

Kant's Functionalism:

**Questions about Functionalism in Kant's Philosophy of Mind: Lessons
for Cognitive Science**

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Abstract

It has been argued by Kitcher, Brook, Sellars, and others that 1) Kant's philosophy of mind has valuable contributions to make to contemporary cognitive science and artificial intelligence projects contra earlier positivist commentators like P.F. Strawson, and 2) Kant's theory of mind is an early version of functionalism. I agree with the first thesis and disagree with the second. Kant's theory of mental processing has a superficial resemblance to functional theories, but it diverges on several important points: Kant employs a transcendental method that is distinct and more powerful than the functionalist method, Kant believes that there is a specific transcendental architecture in the mind that functionalism is not well equipped to identify, Kant's theory has much stronger ontological commitments than those of functionalism, on Kant's view causal relationships are the product of cognitive processing, functionalism presupposes them, and Kant describes a reflexive problem created by the attempts of the mind to analyze the mind that functionalism overlooks.

I. Introduction

An anti-psychologistic trend in analytic philosophy reached its apogee in the 20th century during the height of the influence of logical positivism. This movement's influence rippled out into many parts of the philosophical community, even to works in the history of philosophy. Kant both benefited and suffered from the impact of this trend. Positivism respected Kant's efforts to curtail speculative metaphysics and place rigid boundaries around the domain of philosophical inquiry. But it also rejected his apparent transgressions of those boundaries, particularly in his philosophy of mind. P.F. Strawson's The Bounds of Sense, for instance, favors a radically revised version of Kant's transcendental arguments that constrain the realm of the meaningful to the empirical, spatio-temporal world, while criticizing Kant harshly for his 'imaginary subject of transcendental psychology' because we 'can claim no empirical knowledge of its truth'.¹

We are now in a position to look back and assess the damages and the insights wrought by such trends in historical analysis. Kant's theory of mental processing was heavily criticized during the anti-psychologistic heyday. But I am among a growing and vocal minority of philosophers who are seeking to rectify the view that Kant had little to say about the philosophy of mind and cognitive science that was correct or useful. Functional readings of Kant's theory of mind, given by Sellars,² Meerbote,³ Kitcher,⁴ Powell,⁵ and Brook,⁶ among others, have been at the centre of attempts to salvage it from the criticisms of more positivist minded interpreters, and give Kant's views some life for contemporary cognitive science. Now that we have achieved some post-positivist, post-behaviourist respect for Kant, we can take a closer look at the functionalist reading and see what it and Kant have to offer recent attempts to model a thinking mind.

In this paper I will assess the plausibility of interpreting Kant's philosophy of mind as a version of functionalism. I will raise a number of doubts about the fit of the contemporary functionalist programme to Kant's work. I argue that while Kant's position appears to be functionalistic in many ways, the resemblance is only superficial. There are fundamental discrepancies between the method and approach of functionalism and Kant's transcendental method, and reading Kant as a functionalist does a disservice to him that obscures some of the contributions he has to make to cognitive science.

The major points of departure of Kant's doctrine from functionalist theories of mind fall under five headings: 1) **Transcendental Architecture.** Kant's view departs from functionalism in that it does not allow the functional labor between input and output states to be carved up according to different schemes. 2) **Transcendental Method.** On his view, the architecture of the mind that we settle on is not generated nor is it revised in response to the results of empirical investigation of human capacities, the findings of evolutionary biology, or the tenets of folk psychology. 3) **Ontological Commitment.** Kant's view, unlike functionalism, is not free of ontological and metaphysical commitments regarding the nature of the mind that thinks. 4) **Non-Causal Account of Mental Functions.** And the hallmark of functionalist theories is that they explain consciousness in virtue

of the *causal* relationships of mental states to one another and to the input and output states of the system. For Kant, our account of the processes of mind is not and cannot be a causal account of the relationships between mental states since causal ordering of events is a *result* of cognitive processing. 5) **The Reflexive Problem.** And Kant has identified a unique problem that arises from the recursive nature of trying to understand our own consciousness, and it is a problem that is not captured by the generic analysis tool provided by functionalism. Kant argues that since it is the mind that seeks to understand itself, and in effect subject itself to its own requirements for cognition, a barrier is created that prevents knowing the mind or the self 'as it is in itself'.

