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Feb 06 2017

[Why Are We Conscious?](#)

Published by [Steven Novella](#) under [Neuroscience](#)
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In Daniel Dennett's latest book [From Bacteria to Bach and Back: The Evolution of Minds](#), Dennett explores a number of issues surrounding consciousness. I have not yet completed the book and so may come back to it again, but wanted to discuss one topic that Dennett covers – why are we conscious in the first place?

Dennett makes a [distinction between competence and comprehension](#). Competence is the ability to perform some task, while comprehension is understanding the task and the process. The former is unconscious, while the latter is conscious.

This touches on Chalmers' "P-zombie" problem – if we can imagine an organism that can do everything a human does without experiencing its own existence (a philosophical zombie), then why did consciousness evolve at all? There are several possible solutions to this problem. The first is that humans were "designed" to be conscious by whatever agent made us. This introduces unnecessary elements and contradicts established science, so I think we can set that aside.

The second solution is that consciousness is an epiphenomenon. We don't need to be conscious, but we evolved consciousness as an evolutionary accident. This may be true, but is unsatisfying as it just side-steps the question of what use is consciousness.

The third solution, which I find compatible with the evidence and compelling, is that consciousness is inherent to the functioning of our brains and brings with it specific advantages.

Dennett focuses on two aspects of human behavior that he feels were critical in bootstrapping human-level consciousness – social interaction and language (which themselves are related).

Humans are intensely social creatures. This was one of our major evolutionary adaptations, we live and hunt in groups. The most obvious function that aids social interaction is communication, which is where language comes in. I think at least as important as language is that social creatures need to have what psychologists refer to as a theory of mind, which is an understanding that other people have thoughts, feelings, and motivations of their own.

If you are living in a social group, there is an obvious advantage to being able to predict that another member of that group is going to help you in a certain situation, or that they may be out to get you. Is that a friend or enemy? How will they react if I engage in a certain behavior?

At the group level, everyone will have a better chance of surviving if they get along, and can understand each other's behavior and motivations. Group cohesion, including obvious things like hunting together, requires coordination of efforts. This not only benefits from more and more sophisticated language, but also from the ability to learn how to do the things that the group does – to mimic.

Mimicking, reading and conveying emotions and intentions, group cohesion, and communication all play off each other. Humans have the ability to feel what other people feel, to move like other people, talk like them, express emotions like them, even to think like them. We call this culture.

Culture is a powerful thing. Think about the people you know – they belong to a family culture, a regional culture, and a national culture. Think about your interactions with people from completely different cultures – everything they do is subtly different. Yes, there are human universals, but the effect of culture cannot be overestimated. How close we stand to other people, level of eye contact, how emotionally expressive we are, our posture, how we walk, eat, and of course our language and accents are all learned by copying those around us. Our brains literally mirror the brains of others in our group.

In order for me to predict what someone else might do based upon what I think they are feeling, what they know, their motivations, and their past behavior, I need to have an understanding of their mind. I know they are conscious because I am conscious.

Someone defending Chalmers might say that an unconscious predictive algorithm might do just as well, but that misses the point. Such an algorithm can only work because humans are conscious. Because we feel and think, and that drives our behavior. Further, the best algorithm for predicting how humans feel, think, and behavior is another human with a similar brain that thinks, feels, and behaves in a similar fashion. We literally run a model of other people in our own heads – we imagine how we might feel and behave as a way of predicting the actions of others.

Psychologists have a word for this too – projection. People are still individuals, we are not exact copies of each other. So predicting what someone else will do based upon what we would do is imperfect. It is also extremely revealing. Often, when we speculate about the motivations of others were are really just revealing our own motivations that we then project onto others. It takes insight and self-awareness to separate these two things.

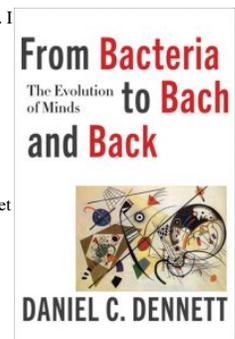
The theory of mind and the demands of being a social creature are only part of the equation. Bees are social creatures, but they collaborate entirely with instinct. Humans also developed language, and Dennett follows Chomski on this topic – the idea that language is uniquely human and is critical to being human.

Perhaps we first started communicating with each other with simple and obvious hand signals. However, many animals use sounds for communication (warning sounds, mating sounds) and so our ancestors probably did this also. Eventually they started to use more and more sophisticated sounds and gestures to communicate more and more complex information.

The interaction of intense social interaction with evolving language was like rocket fuel to human consciousness. Out of this mix evolved culture. Dennett gets into the notion of memes, which he thinks of as tiny units of cultural information. The notions of memes has many critics, but I think this is actually incidental to Dennett's main points. You don't need to call them memes, or even to have a concept of a cultural unit. You can think of culture as a mish-mash of ideas and behaviors with no distinguishable units, and Dennett's main point would still hold.

Essentially you have a positive feedback loop with language, culture, social interaction, and intellectual sophistication. The result was that our proto-human ancestors dramatically increased the size of their brains in a few million years. The evolutionary pressures for greater intelligence were apparently massive, once those factors all came into play.

