited, phenomenality of lower level mind combine to yield the rich phenomenality of, say, human experience? The structure problem implies that “how microexperiential structure (and microphysical structure) combine to yield macroexperiential structure?” (p. 5). This last problem requires deeper discussions.

Chalmers takes the following argument as the most promising form of the structure problem of combination.

- (1) If Russellian³⁸ panpsychism is true, microphenomenal structure is isomorphic³⁹ to microphysical structure.
 - (2) If constitutive panpsychism is true, microphenomenal (and microphysical) structure constitutes macrophenomenal structure.
 - (3) Microphysical structure constitutes only macrophysical structure.
 - (4) If microphenomenal structure is isomorphic to microphysical structure, then any structure constituted by microphenomenal structure (and microphysical structure) is isomorphic to a structure constituted by microphysical structure.
 - (5) Macrophenomenal structure is distinct from macrophysical structure.
-
- (6) Constitutive Russellian panpsychism⁴⁰ is false (Chalmers, *ibid*, p. 13).

This argument presupposes that the ontological entailment relation between the mental and the physical amounts to the structural similarity between the mental and the physical.

³⁸ Mind is the innate nature of the physical.

³⁹ If two properties are isomorphic, they share same structure. For instance, “if mass has a scalar structure, the associated quiddity (what plays the mass role) has a scalar structure” (Chalmers, *ibid*, p. 14).

⁴⁰ Or panpsychist double aspect theory.

Hence, given this supposition, if lower level mentality constitutes higher level mentality in accordance with the way that physical constituents are structured, there must be structural similarity between macrophenomenal experience and its corresponding macrophysical base. However, for instance, it seems that phenomenal experience of seeing red bears no structural similarity with some part of my brain. Therefore panpsychism is false.

Chalmers claims that each version of combination problems deserves different solutions for he thinks “it is far from clear that any single proposal can solve all the problem at once” (p. 6). I agree. In the following chapter, I will not try to give a single definite solution to the combination problem. Rather I will show whether the implications of the combination problem that I have explained in this chapter do lead to the unintelligibility of mental combination.

Chapter 4

EVADING THE COMBINATION PROBLEM

Some panpsychists claim that the combination problem is insolvable, therefore one should seek versions of panpsychism that do not raise the problem. Michael Blamauer and Philip Goff pursue this strategy. According to Blamauer, a panpsychist should find a version that is compatible with substance dualism or idealism in order to evade the combination problem. Although panpsychist substance dualism or panpsychist idealism does not raise the combination problem, nonetheless the theoretical plausibility of these versions fails to outweigh that of panpsychist double aspect theory. Goff endorses the emergentist version of panpsychism: in brief, higher level mentality is an emergent whole in the sense that it is non-deducible from its basal conditions, namely

lower level mentality. However this view eventually fails to cohere the given notion of emergence with other crucial panpsychist notions, such as the ubiquity of mind.

Panpsychist Substance Dualism and Idealism

Blamauer says that the combination problem arises from the dualistic intuition of a specific version of panpsychism, namely panpsychist double aspect theory⁴¹ (2011, p. 108). Blamauer points out that this version attempts to locate mind, more precisely the phenomenality of experience, in the physical realm thereby leaving both the mental and the physical intact. Due to this effort, Blamauer continues, this version of panpsychism necessarily involves an explanatory burden: how primitive mental properties combine to form a single unified higher level mentality such as the human consciousness. According to Blamauer, this burden, namely the combination problem, stems from the putative obviousness of the fundamentality of the physical realm. However Blamauer thinks that this is an unnecessary burden for a panpsychist for there are alternative ways to evade the combination problem. In short, Blamauer criticizes the fundamentality of the physical in order to evade the combination problem.

Panpsychist substance dualism. Blamauer's first alternative version of panpsychism is panpsychist substance dualism. Blamauer questions panpsychist double aspect theorists' attempt to locating mind within the physical realm. Blamauer claims that there is no reason to presume that the fundamentality of the mental and physical indicates that mental and physical properties are in an ontological entailment relation. According to Blamauer, panpsychism is compatible with substance dualism because the panpsychist notion of fundamentality of mentality coheres with the idea that the mental

⁴¹ Blamauer calls this version as panpsychist naturalistic dualism.

and physical realms are ontologically separate. Blamauer claims that panpsychist substance dualism is free from the combination problem for this view takes mind as an indivisible unity (p. 109). In other words, given substance dualism, since mind is something like soul that is radically independent from the physical world and non-extended (in Descartes' term), mind is not understood as something generated or composed, therefore panpsychist substance dualism is free from the combination problem (p. 120).

Unfortunately, Blamauer does not clarify what he means by panpsychist substance dualism. More specifically, Blamauer does not explain the panpsychist notion of ubiquity of mentality in terms of substance dualism. Although it seems hard to make sensible, for the sake of argument, suppose that panpsychist substance dualism is the view that every thing has mind/soul that is granted by a supreme being. In order to argue for panpsychist substance dualism, one must explain the relationship between mind and body that are ontologically separate. Blamauer commits that panpsychist substance dualism raises the interaction problem and the paring problem (p. 109). In brief, given that the mental and the physical are separate, these problems asks how the mind and body interact despite of being not causally related and why mental phenomena accompany physical bases although there is no metaphysical relationship between the mental and the physical. Therefore a panpsychist substance dualist must explain why the given problems are less burdensome than the combination problem in order to claim that panpsychist substance dualism is more plausible than panpsychist double aspect theory. Unless Blamauer gives good reasons for this, I would rather face the combination problem than endorsing panpsychist substance dualism.

Idealism. Blamauer's second alternative version of panpsychism is idealism. According to Blamauer, classical idealism states that the physical realm is not fundamental in the sense that it is taken as "derivative of fundamental mental processes or objects" (p. 110). Blamauer also points out that idealism easily satisfies the panpsychist notion of fundamentality and ubiquity of mentality, because, given idealism, the mental is all that exists: therefore there is nothing to explain about the relationship between the mental and the physical.