Before I can give an account of these problems with a functionalist reading in Kant, Section II will contain some brief comments on functionalism, Section III will address the evidence of a functional theory in Kant, Section IV explains the major problems with the functionalist reading, and Section V includes some final thoughts on the contributions that Kant has to make to cognitive science in light of the results of Section IV.

II. Functionalism

One of the virtues of contemporary functionalist theories of mind, as is well known, is that they avoid some pitfalls suffered by behaviourism, physicalism, and other previous theories. Functionalism accounts of mind argue that cognitive functions can be characterized on a high level of abstraction that would allow instantiation into any number of physically realizable systems. This level of abstraction allows the functionalist account some freedom from the problems of strictly identifying consciousness with the type or token physical states that constitute it in humans. And it seems to promise that there are more possibilities for conscious systems than just human ones. Ned Block says that functionalism, ‘characterizes the mental in non-mental terms, in terms that involve quantification over realizations of mental states but no explicit mention of them; thus functionalism characterizes the mental in terms of structures that are tacked down to reality only at the inputs and outputs’.⁷ The functionalist answers the questions about what the mind does, how its states are related, and how it produces its outputs from its inputs, and what ‘gives each type of mental state its own identity’⁸ without declaring what sort of stuff there is, or what the system must be made out of.

Most functionalists seem to be agreed that one of the biggest advantages of the approach is that it makes it possible to answer questions about the nature of consciousness by explaining that ‘mental states are constituted by their causal relations one to another and to sensory inputs and behavioural outputs’.⁹ Downstream or output states in the system are existentially dependent upon earlier states, their contents, and their causal interactions.

The typical functionalist theory of mind is an a posteriori investigation into the input states and the output states of a cognitive system. The functionalist tries to infer, from a variety of methods, what sort of causal states must be connecting the two externally observable states (input and output.) The theory that she comes up with is one that describes in general terms what sort of performances or activities have to occur in order to produce the output states from the input states. The resulting theory is testable in terms of the predictions it makes about a system's behaviour, and can be modified, depending upon the sort of empirical evidence the investigation reveals about the functioning of the system.¹⁰ As imaging technologies and other means of medical investigation have improved, functionalists have been able to use these glimpses inside the ‘black box’ to modify, fine tune, or restructure their accounts of consciousness. So the functionalist accounts of the web of interconnected mental states has developed in conjunction and in response to new information about neurological states, brain structures, and other laboratory data.

III. Functionalist Readings of Kant

Functionalist readings of Kant have emphasized a couple of themes. First, Kant frequently treats concepts, both the categories and ordinary empirical concepts, as functions that make it possible to transform the raw content of experience into judgments.¹¹ Second, and perhaps more relevant to contemporary philosophy of mind, Kant organizes the mind into functional modules that are responsible for different phases of the constructive process that takes undifferentiated sensations as its input and produces thoughts or judgments as its output. Kant's theory of synthesis, which was frequently or criticized or disregarded before functionalism became popular, contains Kant's division of mental labor into more rudimentary tasks/faculties that are necessary for consciousness to occur.¹²

In recent years, a number of astute commentators have stressed the heavily functionalistic character of Kant's theory of synthesis. Patricia Kitcher explains representation in Kant as the product of an essentially causal process of synthesis of disparate mental states into other mental states. She says that,

synthesis is an act, or to be more neutral, a process that produces a representation, by adding or combining diverse elements contained in different cognitive states in a further state that contains elements from these states. The easiest way to think about syntheses may be to regard them as processes that realize (mathematical) functions. Given a set of input states, a synthesis produces a certain output state'.¹³

According to Kitcher, representations acquire content for the mind in virtue of their place in an interconnected system of mental states. Intuitions are caused by objects, which in turn cause higher-level cognitive states that are existentially dependent for their content on the lower level inputs. This reading of Kant fits well with the focus on the three central players in functionalist theories: the input states, the output states of a system, and the intervening causal relations between mental states that produce those output states.

