

## Chapter 16: Kinds of Consciousness

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Consciousness is central to our lived experience. As a result, the topic has captivated many students, neuroscientists, philosophers, and other theorists working in cognitive science. But consciousness may seem especially difficult to explain. This is in part because the term “consciousness” has been used in many different ways. The goal of this chapter is to explore several kinds of consciousness distinguished in the literature: what theorists have called “creature,” “phenomenal,” “access,” “state,” “transitive,” “introspective,” and “self” consciousness.

The basic distinctions among these kinds of consciousness are described in Section 1. Section 2 raises potential challenges for explaining these varieties of consciousness and explains a few current theories of them. Section 3 closes the chapter by exploring directions for future work in the cognitive science of consciousness. Along the way, some of the possible interrelationships among these kinds of consciousness are discussed.

#### **Keywords:**

**Creature consciousness:** an individual is creature conscious when the individual is awake and mentally responsive to stimuli—rather than, for example, asleep or anaesthetized.

**Phenomenal consciousness:** a mental state is phenomenally conscious when there is something that it is like for the individual to be in that state.

**Access consciousness:** a mental state is access conscious when the information contained in that state is available for use in thought and behavior: for example, the state’s information may be used as a premise in reasoning or for the rational control of action and speech.

**State consciousness:** a mental state is state conscious when an individual is subjectively aware of being in that state.

**Transitive consciousness:** an individual is transitively conscious (or, as some simply put it, aware) of something when the individual is mentally responsive to that thing, typically either by perceiving or having a thought about it.

**Introspective consciousness:** a conscious mental state (or, equivalently, an individual) is introspectively conscious when the individual is subjectively aware of being in that state in a deliberate and attentive way.

**Self-consciousness:** an individual is self-conscious when the individual is subjectively aware of itself.

### **1. Introduction**

#### ***1.1 What are the various kinds of consciousness?***

Perhaps nothing in the universe is more familiar to us than our consciousness, but perhaps nothing seems as hard to explain! A major obstacle to the study of consciousness is that people use the term “consciousness” and related expressions such as “awareness” in many

different ways. Consequently, theorists have over time distinguished several kinds of consciousness. This chapter thus begins by reviewing a few of the major kinds identified by cognitive scientists (for versions of these distinctions, see, e.g., Rosenthal 1986; Block 1995; Carruthers 2016). Some of these distinctions are grounded in commonsense psychology—in our ordinary thought and talk about consciousness—while others are drawn to reflect various theoretical or experimental considerations. As we shall see, however, there remains significant debate about how these kinds may relate to one another, or even whether some of them actually exist.

To begin with, one everyday way that people use “conscious” is to describe a person or creature that is awake and responsive to the environment—as opposed, for example, to a creature that is asleep or in a coma. To distinguish this phenomenon from other potential kinds of consciousness, some theorists have labelled it “**creature consciousness**.” We might say that, as you’re reading this sentence now, you’re currently creature conscious insofar as you are awake and actively engaged with the text (and will, hopefully, remain that way through the end of the chapter). As you lie in bed tonight sleeping, in contrast, you’ll be creature *unconscious*.

While this is a perfectly familiar way to use “conscious,” it is hardly the only way. Creature consciousness is a feature of individuals, but common sense psychology often describes mental states such as desires, hopes, fears, and perceptual states as conscious too. Many would say a visual experience of the words on this page is conscious or a conscious mental state. Such states make up what people often call one’s “consciousness” in general.

In contemporary consciousness studies, many maintain that there are theoretical and experimental reasons to distinguish at least two ways that mental states can be conscious. On the one hand, mental states exhibit **phenomenal consciousness** when, to adapt an expression of Nagel’s (1974), *there is something that it is like* to be in them. What it is like for one to consciously see the color red is quite different than what it is like for one to consciously hear the sound of a trombone or to consciously smell the odor of lasagna. These states are phenomenally consciousness. And philosophers often call the characters or qualities in virtue of which phenomenally conscious states differ “qualia” (or “quale” in the singular).