Panpsychist double aspect theorists, or, to simply put it, panpsychists, attempt to ground the notion of ubiquity by arguing that the mental and the physical are primitive features of the fundamental substance, namely matter. Since panpsychists are basically substance monists, they must show how the mental and the physical are metaphysically attached to an identical substance. Hence panpsychists assumes that the mental is the intrinsic nature of the physical. This is the point where the combination problem arises: it arises when one attempt to capture subjective reality in terms of objective reality in accordance with the notion of ubiquity of mentality. To put this otherwise, mental combination is required if and only if the experiential is comprehended by relational means, namely the physical framework.⁴²

⁴² It is important to note that this particular panpsychist commitment is seemingly incompatible with another panpsychist commitment, namely that mental phenomena are not recordable in terms of laws of physics. As I wrote at the end of Chapter 2, the notion of mental combination entails that mentality is basically ontologically relationally constituted. However, according to the idea of Russell and Eddington, mental phenomena are not recordable in terms of physics for they are essentially subjective, or non-relational. This epistemic heterogeneity between mental phenomena and physical phenomena implies that the mental is, at least epistemically, not relationally comprehensible. Consequently, one might ask this epistemic non-relationality undermines the notion of mental combination for this notion presupposes that the mental

Blamauer says that the combination problem vanishes in the case of idealism because, given idealism, there is no reason to capture experientiality relationally. Suppose an idealist claims that only subjective reality is real therefore any objective phenomenon is reducible to my subjective experience. There is no combination problem in this idealistic framework because, according to this idealist, the world is identical to the subjective experience, which is essentially a unified being. For instance, in the case of Leibnizian framework, every monad is an indivisible unit by itself, hence there is no combination problem (P. 113).

Nonetheless, again, Blamauer does not give any explanation why the theoretical plausibility of idealism outweighs that of panpsychist double aspect theory. Blamauer's idealism seems to entail radical metaphysical solipsism, which is the view that the self is the only existing reality. Indeed, this sort of radical idealism does not raise the combination problem but it also makes its panpsychist implications theoretically uninteresting. Nonetheless, in here, I will not mention traditional criticisms that support today's widespread view: idealism is a dead position⁴³. I think one single reason is enough to reject Blamauer's proposal. As I mentioned earlier, the starting point of panpsychism is the intuitive reality of mental phenomena. In virtue of this intuition, a panpsychist, and any non-reductive theorist, criticizes all the attempts to reduce or eliminate any features of mentality. Then, if one becomes an idealist in order to avoid the

is ontologically relationally constituted. Nevertheless, I will explain why it is not the case in the second section of Chapter 5.

⁴³ Blamauer claims that idealism is not a dead position (p. 111). Yet he does not explain why.

combination problem and radically reduces or eliminates the physical world, why not the one just become a radical reductive, or eliminative, physicalist?

Panpsychist Emergentism

Goff labels panpsychist double aspect theory as the reductive form of panpsychism because this version attempts to reduce all macro level entities, whether it is physical or mental, to micro level facts (2011, p. 132). To put this otherwise, according to Goff, the reductive form states that truths about the existence and nature of, say, Bill's brain or Bill's pain are made true by entities at a more fundamental level. For instance, given reductive panpsychism, a brain is composed of atomic particles in the sense that the property of being a brain is deducible from the properties of fundamental physics (e.g., mass and charge) that concern the composition of atomic particles. Also reductive panpsychism explains that the phenomenality of pain is composed of mental particles in the sense that the pain-experience is deducible from the laws that govern mental combination⁴⁴.

Goff argues against reductive panpsychism for two reasons: first, this view raises the combination problem, and second, this view fails to account for the metaphysical seriousness of macro level properties. I will show how Goff explains that the argument for the second reason undermines the notion of mental combination (ibid, p. 133-4).

According to Goff, physicalism is a view that a physical property is reducible to more fundamental physical properties in the sense that the property is deducible from laws of physics that govern the composition of more fundamental properties. For

⁴⁴ Goff uses his own terms such as 'metaphysically lightweight' and 'metaphysically heavyweight' to explain the deducibility of macro level properties from micro level properties. Nonetheless, instead of introducing new terminologies, I will use terms that are commonly used without misinterpreting Goff's intention.

instance, the property of being a horse is reducible to physically foundational properties in the sense that the property in question is deducible by analyzing atomic particles that compose the horse in terms of physics. Goff finds the fundamentality of foundational physics from the fact that, say, any truth about the property of being an electron holds in virtue of being negatively charged. In other words, according to Goff, foundational physics is fundamental if any truth about it is non-deducible from other truth. Goff further argues that the genuine resemblance between foundational physical properties also bears the fundamentality. For instance, according to Goff, two electrons are fundamental because they genuinely resemble each other in the sense that any truth about both of them holds in virtue of being negatively charged.

Goff points out that reductive panpsychists follow the physicalist framework. According to Goff, when reductive panpsychists say that there are fundamental mental particles, they are basically claiming that the mental particles bear genuine resemblance in the sense that any truth about being the particle holds in virtue of being the particle. Hence, Goff argues that any phenomenal quality is in the genuinely resemblance relation if any truth about the quality holds in virtue of being in the qualitative state. For instance, mental states of two conscious subjects, Bill and Ben, genuinely resemble each other if they share certain phenomenal quality such as what it's like to see red: because the truth about the phenomenal quality of seeing red holds in virtue of the phenomenal quality of seeing red. Consequently, Goff continues, the notion of mental combination is undermined because it is incoherent to say that the fundamental phenomenal quality of, say, seeing red is composed of more fundamental phenomena quality of, so called, mental particles.

In sum, Goff's argument against mental combination is grounded on the idea that any phenomenal experience is non-deducible from other phenomenal experience. From this conclusion, Goff argues that even subjects of experience like Bill and Benn should be taken as metaphysically seriously. In other words, since, say, Bill bears non-reducible phenomenal experiences, Bill, as a subject of experience, should be taken as non-reducible in the sense that the subject of experience is non-deducible from the combination of smaller subjects of experience.

Goff argues for panpsychist emergentism as an alternative position, which is a view that takes phenomenal experience or a subject of experience as an emergent whole in the sense that it is not reducible to its parts (p. 132). According to Goff, the term emergence indicates that something arises from its base in the sense that any truth about it is not dependent on the base, which basically implies non-deducibility. Goff claims that not only a subject of experience but also a brain as a physical entity are emergent whole in the sense of holding non-deducibility⁴⁵. Consequently, Goff's emergentism indicates that the mental and any physical entity that involves mental phenomena are emergent whole in the sense that the mental and the physical entity are not reducible to their basal conditions.