Wilfrid Sellars argues that Kant's 'revolutionary move was to see the categories as concepts of functional roles in mental activity'. He points to Kant's unknowability thesis as well; we do not know mental processes 'save as *processes which embody these functions*'.¹⁴

Andrew Brook identifies the functional aspects of Kant's theory loosely. Kant's characterization of mind that centres on 'on how it works, as opposed, for example, to how it is built. . . or its introspectable contents'.¹⁵ Brook maintains that Kant's insistence on the unknowability of the noumenal mind implies an agreement with functionalists' assertions that 'mental functioning could be realized in principle in objects of many different forms,' and that we know too little about the actual forms that minds take at present to do any straightforward mapping of their features. I will argue later that in fact Kant's view does not have the ontological neutrality that Brook claims.

Other features of Kant's analysis of the sensory and conceptual requirements of empirical cognition that appear functionalistic are his characterization of the features of mind on a high level of abstraction,

independent from any particular instantiation or substrate. Kant draws a sharp distinction between his transcendental deduction of the pure, a priori components of cognition and a Lockean physiology of the understanding which only concerns the *quaestio facti* of cognition.¹⁶ He distinguishes his enterprise from Locke's in that he is giving a general and necessary account of the sorts of faculties that must be engaged in any discursive consciousness in order for judgment to occur. Presumably, any number of cognitive systems could meet the demands laid out in Kant's transcendental psychology, although Kant certainly did not have our contemporary concerns over Vulcans, computers, and connectionist networks in mind.

Kant's theory of mind also appears to be strongly functionalistic in its outline of faculties that are required for empirical cognition. Kant identifies the cognitive faculties and their performances according to a mapping of the division of mental labor that allows a mind to successfully acquire sensory data from the world and process that data by means of its conceptual scheme. The mind must possess a passive, receptive faculty of sensation; in humans the mode of acquisition is spatiotemporal. The mind must possess a faculty of combination (imagination) that apprehends, reproduces, and recognizes the manifold data of intuition.¹⁷ The mind must possess a faculty of understanding that provides both a priori concepts in the form of categories, and a posteriori empirical concepts as rules of synthesis. And as a condition of its being able to form judgments about empirical objects, the mind must possess the capacity for self-apprehension. Apperception is empirical, for Kant, when the mind introspects itself in inner intuition, it is transcendental when the self is thought as the necessary condition of possessing unified empirical representations of objects.

It will be valuable to also note here some of the features of the mind that are not so clearly functionalistic, but essential parts of Kant's theory of mind: judgment requires a unified, identical self that is the ground of judgment. The same self that is affected by sensibility must synthesize and judge. The transcendental unity of apperception is the ground or, the substratum,¹⁸ in which all of the necessary components of having experience come together. The same self must possess all the faculties and receive all of the data that contribute to that subject's experience. Thus Kant calls the transcendental unity of apperception the 'first principle of the human understanding'.¹⁹ Judging empirical objects also requires that the subject have a faculty of self-ascription.

IV. Problems with the Functional Reading

1. Transcendental Architecture

For Kant, there are only two kinds of minds, discursive or concept using, and intuitive or one's whose apprehension of objects is not mediated by sensibility and does not depend upon being affected from without in order to form thoughts of objects.²⁰ We are not in a position to have any insight into the latter, Godlike mind, so there is only one kind of mind that we can analyse, and only one kind of mind that has real philosophical significance, for Kant. Furthermore, Kant is interested in producing the single, unique schematic for the functions and structures of the discursive mind.

Functional analyses, by contrast, can be applied to a wide range of objects, and for any given type of output states, they have a great deal of latitude in how they characterize the processes that produced those outputs. A reverse engineering of the operations within the black box is possible for any system where we are informed about the input and the output states. And functionalism does not make any special distinctions about some kinds of outputs having more metaphysical or ontological significance than others. And it is this latitude that makes it possible for the functional labor to be distributed, apportioned, and divided in any number of ways provided that the same output states can be produced by the system. Many functionalists have looked to research in neuroscience about the architecture of the human mind for guidance in how to characterize the modules of the mind and the tasks that they perform.

Kant, however, believed that a mind of a reasoning agent (human or not) is a peculiar, philosophically unique subject of inquiry. Their mode of apprehension or representation of the world, unlike that of a purely intuitive intellect, is by means of concepts that must in part arise from their own devising. For Kant, the analysis of a concept using, judging consciousnesses reveals an elaborate transcendental architecture with broad metaphysical implications. The architecture itself is defined or fixed given the nature of the metaphysically unique status of being a mind that judges or thinks.²¹ And Kant does not have functionalism's latitude. He believes that there is one, unique description of the different faculties of a mind that can make empirical judgments.

