THESIS

THE COMPLEXITY OF THE MIND: REJECTING MODULARITY ON THE BASIS OF COGNITIVE PENETRATION AND COGNITIVE PHENOMENOLOGY

Submitted by

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ABSTRACT

THE COMPLEXITY OF THE MIND: REJECTING MODULARITY ON THE BASIS OF COGNITIVE PENETRATION AND COGNITIVE PHENOMENOLOGY

Historically, cognitive scientists and philosophers have accepted a theory of the mind known as modularity, whereby individual thought processes are completely separate and insulated from one another—meaning that cognitions have no influence on perceptions. However, the recent literature has seen a resurgence in support of a thesis of cognitive penetration, which suggests that cognitions can and do influence perceptions in a way that would be impossible if the mind were modular in the traditional sense. In addition to calling the idea of modularity into question, cognitive penetrability raises some passing concerns for the objectivity of scientific observation, and certain philosophical distinctions such as that between cognition and perception. Along similar lines, the literature has also seen an increase in the exploration of cognitive phenomenology, which similarly calls into question the distinction between cognition and perception and requires a model of the mind which is less clear-cut than the modular view. As such, it seems that given the evidence, one cannot accept either penetrability or cognitive phenomenology without accepting the other, given that they both rest on a similar view of the mind. In addition to calling into question the literal distinction between cognition and perception (though it may remain intact on a conceptual level), a subsection of cognitive phenomenology, known as evaluative phenomenology (the unique phenomenal character of emotions) similarly makes ambiguous the philosophical distinction between reason and emotion. Breaking this dichotomy, as well, makes the possible epistemic consequences of penetrability pale in

comparison to those implied by cognitive phenomenology. While this is not an answer to the issues raised by penetrability, it does contextualize the difficulties in a way which opens the system up to a deeper understanding.

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-Joelle Hershberger

DEDICATION

Dedicated to the memory of Dr. Adam C. Johnson, Neuroscientist and Professor of Psychology, Bethel University, St. Paul, MN—a brilliant scholar, teacher, mentor, and friend, and without whose persistent encouragement the present work would not have been possible.

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Introduction

In the 1980's, the philosopher and cognitive scientist Jerry Fodor proposed a formal explanation of what at the time was considered in many ways to be the predominant view of how the mind processes information. This view he called his modularity view.[1] Similar in many ways to what philosopher Susan Hurley would later call the "classical sandwich model" of the mind,[2] the modularity thesis states that individual thought processes are completely separate as well as insulated from each other. While this theory has largely fallen by the wayside, there are still those in philosophy and psychology alike who continue to hold to modified versions of modularity, in part because the insulation of different processes easily allows for the retaining of several important discriminations, most notably the classical clear line philosophers have cut between cognition and perception, as well as the distinction drawn between "reason" and "emotion." In addition, as Fodor himself pointed out, modularity is important in order to retain the theory-neutrality of observation, without which scientific discovery becomes much more difficult, if not impossible, as without proper insulation from each other our cognitions may have the ability to "muddy" our perceptions. In other words, without "pure" and unadulterated reasoning capacities, scientific observation is not as objective as it needs to be in order to succeed.

One of the main motivations for Fodor's release of his modularity view came from a shift in the tides of cognitive psychology, which had begun to discover empirical reasons to reject classical views like Fodor's in favor of something more complex and, specifically, less insulated.

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[1] Fodor, *The Modularity of Mind*, (1983).

[2] Hurley, "Perception and Action: Alternative Views," (2001).

One such finding was the controversial theory of cognitive penetration, or the idea that higher-order cognitive states such as beliefs and emotions can *literally change* the way that external objects are perceived. If this phenomenon could be shown to be true, it meant that there was no way that mind processes could be modular and insulated in the way that Fodor proposed, opening a whole can of worms for the way that thinkers viewed the mind, cognition, reasoning, and—a specific worry of Fodor's—scientific observation. This also created problems for the distinctions of cognition and perception, as mentioned above, which is one of the reasons that the debate about cognitive penetration and its potential consequences continues to the present and has seen a notable resurgence in the recent literature.

More recently, philosophers of mind have begun to reconsider the idea of cognitive phenomenology, or the theory that cognitive states have unique and irreducible phenomenal qualities. This theory has similar consequences for modularity and other classical models of the mind, as it, too, seems to suggest that cognition and perception are more closely intertwined with one another than previously thought, in addition to proposing similar connections between other traditionally held philosophical dichotomies. One notable case of these interlacing connections comes from the idea of evaluative phenomenology as proposed by philosopher Michelle Montague, which suggests that emotional states have a phenomenology all their own—different from and irreducible to either sensory or other cognitive phenomenological experiences.[3] The basis of this idea is that this emotional phenomenology is akin to perceptual phenomenology; yet, emotions still remain similar to the category of "cognitive" in a relevant way, meaning that these states in some ways straddle nicely the line commonly drawn between cognition and

[3] Montague, *The Given*, (2016).

perception, neatly bringing the distinctness of that line into question (at least on a deeper, non-conceptual level).

Both the thesis of cognitive penetration and that of cognitive phenomenology call into question views of the mind which rest on some version of modularity and/or insulation of mental processes. However, it is evident that the separation(s) that these views support are less clear and distinct than theorists supporting more classical models of the mind want to believe. As such, it is evident that both cognitive penetration and cognitive phenomenology must rely on a view of the mind which is significantly more complex than the classical view(s). Specifically, while modularity-type views rest on this idea that mentation is a purely feedforward system (perception leads to cognitive processing leads to action, and each of these individual processes are fully completed before the mind moves on to the next), cognitive penetration and cognitive phenomenology suggest that there are also feedback routes operating within the mind (perhaps a cognition leads to a perception of something which is different from the actual object externally present [cognitive penetration], and that perception feeds forward to further cognition, and then, finally, to action). A view which involves such feedforward/feedback processes is required for both penetration and cognitive phenomenology to get off the ground, therefore, given the evidence for both of these theses, it is clear that a more "loopy" and complex view of the mind is necessary, and we ought to ditch more simplistic modularity-type theories in the face of this evidence.

Further, when we accept a feedforward/feedback view of the mind, we must necessarily adjust some of our classical philosophical distinctions. Two such distinctions which are important for the present project are the distinctions between cognition and perception, as well as (more peripherally) the line between reason and emotion. By doing away with these distinctions

at the most concrete level of reality (though they can [and likely do] remain intact at the conceptual level), not only are we with left with a more complex view of the mind, but we are also faced with the problem of how that mind can or does go about processing external information for the sake of knowledge acquisition. Cognitive penetration in particular seems to create problems for epistemic theories, as it means that we have one more reason not to trust our senses, and to be suspect of our cognitive motivations for believing the things we do about our outside world. As will be discussed in Chapter One, this comes with varying degrees of concern about the overall epistemic implications of penetrability—followed up in Chapter Three by an argument that the "new" complexity of the mind makes these epistemic concerns rather pale in comparison to the other concerns raised by phenomena related to cognitive phenomenology and cognitive penetration taken in tandem.

In summary, the current project will seek to demonstrate the following. First, that there is a solid amount of empirical and philosophical evidence to suggest that cognitive penetration is a plausibly existent phenomenon and ought to be accepted as such (Chapter One). Second, there is a similar amount of philosophical theorizing to reasonably suggest that cognitive phenomenology is an acceptable theory (Chapter Two). Third, both of these ideas rest on a wholly more complex model of the mind which rejects modularity and related insular theories. As such, neither penetrability nor cognitive phenomenology can be rejected without having to do some heavy philosophical work and a good deal of bullet biting in order to simultaneously accept the other, meaning that one must either reject both cognitive penetration and cognitive phenomenology or accept them both. Based on the evidence, it seems to be the most logical and reasonable route is to accept them both, which also means one is accepting some version of a feedforward/feedback view of the mind. By accepting this view of the mind, one rejects the

now-problematic distinctions between cognition/perception and reason/emotion, and one must subsequently rethink the way that one theorizes about knowledge acquisition, as not only are perceptual experiences epistemically questionable, but in the face of this new model and theories like evaluative phenomenology, so are cognitive experiences. In light of the complexity created by the similar mental basis of cognitive penetration and cognitive phenomenology, it seems that the epistemic problems created by cognitive penetration (i.e. giving us one more reason to distrust our perceptual experiences) are not so severe when one considers that not only are our sensory processes more complex than we initially believed, but so are our cognitions, emotions, and overall reasoning capacities (Chapter Three).

Chapter One

Due to advances in cognitive science and psychology, questions about the internal workings of perception have begun to receive answers which go beyond the subjective data collected by early studies of perception. As a result, questions about our ability to trust our own senses became reinvigorated in light of furthered understanding about these underlying processes, and in the 1980's this issue of perceptual trust caused renewed concerns for a variety of fields, including philosophy and the sciences. The main concern which sparked this interest was the theory-neutrality of observation. If we cannot trust our own perceptions of the external world—if these perceptions can be influenced by underlying cognitive beliefs, desires, and affective states in a way that manipulates or even changes the phenomenal character of an experience—how is it possible to come to genuine scientific understanding? In other words, if it is possible that cognitions are altering perceptual modalities to the point of altering sensory experiences, it seems that observation is not theory-neutral in the way that was supposed to be a necessary precursor for unadulterated scientific discovery. This phenomenon of higher-order cognitive influence on perceptual systems within the brain has been termed "cognitive penetration," and remains a debated topic because of its scientific, epistemic, and philosophy of mind implications.

Although some of the steam of the original debate regarding the theory-neutrality of scientific observation has calmed in recent years as we have begun to gain a more thorough understanding of human psychology (specifically the discovery of the inevitability of selective attention), whether cognitive penetration is an existent phenomenon continues to be somewhat contested in the philosophical literature. In part, this contention is a result of the implications

cognitive penetration has for theoretical models of the mind—in light of cognitive penetration and related phenomenon, the human brain seems to be more complex than a simple input-processing-output system.[4] More narrow concerns brought to light by evidence of penetrability concern the epistemic issues associated with penetrability—whether these concerns are troublesome, neutral, or nonexistent. In the present work, the debate surrounding the existence of cognitive penetrability will be examined in an attempt to establish penetration as a plausibly existent phenomenon. Given the existence of cognitive penetrability, some of the potential philosophical consequences of this phenomenon will be discussed. Specifically, issues related to doubting perceptual experiences, as well as the idea that penetrability blurs the boundaries between cognition and perception will be highlighted, but of key importance to the present project will be the argument that if penetration exists as it seems to, then a more complex view of the mind is required.

Part I: Cognitive Penetrability

Defining Penetration

Cognitive penetration is one explanation for potential phenomenological differences between two subjects who are perceiving the same stimuli. As the philosopher Susan Siegel defines it in her influential 2012 paper, cognitive penetration is the possibility that "for two subjects (or for one subject in different counterfactual circumstances, or at different times) to have visual experiences with different contents while seeing and attending to the same distal stimuli under the same external conditions, as a result of differences in other cognitive (including affective) states."[5] In other words, cognitively penetrated experiences are those instances where

[4] Hurley, "Perception and Action," (2001).