Unfortunately Goff does not explain the notion of ubiquity of mentality in terms of panpsychist emergentism. To make matters worse, given Goff's emergentism, it seems unnecessary to argue for the ubiquity of mentality. The ubiquity notion is required for a panpsychist because panpsychism opposes to the notion of emergence. In brief, a

⁴⁵ Goff even identifies a subject of experience with a brain (ibid). However, given this particular claim, I cannot make Goff's emergentist panpsychism sensible because this claim entails identity theory. Hence, for the sake of discussion, I will ignore this claim.

panpsychist appeals to the ubiquity notion in order to avoid the problems arise due to granting radical emergence of mind, such as mental causation or epiphenomenalism. Yet once a theorist accepts the notion of radical emergence, he or she no longer needs to assume that every thing has mind: the ubiquity notion is totally unnecessary because the theorist can attempt to explain any mental phenomenon in terms of emergence. Maybe Goff intends to claim that macro level mentality non-reducibly emerges from micro level mentality. If so, Goff's idea becomes even less plausible. This sort of emergent panpsychism implies that higher level mentality, such as human consciousness, emerges from bundle of mental particles that are accompanied by certain physical conditions, such as a brain. However, why should we postulate a meaningless bundle of mental particles as the basis of consciousness if there is no epistemic or causal relation between the bundle and consciousness? Moreover, why not we simply abandon the idea of mental particle and take the physical, e.g., the brain, as the basis of consciousness?

Since Goff does not give a clear explanation for how his idea of emergence coheres with the panpsychist notion of ubiquity, I conclude that Goff fails to take emergentist panpsychism as a species of panpsychism. Still, Goff's argument against mental combination seems make sense. Nevertheless, I will find a way to counter Goff's argument in the following chapter.

Chapter 5

MENTAL COMBINATION AS AN INTELLIGIBLE NOTION

D. Skrbina and G. Strawson find the intelligibility of mental combination by giving analogies between panpsychist combination and familiar combination of physical entities. Given that the most salient obstacle of the combination problem is the intuition

that mind is not constituted of many “smaller” minds, Strawson attempts to undermine this very intuition. In brief, Strawson points out that there is no reason to take the epistemic features of our experientiality, e.g., simplicity, unity and indivisibility, to reflect the ontological and structural simplicity of experientiality, therefore the combination problem fails to undermine the very idea that higher level mentality is ontologically constituted of many ultimate mental particles.

Skrbina and Strawson’s Approach to the Combination Problem

There are philosophers who firmly believe the intelligibility of mental combination. Skrbina explains that one of the theoretical strengths of panpsychism is that it does not entail radical emergence of mind (2011, pp. 118). Skrbina points out the following explanatory burdens of the notion of radical emergence: when and why mind first appeared on earth, how to rule out, or grant, the possibility of non-human mind, and how to draw a line between a mind-being and a mere organism, such as a fertilized, one-celled human egg (p. 119). Due to the notions of ubiquity of mind and mental combination, a panpsychist can diminish the burdens in question.

Although it is necessary for a panpsychist to explain the intelligibility of mental combination, Skrbina rather sees the required explanation as a call for details. According to Skrbina, the combination problem asks two questions: how the complexity of higher level mentality arises from the combination of simple mental particles? And how the combination of mentally lower level individual selves yields a single unified self, such as human consciousness? Skrbina finds the key to the answers with the analogy of physical phenomena. In brief, Skrbina’s strategy reflects an idea that, since the complexity and unity in question are typical phenomena of physical realm, such phenomena in mental

realm are intelligible as well. Therefore, I will label this strategy ‘the analogy of the right size’⁴⁶.

Given that all the objects of the physical world are composed of atomic particles, the laws of physics that underlie the physical combination determine the size and complexity of an object. Skrbina notes that the size refers to the number of particles and the complexity refers to the hierarchy of atomic structure. For instance, an 80 kg person and an 80 kg rock has the equal size in the sense of having equal space width, but they differ in complexity in the sense that a person exhibits a wider range, or greater depth, of possible states and behaviors (pp. 124-5). The width and depth of physical objects are exhaustively determined by the core properties of matter, e.g., mass, charge, spin, and so forth, along with the laws of physics. Skrbina claims that, if experience is one of the core properties of matter, we can reasonably assume that there is a dimension of mind that is entailed by the physical structure. Consider the LEGO block analogy that I previously illustrated. The distribution of patterns that are drawn on individual blocks follows from the way that blocks are assembled. Given that a block represents fundamental matter and the pattern represents experientiality, “every physical change occurs simultaneously with experiential change” (p. 126). In other words, the complexity of higher level mentality, or the simplicity of a mere aggregation such as a rock, is entailed by the physical atomic structure.

Analogously speaking, the complexity of human mind emerges from the combination of simple mental particles, just like the complexity of human body emerges from the assembling of simple physical particles. Of course, since it is unknown that

⁴⁶ This is an expression that I borrow from Strawson (2006).

how a “meaningful” overall pattern of a bundle of blocks, e.g., conscious experience of a human being, is drawn, we cannot identify the laws of mental combination that yields the complexity of human mind. Also, given this cognitive lacking, we cannot identify the entailment relation between the complexity of a physical constitution, say the human brain, and the complexity of a mental combination, say the human mind. Nonetheless Skrbina’s point is that the emergence of higher level mentality from the combination of mental particles is intelligible, given the possibility that the complexity of physical structure entails its corresponding mental complexity.

Then what about the emergence of unity? Does the analogy of right size explain the intelligibility of the idea that human consciousness is constituted of small selves? Skrbina claims that the unity of physical objects analogously explains that of mentality. It is the link between physical particles that generates one complex physical object out from billions of physical elementals (p. 126). From this link in question, it follows that, according to Skrbina, one can reasonably expect to find such a link between mental particles that generates the unity of higher level mentality. Skrbina notes that the only difference between the links in question is that it is hidden in the case of the mental whereas it is not in the case of the physical. Nevertheless Skrbina does not find it problematic because mind is necessarily hidden from a view due to its subjectivity. Skrbina even uses an abductive reasoning: given that one cannot deny the very existence of our own singular mind, such existence positively implies the link between millions of micro subjectivity.

Strawson not only endorses the analogy of right size (see page 30) but also argues against the intuition that the higher level mind cannot be composed of lower-level minds.