On the other hand, it may seem that we must distinguish a mental state’s being phenomenally conscious from its exhibiting **access consciousness** insofar as the information contained in it can be accessed or used in thought and behavior, such as resulting in speech. If you consciously hear a friend ask you to pass the salt, for instance, then your auditory experience of that question is access conscious because the information contained in it can change what is going on in your mind and consequently drive you to do. The experience might cause you to think that your friend wants the salt and to say “Sure, here you go” while passing your friend the salt.

Philosophers before the 20<sup>th</sup> century such as such as Descartes (1641/2008) or Locke (1690/1975) rarely described mental states themselves as conscious, however. Rather, to the extent that such thinkers discussed consciousness in general, they often spoke of the mental states of which we are conscious or aware (on Locke, see, e.g., Weinberg 2016). After all, commonsense psychology seems to hold that if one is in a mental state, but in no way aware of being in that state, then that state is not in any way conscious. As noted shortly, there is much evidence for such states, such as cases of so-called “subliminal perception,” wherein people are in no way aware that they see stimuli such as colors or shapes presented

to them, although such stimuli nonetheless influence their behavior in various ways (see, e.g., Marcel 1983). In that case, it would seem that one's perceptual state is unconscious. But if that is correct, then it follows that commonsense regards mental states as conscious only if one is somehow aware of being in them. Many theorists thus claim that a mental state exhibits **state consciousness** when one is suitably aware of being in it.

It is plain, however, that we can be aware of mental states in ways that have nothing to do with their being state conscious. If your therapist informs you that you have certain negative thoughts about your parents that you are completely unaware of, you may become aware of those thoughts, but you may not become aware of them in a way that makes them state conscious. When it comes to our mental states that are state conscious, we seem to be aware of them simply "from this inside," as it were—that is, in a suitably *subjective* or first-personal way. One is aware of something in a subjective way when one's awareness does not seem to depend on inference or observation. If a visual perception of red is to be state conscious, then it must seem in this subjective way to you that you see red.

This characterization of state consciousness may nonetheless sound circular—explaining state consciousness in terms of awareness or consciousness. But it instead relates state consciousness to an arguably distinct sort of consciousness. In addition to speaking of states of consciousness, commonsense psychology often speaks of individuals' being conscious (or aware) *of* things. Since this ordinary use of "conscious" refers to one's being directed at an object, philosophers sometimes call the phenomenon in general "**transitive consciousness.**" An individual is transitively conscious of something when one is mentally responsive to it in some way—typically, for example, by perceiving or having a thought about it. As you're reading this sentence right now, for example, you are transitively conscious of the sentence by seeing it and not transitively conscious of the wall behind you. However, since the states in virtue of which one is transitively conscious of things can occur without themselves being state or phenomenally conscious, as in cases of subliminal perception, some theorists question whether or not transitive consciousness should be called a kind of "consciousness" at all (e.g., Carruthers 2016). In any case, our characterization of state consciousness is thus not circular: a mental state is state conscious only if one is suitably transitively aware of it.

Often conflating these distinctions between state, phenomenal, and access consciousness, cognitive psychologists frequently call any kind of conscious state an instance of simply "awareness" or "conscious awareness."

Phenomenal and access consciousness involve differences in *how* one is conscious of things. But, as the notion of transitive consciousness illustrates, we often also ordinarily distinguish kinds of consciousness in terms of *what* one is conscious of—that is, in terms of the content of consciousness or what consciousness is about. State consciousness is form of transitive consciousness of mentality—and commonsense seems to identify it as a kind of consciousness in its own right. Theorists do not, however, regard all forms of transitive consciousness as independent kinds. There would seem to be no good reason to distinguish the seeing of a dog and the seeing of a bird as different kinds of transitive consciousness. Both cases of visual awareness would seem to invite similar accounts, differing only in terms of what they are about. But other forms of transitive consciousness seem to raise particular theoretical problems or to be of particular interest—and as a result are also often discussed by philosophers as specific kinds of consciousness.