[5] Siegel, "Cognitive Penetrability and Perceptual Justification," (2012), pgs. 205-6.

cognitions—generally delineated in the literature as including such capacities as beliefs, knowledge, desires, traits, and/or emotions—influence to the point of altering an agent's phenomenal experience of a fixed external stimulus. For example, two persons could be experiencing the same external visual scene of a professor writing on a chalkboard. Jack believes that this professor always writes with white chalk, as has seemed to be the case all semester. However, Jill, having bumped into the professor before class knows that the professor has run out of white chalk and is using yellow today. This difference in cognitive states between Jack and Jill (beliefs and background knowledge) cause them to perceive the chalk on the board differently—as either white or yellow, respectively—despite both seeing and attending to the same stimulus.[6] This difference is caused not by anything in the external world—both Jack and Jill have exactly the same perceptual stimuli to work with and attend to—but rather is solely a result of their difference in cognition.

Much of the face-value controversy surrounding the cognitive penetrability theory involves the difficulty in getting data both for its existence, and for its antithesis. Because so much of the brain and its processes remains a black box, with its trillions of connections and interactions, it is difficult to discern one way or another whether cognitive penetration exists, yet the implications for both theses have intriguing and important theoretical applications.

What Counts as a "Cognition"?

One of the more difficult issues involved in defining and delineating even the potential for the cognitive penetration of perceptual experiences comes in the form of getting clear on a definition of "cognition." What states and mental processes are allowed to count as one of these higher-order phenomena is particularly tricky business with steep implications for how the rest

[6] My sincere thanks to my colleague, Joshua Jarrott, for presenting me with the basis for this example. In addition to obtaining an advanced degree in philosophy, Master Jarrott practices legitimate sorcery in his spare time.

of our definitions and arguments play out. There are a high number of competing definitions of "cognition" in the literature; definitions which are also partially dependent on whether or not the author is a philosopher, a psychologist, or from some other background training, as the practical and theoretical implications vary somewhat by field. In philosophy, a "cognition" is commonly defined as a "propositional attitude," a la Bertrand Russell. In other words, a mental state is cognitive if it is one which is expressed towards a propositional content. For example, the belief expressed in the statement "I believe that the ocean is deep" is an attitude (of belief) directed at the proposition, "the ocean is deep," making it a propositional attitude, and therefore a cognition. As noted above, common categories of such propositional attitudes in the cognitive penetration literature include beliefs, knowledge, desires, traits, and emotions.

One issue of particular importance to the present discussion is the controversy surrounding whether or not affective states are cognitive in the relevant sense. While many philosophers who follow the propositional attitude definition of "cognition" see no problem with including emotions among human cognitive states, psychologists—who are doing much of the writing and almost all of the research in the cognitive penetration debate—do not consider emotions to be cognitive in the way that knowledge, beliefs, or desires are considered to be.[7] Psychologists do not tend to operationalize emotions in the same way they do knowledge or beliefs, and as such, very little of the current penetration work involves penetrations by emotions, though many proponents of a penetrability thesis argue that this is a clear case of penetrability, and one which is worth considering as part of the greater discussion.[8] Both the disagreement as to the categorical status of emotions, as well as the lack of evidence, puts

[7] This, of course, is a bit of an over-generalization, but is indicative of the general trends which exist within the given disciplines.

[8] See, for example, Siegel, "Cognitive Penetrability and Perceptual Justification," (2012).

penetration by emotion in a fairly precarious place, since even if it was shown to be an existent phenomenon, it would remain tenuous whether or not this phenomenon was relevantly related to cognitive penetration or not.

Part II: Potential Consequences of Penetrability

The Need for Encapsulated Perceptual Modules

The idea of penetrability has historically been seen as particularly detrimental to scientific discovery, as it results in theories that are no longer based solely "on the facts," but may in fact be "polluted" by the pre-existing beliefs/ideas of the observer. Although it is well accepted that a theorist's own beliefs and understanding may influence how she *interprets* the information she is receiving through her sensory modalities, it is understandably more problematic to propose that these beliefs may be manipulating the nature of the perception itself. Siegel gives an example of how penetrability might influence scientific observation in this way, suggesting that a person who believes in a theory of preformationism (the idea that organisms develop from miniature, fully-formed versions of themselves) may have a cognitively penetrated experience when observing sperm cells, causing the scientist to *literally* see embryos which are not there in reality because of the strength of her belief that an embryo ought to be there.[9] As such, it is not a matter of misinterpretation of the data as is so often discussed in scientific inquiry, or even a natural bias based on selective attention or other non-cognitive factors, but a relative "trick of the mind" which does not seem to be able to be meaningfully neutralized for the purpose of authentic scientific investigation.

In order to protect the purity of scientific investigation, the highly influential thinker Jerry Fodor proposed as the only solution to the penetrability problem sensory systems which are

[9] Siegel, "Cognitive Penetrability and Perceptual Justification," (2012), pg. 211.

"informationally encapsulated" and therefore impenetrable by higher-order cognitive influences (as well as cross-modal penetrability by other sensory systems).[10] Although our understanding of cognitive science has continued to call this theory of encapsulated modules into question, supporters of Fodor's original theory remain,[11] though the specific nature of the theory has changed some since the 1980's. Overall, however, opponents of the penetrability thesis remain tied in some way to the basic tenet of Fodor's theory—that the sensory systems are impenetrable, at least on some level, to cognitive influence, subsequently insulating these systems from undue higher-order influence. In general, opponents of penetrability—hereafter referred to as encapsulation theorists[12]—have modified the original modularity idea to adjust for emerging research, supposing that it is not perceptual systems as a whole which are impenetrable, as Fodor originally proposed, but instead it is merely the "early" stages of these systems which remain impenetrable to outside influence beyond what they are designed to process (i.e. perceptual inputs from the outside world). As such, the strongest theory which prevents cognitive penetration currently rests on the idea that perceptual systems, specifically visual systems, are impenetrable to higher-order cognitions in the very early stages after sensory input (~60-80

[10] Fodor, *Modularity of Mind,* (1983).

[11] Raftopoulos, *Cognition and Perception*, (2009); Pylshyn, "Is Vision Continuous with Cognition?," (1999); Rollins, "The Mind in Pictures," in *Cognitive Penetrability of Perception*, ed. Raftopoulos, (2005); Campbell, "Molyneux's Question and Cognitive Impenetrability," in *Cognitive Penetrability of Perception*, ed. Raftopoulos, (2005); Müller, "There Must be Encapsulated Nonconceptual Content in Vision," in *Cognitive Penetrability of Perception*, ed. Raftopoulos, (2005).

[12] It is important to note that not all theorists who are opposed to a cognitive penetrability thesis buy into a Fodorian method for its rebuttal (i.e. sensory systems as modular), particularly in light of the emerging research. However, in general the best way to counter a thesis of penetration is to argue its antithesis, which *could* be called cognitive impenetrability, but—for the sake of clarity—will be referred to throughout the current work as encapsulation.

milliseconds after stimulus presentation),[13] meaning that, at the very least, basic ideas such as color and shape remain unmuddied by cognitive influence.[14]

A further important modification on the original modularity thesis is an abandonment of the idea that sensory modalities do not penetrate each other. Fodor's original encapsulation model suggested that not only were sensory systems insulated from higher-order cognitive influence, but these modalities were similarly insulated from other first-order systems. As such, sounds could not penetrate visual stimuli, etc. However, some modern encapsulation theorists do concede that, due to a difference in processing times, it seems possible that sensory modalities do penetrate each other in some way(s). That being said, encapsulation theorists do not see this kind of penetration as particularly problematic in the way that penetrations from higher-order cognitive systems are, either because it is deemed to take place outside of the impenetrable space of the sensory systems, or because it is simply deemed to be unproblematic. Therefore, something like the McGurk effect—a phenomenon whereby seeing certain visual stimuli changes how an auditory stimulus is perceived—is interesting for a variety of reasons, but relatively unimportant for the cognitive penetration debate, insofar as encapsulation theorists accept it as compatible with their position.

While theory neutrality in scientific observation has been a key focus for opponents of cognitive penetrability, there are also practical concerns associated with the phenomenon which go beyond scientific discovery and seem to give more weight to the argued necessity of encapsulated perceptual systems. For example, the psychologist Athanassios Raftopoulos

[13] Though there is some evidence of cognitive activity taking place prior to 60 ms after a stimulus presentation, indicating that if there *is* encapsulated visual processing, it is less than 10-20 ms in length—arguably not enough time to prevent penetrability as such (see Cecchi, "Cognitive Penetration, Perceptual Learning and Neural Plasticity," [2014]).

[14] Lupyan, "Cognitive Penetrability of Perception in the Age of Prediction: Predictive Systems are Penetrable Systems," (2015); Cecchi, "Cognitive Penetration, Perceptual Learning and Neural Plasticity," (2014).

suggests that penetrable sensory systems entail the death of realism, specifically scientific realism, but more controversially, he argues that perhaps all other forms of realism come into question as well.[15] In other words, what Raftopoulos is proposing is that either we make plausible a Fodorian idea of encapsulation, or nearly all of our theories and observations about the external world quite broadly fall into a kind of subjective skepticism at best, or, at worst, absolute relativism.

Although Raftopoulos ideas are somewhat extreme, other thinkers have made similarly concerning claims, though not quite so totally damming to perceptual reality. For example, it has been suggested by the philosopher Chris Tucker[16] that it is not just dogmatic theories of epistemology which have potential issues if a theory of penetrability maintains, but, by-and-large, *most* epistemic theories have some threats to face in light of such cognitive influences, implying that our very ability to know and understand the world around us, both formally through scientific study and practically in everyday interactions, is called into question by cognitive penetrability.

In summary, encapsulation theorists are concerned with cognitive penetration for three main reasons. First, and most historically relevant, is the idea that cognitive penetration threatens the theory-neutrality of scientific observation. Without theory-neutrality, it is argued, we add yet another confounding factor to scientific inquiry, threatening its objective nature. Second, it has been argued that not only does scientific inquiry come into question in light of cognitive penetrability, so do more general theories of realism, defined as a one-to-one correspondence between what is being perceived and that object's existence in the external world. Relatedly,

[15] Raftopoulos, "Defending Realism on the Proper Grounds," (2006).

[16] Tucker, "If Dogmatists Have a Problem with Penetrability, You Do Too," (2014).

theories of epistemology which include any role for sensory justification of beliefs ought to be concerned with the idea of cognitive penetrability, as well. These concerns provide motivation for encapsulation theorists to defend their position in light of both empirical and theoretical pushback from proponents of penetrability.

Defending Encapsulation: Explaining Away Supposed Cases of Penetration

Attention. The main work of encapsulation theorists is to successfully argue that the empirical evidence which seems to suggest cognitive penetration is better explained through other means. Specifically, it is frequently argued that empirical data is better explained by an attentional shift in the observer, rather than via a cognitive explanation. This counterargument has led to a shift in the definition of penetration to include attentional factors, yet the argument persists as a positive alternate explanation for situations generally taken to be evidence of penetration. A notable case of the attentional strategy occurred at the beginning of the debate in the 1980's, when Paul Churchland suggested that Gestalt images like the duck/rabbit are a matter of penetration—perhaps, he argued, a duck hunter is more likely to see a duck, and a gardener a rabbit, based on their background knowledge of and experiences with these animals penetrating their initial perception of the figure.[17] However, as was pointed out by Fodor in response, it is not background beliefs, but rather where an observer focuses his attention which causes the shift in such Gestalt images to occur.[18] Attention, argue encapsulation theorists, is by definition a shift in the perceptual processing being done by the agent. This shift is how one accounts for the differences between subjects' experiences, rather than by making an appeal to cognitive penetration.