We can see the importance and uniqueness of the mind in Kant's system this way. He begins his inquiry in the *First Critique* with the famous question, 'How is metaphysics at all possible?' The answer that becomes clear in the Transcendental Deduction and the discussion of mind that is under consideration is that metaphysics in Kant's revised sense is only possible insofar as we find minds in the world. The mind itself is the cornerstone of Kant's whole critical system. And it is the lofty status of this object of inquiry for Kant that stands in stark contrast to the tendency of contemporary functionalism to minimize the differences between minds and hearts and Coke machines and other ordinary objects that can be functionally characterized. Kant does not share functionalism's drive to minimize the metaphysical entities and implications in our theory of mind.

Nor does his theory allow for the rearrangement of any faculties, tasks, or the organisation of the structures of the mind.

2. The Division of Labor Problem

As we noted above, the only elements that are nailed down to reality in a functional explanation are the beginning states and the end states. And bridging the gap between them proves to be the biggest challenge for functionalists. It is hard to see how functionalism can provide any clear guidelines for the division of labor of the intermediate states except the actual configuration of the systems it analyses, whatever they may be. Presumably natural distinctions between the component parts or faculties and their relations will become evident upon investigation or construction of a functionalist system, or empirical data will suggest, a posteriori, how in fact, the different faculties are separated and how they interact. But the functionalist cannot count on such divisions to become clear from the functionalist analysis alone, and the functionalist cannot anticipate the divisions a priori. Potentially, there could be any number of schemes for the division of labor. As is evident when an Intel chip, an AMD chip, and a Macintosh chip all run different instances of the same program, the division of labor and the inner details of how the output states are generated, even in abstract functional terms, are dramatically different.

With vastly more complicated systems like human brains there will be numerous decisions to be made about how our functional hierarchy will be drawn. If we follow the construction of the human brain too closely, we are in danger of falling into the same kind of arbitrariness that type and token physicalist theories suffer from. We may produce an adequate of how the human brain functions, but we will be no closer to explaining in more general terms how it could be that non-human systems could possibly think. So by following the developments in neuroscience for details about how the brain works, functionalism is in jeopardy of making the very mistake that it set out to avoid.

Furthermore, the division of labor for the internal functions of computers, human brains, alien brains and so on is so different that a functional analysis that manages to accommodate them both is in danger of being abstract to the point of being vacuous, or useless as a means of providing valuable descriptions of the processing. So the fact that only the input and output states are nailed down to reality actually leaves the question of the division of labor painfully open.

The challenge for functionalism has come from disagreements about how the cognitive labor should be apportioned. Fodor points out that,

*A census of faculties is not, in short, equivalent to an enumeration of the capacities of the mind. What it is instead is a theory of the structure of the causal mechanisms that underlie the mind's capacities. It is thus perfectly possible for all hands to be agreed about what capacities a mind has and still disagree about what faculties comprise it.*²²

And it is the disagreements about the faculties behind the capacities that have made progress difficult.

On Kant's programme, these questions are resolved a priori. As he sees it, the scheme of faculties described in the Subjective Deduction is unique,

and it is mandated by the very nature of cognition. The division of labor cannot be reapportioned as it can in functionalist analyses. Kant sees the components of mind that he has identified as so basic, that alterations of them or their tasks, or any redistribution of labor into another scheme would result in something that is not a mind at all. He believes his transcendental method has revealed the deepest organisational structures of mind. Functionalism, since it is only nailed down at the input/output periphery, has considerably more latitude in its division of cognitive labor.

3. Transcendental Method

On Kant's view, the architecture of the mind that we settle on is not generated nor is it revised in response to the results of empirical investigation of human capacities, the findings of evolutionary biology, or the tenets of folk psychology.

In many cases, functionalists proceed in a bottom up fashion. That is, they scrutinize empirical data about human's cognitive performances - speech acts, verb tensing, binding visual data, and so on - to produce a scheme for the general functional organisation in the mind. When we discover different output performances, or if human cognition happened to be different, a different or emended account of functional features would be called for.

