

Rocco J. Gennaro

# *Consciousness and Concepts*

*An Introductory Essay*

## **1. The Central Problem**

Much has been written over the past few decades on the nature of concepts in philosophy, psychology, and cognitive science. Questions such as ‘What are concepts?’ and ‘What is it to possess a concept?’ are central to these fields and notoriously difficult to answer. One major anthology (Margolis & Laurence, 1999) and a number of other important works (such as Prinz, 2002; Murphy, 2002) have contributed greatly to the debate. Some of the issues are familiar and longstanding. For example, are concepts abstract mind-independent objects in some Platonic or Fregean sense, or are they better understood as mental representations, such as constituents of thoughts? If the latter, it is sometimes said that concepts are to thoughts as words are to sentences. A common view in cognitive science is that thought is based on word-like mental representations, which is often referred to as the ‘language of thought hypothesis’ (Fodor, 1975). Others argue that possessing a concept *C* involves demonstrating some kind of ability with respect to *C*’s. But which ability? The ability to form an image of *C*’s? To display linguistic competence with *C*’s? To behaviourally discriminate *C*’s from non-*C*’s? It seems that all of these options suffer from insuperable difficulties. Counter-examples abound for any proposed answer; for example, having the concept ELECTRON or JUSTICE cannot involve forming an image, and tying concept possession too closely to linguistic competence is highly problematic because some concepts are arguably possessed by non-linguistic creatures.

Correspondence:

Rocco J. Gennaro, Department of Philosophy, Indiana State University,  
200 North Seventh Street, Terre Haute, IN 47809-9989, USA.  
[rgennaro@isugw.indstate.edu](mailto:rgennaro@isugw.indstate.edu)

Similar longstanding issues arise for a proper theory of the *structure* of concepts. For example, the classical theory of concepts, according to which simpler concepts express necessary and sufficient conditions for falling under any concept C, has fallen out of favour due to the obvious difficulty of discovering just what those conditions are in many instances. There are also other well-known theories that attempt to articulate the structure of concepts, such as the prototype theory, theory theory, conceptual atomism, and Jesse Prinz's more recent 'proxytype' theory (Prinz, 2002).<sup>1</sup> My main point, however, is that despite the recent explosion in work on concepts, one finds very little explicitly connecting concepts to the philosophical problem of consciousness. There is often no attempt at all to shed light on the nature of conscious experience in these works (e.g. Fodor, 1998; Peacocke, 1992).

On the other hand, the literature on consciousness is enormous with many important books and anthologies published in just the last decade or so.<sup>2</sup> Once again, however, with very few exceptions, those who write on consciousness rarely draw *extensive* connections between their theories of consciousness and the literature on concepts. Part of the aim of this volume is to remedy this gap in the literature by bringing together a number of interdisciplinary articles explicitly involving the interplay between concepts and consciousness. My main goal in this essay is to set forth a framework for future research on this topic, as well as a context for the essays that follow. I will present a taste of various actual and potential areas of research and gesture toward some different areas of investigation.

First, however, a word about terminology. The concept 'consciousness' is notoriously ambiguous. The abstract noun 'consciousness' is not frequently used by itself in the contemporary literature, but it originally derives from the Latin *con* (with) and *scire* (to know). Perhaps the most commonly used contemporary notion of a 'conscious' mental state is captured by Thomas Nagel's famous 'what it is like' sense (Nagel, 1974). When I am in a conscious mental state, there is 'something it is like' for me to be in that state from the subjective or first-person point of view. When I am, for example, smelling a rose or having a conscious visual experience, there is something it 'seems' or 'feels' like from my perspective. An organism, such as a bat, is

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[1] I will not review those here, but the interested reader should refer to the books cited above and the references therein.