[17] Churchland, "Perceptual Plasticity and Theoretical Neutrality: A Reply to Jerry Fodor," (1988).

[18] Fodor, "A Reply to Churchland's 'Perceptual Plasticity and Theoretical Neutrality'," (1988).

A similar argument is made regarding expertise and penetrability. Susanna Siegel argued in a 2006 work that the phenomenal difference(s) between seeing a particular kind of tree (oak, pine, etc.) *before* learning to identify it and seeing it after the relevant learning has taken place was a matter of that acquired knowledge penetrating the perceptual experience of seeing the tree.[19] In short, the argument is that expertise is a specific kind of background knowledge which penetrates perceptual experience. However, as was pointed out by encapsulation theorists, and later conceded by many of penetrability's defenders, it seems that expertise is merely allowing the subject to know where and how to direct her attention in order to correctly identify the object(s) in question. In other words, once it is learned how to recognize an oak tree, an agent will know to direct her attention to the leaves, noting their distinct shape, and, with practice, this attentional shift will become automatic and imperceptible to the agent, allowing her to take in the relevant details and subsequently make a correct identification of the tree being perceived without noticing where her attention has been pulled to in order to acquire the relevant information.

While it does seem to be the case that attentional shifts act as a reasonable explanation for many of the classic examples used to illustrate the cognitive penetration phenomenon, such as Siegel's tree identification example above, some thinkers have suggested that attentional strategies are only affective in refuting penetrability given the nature of the attentional shift. For example, Fiona Macpherson[20] argues that it is obvious that spatial attentional shifts are a reasonable argument against penetrability cases like tree identification. However, there are cases in which attentional shifts may actually be further evidence for penetrability, rather than

[19] Siegel, "Which Properties are Represented in Perception?," (2006).

[20] Macpherson, "Cognitive Penetration of Colour Experience: Rethinking the Issue in Light of an Indirect Mechanism," (2012).

evidence against the thesis. There are two things which one must show when proposing an attentional shift argument against a proposed case of penetrability. First, one must illustrate where the attentional shift takes place. Second, one must further show that this attentional shift is relevant *without itself being cognitive in nature*. According to Macpherson, certain cases such as those where colors are misperceived—theoretically based on underlying beliefs about what color the presented object characteristically is—do not involve an appropriately non-cognitive attentional shift. Rather, if it *is* a shift in attention (e.g. from the yellow aspect of an orange image to the red aspect), this shift seems to be just as cognitive as the belief that bananas are usually yellow, and as such is still a case of perceptual senses being penetrated by a cognition, rather than something more akin to a spatial shift in attention—a factor which would change the nature of the perception on a non-cognitive level.

The philosopher Francesco Marchi[21] makes a more nuanced yet similar argument, suggesting that attentional shifts are themselves cases of cognitive penetration, rather than a non-cognitive factor modifying perceptual experience. Marchi argues that attention is a kind of metacognitive control factor—therefore, attention is itself cognitive. Given that attention is a cognitive experience, any instance of penetration explained by attention must remain a case of cognitive penetration—it does not explain away the phenomenon, instead it shifts the cognition involved from being a belief/trait/emotion, to being attention.

Judgment. A further explanation for the empirical evidence used to support cognitive penetration regards an argument similar to, yet distinct from the attention argument which suggests that it is simply the judgment of the observing agent which is changed, rather than the phenomenal character of the experience itself. For example, in the case of the trees mentioned

[21] Marchi, "Attention and Cognitive Penetrability: The Epistemic Consequences of Attention as a Form of Metacognitive Regulation," (2017).

above, it is possible that it is not the experience of the tree itself that is influenced by the knowledge of what an oak tree looks like, nor is it necessarily the attentional focus of the agent which is causing a "difference" in experience between knowing and not knowing how to identify the tree. Instead, it is the judgment the agent makes when she says to herself "that is an oak tree" which is influenced by the belief that the tree is an oak tree. In other words, the difference between knowing it is an oak tree and not knowing lies in the higher-order judgment, a change at the level of further cognitive processes, rather than a change in the first-order sensory phenomenal experience. As such, this is a case of a cognition (belief) altering cognition (judgment), therefore subjects are reporting a change in *judgment*, rather than a change in *perception*. For now, however, all that is important to note is the possibility that it is the judgment of a perception causing what looks like penetration, rather than actual cognitive penetration.

Those in support of a cognitive penetrability thesis embrace a similar rebuttal to this judgment argument as is employed in refuting the attention argument as detailed above. Specifically, in experiments where subjects are given no time limit, it is clear they have some time to adjust their judgments to be in line with their perceptual experiences. Given the tree example again, this is the difference between judging a specific tree to be an oak from a moving car and judging it to be an oak while strolling leisurely through the forest. Proponents of penetrability argue that in such untimed circumstances, in order to make the judgment argument work, one must attribute to subjects a belief or judgment which is not in correspondence with the experience that is currently being had by the subject.[22] In essence, one has to assume that one's subjects are "systematically mistaken about what they are doing: they are not reporting what they

[22] Stokes, "Perceiving and Desiring: A New Look at the Cognitive Penetrability of Experience," (2011).

are seeing"[23] in order for these subjects to make judgments and reports which are apparently so mismatched with reality—unless, of course, their experience is cognitively penetrated. Penetrated experiences would have the qualities which subjects are reporting their judgment(s) of these experiences to be, and therefore penetration appears to be the more parsimonious explanation of these untimed cases.

Memory. A final argument to explain away the seeming evidence in favor of penetrability is that of memory. While it may appear that a situation or experience is the result of penetrability, in reality what is happening is that the observing agent is reinterpreting his *memory* of the experience, rather than the experience as it is happening. For example, although the sensory information was of a maple tree, it is remembered and interpreted by the subject as being of an oak tree, which is what is causing the mistake in "perception." This sort of mistake based on memories of experiences means that what seems to be cognitive penetration may instead be a case of cognition penetrating memory (itself a cognition), rather than cognition penetrating perception. This explanation salvages perceptual abilities from higher-order influence while allowing for such cognitions to play some role in phenomenal experience.

While this memory argument does in fact salvage some of the experimental data from being interpreted as cognitive penetrability, it is important to note that this particular explanation only works in cases where the stimulus is removed before a judgment is made or experience reported. Modularity theorists are indeed correct that if it is only *after* a stimulus is removed in these penetrability experiments that interpretations are made, likely the subjects are making judgments or reporting experiences of memories instead of perceptual events, and as such this cannot count as genuine penetration since it is after-the-fact as opposed to being in the moment

[23] Ibid., pg. 489.

of perception. For example, Balcetis and Dunning conducted studies in which ambiguous stimuli with two possible animal shapes were presented on a computer screen, and then after their removal subjects were asked to report the animal they had seen, with a prize offered for more reports of certain classes of animals (e.g. farm animals).[24] While the original interpretation of these results suggested that the desire for the prize and therefore a desire to see certain types of animals was penetrating the perceptual experience of the stimuli, it is likely the *memory of the stimulus* that was being altered based on desire rather than the perceptual experience itself, since the stimulus was removed before the judgment was made. As such, this is likely not a case of cognitive penetration. Yet not all experimental evidence for penetration has involved the removal of the stimulus before a judgment or report was made by the subjects, and this memory argument is not relevant for these cases, so while some of the empirical studies used as backup for a cognitive penetrability thesis seem to be negligible in light of a memory interpretation, any instance where the stimulus remains in place for continued inspection by a subject retains its viability as evidence for penetrability.

Illusion persistence. Particularly in the early days of the cognitive penetration debate, though still seen occasionally in the current literature, are examples of visual illusions as potential evidence for perceptual penetration. Illusions are cases of perception gone awry, and as such, provide important clues into the underlying brain processes associated with visual perception. Necker cubes, Müller-Lyer lines, and certain Gestalt shift images are all common examples within the penetration literature. However, as Fodor and others have pointed out, illusions are potentially a good argument for the *impenetrability* of experience. Specifically, Fodor and Pylshyn argued that if visual perception could be cognitively penetrated, then an

[24] Balcetis and Dunning, "See What You Want to See: Motivational Influences on Visual Perception," (2006).

illusion unexplainable by attention such as the Müller-Lyer lines would cease to persist as an illusory experience after one learned that the lines are, in reality, the same length, because the acquired belief ought to penetrate the perceptual experience, effectively altering it so that the illusion no longer exists for the individual. Yet, the lines continue to appear as different lengths, no matter how much one attempts to overcome the misperception.[25] For Fodor, this provides solid evidence for his theory of encapsulation.

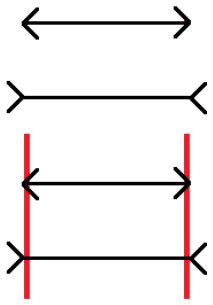

Figure 1.1
Müller-Lyer Line Illusion

The empirical evidence, however, suggests that this lack of change in illusions via changes in belief/learning may, in fact, be evidence of penetrability rather than clear evidence of encapsulation. Lupyan has suggested that the lack of learning in certain visual illusions such as the Müller-Lyer lines is the direct result of more strongly-embedded knowledge about the state of the world.[26] In this specific case, research shows that when corners are oriented in the everyday lives of persons who live in constructed environments in the same way as the line which appears to be the longer line in the Müller-Lyer illusion, it is, in reality, longer than straight edges which have corners oriented in the same manner as the shorter-appearing Müller-

[25] Pylshyn, "Is Vision Continuous with Cognition?," (1999); Fodor, "A Reply to Churchland…," (1988).

[26] Lupyan, "Cognitive Penetrability of Perception in the Age of Prediction," (2015).

Lyer line.[27] As such, it is this more-ingrained, evolutionarily advantageous knowledge which is continuing to penetrate perceptions of the Müller-Lyer lines, rather than the knowledge that in this one specific case the lines are actually the same length. According to Lupyan, it makes sense that the knowledge with real-world application (i.e. that in general, corners which appear in X manner are longer/shorter) would continue to penetrate our perceptions in the way they do in the Müller-Lyer case because it is a piece of knowledge which is more applicable and generalizable than the knowledge that these *particular* lines happen to be the same length. In other words, it just is not worth the cognitive effort it would take our brains to override this particular penetration with more obscure knowledge when we have been using the generalized knowledge to navigate the world for much longer, and this generalized knowledge is more widely applicable.

Part III: Defending Cognitive Penetration

Empirical Support for Penetrability

Attempts have been made to provide empirical support for cognitive penetration, with understandably mixed results. One of the major difficulties in this and similar kinds of research is the relatively impossible nature of accurately gathering and measuring the subjective phenomenal experiences of individual agents. Many of the initial studies conducted which suggested the existence of cognitive penetrability were conducted by "New Look" psychologists in the 1940's and 50's. New Look psychology was a branch of the emerging field of cognitive psychology which suggested that, rather than simply observing subjects and their reactions to stimuli, it may be useful to consider the internal processing and functioning of those reactions.[28]

[27] Lupyan, "Cognitive Penetrability of Perception in the Age of Prediction," (2015); Machpherson, "Cognitive Penetration of Colour Experience," (2012).

[28] Silins, "Cognitive Penetration and the Epistemology of Perception," (2016).

In other words, psychologists began to ask for the first time what the underlying structures of thought were like. These early studies included experiments showing slowed reaction times to identify mismatched colors and suits on playing cards (e.g. red spades and black hearts), and studies regarding Gestalt images such as the faces/vase or duck/rabbit. Although many of these studies have been deemed as interesting but not, ultimately, evidence for penetrability, a number of the initial investigations still provide grounding both for the penetrability debate, as well as a basis for research designs for the continued study of penetrability.