In brief, Strawson's argument reflects the idea that the epistemic acquaintance of the essential nature of experience does not entail that the whole experiential nature of the event that occurs when the subject of experience has that experience is known to the subject (2006, pp. 250-6). For instance, even if I acquaint the essential nature of experiencing pain when I feel pain, such acquaintance does not entail the knowledge of pain as an event, which includes the following information; whether the experience of pain is or isn't constituted of lesser phenomenal experience, the presence of laws of experiential combination that yields the phenomenal unity of my experience, and so forth. By distinguishing 'the having of experience' and 'the knowing of experience', Strawson undermines the very intuition that many selves cannot be combined into a single unified self (or higher level phenomenality cannot be composed of lower level phenomenality).

Strawson in effect separates the epistemic truth of experience from the ontological nature of experience. It is epistemically true that our experience is transparent, first ordered and unified. However it does not necessarily follow that experience is ontologically simple from the given epistemic features. This argument allows a panpsychist to hold the 'smallism': "the view that all facts are determined by the facts about the smallest things, those existing at the lowest 'level' of ontology" (Coleman, 2006, p. 40). In other words, given Strawson's distinction, a panpsychist can hold the notion of mental combination despite of the fact that the notion seemingly contrasts to epistemic features of mind.

Reviewing the Previous Discussions

In Chapter 3, I concluded that the combination problem is rooted in the intuition that a subject of experience, or phenomenal experience, is not composed of smaller parts.

From this intuition, many philosophers question the intelligibility of mental combination. For instance, McGinn pointed out that phenomenality cannot be composed of many less vivid phenomenality (see page 48), Papineau said that phenomenal experience, or subject of experience, bears no complexity (see pages 48-9), and Goff claimed that any phenomenal experience is non-deducible from other phenomenal experience (see page 59). I also mentioned that epistemic non-relationality might undermines the notion of mental combination (see pages 56-7, footnote 42). These questions that stem from the combination problem indeed are grounded on the epistemic unity, simplicity and transparency of mind. Nonetheless, as Strawson shows, there is no reason to suppose that epistemic features of mind amount to ontological features of mind as well.

I also pointed out that the notion of mental combination makes higher level mentality an extrinsic property (see page 50-1). It is necessary for a panpsychist to grant that lower level mentality is an intrinsic property in the sense in which truths of lower level mentality stems from being lower level mind. Yet there seems no problem for a panpsychist to not to take higher level mentality as an intrinsic property. Rather it is natural for a panpsychist to take higher level mentality as an extrinsic property because, given the notion of mental combination, truths of higher level mind stems from truths of lower level mind. For example, my phenomenal experience of seeing red is explicable in terms of lower level phenomenality that composes my phenomenal experience and the mental “laws” that govern the combination in question. Hence, although the Russellian idea that mind is the intrinsic nature of the physical makes lower level mentality essentially an intrinsic property, such an idea is compatible with the idea that higher level mentality is essentially an extrinsic property. In short, it naturally follows from the

notion of mental combination that higher level mentality (whether it is a subject of experience or phenomenal experience) is an extrinsic property.

Chalmers points out that the combination problem raises structural problem of mental combination (see page 52-3). In short, Chalmers explains that, due to the ontological entailment relation between the mental and the physical, the structural similarity between macrophenomenal experience and its corresponding physical base might hold. Nevertheless, the panpsychist ontological relation does not necessarily amounts to the structural similarity in question. As Chalmers mentions, a panpsychist can claim that, although mind is the intrinsic nature of sub-atomic particles thereby making the composition of physical particles ontologically entails the composition of mental “particles,” it is possible that “the rules of composition that apply to the former differ from the rules of composition that apply to the latter,” therefore the structural similarity does not necessarily hold (Chalmers, 2013b, p. 28). Chalmers even suggests a more promising way to grasp the ontological relation in question.

[Suppose that] macrophenomenal structure is present within macrophysical structure as an information structure: for example, the structure of the visual field corresponds to a structure of visual information represented in the brain ... [I]t seems clear that the structure of the visual field corresponds to information structure in the brain and not spatial or qualitative structure (p. 29).

In short, Chalmers suggests that the structural problem can be solved if a panpsychist takes mind some sort of information. I will investigate more about what Chalmers illustrates in the passage above in the following chapter.

Although discussions in this chapter successfully show that mental combination is metaphysically possible, it is true that the analogy of right size and Strawson's argument do not render definite solution to the combination problem. Lycan also rightfully pointed out that a panpsychist's appealing to the notion of mental combination leaves too many important explanations to the mysterious "laws" of mental combination (see page 49). In the following chapter, I will suggest a possible solution to these problems.

Chapter 6

THE INTEGRATED INFORMATION THEORY AS A MODEL FOR SOLVING THE COMBINATION PROBLEM

In this chapter, I will introduce a neuropsychological theory that finds a way to conceptualize mental combination. I will argue that, since this theory is compatible with panpsychism, the viability of this theory amounts to not only one possible way to solve the combination problem but also the possibility of taking panpsychism as a scientific hypothesis. One thing to clarify is that I am not committed to this neuropsychological theory. I am simply suggesting it as a possible form of panpsychism that is free from the combination problem.

The Integrated Information Theory (IIT)

According to Koch, mind is fundamental and ubiquitous in the following senses. Phenomenal experience is real to any subject of experience regardless of having a capacity of verbal reporting: hence a dog or even a snail can have phenomenal experience (Koch, 2012, p. 115). There is no definite line between an organism and mere physical aggregation: e.g., the prion protein that causes mad cow disease, viruses (p. 117). Analogously, consciousness seems not an emergent phenomenon because it is hard to

draw a line between an organism that is conscious and the one that is not (p. 118). From these analyses, Koch concludes that mind must be something that is neither reducible to a certain trait of organism, such as a brain or a collection of neurons, nor even to primitive physical properties, such as electrons. This conclusion leads to the notion of ubiquity of mind in the sense that Koch takes mind as a primitive property just like the property of being negatively charged, namely an electron.

Koch basically endorses the functionalist notion of multiple realization of mentality. In other words, Koch claims that the basis of mind consists of mathematical formulation, which can be realized by any material condition, e.g., a neuron, silicon, and so forth (p. 122-3). More importantly, Koch identifies the basic ‘unit’ of consciousness with the integration of bits of information. From this identification Koch concludes that, since even simple matter, such as protons and neutrons, consist of a triad of quarks that are never observed in isolation, it constitutes an infinitesimal integrated system, therefore the ubiquity of mind holds (p. 132). In other words, every thing has mind in the sense that the ultimate building block of matter is an integrated system. One thing must be clarified. Often multiple realization implies that mind emerges from any physical base if the base is properly constructed. Yet Koch’s version of multiple realization does not imply the emergence of mind per se. Rather Koch means as follows: if we have the mental “laws” that govern the combination of pre-existing lower level mentality (or the primitive bits of information) in hand, we can realize the higher level mentality by any physical base.