[2] See e.g. Chalmers (1996), Lycan (1996), Block *et al.* (1997), Carruthers (2000), Tye (2000; 2005), Levine (2001), Papineau (2002), Smith & Jovic (2003), Baars *et al.* (2003), Koch (2004), Dennett (2005), Rosenthal (2005) and Revonsuo (2006).

conscious if it is able to experience the outer world through its (echo-locatory) senses. There is something it is like to be a conscious *creature* whereas there is nothing it is like, for example, to be a table or tree. There are still, though, a cluster of expressions and terms related to Nagel's sense, and some authors simply stipulate the way that they use such terms. For example, philosophers sometimes refer to conscious states as *phenomenal* or *qualitative* states. More technically, they often view such states as having qualitative properties called 'qualia' (singular, quale). There is significant disagreement over the nature, and even the existence, of qualia, but they are perhaps best understood as the felt properties or qualities of conscious states.

Ned Block (1995) makes an often cited distinction between *phenomenal* consciousness (or 'phenomenality') and *access* consciousness. The former is very much in line with the Nagelian notion described above. However, Block also defines the quite different notion of access consciousness in terms of a mental state's relationship with other mental states; for example, a mental state's 'availability for use in reasoning and rationality guiding speech and action' (Block, 1995, p. 227). This would, for example, count a visual perception as (access) conscious not because it has the 'what it's likeness' of phenomenal states, but rather because it carries visual information which is generally available for use by the organism, regardless of whether or not it has any qualitative properties. Access consciousness is therefore more of a functional notion and more concerned with what such states *do*. Although this concept of consciousness is certainly very important in cognitive science and philosophy of mind generally, not everyone agrees that access consciousness deserves to be called 'consciousness' in any important sense of the term.<sup>3</sup>

In what follows, I will outline a number of areas of research which either are or should be at the intersection of work on concepts and consciousness.

## 2. Conceptualism

One area where there has been some overlap on consciousness and concepts is in the dispute over whether or not there is 'nonconceptual content' in experience (see e.g. Gunther, 2003). Thus, a central issue is

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[3] For more on these definitional matters as well as an overview of contemporary work on consciousness, see Gennaro (2005a). Of course, explaining the nature of conscious experience in some deep sense is certainly one of the most important and perplexing areas of philosophy. For example, the so-called 'hard problem' of consciousness has attracted much attention (Chalmers, 1995; Shear, 1997). The problem is basically explaining exactly how or why subjective experiences are produced at all from brain activity.

whether or not one can have conscious experience of certain objects or properties without having the corresponding concepts. Conceptualism is basically the view that all conscious experience is structured by concepts possessed by the subject (e.g. McDowell, 1994). In a somewhat Kantian spirit, we might say that all conscious experience presupposes the application of concepts, or the way one experiences the world is determined by the concepts one possesses. One motivation for this view stems from the observation that concept acquisition colors the very experiences that we have. Another influential motivation for the conceptualist is to explain how perceptual experience can provide reasons for empirical beliefs about objects in the world (Brewer 1999). However, there has been a growing chorus of philosophers arguing that conceptualism is false; for example, that perceptual experience can outstrip the concepts that one possesses.<sup>4</sup>

Part of the issue centres on just how 'rich' the content of conscious perceptual experience is. It seems, for example, that we can experience a complex visual scene, such as a landscape, without having all of the concepts of the objects or properties experienced. Another related issue has to do with the so-called 'fineness of grain' in our experience. Thus, it is often said that conscious perceptual experience is much more fine-grained than the concepts one possesses. In other words, it seems that one can experience many objects or properties without having the concept of that specific object or property. For example, it seems that a subject could experience a novel shade of red without having the corresponding concept and then without being able to re-identify that shade on a future occasion. Conceptualists have replies to these arguments but there is significant question as to their success. The conceptualist might reply that we can form 'demonstrative concepts,' such as 'this shade of red,' for a specific new color that is experienced (McDowell, 1994). However, some doubt that such concepts really deserve the name 'concept' at all since the subject is unable to re-identify things which fall under it.