Penetration by Desire

A specific variety of cognitive penetration which seems to be particularly prominent given the truth of the penetrability thesis yet is understudied and particularly difficult to study empirically is orectic penetration. Orectic penetrations are those perceptual experiences which are altered by an agent's desires. The classic New Look study which is often cited as evidence for this particular variety of penetration is an early study conducted by Bruner and Goodman,[29] who gave groups of "poor" and "rich" children either a number of coins or similarly sized cardboard disks and asked them to adjust a spot of light to the same size as the coin or disk they were holding. By and large, poor children made the light patch too big for coins compared to rich children, and rich and poor alike were much more likely to adjust the light appropriately for cardboard disks. Researchers originally interpreted these results to be suggesting that it was the desire for money by the poor children which caused this increase in size estimate. In addition, this particular experimental design helps account for many of the objections raised by modularity theorists—it cannot be a memory or a judgment of the children which is affecting their ability to adjust the light appropriately, since they continued to hold the coin in their hand for reference,

[29] Bruner and Goodman, "Value and Need as Organizing Factors in Perception," (1947).

and attentional objections seem similarly useless in light of this particular design.[30] However, researchers have been unable to replicate the results of this early study, and it faces further criticism in that no one considered that it may have been the monetary value of the coin which was causing the mismatch in the children's ability to adjust the light appropriately.[31] In other words, it has been suggested that the magnitude of the value of the coin being held (e.g. $0.10 vs. $0.01) may account for the larger adjustment in the light.[32] This is particularly likely since it seems that the actual difference between rich and poor children was not especially steep, as was suggested by the original study's authors.

Despite the criticism faced by the New Look studies on desire, other studies of penetration by desire seem to add to the potential strengths of the original Bruner and Goodman work. In 2006, Balcetis and Dunning saw a steep correlation between number of hours fasted and number of ambiguous pictures interpreted as being food-related, suggesting that desire for food was causing a perceptual shift for subjects, though this particular study has been criticized for the fact that hunger, a non-cognitive state, may be the real motivation for this perceptual shift, rather than a cognitive desire for food, and therefore the perceptual shift (if there is one) may not be indicative of cognitive penetrability.[33] Similarly, in 2010, the same research team conducted several studies which suggest that a desire for money, water, etc., causes participants to judge more desired objects (e.g. a water bottle, a $100 bill) as being closer to them than they otherwise would, as is evidenced by distance judgments of more value-neutral objects.[34] However, one must note that these 2010 studies are particularly easy targets of the argument that it is not the

[30] Stokes, "Perceiving and Desiring," (2011).

[31] Arstila, "Perceptual Learning Explains Two Candidates for Cognitive Penetration," (2016).

[32] Ibid.

[33] Balcetis and Dunning, "See What You Want to See," (2006).

[34] Balcetis and Dunning, "Wishful Seeing: Desired Objects are Seen as Closer," (2010).

desire influencing subjects' perceptual experiences, but rather the desire affecting the *judgment* of distance, meaning these are not true cases of penetration, as discussed in detail above.

Penetration by Color Belief

One of the most promising of the more recent empirical developments in the study of penetrability is a series of studies based on the initial work done by Delk and Fillenbaum[35] on the penetrability of visual perception by beliefs about the color of certain well-recognized objects such as bananas and stop signs. In the original Delk and Fillenbaum, study, subjects were given paper cutouts of objects, all made with the same red-orange colored paper. Some of these objects were characteristically red objects, such as pairs of lips or an apple, and others, though controlled to be of similar curvature and size, held no associated link to the color red, such as squares and mushrooms. Subjects were then asked to adjust a background panel ranging from yellow to red until it matched the cutout placed on top of it, and researchers found that subjects made the background much redder for characteristically red objects like the apple, where they more closely adjusted the background to the true color for cutouts such as the mushroom or square.

In more recent work in this area, subjects were asked to adjust color photos until they became greyscale.[36] Some of these pictures were of characteristically colored objects, and some were control pictures which did not have a stereotypical color. While control objects were generally set to within a very close range of the correct greyscale adjustment, the objects with characteristic colors were overcompensated for, falling significantly outside of the adjustment goal. For example, subjects had a tendency to turn pictures of bananas much bluer/greener than other objects. In theory, this result is explained via cognitive penetration in that, subjects literally

[35] Delk and Fllenbaum, "Differences in Perceived Colour as a Function of Characteristic Colour," (1965).

[36] Hansen, Olkkonen, Walter, and Gegenfurtner, "Memory Modulates Color Appearance," (2006).

see these greyscale banana pictures as being more yellow than they actually are *solely because of their beliefs about the color of bananas*. It is this misguided phenomenological experience which leads subjects to overcompensate when adjusting the picture, and, according to proponents of cognitive penetrability, this overcompensation is ill-explained by any other means.

More ethically problematic are studies which suggest that similar phenomenological processes take place regarding race. Levin and Banaji[37] found that when shown greyscale pictures of faces which were either given characteristically black or white facial features, subjects were much more likely to choose significantly darker backgrounds as matching the shading of the "black" faces, and lighter backgrounds for "white," despite the fact that all the pictures had the exact same luminosity. Even more shockingly, follow up studies show that these effects are only amplified by knowing about the phenomenon, and similarly persist even in mixed faces which are racially neutral but are labeled as "black" or "white" by the researcher via a caption, suggesting even more strongly that there is a perceptual difference based on belief about the persons pictured, rather than the measured effects being the result of some kind of systematic misjudgment by the subjects.[38]

Issues in Rebutting Color Penetrability

It has been proposed that cases of color perception are much harder to explain away via encapsulation than many other proposed cases of penetrability without causing serious issues for other cognitive processes, such as systems of judgment.[39] In altering these other systems in order to prevent penetrability, encapsulation theorists seem to be doing themselves a disservice by making the situation more epistemically, systemically, and theoretically problematic than would

[37] Levin and Banaji, "Distortions in the Perceived Lightness of Faces: The Role of Race Categories," (2006).

[38] Macpherson, "Cognitive Penetration of Colour Experience," (2012).

[39] Ibid.

be the case if penetrability was just accepted. For example, Macpherson argues that in order to appropriately explain away the results of the initial color studies involving the changing background detailed above, one need necessarily assume that subjects are systematically confused about their own experiences, and their reports are in direct contradiction to their actual phenomenological experience.[40] As suggested in the rebuttal to the attention argument described above, one must assume that subjects are systematically misreporting, misjudging, and mistaking their own experiences for something which is further from reality than what they are actually perceiving. In other words, when a subject says that she is seeing red, she is ignoring the actual sensory information in front of her (that of orange) in favor of (for some unexplained reason) the interpretation that the orange color is much redder than it is in reality. This apparent complication of what is happening for subjects makes penetrability the more parsimonious explanation of these color shifting experiments.

Summary

Given the evidence both for and against cognitive penetrability, it seems that all things considered, accepting penetrability despite its potential problematic epistemological implications and ramifications for theories of realism is the more empirically and parsimoniously sound theoretical decision. While encapsulation theorists have made sound attempts at reinterpreting the available evidence for penetration, particularly given examples such as penetration by color beliefs, which cannot be explained away without attributing systematic errors to individual subjects and other theories of cognitive functioning, it seems that at least for now, proponents of penetrability have the upper hand in the debate.

[40] Ibid.

Part IV: How Problematic is Penetrability?

Implications for Models of the Mind

After an initial review of the present data and thinking regarding the phenomenon, it seems curious in some ways that the debate surrounding whether or not cognitive penetration is an existent phenomenon or not is still (in some sense) a live discussion. What, exactly, is the thinking behind holding onto versions of classic modularity with such a death grip? At its center, penetration continues to be debated because of its potential implications for theories of how the mind operates. Thinkers who hold to modularity on some level—Fodor, Pylshyn, and Raftopoulos, among others—are also either wholesale or partially committed to a model of the mind which is much more straightforward and computer-like than cognitive penetrability allows. Often referred to as the "sandwich model" of cognition,[41] these thinkers are committed to the idea that brains are merely interpretation hubs which intake data from the senses—such as sight—process it somewhere internally (completely separate from the influence of "higher-order" processes [cognitions]), perhaps it is integrated in later processing with other sensory inputs to form a complete picture, and then commands are spit out by the brain to create actions to surround with that perceived reality. Much in the way that the computer responds to a keystroke—it receives an "&" input from keyboard, processes input, spits out an "&" command—so this model suggests the brain operates. The brain, in other words, is simple and linear in nature—input, process, response, repeat. Of particular significance is the idea that such a model necessarily involves a one-way flow of information; in other words, it is a feedforward-only system, disallowing for any (substantial) feedback from higher processes.

[41] Hurley, "Perception and Action," (2001).

Cognitive penetration creates problems for this comparably simplistic model of the mind, because it suggests that the input received by the brain is not pure and unadulterated data in the way that a keystroke of an "&" will always be an "&." Continuing the analogy, cognitive penetration suggests that the software of the mind—thoughts and ideas; cognitions—can alter how input is perceived. It is possible that based on the fact that we believe that "x," an "&" input would result in both processing it and interacting with it as if it were a "#" or even an "*." According to cognitive penetration, & does not always equal &, and this is a problem for the sandwich model of the mind. To suggest that cognitions may alter perceptions is to deny the one-way information flow of modular and classical sandwich views of the mind. It is, in short, to suggest a much more complex and messier model of how the brain works which has important implications for theories of epistemology, for how we can and should conduct cognitive research, interpret psychological data, and it brings up questions of the relevance or applicability of all the work which has been done using this classic, simplistic model of the brain. Of particular importance for the current project, such complex theories of the mind also open the door for other debated phenomena to be plausible—specifically the idea of cognitive phenomenology which will be discussed in Chapter Two.

Retaining Dichotomies

Despite the arguments discussed above, it seems plausible that the seemingly-devastating implications of the potential for penetrability suggested by its opponents is perhaps too dramatic at best, and ill-informed at worst. Over three centuries ago, Descartes mentioned in his *Meditations*, unsurprising to most people, that our sensory perceptions are, at times, questionable.[42] It seems in some respects that those who oppose the idea of cognitive penetration

[42] Descartes, *Meditations on First Philosophy*, ed. D. A. Cress, (1993).

are suggesting that if our perceptual abilities are not only sometimes incorrect, but also penetrable to cognitive ideals, then we lose all ability to trust our senses for any justificatory information for belief. This, however, feels as though we have gotten halfway through the *Meditations*, failing to reach the point where Descartes reincorporates his sensory perceptions back into consideration (with a healthy skepticism of those times when our senses *do* fail us, such as when there is fog or we are tired or intoxicated). In some sense, then, encapsulation theorists are taking the idea of penetrability too far in order to benefit their own thesis—if one has to reject trust in one's own senses in order to accept cognitive penetrability, it is obviously in everyone's best interest to figure out how best to retain sensory encapsulation. Yet it does not appear that the actual consequences of penetrability would be all that damning. First, if penetrability is an existent phenomenon, it is something we have lived with for the entirety of modern human evolution, and it does not seem to have significantly impeded our progress, either individually or as a species more broadly. Further, it seems likely that being realistic about the potential consequences of penetrability will better enable us to discover ways to work around whatever issues it may in fact cause. In addition, even if we discover at some point that cognitive penetration is not something that happens, if we have attempted to "work around" penetrability, it seems our theories of ontology and epistemology will only be stronger for having compensated for those particular likely missteps—even if those missteps turn out to be due to something else entirely.