It is important to note that Koch is not asserting reductivism or eliminativism. Koch’s discussion does not imply that mental properties are explicable in terms of

physics or mental phenomena are eliminative in the sense that phenomenal experience is a mere illusion. Koch asserts that mental properties are, in principle, comprehensible in terms of mathematical formulation, just like physical properties are comprehensible in terms of laws of physics. This assertion implies that phenomenal experience is basically integration of information and we can comprehend the integration in terms of mathematics. Now, what really matter is the question that how the so-called integrated information that is governed by mathematical laws can yield typical epistemic features of phenomenal experience, such as unity and simplicity.

The integrated information theory (IIT) boldly identifies consciousness to the integration of bits of information. According to the IIT, information is basically function. For instance, a photodiode is conscious in the sense that it is capable of converting light into either current or voltage. This capacity to discriminate comes with two distinct senses: horizontal and vertical. The formal sense indicates that, say, a digital camera whose sensor chip is a collection of a million binary photodiodes is capable of distinguishing among $2^{1,000,000}$ alternative states corresponding to 1 million bits of information (Tononi, 2008, p. 278). The latter sense indicates that the digital camera has only two layers of internal states: a sensor takes certain a range of electromagnetic spectrum as an input and a detector discriminates it as an output. In other words, a digital camera is conscious because it can differentiate one million spectrums of light, but its conscious state only consists of two levels because each bit of information corresponding to each photodiode is not integrated: the camera never capture a bundle of millions of bits of information as a whole, e.g., a tree.

The levels of this layer are multiplied in accordance with the integrity of, say, each photodiode. In the case of a digital camera, since each photodiode is not integrated, the collection of a million bits of information of the camera does not increase the complexity of its internal state: the IIT labels this complexity the repertoire of an integrated system. Whereas, in the case of human consciousness, the repertoire is incomparably complex for all bits of information are interconnected: for example, we can grasp the difference between a bundle of black dots and a black dog while a digital camera can't.

According to the IIT, the integration determines not only the quantity of consciousness but also the quality of experience: "(i) the quantity of consciousness corresponds to the amount of integrated information generated by a complex of elements; (ii) the quality of experience is specified by the set of informational relationships generated within that complex" (ibid, p. 216). Therefore the amount of integrated information determines how 'smart' a system is, and the relationship between bits of integrated information determines how 'vividly' the system experiences certain information.

For instance, a digital camera with a thousand of pictures in its storage cannot grasp the relevance between the pictures stored. Whereas, when I see a picture of Wittgenstein, the visual experience bears not only the information of his skin color but also information regarding his current feeling, race, health condition and even his relationship with Russell. This complexity indicates that the information follows from my visual experience is combined with other relevant information, which determines the quantity of my consciousness. Also the phenomenality of experience of seeing the face is

incomparably richer than that of a digital camera since I can feel my experience with diverse aspects. For instance, my experience of seeing the picture of Wittgenstein may involve friendliness, sadness, or so forth. Consequently the integration determines the quality of my experience.

The Coherency Between Panpsychism and the IIT

From the previous discussions, I concluded that panpsychism locates mind in the world as a primitive property, just like the physical properties such as an electron, which is attached to the ultimate matter. Yet this conclusion only concerns the partial nature of mind, namely the proper location of mind. In other words, panpsychism leaves other part of nature of mind as an open question. This theoretical looseness of panpsychism amounts to the theoretical compatibility: as long as a theory follows the crucial panpsychist notions, e.g., ubiquity of mentality, anti-emergentism, mental combination, and so forth, the theory is legitimately labeled as panpsychism.

According to the IIT, mind is the integrated bits of information. Since the integration does not governed by laws of physics, the epistemic gap between the mental and the physical holds. This epistemic gap implies the irreducibility of mentality for, given the IIT, mind is inexplicable in terms of physics but only realizable by a physical base. The fundamentality of mentality in this sense amounts to the ubiquity of mentality: even fundamental physical particles, such as a proton or neutron, have a mind for they are integrated system. Consequently the IIT satisfies the panpsychist notions of fundamentality and ubiquity of mentality. To put this conclusion otherwise, the IIT is the non-reductive physicalist version of panpsychists double aspect theory.

One might claim that the IIT is compatible with emergentism as well in the following sense: the IIT might implies that consciousness emerges from not only the primitive integration of bits of information but also highly integrated bits of information, such a human brain.⁴⁷ However, as Koch pointed out, the IIT presupposes that there is no hierarch in-between the mental and the physical in order to evade the explanatory burden that arises from drawing a line between an organism and matter. Moreover, as I mentioned in Chapter 4 (see pages 60-1), the notion of emergence and the notion of ubiquity are mutually exclusive in the practical sense. Suppose the IIT is taken as a species of emergentism. In that case, consciousness becomes something that irreducibly emerges from the integrated bits of information. Yet, in the given case, one must explain not only the causal relation between the mental and the physical but also why the IIT does not entail epiphenomenalism. Panpsychists criticize the notion of emergence and account for the notion of ubiquitous in order to not to raise these problem. Why would a proponent of the IIT introduce the notion of emergence when the IIT holds without the notion even better?

Does the IIT Solves the Combination Problem?

The easy problem. The intelligibility of mental combination holds because the epistemic features of mind do not necessarily undermine the idea that the structure of mind, especially that of higher level mentality, is ontologically complex. This implies that the prescriptive condition of mental combination depends on the coherency between the epistemic features of mind, i.e., simplicity, unity, and transparency, and the ontological structural complexity of mind.

⁴⁷ Chalmers claims that the IIT can be taken as a form of emergent panpsychism (Chalmers, 2013b, p. 16).

The epistemic features of mind, such as simplicity, unity, and transparency, refer to the following typical characteristics of our experience. When I feel pain, I am in a mental state that comes with unique phenomenality, or what it's like to be in that mental state, in the sense that any other phenomenality, such as that of itchiness, cannot replace the phenomenality of pain. In regards to my visual experience of a rabbit, I cannot selectively experience a small portion of my visual experience, such as an ear of the rabbit, for the visual experience is an indivisible whole, or united. When I taste a candy, the phenomenality of sweetness is simple, as it does not require any mediate mean, such as reasoning.