Concerning the richness of experience, a conceptualist might even challenge the claim that conscious experience is very rich and that we therefore do not consciously experience very much at any given time. For example, some argue that the phenomena of inattentional blindness and change blindness might call the richness of experience into doubt (Noë, 2004). Inattentional blindness occurs when normal subjects do not notice other objects in their visual field while the attention

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[4] See e.g. the essays by Michael Tye, Sean Kelly, and José Bermúdez in Gunther (2003). See also Tye (2006).

of subjects is occupied by a specific task (Mack and Rock, 1998). Change blindness occurs when normal subjects fail to notice a fairly obvious change in some object or scene (Simons, 2000). In any case, the fascinating dispute between conceptualists and non-conceptualists raises some of the most fundamental questions about conscious experience and the relationship between concepts and consciousness.

In this volume, **Philippe Chuard** clarifies the definition of Conceptualism and first argues that there is indeed reason to accept the idea that experience can be very rich in content. However, he then goes on to reject various attempts to show that the falsity of Conceptualism follows from this fact, while still maintaining that Conceptualists need to provide more details about what it means to deploy concepts in experience. Much of the theoretical work in this area has come from philosophers, but it would also be good for psychologists to get in on the act. Perhaps various experiments can be designed to address some of these issues.

### 3. Recognitional (or Phenomenal) Concepts

Another area where consciousness and concepts have been brought together to some extent has to do with so-called ‘phenomenal’ and ‘recognitional’ concepts (Loar, 1997; Papineau, 2002; Carruthers, 2005). Carruthers, for examples, describes purely recognitional concepts as those ‘we either have, or can form...that lack any conceptual connections with other concepts of ours, whether physical, functional, or intentional. I can, as it were, just recognize a given type of experience as *this* each time it occurs, where my concept *this* lacks any conceptual connections with any other concepts of mine — even the concept *experience*’ (2005, p. 67). Part of the rationale of recognitional concepts is to explain why there at least *seems* to be an ‘explanatory gap’ (Levine, 2001) between the mental and physical, and also to counter various well-known ‘zombie’ and ‘conceivability’ thought-experiments used against reductive materialism. The appeal to the possibility of zombies is often taken both as a problem for materialism and as a more positive argument for some form of dualism, such as property dualism (i.e. mental properties are distinct from physical or neural properties). The philosophical notion of a ‘zombie’ refers to conceivable creatures which are physically indistinguishable from us but lack consciousness entirely (Chalmers, 1996). It certainly seems logically *possible* for there to be such creatures: ‘the conceivability of zombies seems ... obvious to me. ... While this possibility is probably empirically impossible, it certainly seems that a

coherent situation is described; I can discern no contradiction in the description.’ (Chalmers, 1996, p. 96)

Philosophers often contrast what is logically possible (in the sense of ‘that which is not self-contradictory’) from what is empirically possible given the actual laws of nature. Thus, it is logically possible for me to jump eighty feet in the air, but not empirically possible. Philosophers often use the notion of ‘possible worlds,’ or different ways that the world might have been, in describing such non-actual situations or possibilities. The objection, then, typically proceeds from the possibility of zombies to the conclusion that materialism is false because materialism would seem to rule out that possibility. It has been fairly widely accepted (since Kripke, 1972) that all identity statements are necessarily true (that is, ‘true in all possible worlds’), and the same should therefore go for mind-brain identity claims. Since the possibility of zombies shows that it doesn’t, then we should conclude that materialism is false.

However, given our possession of recognitional (or phenomenal) concepts, it is replied that any alleged explanatory gap or apparent lack of identity between the mental and physical can be explained away. If we possess purely recognitional concepts of the form ‘*This* type of experience,’ we will still always be able to have that thought while, at the same time, conceiving of the absence of any corresponding physical or intentional property. On the one side, we are dealing with scientific third-person concepts and, on the other, we are employing phenomenal concepts. We are, perhaps, simply not in a position to understand completely the connection between the two, but the mere possibility of zombies is explained away in a manner that is harmless to materialism. It may be that there is a very good reason why such zombie scenarios seem possible; namely, that we do not (at least, not yet) see what the necessary connection is between neural events and conscious mental events.