Overall, then, it seems the main (and perhaps only) reason to reject penetrability is to retain a simpler version of the mind. If the workings of the human mind are more complex than modularity allows for, then not only is penetrability plausible, but many of the sharp divisions our philosophical and empirical theories and ideas have historically rested on will be dissolved;

notably in the case of allowing for penetration is the blurring of the sharp distinction which has been previously drawn between cognition and perception. When cognitive penetration suggests that cognitions might have an influence on perceptual experiences, it is no longer clear where our sensory experiences end and our cognitions begin, yet this distinction between what is "cognitive" and what is "perceptive" is what much of the historical work within the philosophy of mind rests upon. Without a clear delineation between these categories, they are no longer nicely separate and easily manageable as unique phenomena, meaning that anything based on this distinction (as well as the terms of the distinction itself) must be rethought. It is, then, much easier to argue for a theory like modularity rather than abandon this useful dichotomy, as the abandoning of this particular distinction may very well (and, as will be suggested later, likely does) lead to having to abandon other related philosophical dichotomies.

Part V: Summary and Conclusion

While not all of the empirical data in favor of a thesis of penetrability is exceptionally strong—in particular those experiments conducted at the beginning of the New Look movement—it is clear that, taken together with what we know about its implications and the lack of arguments against it which stand up to theoretical criticism, accepting the phenomenon of cognitive penetration and all of its implications is a reasonable place to land. Some of the implications of cognitive penetrability do, of course, require the modification or acceptance of less than ideal consequences, such as the abandonment of the sharp distinction between perception and cognition, but overall allowing for penetrability and its necessarily complex model of the mind seems to align more closely with reality than anything that must be abandoned to accept it (e.g. modular views of the mind). In the following chapter, we will turn to a secondary thesis—that of cognitive phenomenology—as further support for the idea that

complex models of the mind and the subsequent erasure of some of philosophy's sharper dichotomous distinctions have a greater bearing on reality than do the alternatives.

Chapter Two

A second issue (in addition to cognitive penetration) which has seen a resurgence in popularity in the philosophy of mind literature is that of cognitive phenomenology. While this thesis has roots in the work of the early phenomenologists like Husserl,[43] after the study of phenomenology declined with the rise of behavioral and cognitive psychology, so did the idea that cognitions have a unique phenomenal character. This renewed interest in the topic of cognitive phenomenology shares some parallels with the resurgence of cognitive penetration—namely, emerging evidence from the fields of neuroscience and psychology seem to give the idea of cognitive phenomenology a peg to hang its hat on. In short, the thesis of cognitive phenomenology is simply that cognitions—specifically conscious thoughts—have a unique phenomenal character which is *irreducible to* any sensory phenomenon (either alone or in some significant combination).[44] For example, when I view a wood duck (and have the requisite knowledge about what sort of bird I am seeing), there is something it is like to deploy the concept of "wood duck" that is wholly unique from what it is like for me to see the green of the duck's feathers or the yellow of its bill, to smell the algae of the pond it is swimming in, or to hear its angry quack as I get too close. That "something" is the phenomenal content of the *thought* "wood duck."

While the debate surrounding cognitive phenomenology's viability as a thesis continues in the literature (with an emphasis put on its implications for consciousness and the distinction between "cognition" and "perception"), with very few exceptions its potential relation to (or,

[43] Jansen, "Kant's and Husserl's Agentive and Proprietary Accounts of Cognitive Phenomenology," (2016).

[44] Jorba and Moran, "Conscious Thinking and Cognitive Phenomenology," (2016).

more specifically, its possible implications for) cognitive penetration has gone nearly untouched. Overall, the biggest possible connection seems to be that cognitive phenomenology, if not conceived of as robust enough, collapses into (or, more likely, is confused with) cognitive penetration.[45] The goal of the present work, then, is threefold. First, the thesis of cognitive phenomenology will be briefly examined to look at the most common arguments for and against its existence, in an effort to demonstrate how this concept is supposed to work/manifest itself, and to set up a strong basis for the remainder of the chapter. Second, it will be argued that, given the thesis of cognitive phenomenology, it appears that it is unique from and irreducible to not only sensory phenomenology, but also an idea of cognitive penetration. Between that work and the work completed in Chapter One, it will be suggested here that not only are the two theses separate from and irreducible to one another, but they share an important connection in that they have crucial implications for both what potential model(s) of the mind are viable, as well as how these models create potential problems for certain philosophical dichotomies—a thesis that will be expanded on in the following chapter.

Part I: Establishing a Thesis of Cognitive Phenomenology

Defining Cognitive Phenomenology

As noted above, cognitive phenomenology, in its strongest form, is defined as being a unique mode of phenomenal experience which is different from and irreducible to other phenomenologies. While there are those who argue for a variety of weaker forms of the idea (in particular, the sizable group of theorists who see cognitive phenomenology as being a variety of sensory phenomenology),[46] these will go largely undiscussed in the present work for the sake of

[45] Montague, *The Given,* (2016).

[46] Prinz, "The Sensory Basis of Cognitive Phenomenology," in *Cognitive Phenomenology*, ed. Bayne and Montague, (2011); Robinson, "A Frugal View of Cognitive Phenomenology," in *Cognitive Phenomenology*, ed. Bayne and

time and simplicity. As mentioned in the introduction to this chapter, the sole goal of the following section is to give a general overview of how this most robust version of cognitive phenomenology is supposed to work. The debate surrounding cognitive phenomenology, then, is not so much whether such an experience exists, but rather what implications its existence has (or does not have). In particular, cognitive phenomenology has important implications for how we discuss and theorize about consciousness, the nature of thoughts and cognitions, and, importantly for our present purposes, ideas about how the mind works.[47]

Non-Iconic Thinking

Imagine that you are on the bus, headed to work, and suddenly remember that you have forgotten to feed your fish before leaving. This flash of remembering is what some thinkers have appealed to as being a cognitive phenomenological event. Other examples which fall under the argument of "non-iconic thinking"[48]—or thinking which does not involve sensory phenomenon, such as imaginative visualizations or emotions—include other metacognitive states such as tip-of-the-tongue experiences,[49] feelings of knowing (e.g. "feeling" as though one knows the answer to a question), and "ah-ha" or "eureka" moments.[50] The argument is a simple one: when one considers these non-iconic occurrences, it is very hard to explain the phenomenal experiences of them without an appeal to cognitive phenomenology. These experiences seem purely cognitive in nature, and as such cannot be "explained away" by suggesting that they are sensory in any way—it is clear that, because these experiences do not exist in any external space,

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Montague, (2011). Tye and Wright, "Is There a Phenomenology of Thought?" in *Cognitive Phenomenology*, ed. Bayne and Montague, (2011).

[47] Smithies, "The Significance of Cognitive Phenomenology," (2013).

[48] Siewert, *The Significance of Consciousness*, (1998).

[49] Goldman, "The Psychology of Folk Psychology," (1993).

[50] Smithies, "The Significance of Cognitive Phenomenology," (2013)

they must be completely contained within the mental processes of the experiencer, and this containment within mental space makes an appeal to sensory phenomena seem at first glance to be counterintuitive.

While initially and intuitively appealing, these types of arguments for the existence of cognitive phenomenology do seem to be relatively weak on their own if one is not already on board with the idea that cognitions have unique phenomenal character, as it can easily be the case that what we are taking as a "phenomenon" here is merely a misinterpretation of sensory or emotional experiences—such as excitement (ah-ha moments), frustration (tip-of-the-tongue phenomenon), or a mental visualization (imagining your fish "in your mind's eye" while remembering that you did not feed her).[51] It may also be that we are simply wishfully interpreting these experiences as uniquely phenomenological as a confabulated response to not fully understanding the origin of the "feeling" associated with them.[52] In other words, while the phenomenal experience of a tip-of-the-tongue state is one of frustration or irritation at not being able to come up with the known word, one may interpret this sensation as being unique—either because one is already wedded to an idea of cognitive phenomenology, or because the idea that it may be irritation does not come to mind right away, and our actions and feelings demand explanation. Such a demand for explanation is seen in the social psychology literature, as pointed out by the philosopher Peter Carruthers, where people see their behaviors and post hoc find an explanation for them. Thus, it is supposed, one might be misinterpreting one's own phenomenal experiences because we know that a tip-of-the-tongue state has occurred, and we need a way to explain it—for some, supposing that, on self-reflection, the explanation for this occurrence is that

[51] Carruthers, *The Opacity of the Mind,* (2011).

[52] Ibid.

such a state has a phenomenal character which is unique from any other seems the most plausible, though this does not necessarily mean that it is a correct view.

That being said, if one can establish that cognitive phenomenology is an existent phenomenon, then it is possible that one may reincorporate metacognitive states like feelings of knowing and ah-ha moments into what counts as a cognitive phenomenological sensation. However, it seems that non-iconic thinking alone is not the strongest way to establish the existence of a unique and irreducible phenomenology of cognition.

Contrast Arguments

One of the most common attempts to illustrate the existence of cognitive phenomenology is by appealing to intuition and using an illustrative case of phenomenal contrast. One very salient example of this is the phenomenal contrast case proposed by the philosopher Galen Strawson, who proposes that there is a difference between hearing a sentence like "this is a duck" spoken in a language that one is fluent in, and hearing it spoken in a language one does not know, such as Spanish ("esto es un pato").[53] The argument here is that, if one seriously considers the event of hearing the sentence "esta es un pato" as occurring simultaneously to a monoglot Spanish speaker and a monoglot English speaker, there will be a *phenomenal difference* for the two subjects, despite the fact that the *sensory experience* of the sentence will be exactly the same—both speakers are hearing the exact same words and sounds coming from the same speaker. Therefore, what is being argued for here is that the phenomenal difference for these subjects is based on the phenomenal character of *understanding* and *not understanding*, respectively. This difference is phenomenal in character, but its base nature is cognitive. This is a conscious phenomenal experience as of understanding (or as of not understanding/being

[53] Strawson, *Mental Reality,* (1994).

confused), regardless of whether one is consciously *thinking* "I understand" (or "I do not understand").

The most common form of attack against this type of argument is to claim competing intuitions about the case. Opponents of cognitive phenomenology propose that the only genuine difference between "this is a duck" and "esta es un pato" for an English monoglot is sensory. There is an auditory difference between the two sentences, if one is looking at the speaker there is a difference in facial movements to make the differing sounds, but, the opponent concludes, there is no phenomenal difference beyond that, and to propose that there is one is to be begging the cognitive phenomenology question.

In addition, similar arguments as those proposed against non-iconic thinking also apply here, though perhaps more weakly. For example, it may be argued that one is (or is not) visually imagining a duck, and therefore any phenomenal character involved in the experience is sensory—specifically visual. If one knows that "pato" means "duck", one will picture a duck and have a visual sensory experience; if one does not have this requisite knowledge, one will imagine no duck-like image at all. This imagining, it is argued, is the only difference between "understanding" and "not understanding." While this does appear to be a reasonable reply, it has been argued that such imagistic understandings of semantics are not always necessary—or even possible. This is illustrated by the use of ambiguous sentences such as "I hope the food is not too hot for you"[54] or "the boy the man the girl saw chased fled."[55] To understand such sentences, it is argued, requires no imagistic understanding, but rather a purely cognitive understanding of the words involved (e.g. the double meaning of the word "hot"). Therefore, the argument from

[54] Siewert, *The Significance of Consciousness*, (1998), pg. 278.