One particularly fascinating kind of transitive consciousness, for example, is what theorists sometimes call “**introspective consciousness.**” Although we often simply attend to and experience the world, it does seem that we can also be and often are subjectively aware of our conscious states in a kind of deliberate and attentive way. As you read this sentence, you are having a visual experience of the words on this page or screen, but with some effort you may be able to shift your focus from the words to your experience itself: you may become deliberately and attentively aware of your experience as your experience. Here, theorists often say that such states (or, equivalently, individuals) exhibit introspective consciousness. Likewise, another particularly interesting kind of transitive consciousness is **self-consciousness**, which is a form of subjective awareness of one’s self. When, for example, you think “I should go to the store later,” your thought is not simply that someone or other should go to the store, but that you *yourself* should; you are self-conscious. Such forms of transitive consciousness may seem, at least at first, to demand individualized accounts.

As the literature on consciousness is large and growing, theorists have drawn additional distinctions among kinds of consciousness that, for reasons of space, are not discussed in detail here. On the basis of the study of altered states of consciousness (e.g., conditions due to brain damage, anesthesia, or seizures), for example, some propose that there are different *levels* or kinds of consciousness. These levels may include the so-called “minimally conscious state” (MCS), wherein persons with traumatic brain injury are behaviorally similar to those in vegetative states but nonetheless retain some aspects of typical brain function (see, e.g., Boly et al. 2013). Such levels arguably correspond to different degrees of physiological arousal. Whether and how such levels of consciousness relate to the kinds of consciousness discussed in this chapter is controversial. Perhaps, for example, sleep is not a form of (creature) unconsciousness, but rather an altered state of phenomenal consciousness—or perhaps such levels are merely atypical phenomenal states or degrees of creature consciousness (see, e.g., Bayne et al. 2016). But this chapter plainly cannot explore all of the ways in which common sense employs “consciousness” or cognitive scientists theorize about consciousness—and so focuses on a few of the central distinctions and proposals only (for yet other distinctions, see, e.g., Lycan 1996).

### ***Box with 3-5 Paragraphs on neuroscientific findings relevant to topic***

Can these different kinds of consciousness be explained in terms of or at least associated with other psychological functions or processes in the brain? Giving an answer to this question is difficult, in part because the relationships among the kinds of consciousness remain controversial. We can, however, make reasonable guesses about how some kinds may be explained in other psychological or neural terms (for overviews, see, e.g., Chapters 17 and 18).

That a creature is awake and responsive to its environmental stimuli—that is, that there is **creature consciousness**—seems to be a reasonably straightforward neurological phenomenon, arguably explainable in terms of the activity of certain specific biological systems. There is growing consensus, for example, that the thalamus, a subcortical region of the brain (see 44 on the brain map), is implicated in explaining sleep/wake cycles (e.g., Gent et al. 2018).

Likewise, many forms of **transitive consciousness** would seem to be readily explicable in terms of brain functioning. Whether or not is aware of something in one's environment via perception—by seeing it, for example—depends on the normal functioning of the relevant sensory systems in the brain. In the case of vision, this organization is the visual system, which includes a sensory organ—the eye—as well as the so-called “visual pathway” through the brain to the primary visual cortex, also known as “V1” (see 7 on the brain map).

While the root of the expression “to introspect” is something like “to look inside,” it is doubtful that **introspective consciousness** literally involves some kind of inner eye seeing your mind. Rather, such sophisticated forms of transitive consciousness, including also **self-** and **state consciousness**, may implicate brain regions that underlie the capacity to think about or evaluate one's thinking—the faculty often known as “metacognition”—or that underlie flexible complex cognition known as “executive functioning” more broadly, such as the dorsolateral prefrontal cortex (dlPFC) (see 26 on the brain map).