The literature in response to zombie, and related ‘conceivability,’ arguments is enormous.<sup>5</sup> Perhaps most important for the materialist, however, is recognition of the fact that different *concepts* can pick out the same *property* or object in the world (Loar, 1997). Out in the world there is only the one ‘stuff,’ which we can conceptualize either as ‘water’ or as ‘H<sub>2</sub>O.’ The traditional distinction, made most notably by Gottlob Frege in the late 19th century, between meaning (or ‘sense’) and reference is also relevant here. Two or more concepts, which can

[5] A sample includes Hill (1997), Hill and McLaughlin (1999), Papineau (1998; 2002), Balog (1999), Block and Stalnaker (1999), Loar (1999), Yablo (1999), Perry (2001), Botterell (2001), Kirk (2005).

have different meanings, can refer to the same property or object, much like ‘Venus’ and ‘The Morning Star.’ Materialists, then, explain that it is essential to distinguish between mental properties and our concepts of those properties. By analogy, then, there are recognitional concepts which use a phenomenal or ‘first-person’ property to refer to some conscious mental state, such as a sensation of red. In contrast, we can also use various concepts couched in physical or neurophysiological terms to refer to that same mental state from the third-person point of view. There is thus but one conscious mental state which can be conceptualized in two different ways: either by employing first-person experiential phenomenal concepts or by employing third-person neurophysiological concepts. It may just be a brute fact about the world that there are such identities and so the appearance of a contingent connection between brain properties and mental properties is just that — an *apparent* problem leading many to wonder about the alleged explanatory gap. Qualia would then still be identical to physical properties. Thus, this response provides a diagnosis for why there even *seems* to be such a gap; namely, that we use very different *concepts* to pick out the same *property*.

Most recently, David Chalmers (2007) has argued that the entire phenomenal concept strategy fails.<sup>6</sup> In this volume, **Peter Carruthers and Bénédicte Veillet** defend the strategy and offer what is largely a reply to Chalmers’ (2007) argument. **Jesse Prinz** presents a theory about what it is to think about phenomenal states and phenomenal knowledge, and defends the claim that there are no phenomenal concepts (as this idea has been understood in recent philosophy). In doing so, Prinz draws on both philosophical and empirical work as well as his own theory of consciousness.

#### 4. Representationalism

Representationalism is the thesis that phenomenal properties are identical to certain representational properties. There is a dizzying array of representational theories which I cannot summarize here (Chalmers 2004, Lycan 2005). But one question that should be answered by any theory of consciousness is: What makes a mental state a conscious mental state? There is a long tradition that has attempted to understand consciousness in terms of some kind of higher-order awareness. For example, John Locke (1689/1975) once said that ‘consciousness is the perception of what passes in a man’s own mind.’ This intuition has

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[6] See Alter and Walter (2007) for many other important essays on this topic.

been revived by a number of philosophers over the past few decades (Armstrong, 1968; 1981; Rosenthal, 1986; 1997; 2005; Gennaro, 1996; 2005b; Lycan, 1996; 2001). In general, the idea is that what makes a mental state conscious is that it is the object of some kind of higher-order representation (HOR). A mental state *M* becomes conscious when there is a HOR of *M*. A HOR is a ‘meta-psychological’ state, i.e. a mental state directed at another mental state. So, for example, my desire to write a good introductory essay becomes conscious when I am (non-inferentially) ‘aware’ of the desire. Intuitively, it seems that conscious states, as opposed to unconscious ones, are mental states that I am ‘aware of’ in some sense. Any theory which attempts to explain consciousness in terms of higher-order states is known as a higher-order (HO) theory of consciousness. It is best initially to use the more neutral term ‘representation’ because there are a number of different kinds of higher-order theory, depending upon how one characterizes the HOR in question. HO theories, thus, attempt to explain consciousness in mentalistic and reductionist terms, that is, by reference to such notions as ‘thoughts’ and ‘awareness.’ Conscious mental states arise when two *unconscious* mental states are related in a certain specific way; namely, that one of them (the HOR) is directed at the other (*M*). HO theorists are united in the belief that their approach can better explain consciousness than any purely *first-order* representational (FOR) theory of consciousness, such as those offered by Tye (1995; 2000) and Dretske (1995).<sup>7</sup>