Kant, by contrast, has a top down approach. That is, Kant takes the performance of mind - judgment - as his starting point, and then analyses what the necessary presuppositions of such a performance must be. While the functionalist may render a variety of functional architectures to explain the transition from input state to output states, Kant believes that it is possible to derive the necessary and unique list of general functional requirements. So Kant's transcendental approach, if it succeeds, gives us an unalterable and crucial outline of the intermediate steps.

Another way to see the difference between the two projects is to recognize a strong or transcendental sense of a priori requirement in Kant and a weak or dependent sense. Let us say that when a contingently true feature of a cognitive system imposes constraint on the structure of that system, that constraint is dependently a priori. Experimental research on human infants reveals that we seem to have an innate preferential response to faces. Newborns respond more readily and with more attention to faces than to other objects.²³ I take it that this tendency is dependently or contingently a priori. There is nothing integral to having a mind or being able to judge that would require this preference, and humans could have developed without this tendency.

Similarly, it is dependently a priori that human visual systems can only detect electromagnetic radiation within the bandwidth of visible light. It is a contingent fact about human cognitive systems that this radiation is sensible; but we can imagine and perhaps even build a cognitive system in which some other part of the spectrum is detectable. Prima facie, it would seem that infrared or ultraviolet radiation or even echolocation²⁴ could serve as well to provide sensory data to a system. The fact that a system is a mind and is capable of thinking or making empirical judgments in Kantian terms appears to have no direct implication on at least some of the details of the

sensory apparatus it employs. So when a system has a particular configuration, but it could have had another while still meeting the basic requirements of cognition, we can say that that configuration imposes dependently a priori constraints on it. As a result, objects for humans must possess some colour that is within the visible light spectrum. Significantly, Kant has very little to say about these sorts of variations.

When a constraint is imposed upon a cognitive system by the very nature of cognition, rather than the accidental configuration of some particular system, that constraint is transcendently a priori for Kant. Using Strawson's phrase, we can think of a mind as a thing that is capable of grasping or identifying objective particulars,

*'We think of the world as containing particular things some of which are independent of ourselves; we think of the world's history as made up of particular episodes in which we may or may not have a part; and we think of these particular things and events as included in the topics of our common discourse, as things about which we can talk to each other.'*²⁵

Thinking or judging objective particulars requires the application of concepts. Concepts are rules for organizing and sorting sensory data.²⁶ So it is transcendently a priori true that a mind must have some means of receptivity, a faculty of sensation, that provides the data or content for judgment. Unless it has some means of input, it can make no judgments about objects, and cognition would be impossible. This is the level of a priori necessity he strives to demonstrate with regard to the possibility of experience. An examination of the peculiar, and contingent, features of human intellectual capacities can be no more than a 'physiology of the understanding' if we cannot determine the deepest and most general requirements imposed by the nature of cognition itself.

Kant seems to have these two senses of constraint in mind when he makes comments like the one at B 72,

There is, moreover, no need for us to limit this kind of intuition--intuition in space and time--to the sensibility of man. It may be (though we cannot decide this) that any finite thinking being must necessarily agree with man in this regard. Yet even if this kind of intuition were thus universally valid, it would not therefore cease to be sensibility. It would remain sensibility precisely because it is derivative (intuitus derivativus) rather than original (intuitus originarius) and hence is not intellectual intuition.

So we can say that a transcendently a priori constraint on any derivative or discursive²⁷ consciousness is that it must have some mode of sensibility or other. Kant's suggestion here seems to be that space and time, as the particular modes of sensibility, are only dependently a priori conditions of human cognition. But any discursive mind must have a faculty of sensibility that will have its own forms or modes. Kant's commitment to the categories is stronger. They are the transcendently a priori concepts for any discursive consciousness. (B 170)

With this distinction in mind, we are in a better position to see where the functionalist and Kantian projects diverge. The functionalist, particularly in experimental psychology, takes the human, monkey, or other lab animal as her subject matter. Analysis of test data reveals what sort of capacities the

system has. Experiments with newborns and babies, for example, reveal the age at which babies begin to have expectations about the constancy of physical objects. In a familiar example, it was found that babies past a certain age are surprised to see a moving toy car disappear behind a box and not reappear on the other side. Before that age, and presumably before they have had enough interaction with physical objects, babies are equally surprised (or bored) by the car's disappearance as its reappearance. Such data gives us information about the functional relationship between sensory input states and the baby's output states, and development over time of cognitive structures. The surprise behaviour seems to be equivalent to a belief (in some sense of 'belief') that 'physical objects don't just vanish into thin air' or something to that effect.

