

## Recensioni

**Jesse J. Prinz**  
**The Conscious Brain.**  
**How Attention Engenders Experience**  
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What is consciousness? Where is it located? How can we be aware of *another* creature being conscious? How come Why is this awareness both so rich and so ineffable? These are only a few of the many questions related to the problem of consciousness which philosophy and the sciences have tried to answer over the centuries.

Jesse Prinz now maintains that the only way to approach such questions correctly is to narrow them down to one core issue: What is the brain source of consciousness in human beings? Starting from the very first pages of his Preface, Prinz explicitly commits himself to a reductionist position within the mind/brain debate.

The title itself is a straightforward reply to David Chalmers' defense of "dualism" in *The Conscious Mind* (1996), and many other well-known works by this author. The main aim of *The Conscious Brain* is instead to search for a scientifically informed reduction of consciousness.

As is obvious, the task is huge. Indeed, the first step towards this goal is a substantive review of the main theoretical perspectives and positions regarding consciousness up to the present time, divided by Prinz into "philosophical" and "scientific" theories. This overview serves the specific function of eliciting the characteristics of a good theory of consciousness.

By criticizing the problematic aspects of each position under examination, Prinz emphasizes a series of *desiderata* that a proper, and exhaustive, theory of consciousness must match. Examples of such *desiderata* include the "subjective character" of consciousness, which implies that every qualitative state has the character of conscious appearance, and the "multilevel integration" of the theory, meaning that a good theory should integrate different levels of description and thus, ultimately, identify the neural correlates of consciousness.

Prinz's real starting point is the so-called *intermediate level hypothesis*, first presented by Ray Jackendoff in his *Consciousness and the computational mind* (1987). The gist of the proposal, which considers the brain as a biological computational

device, is the identification of the *locus* of consciousness within the computational stream. The basic intuition here is that the computational flow can be divided into at least three levels of processing, based on the type of information specific to each level. The only level presenting features compatible with those of conscious experience is the *intermediate* one.

Prinz tests the consistency of the intermediate level hypothesis with recent experiments and data coming from the neurosciences reaching the conclusion that not only is the hypothesis consistent with the examined data, it becomes even more plausible when the most recent scientific findings are taken into account.

Having established the plausibility of the assumption of consciousness "being given" at the intermediate level, Prinz integrates this with his own theory that he calls the "AIR" theory of consciousness. This theory is based on current research on attentional modulation processes. "AIR" means *Attended Intermediate-level Representations*. The name introduces the core element of the Author's theory: attention. The main strategy of the theory is to systematically show how representations of a given stimulus located at an intermediate level of processing, become conscious through attention.

Prinz tries hard to remain coherent with his reductionist commitment throughout the whole book, therefore his subsequent effort is to identify the neural correlates of intermediate level representations and attention. On the whole, he achieves this goal.

His overview of the available neurological data is thorough, and he seems to find a pattern in this data that is consistent with his perspective. Therefore the theory he proposes is, though very general, at least to some degree a truly representational and computational one. And it has the advantage of examining, and trying to explain, how consciousness arises in the brain from a psychological perspective *and* from a neuro-biologically grounded one at the same time.

Prinz's further aim, however, is to address much more philosophical problems from the particular perspective of the AIR theory in order to put its explanatory effectiveness to the test. In particular, he tries to explore the defining limits of consciousness. First of all, he argues that all consciousness is perceptual, thus subscribing to a "restrictivist" posi-

tion. Restrictivists typically claim that there is nothing within phenomenology that has its origins outside sensory experience.

This does not imply that such things as emotions, thoughts or intuition do not contribute to phenomenal consciousness, but rather that, whatever their role and status in conscious experience, it can be understood and analyzed in terms of *sensorily derived elements*. In this perspective, a conscious emotion really becomes a complex collection, or construction, of sensory inner “states”, such as increased heartbeat, sweat and so on, linked to specific, sensory outer “causes”. Conscious thoughts are, on the other hand, explainable in terms of verbal imagery and “inner speech” (p.159), and so on.

This is clearly a critical aspect of Prinz’s extended argument. A second point concerns the relation between consciousness and action. Prinz begins with a criticism of “enactivist” theories, which claim that consciousness originates from sensory motor inputs related to possible actions. According to enactivists, consciousness is determined and caused by actions. Prinz follows a milder perspective, arguing that there is a strict relationship between consciousness and action, but it is consciousness that bears the responsibility for guiding and controlling a person’s behaviour.

The third critical point is perhaps the most controversial, at least philosophically. It regards the nature and actual existence of the phenomenal “Self”. Prinz argues that there is no such thing as a phenomenal experience of the Self. We do not experience (phenomenally) a unified subject who is conscious and in which we identify our own Self.

Phenomenal experience consists of a collection of phenomenal states, none of which need to be further considered as being experienced by someone. There is a sense, though, in which the Self is present in experience and that is, in Prinz’s own words, «by virtue of its absence» (p. 240). As Prinz importantly concedes, a fundamental characteristic of phenomenal states, and the intermediate-level representations on which they are based, is that they are essentially viewer-centered.