There are various flavors of HO theory with the most common division between higher-order *thought* (HOT) theories and higher-order *perception* (HOP) theories. HOT theorists, such as David Rosenthal, think it is better to understand the HOR as a thought of some kind. HOTs are treated as *cognitive* states involving some kind of conceptual component. HOP theorists urge that the HOR is a *perceptual* or *experiential* state of some kind (Lycan 1996) which does not require the kind of conceptual content invoked by HOT theorists. Partly due to Kant (1781/1965), HOP theory is sometimes referred to as ‘inner sense theory’ as a way of emphasizing its sensory or perceptual aspect. Although HOT and HOP theorists agree on the need for a HOR theory

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[7] It should also be noted that one of the authors in this volume (Georges Rey) has also defended a version of FOR theory (Rey, 1998). For much more on his theory, see his essay in this volume.

of consciousness, they do sometimes argue for the superiority of their respective positions (Rosenthal, 2004; Lycan, 2004).<sup>8</sup>

Peter Carruthers (2000) has proposed another possibility within HO theory; namely, that it is better to think of the HOTs as *dispositional* states instead of the standard view that the HOTs are *actual*, though he also understands his 'dispositional HOT theory' (or 'dual-content theory') to be a form of HOP theory (Carruthers, 2004; 2005). The basic idea is that the conscious status of an experience is due to its *availability* to higher-order thought. So 'conscious experience occurs when perceptual contents are fed into a special short-term buffer memory store, whose function is to make those contents available to cause HOTs about themselves.' (Carruthers, 2000, p. 228). Some first-order perceptual contents are available to a higher-order 'theory of mind mechanism,' which transforms those representational contents into conscious contents. Thus, no actual HOT occurs. Instead, according to Carruthers, some perceptual states acquire a dual intentional content; for example, a conscious experience of red not only has a first-order content of 'red,' but also has the higher-order content 'seems red' or 'experience of red.' Carruthers also makes interesting use of so-called 'consumer semantics' in order to fill out his theory of phenomenal consciousness. The content of a mental state depends, in part, on the powers of the organisms which 'consume' that state, e.g. the kinds of inferences which the organism can make when it is in that state.

However, there is again not very much explicitly written on concepts by either FO or HO theorists. To be sure, the topic does arise in some areas. For example, due to the fact that HOT theorists view HOTs as constituted by concepts, it is natural to ask just what the

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[8] A common initial objection to HOR theories is that they are circular and lead to an infinite regress. It might seem that the HOT theory results in circularity by defining consciousness in terms of HOTs. It also might seem that an infinite regress results because a conscious mental state must be accompanied by a HOT, which, in turn, must be accompanied by another HOT *ad infinitum*. However, the standard reply is that when a conscious mental state is a first-order world-directed state the higher-order thought (HOT) is *not* itself conscious; otherwise, circularity and an infinite regress would follow. When the HOT is itself conscious, there is a yet higher-order (or third-order) thought directed at the second-order state. In this case, we have *introspection* which involves a conscious HOT directed at an inner mental state. When one introspects, one's attention is directed back into one's mind. For example, what makes my desire to write a good essay a conscious *first-order* desire is that there is a (nonconscious) HOT directed at the desire. In this case, my conscious focus is directed at the entry and my computer screen, so I am not consciously aware of having the HOT from the first-person point of view. When I introspect that desire, however, I then have a *conscious* HOT (accompanied by a yet higher, third-order, HOT) directed at the desire itself. See Gennaro 2004a for a much more detailed introduction on higher-order theories including several additional objections.

nature of those concepts might be. And how do those concepts relate to the content of the first-order states? How sophisticated are the self-concepts ('I') and the mental state concepts which constitute the HOT? How can animals and infants have such concepts?