The problem with the functionalist approach in the above case, Kant would say, is that it cannot distinguish between strong and weak senses of a priori constraints. Kant predicts that humans, like the older babies in the study, must conceive of objects as identical over time, with predictable, causal behaviour. The reason, says Kant, is that the very possibility of thought about objects requires it (whether or not humans in fact possess the ability.) The functionalist, however, cannot distinguish between this case where she has stumbled upon a strongly a priori feature of cognition and weakly a priori cases. Experiments also demonstrate that human stereovision has a blind spot. The presence of that feature does not signal some deeper part of the structure of consciousness. The functionalist cannot distinguish between the two cases, whereas Kant's transcendental approach can.

Now Kant would say that the experimental approach of the functionalist in the case above could, at best, determine the *weakly* a priori constraints on the cognitive system. Unless we leave the experimental data aside, and step up to the level of transcendental analysis, we cannot uncover the requirements that cognition itself imposes. The top down and bottom up strategies have essentially different questions: What is the basic mental form that any thinking subject must take? Instead of: what explanation of mental states can we provide to connect observed input states with observed output states in humans?

That we possess a physical system capable of meeting the transcendental requirements of Kant's argument is a happy accident. If we had been something else, the functional analysis would have produced different conclusions altogether. (Not to mention that if we were not capable of thinking in the Kantian sense, we would be incapable of conducting functional analyses of anything included ourselves.) The functionalist might well respond that in practice, they do not have difficulty separating the important or essential components of cognition from the inessential ones - it is obvious to anyone who thinks about it that recognizing object permanence is vital and having a blind spot is not. But many of the features that we discover lurking in the recesses of the mind are not so obviously separable. And Kant, by taking the top down approach, has a great deal of guidance to offer here in prioritizing our research programme, focusing our attention on

features that are essential to important cognitive functions, and streamlining our artificial intelligence research.

4. Ontological Commitment

For Kant, the ontological, the metaphysical, and the epistemological are intertwined. And the metaphysical and ontological implications of the activities of a mind that thinks cannot be extracted on Kant's view as they can with functionalism that remains value neutral regarding the ontological composition of the system.

Kant has both negative and positive ontological theses that are bound to his account of mind. First, the negative: Since space and time are the forms of intuition provided by sensibility to intuitions and then judgment, Kant argues, perhaps mistakenly, that space and time cannot and are not properties of things in themselves. So the transcendental self, the unifying ground of synthetic activity, is not a spatial or temporal thing. That is why, in part, it is not a knowable, experientiable object for us. At best, we make a transcendental inference about its existence and its activities.

There is also a positive metaphysical thesis deeply connected to Kant's theory of mind. Since space and time are the forms of our sensibility and they are constitutive of objects for us, the world of experience we inhabit must necessarily be a world of material objects. And as a member of that world, at least insofar as I have a body in that world that interacts with and sense material objects, I am/have a material body too. The possibility of knowing objects in the empirical world necessitates that I have a material body in it.²⁸ Kant explores the details of this implication in the Refutation of Material Idealism at B 274.

5. Non-Causal Account of Mental Functions

Another hallmark of functionalist theories is that they explain consciousness in virtue of the *causal* relationships of mental states to one another and to the input and output states of the system. One of Kant's arguments is that the discursive mind must necessarily conceive of its world as causally ordered. That is, the ordering of intuitions into causally related, empirical objects is the **result** of the cognitive process. The functionalist, however, presupposes a causal mechanism of some sort and seeks out the exact arrangement of causally related components.²⁹

6. The Reflexive Problem

And Kant has identified a unique problem that arises in the recursive project of trying to understand our own consciousness, and it is a problem that is not captured by the generic analysis tool provided by functionalism. Kant argues that since it is the mind that seeks to understand itself, and in effect subject itself to its own requirements for cognition, a barrier is created that prevents knowing the mind or the self 'as it is in itself'.