Regardless to the described epistemic features, panpsychist double aspect theorists believe in the ontological structural complexity of mind. Despite of the seeming unity and simplicity of water, we comprehend the molecular structural complexity of water in virtue of chemistry. As analogous to the case of water, given the supposition that mind is structurally complex, all we need is the "laws" that govern mental combination in order to comprehend the complexity in question. Hence the IIT can be the solution to the combination problem if and only if the IIT explains mind in terms that allows the "laws" in question.

According to the IIT, mind is basically integration of bits of information. To put this otherwise, since the integration is the base of all mental phenomena, mental properties must be explicable in terms of bits of information and the "laws" of integration. It seems relatively easy to grasp how the epistemic features of mind, such as unity, simplicity, and transparency arise from the integration in question. Suppose you are playing the computer game 'Super Mario'. Regardless of the structural complexity of

this computer program, which is the binary number system that consists of patterns of 0s and 1s, the program presents the content of this game in a simple and unified way. The story that a player reads from the game is simple: a plumber saves the princess. And the player plays one consistent game from the beginning to the ending. The bottom line is, the player acquaints the essential nature of playing Super Mario without having the knowledge of the game as a program that has an underlying complex structure.

This analogy suggests that the combination problem of phenomenal experience is not a serious threat to the IIT since, given the IIT, it is easy to explain how the ontologically complex mind yields the epistemic unity, simplicity and so on. Furthermore the IIT can solve the structural combination problem that Chalmers mentions. In brief, Chalmers says that the panpsychist notion of intrinsicity of lower level mentality (or so called Russellian panpsychism) amounts to the structural isomorphic relation between the mental and the physical (see page 52-3 for details). The structural problem pinpoints the dissimilarity between the structure of phenomenal experience of higher level mentality, say pain, and the structure of its corresponding physical base, say a part of brain. Nonetheless, according to the IIT, there is no such dissimilarity because it is the physical structure that realizes the corresponding informational structure of higher level mentality.

The hard problem. One might question that the IIT cannot explain how the subject of experience arises from the integration in question. Indeed, there seems no analogous way to grasp a subject of experience of higher level mentality from the case of computer program because a computer does not “experience”. Although it seems easy for a proponent of the IIT to explain the phenomenal experience of higher level mind,

such as human consciousness, in terms of information, we have no conception of how a subject of experience arises from the integration of bits of information.

Moreover, explaining the combination of subjects of experience is more demanding than explaining the combination of phenomenal experience. Chalmers points out that if mental combination is true then it must be the case that lower level subjects of experience are merged diachronically but not synchronically, because if it is the latter case then lower level subjects and a higher level subject exist at the same time (2013b, p. 20). Yet, Chalmers continues, “diachronic relations are naturally understood to be contingent causal relations, not constitutive relations”: although each H₂O molecules merge into water, each molecule still exists. Therefore the IIT cannot explain the combination of lower level subjects of experience merely by ‘bonding’ individual subjects. The IIT must show how each lower level subjects of experience ceases to exist once it is merged into a higher level subject.

In sum, in order to solve the combination problem of subjects of experience, a proponent of the IIT must show, first, how subjects arise from the integration of bits of information and, second, how lower level subjects merge into a fundamentally unified higher level subject of experience. I will start with the second problem.

Chalmers finds a possible merging scenario in question from quantum physics: although such merging does not happen in classical physics, but it can happen in quantum physics (p. 21). Therefore, within micro-level mental phenomena, when the mental “particles” combine, they might merge into a fundamental entangled entity. We have no conception of how such combination works, but still it is intelligible. Yet the analogy of quantum physics makes the notion of mental combination more mysterious thereby

making it impossible to give any further assess to the plausibility of mental combination. Hence I will discard this approach.

Instead of appealing to quantum physics, a proponent of the IIT can claim that a higher level subject of experience is an emergent property. Suppose a subject of experience is explicable in terms of self-awareness. Koch introduces behavioral psychologists' use of a mirror test as follows.

The infant is clandestinely marked with a spot or color patch on the forehead or face. Exposed to a familiar mirror, the baby will play with its mirror image but won't scratch or try to remove the mark from its face, unlike teenagers who can endlessly hog the bathroom, fussing about their appearance (2012, p. 36).

This passage can imply two things. First, self-awareness is a mental trait that appeals with the development of human brain. Second, self-awareness is not a necessary condition for having a mind for it seems absurd to conclude that an organism that fails the mirror test, or any self-awareness test, is not a mind being. Although it is a long shot, a proponent of the IIT can expect that a higher level subject of experience is a property that emerges from highly integrated system.

Although this emergence scenario does not depend on a mysterious explanation, it raises further questions. Does the higher level subject of experience emerges from non-subjective experientiality? Or does the higher level subject of experience is the result of combination of lower level subjects of experience? If it is the former, the emergent scenario entails that there are metal "particles" that lack subjectivity but have experientiality. If it is the latter, the IIT still have to explain how the lower level subjects

of experience combine into a fundamental higher level subject of experience. The latter is more promising because the former brings about an unintuitive consequence.

Can experientiality exist without a subject of experience? Here is a simple thought experiment⁴⁸. An evil neuroscientist is conducting an experiment on Rob to see whether experientiality can exist without a subject of experience. The neuroscientist put Rob under anesthesia but left his visual sensation active. The neuroscientist made Rob to watch a red tomato and started to remove parts of Rob's brain that are not necessary for the visual experience. Since the neuroscientist had an equipment that enables him to monitor Rob's experiential status, he could scooped out Rob's brain until Rob experiences only the phenomenality of seeing the tomato. At the end, Rob did not experience any sensation of his body, memories, the distance between him and the tomato, the space that the tomato occupies, the concept of tomato, and any relevant or irrelevant experience regarding the phenomenality of seeing tomato. Rob is now experiencing only the phenomenality of seeing the tomato. Although there is an agency in regards Rob's experience, namely Rob, there is no self-awareness, introspection or any mental feature that characterizes Rob as a higher level subject of experience. Nonetheless it is undeniable that there is an experiencer that experiences the phenomenal experience of tomato. Therefore the evil neuroscientist concludes that experientiality can exist with a very marginal lower level subject of experience but such subject of experience is not rich enough to bear a higher level subjectivity such as the human consciousness.

⁴⁸ Bernard Kobes suggested the original form of this thought experiment.