In this volume, there are two papers which fall under this general heading. First, **John Beekmans** takes up the key issue of whether or not various HOR theories can 'pass scientific muster.' He critically examines various central aspects of HOR theory with special attention to the role of conceptual short-term memory in consciousness, and argues that HOR theories seem sometimes to be at odds with the empirical evidence. Second, **Georges Rey** summarizes and then defends his well-known 'narrow' representationalist account of phenomenal experience and his eliminativism about 'qualia' largely against a criticism presented by Joseph Levine (2001). In doing so, Rey also focuses on the richness and determinacy of color experience and the nature of phenomenal concepts (see the previous section).

### 5. Concept Acquisition/Possession

There is a tremendous 'developmental' experimental literature mainly aimed at researching how infants and young children acquire concepts.<sup>9</sup> How do we learn concepts? What can empirical results from developmental psychology teach us about how we acquire concepts? Other related questions include: Are some concepts innate? (Cowie, 1999; Carruthers *et al.*, 2005.) What is the relationship between language use and concept formation? This is a fascinating area of ongoing research with psychologists often using the term 'categories' in addition to 'concepts.' To categorize is basically the 'ability to group discriminable properties, objects or events into classes...' whereas a concept is the 'mental representation that encapsulates the commonalities and structure that exist within categories.' (Rakison & Oakes, 2003, p. 1).

One contentious issue, for example, is the distinction between perceptual and conceptual categorization. Using this somewhat misleading terminology, the idea of 'perceptual categorization' refers to those objects and properties that are observable features (such as 'has four legs' or 'is red') whereas 'conceptual categorization' refers to more abstract and nonobservable properties of objects (such as 'continuing to exist when unperceived' or 'being a self-propelled agent that causally interacts with other things'). The latter includes background

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[9] For just a recent sample of the literature, see Rakison & Oakes (2003), Gellman (2003) and Mandler (2004).

knowledge and information about, say, the ontology, causation and function of objects. Some argue that there is a clear distinction between these two types of categorization and thus that infants have two distinct systems which operate in parallel from very early in infancy (Mandler, 2004). Some argue that infants and children form categories based on perceptual or conceptual information at different points in development. This is a highly controversial distinction with many researches arguing, for example, that there isn't such a clear line between perceptual and conceptual categorization. For one thing, many of the same objects or entities that one might categorize as 'self-propelled' (e.g. dogs, cats) also have certain characteristic observable properties (e.g. 'has legs').

In any case, a number of familiar testing methods are employed to determine just what kinds of concepts are acquired in infancy and early childhood. To mention just one, the *familiarization-test procedure* examines infants' response to novel items after they are shown a number of objects (or pictures of objects) from the same category. The duration of their looking at the novel items is recorded with the idea being that the longer they look at the novel objects (or pictures) it is reasonable to infer that they think of the comparative objects as belonging to different categories. Although there is often agreement about such methods and their results, there remains significant disagreement about just how to interpret the results.<sup>10</sup>

Some of the discussion on infant (and even adult) concept acquisition and possession also revolves around testing for a so-called 'mindreading' ability; that is, the capacity to attribute mental states to others and even to oneself (and thus to have concepts of mental states). There is much discussion about such 'theories of mind' in the contemporary literature (Carruthers & Smith, 1996; Nichols & Stich, 2003; Goldman, 2006). One of the disputes centres on those who think that our concepts of the mental are acquired through a process of simulating another's mental activity with one's own, and those who argue that some kind of background theory of mind is presupposed in the ability to mindread. Hence, there is the much discussed choice between so-called 'simulation theory' and 'theory theory' of mind, though many authors really hold some form of hybrid view. A related controversy is what the relationship is between understanding one's own mental states and being able to attribute mental states to others. That is, does having concepts of mental states at all (even one's own) imply a third-person mindreading ability? Or can one be aware of

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[10] Once again, see the many papers in Rakison & Oakes (2003).

one's own mental states without being able to mindread others at all? Infants and animals are often tested experimentally for their ability to understand whether or not another is having a perception or belief. Being able to deceive is often taken as evidence for such mindreading ability since the infant or animal is presumably trying to get another to (falsely) acquire a mental state.