Likewise, it is reasonable to think that **access consciousness** involves what is known as “working memory”—the psychological system responsible for holding information “in mind” over short delays in order to complete various tasks (see, e.g., Prinz 2012)—or the related central cognitive or neural area of the brain often known as the “global-neuronal workspace” (GNW) (e.g., Dehaene et al. 2006). The GNW is theorized to involve frontal and parietal areas of the cortex (see 4 and 5 on the brain map), which possess long-range neural connections to, and thus make information available to, a variety of psychological or neural subsystems including those responsible for verbal report, such as Broca's area (28 on the brain map).

Whether or not any of these brain areas relate to **phenomenal consciousness** is particularly contentious. Some theorists maintain that phenomenal consciousness is completely distinct from access or any kind of transitive consciousness. On such views, phenomenal consciousness may involve only certain kinds of recurrent neural activity within the relevant areas of sensory cortex (e.g., Lamme 2003). Opposing theories link phenomenal consciousness with certain kinds of thought, cognition, or higher-order awareness—and thereby explain it in terms of brain areas including frontocortical regions such as dlPFC (e.g., Lau & Rosenthal 2011), neural realizers of working memory (e.g., Prinz 2012), or the GNW (e.g., Dehaene et al. 2006).

Ultimately, the neuroscientific findings relevant to explaining these varieties of consciousness depend on the best theories of those phenomena in psychological terms, matters which have yet to be settled.

## ***1.2 Can these kinds of consciousness occur independently?***

Many thinkers in history have either confused these various kinds of consciousness with one another or explicitly characterized them in terms of one another. Nowadays, however, most theorists recognize the above distinctions in some form or another. To better appreciate the differences, let's now consider some situations wherein these kinds of consciousness appear to occur independently from one another.

### ***1.2.1 Transitive consciousness and conscious states***

At first sight, it might seem reasonable to think that all instances of transitive consciousness involve conscious states. Since we often do not think about unconscious states, it might seem that if you're transitively conscious of a lasagna by seeing it in front of you, your visual state must be either state, phenomenal, or access conscious. Indeed, many thinkers in history such as Descartes (1641/2008) assumed that we are aware of all of our mental states—that all mental states are (state) conscious. But there are many commonsense and experimental reasons to think that mental states can occur without being conscious in any way—that there are states that make us transitively conscious of things without our being aware of them, without exhibiting widespread mental impact, and for which there is nothing that it is like to be in them. As noted, for instance, there is much evidence of subliminal perception, wherein one perceives something, but one is in no way aware that one perceives it. A striking example of subliminal perception occurs in the pathological condition blindsight, wherein people with damage to the visual cortex are able to distinguish between various stimuli in forced-choice scenarios, despite genuinely maintaining that they cannot see them, which suggests that they unconsciously see those stimuli (see, e.g., Chapter 17). Or consider so-called “implicit bias”—the phenomenon wherein people often act in biased ways towards certain social groups, although they report that they maintain no negative attitudes against these groups (see, e.g., Greenwald et al. 1998). Many maintain that such behavior is best explained by perceptual and cognitive states that are subliminal or not conscious in any way (for more on such phenomena, see Chapter 22). Again, even though we do ordinarily say that we are aware or conscious *of* things by being in certain mental states, the fact that we can be mentally responsive to things via states that are themselves not conscious in any way leads some to question whether so-called “transitive consciousness” is best regarded as a kind of consciousness at all.

### ***1.2.2 Creature consciousness, transitive consciousness, and conscious states***

While a person plainly cannot be transitively conscious of anything without being in some mental state or other, it would seem that a person can be transitively conscious of things even if she is not creature conscious. There is, for example, experimental work that shows that people can learn things presented to them via recordings during sleep (e.g., Windt et al. 2016). Likewise, though it may sound odd to think that you can be both unconscious—asleep or in a coma—and in conscious states, such situations arguably can and do happen. The phenomenon of *lucid dreaming*, wherein people are dreaming and know that they are dreaming, suggests that there can be states that are conscious—be it state, access, or even phenomenal—when an individual is not (totally or in a typical way) creature conscious.