[55] Pitt, "The Phenomenology of Cognition or What is it Like to Think that P?," (2004).

mental images fails at least in these particular cases, offering support for the idea that such images are inapplicable in other cases as well.

Zombies

The philosopher Terry Horgan proposed that perhaps the best way to argue for the existence of cognitive phenomenology is to posit the existence of a variety of "partial philosophical zombies" a la David Chalmers, to illustrate that an opponent of cognitive phenomenology must do some serious bullet biting to deny the existence of a unique and irreducible phenomenal character for cognitive experiences.[56] Chalmers' original thought experiment was to propose that there may be "philosophical zombies" who are like us in every way, yet lack the conscious phenomenological experiences that we have, in theory showing that consciousness is made up of a separate mind and body, and therefore physicalism is implausible.[57] Horgan proposes partial zombies who, unlike Chalmers' zombies, have all of the conscious sensory phenomenal experiences that human persons have, but instead lack certain cognitive phenomenological aspects, such as a lack of speech understanding (having "learned the rules" of social linguistic exchanges in the style of John Searle's Chinese Room[58]), or an inability to see the "self-as-source" of actions. The argument, then, is not just that these zombies are robustly conceivable, but that this conceivability illustrates that we must have such cognitive phenomenological experiences, or it would not seem strange to us that these partial zombies lack such phenomena. The hope is that, through this illustration, we can successfully move past the competing intuitions issue that causes perpetual debate in the use of phenomenal contrast

[56] Horgan, "From Agentive Phenomenology to Cognitive Phenomenology: A Guide for the Perplexed," in *Cognitive Phenomenology*, eds. Montague and Bayne, (2011), pgs.57-78.

[57] Kirk, "Zombies," in *Stanford Encyclopedia of Philosophy*, (2015).

[58] Searle, "Minds, Brains, and Programs," (1980).

arguments. Horgan concludes that in order to refute the outcome drawn from this thought experiment, one must either deny that such zombies are possible—a task which seems implausible, assuming one is willing to get on board with the plausibility arguments that zombie experiments in general need to get off the ground—or one must beg the question by assuming that cognitive phenomenology does not exist from the outset. The latter of these options, of course, is fallacious.

While not proposed specifically in the literature against Horgan's partial zombies, the same metaphysical concerns against philosophical zombies more generally holds some weight here, as well. Although Horgan argues, and one might agree, that partial zombies are, indeed, robustly conceivable, this does not necessarily mean that they are metaphysically possible. While it seems reasonable to illustrate that such a thing is plausible (or implausible), and therefore open up the possibility that the plausible thing may exist and have implications for how we think about the question of cognitive phenomenology, "plausible" and "actual" are, metaphysically speaking, two distinct realities. However, Horgan's goal is not to establish a metaphysical reality, but rather to give us another way to look at the idea of cognitive phenomenology with a more nuanced lens than the appeal to intuition that is required by contrast arguments. While one might argue that Horgan, as well, is relying on intuition to get his zombies off the ground, the intuition is less personally subjective and more philosophically robust than what is being appealed to by classic contrast arguments. In this case, his argument seems to be sound.

Consciousness and Qualia

A final (and perhaps most effective) argument for the existence of such a unique phenomenology is derived from the existence of consciousness itself. Setting aside worries about the debate surrounding the existence of qualia, it has been argued by philosopher Michelle

Montague that cognitive phenomenology is a necessary requirement for conscious experience.[59] Qualia, the "introspectively accessible, phenomenal aspects of our mental lives,"[60] must be conscious—we cannot have a phenomenal experience without some kind of conscious awareness of it. As such, it seems necessary that for a thought (cognition) to have a phenomenal character, it must be conscious—and conscious in a way that it does not seem that sensory phenomena have to be in order to have phenomenal qualities.[61] For example, even if a subject is focused solely on the computer screen in front of her, and therefore only truly conscious of what is happening in that space, there remains for the subject "something it is like" to be experiencing (though not consciously) the sound of other keyboards, the red of the book in her peripheral vision, or the blue of the water bottle to her right. This relative "unawareness" or "unconsciousness" of these peripheral experiences does not seem to diminish their phenomenal character in any way—though, perhaps it may be argued that they would be "stronger" if one were to shift one's attention to them. Perhaps the experience of the book or the water bottle would be richer if one was also experiencing the phenomenal character of shape, etc., in addition to the object's color. But there is *some* sensory phenomenal character (however incomplete) in these peripheral experiences nevertheless.

Thoughts, on the other hand, do not seem to have a phenomenal character if one is not consciously aware of or deploying the concept at a given time. This difference in conscious awareness, argues Montague, is why cognitions have to have something over and above sensory experiences—in other words, their own unique and irreducible phenomenology.[62] Unlike sensory

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[59] Montague, *The Given,* (2016), pgs. 173-215.

[60] Tye, "Qualia," in *Stanford Encyclopedia of Philosophy*, (2017).

[61] Montague, *The Given,* (2016), pg. 196.

[62] Montague, *The Given*, (2016), pg. 203.

experiences, there is a difference between having the belief that cats have four legs, and consciously deploying that belief into the thought "cats have four legs." By deploying the concept of "legs on cats," one experiences the qualia associated with that concept, but below the level of conscious awareness, although the belief remains intact and, arguably, existent, it does not in that moment have any phenomenal character associated with it. In short, then, the experience of the phenomenal content of a cognition is rooted in the deployment of that cognition as a concept usable for mental manipulation.[63] Therefore, if cognitive phenomenology is a genuine occurrence, it must be fundamentally different from sensory experiences, and as such completely irreducible to such experiences.

This type of argument from consciousness, though not infallible, is particularly resilient against accusations that cognitive phenomenology is merely sensory phenomenology being misinterpreted or misunderstood. It also retains the complexity and connectivity of cognitions by explaining how and why there can be a unique phenomenal experience of thoughts, while maintaining the reality that certain beliefs/ideas/desires can continue to exist or be a factor in sensory experiences while remaining below the level of conscious awareness. Taken in tandem with the illustrations of non-iconic thinking, contrast arguments, and Horgan's partial zombies, it seems quite likely that, despite some continued disagreement, cognitions have a unique and irreducible phenomenology associated with them.

Summary

Overall, it seems clear that much of the current debate over a thesis of cognitive phenomenology comes down mostly to intuitional disagreement, as cognitive phenomenology is a difficult (if not impossible) experience to test, being in many ways as intangible and illusive as

[63] Montague, "Perception and Cognitive Phenomenology," (2017).

consciousness itself—thus why much of the present focus has been on how it is supposed to work, rather than whether or not it exists as such. Even with intuitional disagreements, the overall thesis—in some form or another—is largely accepted. The main issue becomes, then, not its existence, but rather what that existence looks like, and what implications the thesis has for things like consciousness and ideas of intentional content, as well as how we are to go about distinguishing cognitions from perceptions.[64] Potential implications of the thesis are further complicated if one also accepts a theory of cognitive penetration, a relationship which will be explored next.

Part II: Cognitive Phenomenology and Cognitive Penetration

Unsurprisingly, there are a number of similarities between the anomaly of cognitive phenomenology and that of cognitive penetration. Similarities that, if not considered, have the potential to cause philosophers to confuse one with the other, and/or cover ground within the philosophy of mind and cognitive psychology which has already been explored by those working primarily with the other thesis. By disregarding one or the other subsection of the literature, it seems we may be doing both a disservice, as it may be that it is possible to utilize the two phenomena in order to bolster each other, or, at the very least, further solidify the underlying assumptions which are necessary to get both theses off the ground. In the following section, some of the potential implications of this ignorance, as well as how these phenomena seem to be complementary will be explored.

Cognitive Phenomenology as Penetration?

There have been some attempts to make the thesis of cognitive phenomenology tenable by proposing versions of the thesis which are significantly "weaker" or less robust than the

[64] Smithies, "The Significance of Cognitive Phenomenology," (2013).

definition currently being deployed (unique and irreducible to other phenomenal experiences). One such thinker is Joseph Levine, who in a 2011 paper explored several versions of a cognitive phenomenology thesis. Although he settled on what he called “cognitive phenomenology with opaque content” as being the most viable (albeit itself quite weak in comparison to some versions of the thesis), he also suggested that an even weaker thesis, what he termed "impure cognitive phenomenology" would also be theoretically viable.[65] This impure version of the cognitive phenomenology thesis is said to impress something more on sensory experiences, changing the character of the sensory phenomenal experience, as opposed to the cognition being a standalone phenomenal experience. In other words, a “cognitive phenomenological” experience exists only as a kind of enhancement to a given sensory experience.

Montague, however, argues that Levine specifically seems to be confused about what cognitive phenomenology is (and cannot be), and that what such an "impure" thesis really amounts to is a glorified version of cognitive penetration—not a thesis of cognitive phenomenal experience at all.[66] Montague suggests that he has weakened the thesis too far, thus letting it bleed into a thesis more like cognitive penetration, suggesting that if one is not careful, there is the potential for cognitive phenomenology to collapse into cognitive penetration. Although Levine ultimately backs off from the impure theses he proposes, settling for an overall stronger version of cognitive phenomenology, it is clear that without some cross discussion, there is the danger of retreading water within these debates, as the philosophical community may continue to miss the potential relationship (or lack thereof) between these two ideas. While the potential for making such a mistake as Levine does—where he collapses one thesis into the other—seems

[65] Levine, “From Agentive Phenomenology to Cognitive Phenomenology,” (2011), pgs. 57-78.

[66] Montague, *The Given*, (2016), pg. 179.

relatively low (especially now that someone has done just that), this does illustrate that the potential for similar confusions to occur, and similarly suggests that there are as-yet untapped connections between and implications of these theories.

Distinctions Between Cognition and Perception

Similar to the way in which cognitive penetration blurs the previously strong line between what is a cognition and what is a penetration, cognitive phenomenology also raises questions regarding the difference (or apparent lack thereof) between what has been considered as two separate and distinct categories. In particular, if cognitions have phenomenal character like cognitive phenomenology suggests, then in what ways—if any—are cognitions distinct from sensory perceptual experiences? The answer, it seems, is not many. If phenomenal character has previously been one of the things which anchors the line between higher-order "cognition" and lower-order "perception," then adding such a character to the cognition removes one of the key distinguishing factors between them. Removing, as well, the insulation of these cognitions from outside influence as does cognitive penetration, and it seems this particular distinction has two major legs kicked out from under it.

Defense via Sensory Phenomenality

As we have seen, one of the most commons strategies to refute a thesis of cognitive phenomenology is to argue that such experiences merely "collapse into" sensory experiences; that when proponents of cognitive phenomenology are arguing for a unique phenomenological experience, what they are in reality accomplishing is merely an unnecessarily complex explanation of sensory experiences, wishfully interpreted as unique in some way. Similar arguments have been made against cases of cognitive penetration; opponents suggest that what cases are proposed as being penetrated experiences are merely (unnecessarily) complexly

interpreted sensory experiences. While there are some distinctions to be made regarding why these critiques are launched against their respective targets, there is something to be said about the similarity that is being argued for—i.e. that experience is "just" sensory in nature.