Consciousness is the consciousness of an organism that must take a *conscious organism-centered point of view*, in order to interact with the environment and control its actions. This does not entail that the organism needs to have an actual phenomenal experience of being a subject, even less a subject conceived as separate or independent. Thus, the phenomenal Self merely assumes the character

of a useful illusion, inferred from a series of viewer-centered (or better *experiencer-centered*, since one or more sensory modalities are always involved) phenomenal states. The Self is present in experience only in this “negative” sense.

There are, undoubtedly, still several unresolved aspects of this general picture. But the purpose of this review is, at most, to uncover the (often subtle) points proposed, rather than to solve the related problems. We also have to consider that Prinz does not mean to cast doubt on the existence of the subject in the sense, for instance, in which it is accepted in ordinary language and intuitions.

He rather tries to show that, even if the Self exists, we have no conscious experience of it, so to speak, *per se*. A conscious organism should not postulate a conscious experience of its subjectivity from a series of subjective conscious states, nor should we. It is incorrect to synthesize the unitary experience of these states under (the heading of) a consciously experienced subject. Rather, a series of subjective conscious states suggests that a subject exists, although it is never consciously experienced.

In the third part of his work, Prinz deals with what he calls the “metaphysical puzzles of consciousness”, which are essentially its “unity” and its “physical nature”. Addressing some of the classical problems in this old, and new, debate, such as the origin of unified conscious states from fragmented input, and the “knowledge argument”, the Author examines the possibility of defending a physicalist perspective.

Concerning the unity problem, one advantage of the Author’s approach is that he solves, or believes he has solved, the puzzle without introducing or postulating any elements beyond those already mentioned: attention and intermediate-level representations. Attention has the role of modulating the activity of a population of neurons (corresponding to an intermediate level representation) on a specific frequency (Gamma).

When a population of neurons shows a recurrent pattern of activation (called a Vectorwave) in the presence of a stimulus, this can be interpreted as evidence that this population represents a particular micro-feature of the stimulus. If this particular pattern occurs at a determinate frequency (identified with the Gamma frequency) this means, in fact, that the representation is modulated by attention.

When this happens, the representation becomes *available for encoding* (although it is not yet encoded) in working memory, which is where im-

mediate decision making and further information processing takes place. If different populations of neurons, corresponding to different representations, are modulated by attention at the same frequency range, they enter into a state of *resonance*. Therefore, in Prinz's perspective, the unity of consciousness is considered as deriving from attentional resonance.

The relationship between the psychological characterization of conscious states as Attended Intermediate-Level Representations, and their neural correlates is also investigated with promising results. In fact, one of the core problems in the debate about mind/brain states results from the fact that a physicalist is committed to ascribing causal capability exclusively to the physical level, leaving aside the psychological level as ultimately irrelevant.

To avoid this epiphenomenalist consequence, Prinz advances a new position, which he calls *Neurofunctionalism*: «A mental state is neurofunctional if [...] its being the state that it is depends on its psychological role and its neural implementation [...] these levels are not only jointly required, but also interdependent. Function depends on realizers and conversely» (p. 286).

Conscious mental states are then neurofunctional states, which means that they are identified equally as their brain correlates and by virtue of their functional role in consciousness. The experience of a color is at the same time a particular pattern of activity in one or more populations of neurons and a representation of an environmental feature, associated in the brain with behavioral reactions, emotional response and other features, all of which constitute the scope and the subjective function, or aim, of consciousness.

The last and most difficult metaphysical puzzle addressed in the book concerns phenomenal knowledge. The notorious problem is that, when we have a particular phenomenal experience, we possibly acquire a kind of knowledge related to the experience we are having: we learn "what it is like" to have that experience.

This particular knowledge, if it is knowledge, is indeed, for the involved subject, not derivable from the sum of the possible physical information that the subject can obtain; thus, there appears to be something, regarding phenomenal states, which is not physical. But Prinz claims that the argument is misleading, insofar as there is nothing mysterious, and moreover nothing not physical, in the enhancement of actual knowledge that being in a particular phe-

nomenal state provides to the subject itself.

Phenomenal knowledge is, in this perspective, obtainable through further inner information processing. When a phenomenal state becomes conscious, this means that it has been selected by attention to be possibly encoded in working memory, but it is not immediately encoded. When, at a following stage, it is encoded (and maintained) in working memory, it becomes available for further processing, and a *new* form of knowledge can be extrapolated from this condition.

This explains why a subject needs to be in a state in order to know what its like to be in that state, without appealing to anything beyond the physical world.

In the conclusion to his book, Prinz closes the circle by showing how the AIR theory he has been proposing can match every single *desideratum* identified in the first chapter. And the complex of his work does leave an impression of thorough, wide-angled analyses of most of the different positions available.

Starting from a sustained criticism of the various problematic aspects of previous theories and research, Prinz formulates an essential, consistent and straightforward theory of consciousness. More than that, he argues for his position both at a psychological level of description *and* from a neurobiologically consistent perspective.

Many of the topics in the book, as well as the analyses of the relevant data and experiments, are highly technical and complex, but the Author's fluent style, along with the many examples he provides, "facilitate" an understanding and appreciation of his work. Some of the positions proposed by this book may appear somehow radical, but they have the merit of always remaining coherent with both the theoretical background and the available data, and are also tightly, as well as compellingly, argued.

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Over the last few decades, the philosophy of mind has faced many challenging questions about its own methodology: in particular, the so-called problem of naturalization has given rise to a complex debate on the role of philosophy in elaborating, among