For Kant the activity of a mind turning its own powers of thought onto itself creates a set of issues that are not paralleled in functionalist accounts. The self-analyzing itself imposes a cognitive barrier on what can be known about the process that generates consciousness. Since the mind has no other tool of apprehension, it cannot fail to impose the limitations of its own

cognitive structure in its attempts to understand its own functions. The self that is the ground of consciousness cannot be known - as is well known, Kant's view is that the noumenal nature of the mind is necessarily unknowable to us. His view is in stark contrast to experimental functionalists who seek to confirm or modify their accounts according to developments in biology, neuroscience, and psychology.

Trying to analyse discursive minds with discursive minds puts us in a curious pinch. We have a sort of metaphysical blind spot with regard to the ultimate reality of the ground of consciousness. The ultimate psychophysical links must necessarily remain unobservable to us because the two worlds - the intellectual and the physical - have fundamentally different characters. Our thoughts, from our perspective, do not occupy space. But physical objects do, so at best we will find the physical-intellectual correlates, but not the complete reduction hoped for by some physicalists, and functionalists. In this regard, Kant sounds remarkably like some contemporary mysterians about consciousness like Colin McGinn, Noam Chomsky, and Thomas Nagel.

V. Suggestions for Cognitive Science

Cognitive scientists have directed their attention at a wide range of issues like the binding problem in recent years. Those efforts have been focused on simple acts of processing different elements in the sensory field into unified representations of objects. Anne Treisman's work on feature integration is frequently cited. Connectionist projects have been engaged in similar tasks of devising simple connectionist networks that can mimic cognitive functions such as face recognition or reading text in English.

Kant's project makes several suggestions about where cognitive science and artificial intelligence research must turn next. There are a number of deep requirements for a cognitive system to perform a simple act of judgment. First, Kant's theory of synthesis is the first to point out that one act of synthesis of an object by a cognitive system must be unified with other syntheses of the same object over time. Unless that system can make different moments of the same object adhere to one another in its thoughts, its world will be populated by ever new, momentary objects. Such a world would not be a thinkable world at all, according to Kant. Furthermore, the system must be able to integrate that act of synthesis with all the other acts of synthesis that the system has, will, or can perform, whether they be of the same object or not. Without that kind of global integration of experience, it will never achieve a perspective of a continuous world inhabited by unified, cohesive objects. These global syntheses are also necessary in order for the system to form an awareness of itself as a unified, coherent object sharing the world with these others. And Kant's theory argues for the necessary impossibility of a cognitive system's having access to the processes that produce these bound representations.

VI. Conclusion

So while I am sympathetic with the recent revival of interest in Kant's philosophy of mind, and while I agree that there is much to be found there that is of use of contemporary theories of consciousness and cognitive science research, there are a number of reasons to reject the functionalist reading of Kant's description of cognitive processing. I have argued that on Kant's view, the mind possesses a distinct transcendental architecture that does not allow for the cognitive labor that produces consciousness of objects to be organized according to different functional schemes. Kant's transcendental method when applied to the mind reflects a distinctly different set of concerns than those of functionalist theories that respond to empirical psychology, evolutionary biology, or the tenets of folk psychology. Furthermore, Kant's theory of mind cannot share functionalism's indifference about the ontological status of the mental system. Kant's view, unlike functionalist theories, cannot include the causal relationships between mental states because causal ordering is a product of cognitive processing. And finally, the reflexivity of the problem of explaining consciousness makes it impossible, in principle, for the mind to come to know the noumenal nature of the mind.

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- Sellars, W. 1974. . . .this I or he or it (the thing) which thinks. . . . *Essays in Philosophy and Its History*. Dordrecht: Reidel, pp. 62-90.
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Notes