The evil neuroscientist case suggests that a higher level subject of experience seems a complex concept that involves diverse mental features, such as self-awareness, introspection, and so on. Nevertheless, although a subject of experience lacks these features, it can bear experience. To put this otherwise, experience necessarily requires a subject of experience but such lower level subjectivity is radically different from the subjectivity of, say, the human consciousness. This thought experiment suggests that no matter how primitive phenomenal experience is, such experience always involves a subject of experience. Therefore a higher level subject of experience cannot emerge from lower level experientiality that bears no-subject of experience. More importantly, this thought experiment also suggests that subjectivity comes with a degree in the sense that the subjectivity of Rob before the experiment is more complex than that of Rob after the experiment.

One might question that the emergence scenario does not explain the diachronic combination of lower level subjects of experience. However the IIT does not need to explain how individual lower level subjects of experience combine into a single fundamental higher level subject of experience. Given the IIT, mentality is identical to the integration of bits of information. The “laws” that govern the integration in question is essentially different from the physical laws that govern aggregation of physical particles. Since bits of information are abstract entities, a proponent of the IIT does not need to explain how mental “laws” bind each lower level subjects of experience. Crudely speaking, it must be even possible to merge two individual higher level subjects of experience into a single subject: first, grasp the informational structures of two individuals, and second, integrate the structures in question, and lastly, realize the

integration by a physical base. In conclusion, given that consciousness is identical to an integration of bits of information, the IIT successfully explains the complex structure of higher level mentality (whether it is a subject of experience or phenomenal experience) in terms of information.

Now the remaining question is that how the integration of bits of information bear a subject of experience. Although it seems intelligible to conclude that the combination of many lower level subjectivity yields a higher level subjectivity, it is still mysterious that how a mere informational system, such as a neuron, bear subjectivity. To solve this problem, one needs to discuss the minimal condition of subjectivity. Yet, since such a discussion requires a profound analysis, I will leave this problem as an open question in this thesis.⁴⁹

Conclusion of Chapter 6. Unlike the case of a computer program, we have no conception of the actual “laws” that mind uses in regards to integrating bits information. Unless we have the “laws” in hand, we have no idea how the mental features that characterize the highly integrated bits of information, such as the human consciousness, arise from the integration of primitive bits of information. Also, although the IIT explains that “integrated information is concerned with causal interactions taking place within the system,” we have no idea how integrated information relates to its surrounding

⁴⁹ According to Strawson, “a minimal subject needn’t be self-conscious—it may be very primitive, experientially speaking ... [i]t may last for only a very short time” (Strawson, 2011, p. 254). Strawson also distinguishes the degree of subjectivity in terms of longevity of the subject of experience (Strawson, 2003). Nonetheless it is unclear whether a pure informative system can bear such a minimal subjectivity.

environment (Koch, *ibid*, p. 134). Therefore it is crucial for proponents of the IIT to find the laws of integration in order to empirically verify this theory.⁵⁰

Nevertheless the alleged problem of the IIT is merely empirical. Currently, we have no reason to assume that the IIT is logically or metaphysically impossible. The IIT is indeed compatible with panpsychism for it endorses the crucial panpsychist notions, such as fundamentality and ubiquity of mentality. Most importantly, the IIT does not raise the combination problem for it shows that mind can, in principle, consist of many “smaller” minds. Hence, the IIT is a possible form of panpsychist double aspect theory that is free from the combination problem. Yet I must commit that it is unclear whether the IIT explains the nature of subjectivity in terms of information.

CONCLUDING REMARKS

Unless a philosopher is bold enough to deny the reality of mind, he or she must account for mind in accordance with the reality of the physical world. To put this otherwise, if a philosopher is not a radical physicalist or idealist, it is necessary to explain

⁵⁰ However it is extremely hard to compute the complexity of integration of even a simple organism, such as a roundworm. This obstacle indicates that the IIT raises a whole new problem, namely the frame problem. The frame problem arises when a reasoner is thinking about a change in the dynamic world, one with actions and events in it (Hays, 1987, p.124). For example, in a situation in which a reasoner is trying to catch a flying ball, the frame problem arises when the reasoner is unable to sort out bits of information that are relevant or irrelevant to the action of catching the ball and update/rearrange those related bits of information. In order to stress the computational burden that arises from the frame problem, Fodor postulates imaginary particle ‘fridgeon’ (Fodor, 1987, p. 144). Suppose that every single particle in the world changes into a ‘fridgeon’ only if Fodor’s refrigerator is turned on: simple action of turning on the refrigerator causes change of all particles in the world. Although we can easily represent the change of the world into ‘fridgeon’, my MacBook is unable to calculate the change for it must check every bit of information concerning the universe in an arbitrary way. Fodor’s point is that, unlike the case of MacBook, the way human mind captures the relevancy between bits of information is radically different, therefore empirical verification of the IIT is not an easy task.

the relationship between the mental and the physical. While attempting to give this explanation, philosophers have repeatedly faced problems that concern, for instance, mental causation, epiphenomenalism, and the principle of causal closure of the physical. Nonetheless there has been no single philosopher who finds ultimate explanation that is free from the problems in question.

Panpsychism, especially the double aspect version, suggests that the relationship between the mental and the physical can be explained in a coherent way once we assume that the mental and the physical do not constitute an ontological hierarchy. From this particular panpsychist way of locating mind in the world, diverse panpsychist notions follow: the notions of fundamentality and ubiquity of mentality, the notion of taking mind as the intrinsic nature of the physical, the anti-emergence notion, and the notion of mental combination. In short, these notions hold if and only if the combination problem is solved.

Strawson argues that mental combination is intelligible because: first, the emergence of higher level mentality has an analogy of right size, and, second, ontological complexity of mind can be hold regardless of the epistemic features of mind. Strawson's argument, although it does not illustrate a model of panpsychism that simulates mental combination, is strong enough to undermine the intuition that mind cannot, in principle, consist of many "smaller" minds. One possible solution to the combination problem is to accept the IIT and argue for the compatibility between the IIT and panpsychism. In effect, the IIT is a model of panpsychism that is free from the combination problem⁵¹.