The so-called 'false belief task' is also commonly used. An object might be moved to another location while subject A is in the room but subject B is out of the room. When B returns, A might be asked where B will look for the object, or other behavioural evidence (e.g. expressions of surprise) might be used to determine whether or not A can successfully contrast its own belief from B's belief about where the object will be. Infants do not perform well on these tasks until at least age three. Infants and animals are also sometimes tested as to their ability to follow the gaze of an experimenter with the logic being that doing so indicates an understanding of the concept of (another's) perception. Once again, however, even when there is agreement about the methods, there remains significant disagreement about how to interpret the results.

In any case, there is still very little explicit discussion of consciousness in the psychological literature. In my view, the problem of concept acquisition may in fact be the real 'hard problem' of consciousness (cf. Chalmers, 1995). For one thing, it is unclear just what the relationship is between consciousness and acquiring concepts. Does one have to be conscious first in order to acquire concepts (or at least most concepts)? If so, how does coherent conscious experience get started in the first place? Moreover, if one has conceptualist tendencies, the problem arises even more forcefully as to how we can acquire concepts if conscious experience presupposes having concepts. This is indeed an important and potentially rich area of future interdisciplinary research.

In this volume, **José Luis Bermúdez** argues, among other things, for a 'middle ground' position such that a human infant's perceptual development should be understood in terms of perceptual sensitivity to an increasing range of object properties. **David H. Rakison** examines the developmental literature in the areas of mathematics, categorization, and induction in order to determine whether infants possess concepts that allow them explicitly (i.e. consciously) to reason and make inferences about objects and events in the world. He argues against the idea that infants have conscious access to such background knowledge and then speculates about the relationship between language development and consciousness.

## 6. Animals

Much like some of the research described in the previous section, there is a natural similarity to work on animal minds. Many of the experiments done on (prelinguistic) infants are clearly also relevant to non-linguistic animals. How does one determine whether or not an animal possesses a concept? Also, like some research on infants, the idea of ‘mindreading’ often takes center stage in this area. There is an enormous and interesting literature on animal cognition.<sup>11</sup> However, once again, there is rarely an explicit connection drawn between concepts and consciousness.<sup>12</sup>

There are also other well-known empirical methods used to determine whether or not animals have *self*-concepts and self-awareness, such as various mirror recognition tasks (Gallup, 1970; Keenan, Gallup & Falk, 2003). To what extent can animals recognize themselves or something on their bodies in a mirror? This is perhaps not the best way to determine whether or not animals have some form of self-consciousness. However, it does still offer us one way to determine whether or not animals have ‘I-thoughts,’ that is, thoughts about oneself or one’s own mental states.

Finally, there is some dispute as to whether or not HOT theory rules out animal and infant consciousness with a prominent HO theorist arguing that it does (Carruthers, 2000; 2005). It may seem that the HOTs (along with their constituent concepts) are too sophisticated for many animals to have. However, others argue that there are, for example, degrees of self-concepts and that the HOTs need not be so sophisticated (e.g. Gennaro, 1993; 1996; 2004).<sup>13</sup> Thus, HOT theory would be consistent with animal consciousness after all.

## 7. Psychopathologies

One might also examine how self-concepts and the ability to mindread play a role in consciousness on several other related fronts. In some abnormal cases, one’s self-consciousness seems deficient and, in turn, one’s self-concepts do not operate properly. Two psychopathologies frequently mentioned along these lines are autism and schizophrenia. For example, it has been argued that autistic people are ‘mindblind’ (Baron-Cohen 1995) in the sense that their ‘mindreading’ abilities are deficient, as was discussed in section five. Others have argued that

[11] See most recently, e.g., Bekoff *et al.* (2002), Bermúdez (2003) and Hurley & Nudds (2006).

[12] For some discussion, see Allen and Bekoff (1997).