- 1.
2. Sellars, Wilfred. ' . . .this I or he or it (the thing) which thinks. . . '. Essays in Philosophy and Its History. Dordrecht: Reidel, 1974. pp. 62-90.
3. Meerbote, Ralf. 'Kant's Functionalism,' Historical Foundations of Cognitive Science. Dordrecht: Reidel, 1989. pp. 161-87.
4. Kitcher, Patricia. Kant's Transcendental Psychology. New York: Oxford University Press, 1990.
5. Powell, C. Thomas. Kant's Theory of Self-Consciousness. New York: Oxford University Press, 1990.
6. Brook, Andrew. Kant and the Mind. Cambridge: Cambridge University Press, 1994.
7. Block, Ned. 'Functionalism,' <http://www.nyu.edu/gsas/dept/philo/faculty/block/papers/functionalism.html>
8. Ibid.
9. Ibid.
10. There are several variations on theme here. Some functionalists attempt to sketch functional architecture that fits will with the basic tenets of folk psychology, others focus on the results of neuroscientific investigations into brain operations. There are evolutionary or teleological functionalists, homuncular functionalists, and so on, all of which have a slightly different view of the best guidelines for constructing and revising functional descriptions.
11. Kant, Immanuel. Critique of Pure Reason. trans. Werner Pluhar. Indianapolis: Hackett, 1996. B 93, for example. All references to Kant will be to this edition and use the A edition/ B edition pagination.
12. Recent debates in cognitive science and philosophy of mind have disagreed about whether or not cognitive functions can or should be broken down into simpler parts that themselves are representational or symbolic for the mind. So symbolic computational theories of mind have postulated symbols as the constituents of judgments and have anticipated finding structures or elements that are isomorphic to the mental states of concepts, beliefs, judgments, and so on. On other views, particularly connectionist ones, the recognizable parts of thoughts need not have corresponding units or symbols in the processing that occurs below the conscious level. In a connectionist network, a concept can be spread across a whole ensemble of units or connected nodes, and that same ensemble can be differently activated. Kant was perhaps the first to see that at least some of the processing that produces cognitive functions itself is below the level of thought and cannot be grasped or cognized itself.
13. Kitcher, Patricia. Kant's Transcendental Psychology. New York: Oxford, 1990. p 74.
14. Sellars, Wilfred. ' . . .this I or he or it (the thing) which thinks. . . '. Essays in Philosophy and Its History. Dordrecht: Reidel, 1974. pp. 62-90.
15. Brook, Andrew. Kant and the Mind. Cambridge: Cambridge University Press, 1994. p. 13.
16. A 87/ B 119.
17. The threefold distinction between apprehension, reproduction, and recognition is primarily from the first edition version of the Transcendental Deduction. Kant seems to de-emphasize or redistribute the distinction in the second edition.
18. A 350.
19. B 139. See A 118 for the comparable passage in the A edition.
20. See B 93 and B 283. for example.
21. For the most part, to be a mind that employs concepts in judgments is simply to be a mind, for Kant. Occasionally he contrasts this discursive mind with a purely intuitive intellect like God's whose apprehension of objects is not mediated by concepts. But there are reasons to think, and evidence in the texts, that such a mind is not recognizable as a mind at all. Hereafter, I will refer to discursive minds, as Kant often does, simply as minds.
22. Fodor, Jerry. Modularity of Mind. Cambridge, MA: The MIT Press, 1983. p. 24.

23. Goren, C. C., Sarty, M., and Wu, P.Y.K. 1975. 'Visual following pattern discrimination of face-like stimuli by newborn infants'. *Journal of Verbal Learning and Verbal Behavior* 23: 553-568. Denise Cummins' book *The Other Side of Psychology*, New York: St. Martin's Press, 1995. P.49. brought my attention to this study.

24. This case is particularly plausible given that many blind from birth humans employ echolocation with surprising success in getting around.

25. Strawson, Peter F. *Individuals*. London: Routledge, 1971. p. 15.

26. In many of these discussions of how the mind is able, prior to consciousness, to sort data and identify which are relevant and which are not, Kant appears to be facing many of the same issues raised by contemporary 'homuncular functionalism'.

27. A 131/ B 170.

28. See my article 'Why God Cannot Think: Kant, Omnipresence, and Consciousness'. *Philo*, Spring-Summer 2000.

29. Kitcher's view has encountered some problems in its causal characterization of the dependence of one mental state upon another and the causal dependence of mental states upon acts of synthesis that produce them. Henry Allison has noted this problem and invoked Kant's decidedly non-functionalistic I theory of spontaneity to explain the activity of the mind. Allison, Henry. 'On Naturalizing Kant's Transcendental Psychology,' *Dialectica*. Vol. 49, No. 2-4 (1995).