⁵¹ Again, I am neutral to whether to accept the IIT or not. I am merely proposing the IIT as a possible solution to the combination problem. The only viability I grant in regards to

The last achievement of this thesis is showing the viability of panpsychism as philosophy of mind. From the previous discussions, two important panpsychist implications follow. First, panpsychism Occamically⁵² coheres the mental and physical realm without undermining the intuitive reality of the both realms. This first implication shows that the panpsychist way of locating mind in the world does not involve the typical mind-body problem: how to explain mental causation without violating the principle of causal closure of the physical, or falling into epiphenomenalism, or raising causal overdetermination, or so forth. Second, the combination problem, which is the only “serious” problem of panpsychism, seems a matter of empirical fact, therefore the tenability of panpsychism as a hypothesis holds regardless of the problem. In other words, the second implication suggests that mental combination is logically and metaphysically possible therefore a panpsychist only needs a theory that empirically verifies that the nature of mind allows mental combination⁵³. Consequently panpsychism deserves more attention than it has received in the recent history of philosophy.

There are theorists who hold some of the panpsychist notions that I presented in this thesis but, nevertheless, differ from panpsychism per se. Chalmers accounts for the fundamentality of mind by labeling his view as naturalistic dualism, in the sense that consciousness cannot be comprehended in terms of familiar laws of physics but only can be comprehended once we introduce novel laws that govern mental phenomena (1996, p.

the IIT is that the IIT is a species of panpsychism and it possibly solves the combination problem. Therefore I leave any other problem that the IIT might raise open.

⁵² Or without ontologically expanding the world.

⁵³ I argued that the IIT is one of the possible theories that render such verification.

127). Yet Chalmers (1996) refuses to take his view as a species of panpsychism for he does not grant the intelligibility of mental combination⁵⁴.

Chalmers attempts to ground the novel laws in terms of information. According to Chalmers, the basis of the laws needs not about the world because it consists of a choice between bits of information, namely function (p. 278). For instance a system, say a switch, is informative in the sense that it is intrinsically consisted of two-state space: on and off. Chalmers explains that the information space is abstract in the sense that it does not partake in the physical space; nonetheless, Chalmers continues, it is realized in the physical space once some physical conditions are structured in a way that satisfies the abstract space (pp. 280-2). Chalmers says that the basis of phenomenal experience is comprehensible once we grasp the laws that govern the structure of information space. This commitment distinguishes Chalmers from an emergentist. Emergentists, in many cases, only grant the nomological regularity of the emergence of mind: they deny the comprehensibility of general psychophysical laws but only grant the comprehensibility of uniform psycho-physical correlations, e.g., pain emerges when some neurons fire. Whereas, in the case of Chalmers, we can grasp psychophysical laws if we know how the information space is physically realized.

Yet Chalmers's view does not lead to panpsychism because he finds mental combination unintelligible⁵⁵. The panpsychist notion of ubiquity of mentality follows if

⁵⁴ Chalmers (2013b) discusses the intelligibility of mental combination but leaves it open question.

⁵⁵ There are other reasons that Chalmers gives to counter the notion of ubiquity but he take the combination problem as the most counterintuitive one (p. 299). Although Chalmers (2013b) later discuss the intelligibility in question, he does not give any conclusive answer.

one identifies mind with information; however, Chalmers rejects the identification. According to Chalmers, such identification requires one to postulate protophenomenal properties, or sub-personal mentality, in order to account for the phenomenal experience of informatively simple beings. Hence, Chalmers continues, the ubiquity notion entails the notion of mental combination, which Chalmers finds counterintuitive. Rather, Chalmers's naturalistic dualism implies that there is a certain kind of information that is relevant to experience; experience occurs when the information space of the kind in question is physically realized.

Fodor also attempts to grasp mind in terms of information. According to Fodor's computational theory of mind, mental phenomena are comprehensible by appealing to mathematical laws that govern the manipulation of information. In other words, according to Fodor, mind is basically a computer in the sense that it is a syntactic engine that generates semantics by symbolic manipulation. However, as one can read from the analogy with a computer, information in Fodor's sense is essentially propositional⁵⁶. Therefore, although Fodor's computationalism grants that mental phenomena are comprehensible in terms of mathematics, it is not panpsychism because panpsychists should account for the information in question in terms that are not related to linguistic analysis⁵⁷.

⁵⁶ Fodor explains this by his language of thought hypothesis. I will not explain this for Fodor's theory bears no significant relationship with the topic of this thesis. Please refer to the following reading for the details. Cain, M. J. (2002). *Fodor*. Malden: Blackwell Publishers Inc. Pp. 51-61.

⁵⁷ Of course, there are many other factors that show Fodor is not a panpsychist. Yet, as explained above, I will not discuss them in this thesis.

Maybe it is impossible to grasp primitive mentality in the panpsychist sense, such as what it's like to be a mental particle, in terms that humans can relate to. Nevertheless understanding sub-personal mentality is crucial to ground the notion of ubiquity. Since human and animal consciousness is the only familiar form of mentality, a panpsychist should seek a feature of human minds that bears the most primitive form: for instance, a type of experience that is the least evolved and shares many aspects with the experientiality of simple organisms such as, say, a bacterium. Although this investigation does not directly concern lower level (or sub-personal) mentality, a panpsychist might be able to glimpse the reality of mind in non-organisms.

I find olfactory experience a promising candidate. For instance, even a bacterium is able to smell in the sense that it is capable of discriminating airborne volatile compounds in its surrounding environment (Nijland and Burgess, 2010). Also, if mental particles do exist, their phenomenal experience must not be representational for the particles have no sensory organ. Batty (2013) notes that the information that olfactory experience conveys might solely refer to the phenomenality of the experience but not the object of the experience in the world, thereby making olfactory experience a raw feeling. This possibility implies that the information that olfactory experience conveys is not as much representational as that of other type of perceptual experience. Hence I find olfactory experience a promising starting point for investigation into the nature of sub-personal phenomenal experience.

In regards to the IIT as a model for solving the combination problem, it is necessary for a proponent of the IIT to explain the nature of subjectivity. Yet it is unclear how to account for subjectivity in terms of information or function. Subjectivity

contrasts to objectivity in the sense that the former is essentially hidden from any point of view whereas the latter is accessible by any rational being. If the nature of a subject of experience is essentially hidden, then even a proponent of the IIT must endorse the idea that subjectivity is incomprehensible in terms of structural concepts, such as logical or mathematical concepts. If so, the IIT eventually fails to identify consciousness with the integration of bits of information. In order to evade this sort of consequence, a proponent of the IIT might become a reductivist or eliminativist in regards to a subject of experience. Or a proponent of the IIT can seek an emergentist way of accounting for subjectivity without raising the problems of mental causation. The bottom line is, there are various intriguing topics involving subjectivity that a proponent of the IIT must face in order to take the IIT as a promising philosophy of mind.

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