### ***1.2.3 Introspective consciousness, self-consciousness, and conscious states***

It is hard to imagine that one could be introspectively conscious of a mental state without that mental state's being conscious. But most theorists today would deny that we are introspectively aware of all of our conscious mental states. If you are listening to some sweet tunes, you can, with some mental effort, focus your attention on your auditory experience of the music, although you typically do not focus in that way. So introspective and phenomenal consciousness plainly can occur independently. It is easier to confuse introspective and state consciousness, however, as both phenomena involve awareness of mental states. But

introspective consciousness is deliberate and attentive—a kind of awareness of one’s states that is arguably itself state conscious—whereas state consciousness is typically thought to involve a kind of background awareness that may not itself be state conscious. Many theorists have, however, argued that there can be no state consciousness without self-consciousness, as one cannot be subjectively aware of being in a mental state without being aware of *oneself* as being in that state.

#### ***1.2.4 Access consciousness and phenomenal consciousness***

Why distinguish phenomenal from access consciousness? Block (2007), for example, argues that so-called “partial report paradigms” of the sort pioneered by Sperling (1960) support the distinction. In a standard experiment, participants are briefly shown an array of items (e.g., letters in rows), which is then removed, and participants are cued to report the items that were present in a particular part of the display (e.g., the letters in a particular row). Remarkably, participants are often quite accurate at reporting the items in the cued location, though they are unable to accurately report all of the items in the display. On the basis of such evidence, Sperling proposed that there is a kind of short-term iconic memory of the entire array of items that persists after the stimuli are removed; Block additionally urges that there is experience of the entire array, which endures for a short time after the display is removed, though much of that phenomenal consciousness “overflows” one’s ability to report on, and hence one’s cognitive access to, it. In other words, it would seem that there can be phenomenal consciousness in the absence of access consciousness.

#### ***1.2.5 Access consciousness, phenomenal consciousness, and state consciousness***

As we shall see, some theorists distinguish the mental qualities or characters of mental states such as perceptual or emotional states from their (state) consciousness. On that kind of view, a subliminal visual perception of the color red exhibits a reddish quality, whether or not one is subjectively aware of being in it. But even if that’s correct, it seems wrong to say that there is something that it is like to be in such a state if one is in no way aware of being in it, which illustrates that the notions of phenomenal and state consciousness may coincide to some extent. But perhaps there can be states that are state conscious, but that are not qualitatively or phenomenally conscious. It is questionable, for example, whether or not there is anything that it is like to think the conscious thoughts of which we may be subjectively aware (but see, e.g., Montague 2016). Likewise, it may seem that a mental state cannot be state conscious without being access conscious, as the former may seem to be a special case of the latter. There is, however, experimental evidence that people can solve complex problems without being aware at all that they are thinking about them (e.g., Dijksterhuis & Strick 2016), suggesting that states that are access conscious can occur without being state conscious.

## **2. Contemporary Issues**

### ***2.1 Background theories: “hard” and “easy” problems of consciousness***

Although **creature consciousness** has not struck many theorists as raising deep philosophical questions, other kinds of consciousness have appeared trickier to explain. The

nature of perceptual states that engender **transitive consciousness** remains a matter of much debate in the philosophy and science of perception (see, e.g., Schellenberg 2018). Similarly, philosophers in history such as Kant (1787/1998) as well as many contemporary theorists have proposed complex accounts of the natures of **introspective consciousness** and **self-consciousness** (see respectively, e.g., Kind 2005 and O'Brien 2007). The latter notion remains particularly controversial; many thinkers in Western philosophy such as Hume (1739/2000) and those working in Buddhist and other Eastern traditions (see, e.g., Ganeri 2017) have even denied that there are selves or that one can be subjectively aware of a self.

In contemporary consciousness studies, however, **state consciousness**—and perhaps more often **phenomenal consciousness**—is often regarded as *the* problem of consciousness. Indeed, since many thinkers throughout history assumed that all mentality is conscious, the problem of consciousness was often conflated with the question of the nature of the mind more generally—what is often called the “mind-body problem” in philosophy. Though many theorists have attempted to explain the mind or consciousness in ordinary physical terms—proposing various theories (see, e.g., Chapters 17 and 18)—many today still maintain that phenomenal consciousness resists naturalistic explanation.