The question becomes, then, why opponents of these ideas are so wedded to the idea of sensory phenomena as being static in the way they have always been conceived to be. The answer to this inquiry is, I believe, that this commitment to sensory phenomena as being necessarily tied to the way(s) we have historically interpreted them—namely, as being basically the only experience(s) with discernable phenomenal character, and relatively uninfluenced by other operations of the mind—is that so much of our thinking surrounding consciousness and mental functioning has been tied to this understanding. Even Descartes started from sensory phenomena and worked his way up to higher-order cognitions—it is the simplest, most accessible piece of human functioning and consciousness. However, theses like cognitive phenomenology and evidence for occurrences such as cognitive penetration seem to fly in the face of the very grounding of these ideas of consciousness and the mind. If sensory phenomena are not what we have theorized, supposed, and known them to be for so long, we have, in essence, removed the grounding for many of the traditional and current working theories within the philosophy of mind.

Consciousness and Mind Models

In addition to potentially altering the way we view sensory inputs, cognitive phenomenology has implications for how we think about the mind and its theoretical structures. As noted above, the existence of a robust sense of cognitive phenomenology has direct implications for how we conceive of consciousness, specifically questions which revolve around the anomaly that consciousness seems to some to be. It has been suggested that if cognitive

phenomenology exists, there are no more "easy problems" of consciousness, since this theory eliminates the non-phenomenal aspects of our experience, as laid out by Chalmers and others.[67] If events such as discriminating one object from another or the reporting of mental states become similarly phenomenal like "purely sensory" states such as hearing and seeing, then explaining these "higher-order" cognitive states does appear to become more difficult, indeed.[68]

One of the main reasons for denying a thesis of cognitive phenomenology is very similar to the reasons expressed in the denial of cognitive penetration—in short, that such a thesis overly complicates/alters current working theories of the mind and consciousness. Theories of encapsulation and other similar models imply that cognitions lack any communication with other processes of the mind. As discussed in the previous chapter, this lack of communication in theory keeps cognitions from influencing sensory experiences, but this theory also implies that sensory experiences do not impact cognition except in so far as a cognition may be the "output" of a sensory experience. Overall, these theories boil cognitions down to being akin to a somewhat inconsequential "middle step" between input and output. For example, an agent, James, sees a tree (sensory input), thinks "that tree looks shady" (interpretation of sensory data), and walks towards the tree (behavioral output). However, assuming that there is something it is like to have such an interpretation greatly complicates encapsulation-type theories, because it makes these middle steps so much more than "simple"—so much more than "just" a middle step in a behaviorist's fantasy. The resulting complexity further suggests that we do not understand how the mind works, and thus we are further away from understanding consciousness than many would like to think we are—as mentioned above, cognitive phenomenology seems to eliminate

[67] Chalmers, "Facing Up to the Problem of Consciousness," (1995); Smithies, "The Significance of Cognitive Phenomenology," (2013).

[68] Chalmers, "Facing Up to the Problem of Consciousness," (1995).

the "easy problems" of consciousness, and it appears to do so by, at its root, complicating what models of the mind are acceptable, in much the same way that cognitive penetration seems to.

Part III: Summary and Conclusion

In this chapter, I have attempted to illustrate that a unique, robust, and irreducible theory of cognitive phenomenology is plausible and that the evidence and arguments made in its favor are adequately strong to suppose that such a phenomenon does, indeed, exist as a feature of human consciousness.[69] Similarly, it has been illustrated that this phenomenon is also significantly different from the thesis of cognitive penetration (the existence of which was argued for in Chapter One)—and, more importantly, neither experience can be reduced to the other. Given the complexity required for both concepts, it seems clear that certain theories such as the "classical sandwich model"[70] and encapsulation theories of the mind are untenable. Although it has largely come down to the brave and the few who continue to hold encapsulation-type theories of the mind,[71] it seems that still we hold to many of the historical tenets of philosophy which seem to necessarily rest on such theories. How one might go about accounting for the implications of cognitive phenomenology, cognitive penetration, and the subsequent mind model(s) they imply, as well as how one might go about applying these implications to classical philosophical dichotomies (including the cognition/perception distinction already discussed) is what we will turn to next.

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[69] Indeed, it seems that quite plausibly, supposing any nonhuman animals have the necessary higher-order cognitive capacities, they, too, may have such phenomenal experiences, but this has not yet been addressed in the literature, and there is unfortunately no chance to engage in such an exploration here.

[70] Hurley, "Perception and Action," (2001).

[71] Notably Pylshyn, Raftopoulos, and the late Fodor.

Chapter Three

As we saw in the previous chapters, both cognitive penetration and cognitive phenomenology have faced backlash on the basis of maintaining our traditional views of the mind, consciousness, and cognitive thought processes. As such, it is clear that if one were to accept both of these controversial theses, one must also accept a more complex (less traditional) model of the mind. In accepting a more complex view of the mind, one must simultaneously reject certain historically held philosophical distinctions. One such distinction (touched upon in both of the previous chapters) is the line drawn between perception and cognition. A second distinction which will be detailed more thoroughly here is that of reason and emotion. While traditional models of the mind have strived to maintain this reason/emotion division—including our current primary example seen in Fodor's modularity model—it seems clear that, at its root, the continued backlash over both penetration and cognitive phenomenology is in some ways a result of the struggle to maintain this traditional divide. Yet, if the mind does not work in the way laid out by Fodor and his contemporaries, then there is the potential that affective states (being both cognitive and not so sharply distinct from reason) give us meaningful and useful information about the world—an idea that runs contrary to many traditional views within philosophy in general, and epistemic theory more specifically. As such, the implication(s) of the reason/emotion division are called into question, and while this does not solve any of the potential issues raised by cognitive penetration (namely an increased inability to trust our sensory perceptions), it does suggest that we need to reject both models of the mind that support the reason/emotion distinction, as well as the distinction itself (at least on a non-conceptual level) in favor of a more complex view which makes room for the role of emotion in reasoning.

In light of this, the goal of the present work is first to discuss in some depth a bit of the precedent to maintain the philosophical distinctions complex theories of the mind require us to reject. Second, to lay out what a more complex version of the mind might look like once we have rejected modularity-type views. Finally, the potential of applying cognitive phenomenological principles to this New World where the reason/emotion distinction is moot will be illustrated. While such an allowance for the role of affect in reasoning does not give us any more confidence in our sensory perceptions (especially in light of phenomena like cognitive penetration), it does seem that such decrease in confidence is relatively inconsequential when compared to the bigger picture.

Part I: Historical Considerations

It is no secret in the field of philosophy that our theories have been largely biased along a variety of strictly bifurcated positions. For centuries we have attempted to maintain a sharp divide between reason and emotion which has influenced not only areas such as theories of epistemology, but also who was and was not allowed to practice philosophy (being a "purely rational" discipline, and women, of course, being less-than rational[72]), as well as what philosophical theories were acceptable. While this divide has been greatly criticized in recent years, especially by feminist thinkers such as philosopher Margaret Little,[73] it is evident by the fact that some continue to cling to traditional views of how the mind operates (as well as theories of epistemology which state that the only role for emotions is as a wholly irrational way to "muddy" reason) that there are still those in the field who continue to hold onto this distinction despite its gasping for a few last dying breaths. While such a distinction may continue to make

[72] This sort of thinking goes back as far as Aristotle and was continued well into the 20th century in a variety of ways. It is not limited to women, but similarly includes the lower and working classes (specifically slaves for Aristotle). Philosophy, it seems, was a game only for the rich and the (biologically) male of the world.

[73] Little, "Seeing and Caring: The Role of Affect in Feminist Moral Epistemology," (1995).

sense on a purely conceptual level, it seems clear that these concepts are more interconnected at their basis than previously supposed. As delineated in the previous chapters, the evidence to suggest that these traditional mind models are no longer viable is almost overwhelming—an idea which is even clearer if we accept the idea of cognitive phenomenology, which is built on a similar theory of how the mind works as is required for cognitive penetration, as detailed in Chapter Two.

The theory, then, is that the ideas of cognitive penetration and cognitive phenomenology, and their shared basis and connections support a more complicated theory of the mind, which in turn offers support for the idea that there is not this sharp distinction between reason and emotion in the same way that these models of the mind do away with the sharp distinction between perception and cognition. As such, theories of epistemology can (and, indeed, ought to) include ideas about how emotion potentially plays into knowledge acquisition—with both negative and positive impacts—as it seems almost laughable in light of these emerging ideas of the mind and the evidence for these new models to suggest that reason and emotion are sharply distinct. Specifically, Michelle Montague's theory of evaluative phenomenology will be utilized as one possible way to begin modifying how we think about epistemic theory based on this more complex mind view, followed by a discussion of how this view impacts the potential issues involved in cognitive penetration that modularity theorists point to as a reason to reject the evidence for such experiences.

Part II: Supporting a New Theory

Penetrability, Cognitive Phenomenology, and Models of the Mind

As argued in the previous chapters, modularity and similar theories are unviable ideas of how the human mind works. This is clear both from the empirical evidence for cognitive

penetration, as well as the philosophical arguments for cognitive phenomenology. Yet there are those who continue to hold to this model. As noted briefly above, this seems largely due to an unwillingness to part with traditional views and work with a model which is more complex—in part, perhaps, because it would require giving up the reason/emotion distinction which is in many ways the very basis for much of modern philosophical thought. Specifically, modularity and similar sandwich-type models retain the idea that different processes—e.g. perceptual intake and cognitive interpretation—take place completely separate from one another, and therefore have no real influence over each other. Every thought, every input, every output is processed in isolation and then, only once fully refined, is passed on to the next module. This helps retain the idea that emotions (specifically as cognitions) do not—in fact, cannot—interfere with other processes (such as they might given penetrability), and offers support for the idea that, even though the emotional module can "overwhelm" a person's thought processes, it is possible to separate these out, and in some sense "train" one's higher-order modules to achieve full rationality and not let one's emotion module overtake one's reasoning module(s).

It seems, however, given the empirical evidence for cognitive penetration, and the philosophical evidence for cognitive phenomenology that this modularity theory is implausible—meaning that the mind is not so cleanly divided as Fodor and his contemporaries supposed. As such, it appears that there are not only feed-forward processes (e.g. perception to cognition to output) but also feed-backward processes (e.g. cognition to perception to cognition to output), making a working model of the mind so complex so as to be almost incomprehensible with just a cursory glance.[74] This is a far cry from the clean, neatly delineated, and one-way connected

[74] For present purposes, such a model need not be any more detailed than this—while there is clearly much to unpack here, the important piece is that it is in no way modular in the traditional Fodorian sense. This is not to say that there are not certain areas of specialization ("modules") within the brain, or that the brain is infinitely complex

modules of Fodor's idealistic modular view. In a system which crisscrosses and loops back in on itself, it is much harder to create the kind of distinctions which philosophers are so keen to make. Not only is it no longer possible for reason and emotion to be so clear cut, but (as mentioned earlier in the present work) distinctions like those between perception and cognition become similarly confused. Despite these consequences, however, a much more complex model seems to be required in order to accurately begin to conceive of human experience and consciousness.

In short, then, unless one rejects *both* cognitive penetration and cognitive phenomenology for some reason (beyond the idea that it will overly complicate current ideas about consciousness), it seems clear that one must accept them *both* as plausible, as either one implies the need for a more complex model of the mind. Once a more complex model has been established, the other thesis becomes equally as plausible as the first. In this way, these theories are mutually supportive, as they rest on a similar base—a complex, non-modular, feedforward/feedback view of the mind. Of course, one may still attempt to attack both theses at the point of this complex mind model thesis, but in order to do this, one must successfully rebut two sets of evidence—namely, the empirical evidence for penetrability, *and* the philosophical evidence for cognitive phenomenology.