[13] See Gennaro (2006) for some additional arguments against Carruthers’ overall position.

schizophrenia results from a self-monitoring deficiency (Frith, 1992).<sup>14</sup> In this volume, **Simon Baron-Cohen et al.** present an interesting case of a patient who has a form of autism, but also has savant memory (where memory is seemingly limitless) and synaesthesia (a condition where stimulation of one sensory modality, such as hearing a sound, automatically triggers a perception in a second modality, such as having a colour experience). One issue is what the connection is, if any, between having these conditions. Other issues include the impaired mindreading abilities found in these patients, such as a lack of empathy or an inability to form concepts of others' mental states, as well as challenging the assumption that other conscious minds are similar to our own.

### 8. Other Themes and Future Directions

Finally, there are many other miscellaneous areas where concepts and consciousness can overlap and yield interesting results. For example, in this volume, **Art Markman et al.** argue that by manipulating people's motivational state and the nature of the task performed, the influence of conscious processing on cognitive performance (such as concept learning) can be varied. Using primarily neuroscientific evidence, **Daniel Weiskopf** argues against the recently revived notion of 'concept empiricism,' roughly the view that the vehicles of thoughts, and their constituent concepts, are made up of internally reactivated traces of perceptions. In doing so, Weiskopf raises once again the important problem of just what the relationship is between concepts and conscious perception. His results might also be relevant to the viability of HOR theories and Conceptualism.

So where do we go from here? Of course, much more needs to be done on all of the above topics. In addition, there are other equally important areas of inquiry. For example, just as there is significant research into the so-called 'neural correlates of consciousness' or NCC's (Metzinger, 2000), so there is increasing interest in what we might term the 'neural correlates of *concepts*.' Some efforts have been made in this direction (e.g. Miller *et al.*, 2003) and the papers in this volume by **Jesse Prinz**, **Daniel Weiskopf**, and **John Beeckmans** also touch on this topic. However, it would be useful if these lines of research came together at various points instead of progress being made by independent researchers only concerned with one or the other. To the extent that having concepts and conscious experience are

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[14] Cf. Stephens & Graham (2000), Zahavi (2000), but also see Nichols and Stich (2003).

intimately linked, it is imperative that these two areas of research come together. In doing so, perhaps more progress will be made in solving the hard problem of consciousness, as well as the so-called ‘binding problem’ and issues related to the unity of consciousness.<sup>15</sup> These overlapping areas are already garnering much attention by both philosophers and scientists.

It is also important to keep in mind that concepts are often treated as constituents of intentional states, such as beliefs and desires. This, in turn, raises the crucial question of just how intentionality and consciousness are related.<sup>16</sup> Some hold that intentional states (and thus concepts) can be attributed to animals and even some insects without any commitment to consciousness (e.g. Carruthers 2005). On the other hand, some have argued that having genuine intentional states entails, or is inseparable from, consciousness in some sense (Searle, 1992; Siewert, 1998; Horgan & Tienson, 2002). Wherever one comes down on this issue, it is clear that one ought not to ignore it when developing an account of concept attribution (and intentionality), on the one hand, and a theory of consciousness, on the other. Also at stake is whether or not consciousness can be *reduced* to intentionality in some way, as many representationalists would have it. If genuine intentionality presupposes consciousness, it is difficult to see how the latter can be reduced to the former, that is, how conscious mentality can be reduced to non-conscious states.

As was noted in section five, the problem of concept acquisition may in fact be the real hard problem of consciousness. Significant research is on the horizon with respect to concept acquisition and the related topic of innateness. Once again, though, such work should not take place in a vacuum or without some attention to the nature of consciousness. For example, addressing the question of infant consciousness can only shed light on how some concepts are acquired, and vice versa.

It is my hope that this volume will spawn new research on concepts and consciousness and renew a spirit of interdisciplinary thinking and cooperation among philosophers, psychologists, and cognitive scientists on the variety of topics discussed in these pages. Needless to say, virtually every problem addressed in this volume will be solved only with significant interdisciplinary work. I thank the authors for all their hard work and for taking an important step in that direction. I also

[15] See e.g. Cleeremans (2003) where the binding problem is defined as ‘the problem of integrating the information processed by different regions of the brain.’ (p. 1)

[16] See, for example, Siewert (2003) for a survey article. See also Gennaro (1996) chapters one and five; Kriegel (2003); Wilson (2003).

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