Phenomenal consciousness may seem particularly hard to explain because it appears to be dissociable from all other kinds of consciousness. To see why, consider the idea that we can conceive of so-called “philosophical zombies”—not the brain-eating creatures in horror movies, but rather individuals exactly like us in terms of their physical make up and behavior, but lacking phenomenal consciousness altogether (e.g., Chalmers 1996). Such creatures are stipulated to be awake and to be able to respond to stimuli in their environments, but there is nothing that it is like to be them. While a zombie may say “ouch” or writhe on the ground if harmed, it does not phenomenally consciously *feel* pain. Philosophical zombies do not really exist; they are a philosopher’s *thought experiment*. But if such imaginary creatures are not only conceivable, but also possible, then at least creature (and arguably access) consciousness can occur despite the total absence of phenomenal consciousness.

On the basis of this and related considerations, some philosophers maintain that phenomenal consciousness constitutes what Chalmers (1996) has dubbed the “hard problem” in the philosophy of mind. On Chalmers’ view, we know introspectively that we have phenomenal consciousness, but it would seem impossible to explain it in ordinary physical terms. For such reasons, philosophers often accept views such as versions of mind-body dualism, according to which the phenomenal and the physical are fundamentally distinct kinds of things or properties, or versions of panpsychism, which holds that everything in the universe exhibits a kind of consciousness (see, e.g., Chapter 5). At best, cognitive science can search for the so-called “neural correlates” of (phenomenal) consciousness (NCC)—that is, the neural states or processes that accompany, but that are not identical with, phenomenal consciousness (see, e.g., Chapter 18).

Chalmers contrasts the hard problem with so-called “easy problems,” which are easy insofar as we can see (at least in principle) how we might explain the relevant mental functions psychologically or neuroscientifically. These phenomena include many or all of the other sorts of consciousness discussed here, such as **access consciousness**: the mental ability to discriminate stimuli through our senses, to report our experiences in words, to focus attention, and to control behavior. Though we do have the beginnings of neural



explanations of many of these mental functions, most experimentalists would likely attest that these problems are not easy in any other manner than this one.

Many philosophers do not, however, regard philosophical zombies and related denizens of thought experiments as possible, or even conceivable. Dennett (2013), for example, maintains that thought experiments are what he calls “intuition pumps”—basically, short stories designed to elicit certain theoretical reactions. But, Dennett maintains, the problem with intuition pumps is that one may focus on or elaborate different aspects of them to prompt different responses to them. Dennett thus urges that we can modify the zombie thought experiment to show that they are not really conceivable. In particular, he asks us to imagine what he calls “zimboes,” which are a species of zombie that are able to unconsciously monitor their internal states in just the same way that we—nonzombies—do. When a zimbo is in its version of pain, it would be able, we might say, to zombie-think and to report that it is in pain. Dennett argues is that, whatever difference there may initially seem to be between us and zombies, there is no discernable difference between us and zimboes—thereby revealing that zombies are, upon closer examination, inconceivable. Perhaps, then, there is no hard problem after all.

Whether or not such critiques of the hard problem succeed, the mere fact that some theorists have distinguished some kinds of consciousness does not prove that they are genuinely distinct phenomena, or even things that actually exist (see Anthony 2002). Indeed, many theorists now propose that phenomenal consciousness depends on other kinds of consciousness—kinds that arguably can themselves be explained physically (for an overview, see, e.g., Carruthers 2016).

## 2.2 Some contemporary theories that relate kinds of consciousness

Because Chapters 17 and 18 survey several theories of consciousness, the nature and prospects of these theories will not be reviewed here in detail. Rather, this section explores only a few examples of the kinds of psychological and neuroscientific mechanisms put forward by some of the major theories of state or phenomenal consciousness, to illustrate the ways in which some kinds of consciousness may be interrelated (see Table 1 for an overview of some differences between major theories).