Affect and Epistemology

Without a sharp distinction between reason and emotion, there is no longer a place to rest the argument that knowledge can only come from pure reason. Given a more complex model of how the mind operates such as that suggested above, it is clear that a variety of factors must play

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to the point of not being capable of being understood by any theoretical model. Rather, the pieces of importance for the present project is an understanding of the complexity of the mind (which goes far beyond modularity's explanatory power), and that complexity's implication that the brain can in no way be insulated from other areas of the brain in the way necessary for modularity to work. The details beyond these stipulations remain a project for another thesis entirely.

into knowledge acquisition because other processes cannot be filtered out—including emotion. If we are to suppose that we have any ability to obtain legitimate knowledge of our outside world at all,[75] we must make space for emotion to play a role in how that acquisition is achieved, since it is impossible to separate its strands from those of our rational or perceptual capacities. The question, then, is not *whether* emotion plays a role in knowledge acquisition, but *what kind* of role it plays. Given this entwinement of reason and emotion, it is clear that affect cannot play a solely knowledge-diminishing kind of role (i.e. "clouding" an agent's ability to obtain objective information about the world) as has been historically suggested. Because affective states seem to be so very intertwined with those of our reason, to exclude affect as a part of our cognitive epistemic processing is to, in some respects, exclude other cognitive processes, including reason.

Indeed, in addition to its interdependence with reason and other "rational" cognitive processes, emotional processes have been argued by both proponents of cognitive penetration as well as certain thinkers in favor of cognitive phenomenology to be higher-order cognitions. Even if modularity were plausible, then, it seems unreasonable to exclude such higher-order cognitive states from consideration in epistemic theory, as it seems it can be argued that affective "modules" would be on a similar hierarchical level as rational cognitive modules. As such, it seems that even modularity theorists must work harder to establish the disconnect of emotion from epistemic consideration, by maintaining that emotions are relevantly non-cognitive, in addition to providing evidence in the face of empirical work showing modularity to be implausible, as well as reason and emotion to be more interconnected than previously supposed.[76]

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[75] Or of our inner world, though that, too, is a question for a different discussion.

[76] Justin Storbeck and Gerald L. Clore, "On the Interdependence of Cognition and Emotion," (2007)."

This mental complexity leaves open several options for the role of affect, and, given the intertwined nature of experience, cognition, and emotion, it seems clear that thinkers like Montague and Little are correct in arguing that the most plausible and intriguing option for the role of affect in knowledge acquisition is as a valuable source of information—one that ought to be considered and analyzed, rather than immediately dismissed. Although these thinkers primarily suggest that the connection between emotion and knowledge is moral or ethical in nature, it seems in many ways that in addition to giving us valuable information about the moral qualities of a given situation, they are also providing us with other important aspects of the external world, depending on context. In short, emotional states are communicating to us important and necessary information about the world around us—without such information, our understanding of external situations would be greatly diminished, and our knowledge of those situations incomplete, both in moral situations and in more value-neutral, social, and non-social situations. As such, affect seems to play a (debatably) non-subjective, bolstering role in the acquisition of knowledge and is just as important as sensory perception or rational consideration for gaining a complete picture of our external world.

Evaluative Phenomenology

Evaluative phenomenology is the unique phenomenological character of affective states proposed by Montague, who suggests that affective states are similar to sensory perceptions in nature, giving them unique qualia. For example, when Joan sees a blue coffee cup, she experiences a phenomenal character as of blue; but the "blue" is contained not in Joan but is rather somehow attached to or possessed by the coffee cup, which merely elicits the phenomenal state it does in Joan. Similarly, when Joan is at a child's birthday party, in addition to perceiving the sensory phenomena of the situation—the red of the puppet-character themed cake, the

roundness of the balloons, the screams of the children playing—she also perceives an evaluative phenomenal experience as of happiness. It is argued, then, that in the same way that the coffee mug somehow embodies or has attached to it the quale of "blue," so the birthday party has the quality of "joy" or "happiness." The happiness is not a thing which is contained in Joan but is rather something which is attached to or possessed by the situation and merely elicits the phenomenal state it does in Joan in a way which is distinct from and irreducible to either sensory or cognitive phenomenological states which the situation also elicits. Because the phenomena being experienced by Joan are contained in the circumstances and not in herself, those phenomena are carrying important, external information about a situation in the same way that sensory phenomena carry external information about situations. In this way, then, intentionally directed emotional states are, under Montague's view, as epistemically valuable as are sensory states and therefore ought to be considered as a significant part of/source for knowledge acquisition.

One must keep in mind, however, that if these evaluative processes are on par with sensory processes, then they are similarly in danger of being cognitively penetrable in the way that perceptual sensory processes can be. In her discussion of evaluative phenomenology, Montague mentions briefly those sorts of emotional states—such as depression or anxiety—which have an overarching way of seeming to be present in all situations (regardless of the evaluative character contained within those situation), but suggests that it may be the case that these sort of encompassing emotional states (or moods) are not intentionally directed as the emotions she wishes to highlight are, and therefore their phenomenal character(s) (and their potential role in knowledge and understanding) may be different from those of intentionally

directed emotional states.[77] It does seem, however, that these sorts of free floating emotional states *can* be the kind which are capable of penetrating our perceptual experiences—including those of intentionally directed emotional states, providing further support both for cognitive penetration and the above argument regarding the complexity of the mind, since this sort of penetration (e.g. as of depression) is suggestive of a cognition penetrating a cognition (e.g. the phenomenal experience as of happiness at a birthday party being perceived phenomenally as sadness, despite the "rational" cognitive knowledge that its reality is otherwise). It seems clear, as well, that something like "mind over matter" types of emotional suppression may similarly be a case of a cognition penetrating a cognition, by an agent attempting to utilize their "reason" to suppress their emotional experience of the world.

Of course, although such cases provide support for the basis of cognitive phenomenology (a complex model of the mind), its evidence for penetration suggests that emotional states, while potentially epistemically advantageous in the way that sensory states may be, are subject to many (if not all) of the epistemic pitfalls associated with sensory states. Not only might evaluative states be subject to cognitive penetration (decreasing their epistemic weight, often without an agent realizing it is happening), but it may be the case that other varieties of "mistakes" which impact sensory perceptions are similarly likely to be made. In this way, then, while evaluative phenomenology adds another potential layer to how we gain and retain epistemological evidence of our external world, it also presents another area where we can be mistaken about our own perceptions of that world. As such, while it does seem to have the potential to be a valuable epistemic resource, it also seems to open just one more can of worms.

Despite its potential pitfalls, however, assuming Montague is correct, it seems we ought

[77] Montague, *The Given,* (2016), pgs. 216-235.

to be treating emotional states in the same way we do perceptual ones—as valuable, yet potentially fallible on similar grounds to sensory perceptions. In short, it is clear that the reason/emotion distinction ought to be finally laid to rest. This gives us reason to teach the potential epistemic value of emotional states and perceptions, as well as their potential downfalls, in the hope that reintegrating the steep division maintained between reason and emotion will lead to better understanding, more realistic and complex theories, and a better philosophical landscape.

Penetrability and Epistemology

As emphasized previously, ideas of cognitive penetrability and cognitive phenomenology are mutually supportive theses, notably because they both rest on a more complex, two-way communication view of the human mind. If the division between reason and emotion can be successfully removed on the basis of both evaluative phenomenology specifically, and a more complex model of the mind more broadly, it seems that the idea of cognitive penetrability becomes not only less surprising, but expected—and if it is expected, it can be accounted for more easily. Perhaps this ease of accounting for cognitive penetrability does not translate to detection for individual agents, but it ought to change the way we view perception in the study of human behavior and psychology, phenomenology, and philosophy more broadly.

In addition to providing evidence for the interdependence of reason and emotion, cognitive penetration and cognitive phenomenology also suggest trouble for the non-conceptual distinction held between cognition and perception, a point which is incredibly clear when considering the theory of evaluative phenomenology specifically, as well as the discussion in Chapter Two regarding the relative status of affective states as either cognitive, perceptual, or both. By suggesting a more intertwined theory for these traditional distinctions and opening a

feedforward/feedback view of the mind, it seems that in some respects, penetrability is less problematic than it initially appears, if only because the human mind is such that penetrability is unavoidable. The best solution, then, is to accept that penetrability is an existent and complex phenomenon, which has an intricate directionality,[78] and we therefore must acknowledge this existence so as to make attempts to account for its intricacies and their implications wherever possible. While most agents will likely remain relatively unaware of the phenomenon, steps can be taken to put measures in place to mitigate the potential consequences of penetrability—such as has already been done in the sciences[79] and is being done to reduce the impact of cognitive bias in certain business and industrial settings[80]—and these systems and rules can be continually updated and modified as we continue to learn more about penetrability and the workings of the human mind.

Part III: Conclusion

In conclusion, it is clear when carefully examining the evidence for cognitive penetrability and cognitive phenomenology respectively that the mind is much more complex than a Fodorian modularity view can properly account for, and therefore modularity (as traditionally construed) ought to be rejected in favor of a model of the mind that can properly accommodate both penetrability and cognitive phenomenology. Although Fodor's initial concern regarding penetrability—namely, that such a phenomenon would do away with the theory neutrality of scientific observation—is only made more concrete by accepting a theory of penetrability and rejecting his modular solution, by accepting that our observations are not going

[78] I.e. cognitions can penetrate cognitions, as well as perceptions, because of this now defunct distinction between non-conceptual understandings of cognition and perception, as well as other mind states.

[79] E.g. through the continued use of peer review, replicability, and continuing the refinement of the scientific method, particularly for "young" fields, such as psychology.

[80] E.g. brainstorming all the things that could go wrong with a plan before its implementation.

to be perfectly theory neutral (regardless of how the mind operates) will only lead to better theories and innovations to check for bias. The need for a modified, non-modular model of the mind becomes even clearer when considering the evidence for cognitive phenomenology, which must rest on a similarly complex, feed-forward/feedback view of the mind in order to really get off the ground. Given these theories together, as well as the mind complexity on which they rest, it becomes clear that the distinction between cognition and perception is not so clear as has previously been suggested, meaning that we perhaps know less about these phenomena than we previously supposed. Cognitive phenomenology in particular has implications for other such traditional dichotomies, including the distinction seen between reason and emotion, as well as consciousness more generally. As such, it has been proposed that emotion plays a valuable role in gathering information about our external world, therefore playing a part in knowledge acquisition. While this "new" role for emotion in epistemology does not solve the potential epistemic issues seen by Fodor and his contemporaries as being a reason to hold on to modularity and reject cognitive penetrability, it does suggest that these issues are just the beginning of the problems raised by penetrability and cognitive phenomenology. However, despite the potential epistemic and scientific issues raised by these two theories, and the necessary rejection of modularity, it is clear that in light of the available evidence (from both psychology and philosophy) that a more complex model of the mind is a more accurate model of the mind. Although working with a more complex model of the mind seems to cause a number of philosophical and psychological issues, it is better to deal with these issues within the framework of this more complex view, rather than by attempting to simplify the mind in order to negate the problems raised by penetrability and cognitive phenomenology just to salvage traditional views of reason/emotion, cognition/perception, and consciousness.

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