**Table 1: Main empirical predictions by major theories of conscious awareness**

Theory	Predicts changes in relevant prefrontal (and parietal) activity is sufficient for changes in awareness	Associates awareness with performance capacity in perceptual tasks	Associates awareness with higher cognitive functions (e.g. cognitive control)
Higher-order view	Yes (although it does not predict that changes in ‘any’ prefrontal or parietal activity is sufficient; higher-order representations probably constitute only a small subset of such activity)	No	No
Neuronal global workspace theory	Yes	Yes (although one alternative is to adopt a dual channel variant of the global workspace view; see Figure 1b)	Yes
Information integration theory	Yes (assuming some ‘relevant’ activity in prefrontal and parietal cortices reflects the ‘core’ system)	No	Maybe (if the task requires very complex and context-dependent stimulus-response mapping)
First-order theories (including Recurrent processing view)	No	Yes (although not always a consequence of the theory, first-order theorists have generally assumed this to be the case [11–13,25,26])	No

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Consider first so-called “higher-order” (HO) theories, which in the first place seek to explain state consciousness in terms of distinct states of HO transitive awareness (such states are HO insofar as they make one aware of being in other mental states). Since it would seem that we can be transitively conscious of things either by perceiving or having thoughts about them, such views often fall into roughly two categories: higher-order thought (HOT) and higher-order perception (HOP) theories, on which a mental state is state conscious just in case one is transitively conscious of oneself as being in it either via a suitable HOT or HOP (see respectively, e.g., Rosenthal 1986; Lycan 1996). On such views, what is it to state consciously see the color red is to have the suitable HO state that one sees the color red. And such HO states are typically thought to be themselves not state conscious. On such views, introspective consciousness occurs when HO states of awareness become themselves state conscious via yet HO HO states of awareness.

HO theories arguably also account for phenomenal consciousness. HO theories typically distinguish the mental qualities or characters of the relevant *first-order* (FO) qualitative states of which we may be subjectively aware, such as the reddish quality of a visual perception of red, from the HO states in virtue of which such states may be conscious—that is, in virtue of which there is something that it is like for one to be in such states. Once again, if one is in a visual state but in no way aware of being in it, it would seem that there is nothing that it is like to be in that state, even if the state is distinctively qualitative or visual. But this entails that a qualitative state is phenomenally conscious only if one is suitably aware of oneself as being in it. HO theories thus explain phenomenal consciousness in terms of transitive consciousness of one’s mind or self, along with whatever account one might give of the relevant qualities or properties of FO states.

Proponents of *FO theories* typically maintain either that state and phenomenal consciousness do not coincide and that the central phenomenon in consciousness studies to be explained is phenomenal consciousness, or that state consciousness can be explained somehow trivially, without positing distinct states of HO awareness about the phenomenal states. And FO theorists criticize HO views in many ways. Block (2007) argues, for example, that the purported evidence that phenomenal consciousness may overflow one’s cognitive access to that consciousness falsifies HOT theory (but for an alternative interpretation of such results consistent with HO views, see, e.g., Brown 2014).

FO theories instead locate phenomenal consciousness in features of FO states. As an illustration, consider the FO theory perhaps most widely endorsed by contemporary cognitive neuroscientists, which grounds consciousness in the GNW (e.g., Dehaene et al. 2006). By examining large-scale comparisons of conscious and unconscious states, GNW theorists hypothesize that the difference consists in states’ being “present in” the GNW—and so available for impact on a wide range of mental functions and behavior.

But like many theories in contemporary consciousness studies, GNW theory is questionable. For one thing, some GNW theorists have suggested that there cannot be globally broadcast states without a kind of HO awareness of or access to them, potentially collapsing the distinction between FO and HO views (e.g., Naccache 2018). Moreover, as noted above, there is evidence of reasoning processes that occur completely outside of people’s awareness—that is, it would seem that there are states that are at least state

unconscious and arguably not phenomenally conscious in the GNW. One might even think that such evidence undermines the very idea of access consciousness. As was the case with transitive consciousness, if we can be in mental states that can have widespread mental impact and yet be totally unaware of them, it is hard to see why such states deserve to be called “conscious.”

It is similarly common for opponents of these various theories to argue that these theories simply confuse kinds of consciousness. HOT theory, for example, strikes many critics as instead a theory of self- or introspective consciousness. Likewise, GNW theory may at best appear to be an account of access consciousness, not phenomenal consciousness. Or consider integrated-information theory (IIT) (e.g., Tononi et al. 2016), which holds that an individual’s degree of consciousness depends on levels of informational integration—roughly, the amount of information reflected by the connections among information-carrying units within the cognitive system. IIT is often posited as a theory of phenomenal consciousness or at least access consciousness. But the view developed primarily out of studies of altered conditions of consciousness such as sleep, wherein it was found that there is less general cortical coherence, and so less informational integration, in sleep than in wakefulness. But it is questionable whether or not phenomenal consciousness comes in degrees. This suggests that IIT is perhaps better conceived of as a theory of creature consciousness, for which the notion of degrees of consciousness may seem more appropriate.

### **3. Future Directions**

Today, consciousness in all of its varieties has come into its own as right as a subject of respectable scientific study (e.g., Michel et al. 2019). But there remains much work to be done.

With regard to state or phenomenal consciousness, the majority of work to date has focused on *perceptual* consciousness—and in particular visual consciousness. But it is unclear whether and to what extent experiences in other perceptual modalities—such as smell—are similar to visual experiences (see, e.g., the essays in Young & Keller 2014). Similarly, there are other sorts of state or phenomenal consciousness, such as the experience of ownership or agency over our actions (e.g., Mylopoulos 2017), which may demand individual accounts. Some of this research is ongoing, but there is much room for development.

There is also much opportunity to explore clinical applications of insights into consciousness. There are many clinical disorders that seem to involve disruptions of consciousness, such as schizophrenia (see, e.g., the essays in Gennaro 2015), and some potential treatments of these disorders would seem to require a more complete understanding of the relations among varieties of consciousness.

Likewise, clarifying the various kinds of consciousness would naturally shed light on whether or not certain nonhuman animals or even artificially intelligent machines do or might exhibit some forms of consciousness (e.g., Boly et al. 2013). If we are going to build machines that do not merely mimic the outward signs of consciousness, but actually have it, then we have to know what consciousness in all of its forms is.

Many ongoing and future projects in consciousness studies thus involve further clarifying the relationships between the various kinds of consciousness. Some, for example,

have recently raised doubts about much of the experimental evidence for subliminal perception (e.g., Phillips 2018), urging that what may seem to be unconscious mentality in phenomena such as blindsight may be instead either weakly state or phenomenally conscious or, to use an expression of Dennett's (1969), not even mental but *subpersonal*—that is, not a psychological feature of a person but a property of a subsystem of the person such as the retina. If it turns out that there really are no unconscious mental states, then perhaps we must relinquish the distinction between state or phenomenal and transitive consciousness.

### **Summary of Key Ideas:**

This chapter discusses various kinds of consciousness: what has been called “creature,” “transitive,” and “state” consciousness, “phenomenal” and “access” consciousness, and “introspective” or “self” consciousness. It is far from settled that these kinds refer to distinct—let alone existing—phenomena. But there is much promising theoretical and experimental work seeking to clarify the relationships between these seemingly distinct kinds of consciousness and aiming to evaluate the evidence for and against accounts of these phenomena. While there remains much work to be done, it is reasonable to hope that we may one day explain the genuine kinds of consciousness in terms of the functioning of the brain.<sup>1</sup>

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### **Discussion Topics:**

- How do these kinds of consciousness differ from one another?
- What (hypothetical) experimental evidence would demonstrate that these kinds of consciousness are distinct?
- Are some kinds of consciousness more difficult to explain neuroscientifically than others? Why?

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