The result was a creature that could think in words, that could think about what other creatures felt and thought, and that could contemplate, therefore, its own feelings and thoughts.



That's consciousness.

[26 responses so far](#)

26 Responses to "Why Are We Conscious?"

1. [# chikoppion](#) 06 Feb 2017 at 10:25 am

I generally agree with this position, but want to consider some nuance. There is a hazard of false dichotomy.

First, I think most agree that consciousness isn't all or nothing. There is likely a multi-threaded spectrum of neurological functions that contribute to degrees of consciousness, such that a lizard is "more" conscious than an ant, a corvid more conscious than a lizard, etc.

Second, I think we assume the human experience of consciousness is typical. That may not be so. Humans evolved consciousness in a particular manner, reflecting a particular alignment and balance of neurological functions. There may be many potential "flavors" of consciousness, different evolutionary paths of sophisticated brains, that diverge quite radically from our own expectations (I wonder about those cagey cephalopods sometimes!).

The complex construct of self awareness that humans possess may be only one of myriad possibilities. Considering a wider array of possible types of consciousness may shed light on our unique situation.

2. [# BaSon](#) 06 Feb 2017 at 10:46 am

Anyone who finds these concepts interesting should immediately read the sci-fi novel "Blindsight" by Peter Watts. In addition to being awesome, it centrally deals with the distinction between intelligence and consciousness.

3. [# Pete Aon](#) 06 Feb 2017 at 11:01 am

Dr. Novella, Thank you for sharing your thoughts and knowledge. You have addressed some things that I've been thinking about over the decades of my life.

Having only forward-facing vision is advantageous for distance estimation and for focussing our limited attention to fine detail, however, the disadvantage of being unable to see predators approaching from behind is offset by forming social groups, in which other members of the group serve as a proxy for having 'eyes in the back of our head'.

But this by itself doesn't explain the advantage of consciousness. You wrote "Bees are social creatures, but they collaborate entirely with instinct." Yes, because bees are very much smaller animals than humans and they can rely on instinct-based pheromone signalling due to their close proximity to one another and the whole colony. The larger the animal, the less it can rely on instinct plus close proximity; and the more vulnerable its species becomes to extinction by changes in its environment. One queen bee (or ant) can create a new colony; most of the much larger animals cannot, therefore conscious co-operation is advantageous to the survival of their species.

Absolutely no disrespect intended by my following thoughts...

It seems to me that asking "Why are we conscious?" is the wrong question to ask. It is similar to asking "Why did that person win the chess tournament?", which leads to asking: Why do we have tournaments?; Why did chess become popular?; etc.; etc. The answer to which is: Because we have high-level consciousness. Which leads right back to asking: Why are we conscious?

Similarly: "Why is the Moon orbiting Earth?" To which I would reply "I dunno, ask it why!" Whereas "How did the Moon form?" is requesting an evidence-based scientific answer.

It seems to me that those who do *not* accept that our conscious self is just an illusion are predisposed to ask "why" questions. Whereas those who *do* accept that our conscious self is the most awesomely convincing illusion that we will ever experience, are predisposed to ask "how" questions.

4. [# TheGorillaon](#) 06 Feb 2017 at 11:03 am

I'm not really seeing a response to Chalmers here? It's possible there's not intended to be, but the "just so" evolution story is preceded by mention of p-zombies, and there's an explicit line addressing the proposition that an unconscious algorithm could do all this (to which "that would require consciousness" is not an attempt at rebuttal).

5. [# Rikki-Tikki-Tavion](#) 06 Feb 2017 at 11:44 am

I find it mildly upsetting that the title only works if you grossly mispronounce the name "Bach".

6. [# BBBBlueon](#) 06 Feb 2017 at 12:21 pm

Doesn't "understanding the task and process" result in less trial and potentially deadly error as novel challenges are met? That alone would seem to be a significant selective advantage.

7. [# hardnoseon](#) 06 Feb 2017 at 12:49 pm

"Humans also developed language, and Dennett follows Chomski on this topic – the idea that language is uniquely human and is critical to being human."

It is not uniquely human.

8. [# hardnoseon](#) 06 Feb 2017 at 12:53 pm

"Essentially you have a positive feedback loop with language, culture, social interaction, and intellectual sophistication. The result was that our proto-human ancestors dramatically increased the size of their brains in a few million years. The evolutionary pressures for greater intelligence were apparently massive, once those factors all came into play."

This is materialist mythology. It is NOT science.

9. [# hardnoseon](#) 06 Feb 2017 at 12:54 pm

"Having only forward-facing vision is advantageous for distance estimation and for focussing our limited attention to fine detail, however, the disadvantage of being unable to see predators approaching from behind is offset by forming social groups, in which other members of the group serve as a proxy for having 'eyes in the back of our head'."

So that means horses don't form social groups?

10. [# hardnoseon](#) 06 Feb 2017 at 12:57 pm

"The evolutionary pressures for greater intelligence were apparently massive, once those factors all came into play."

Are you talking about dolphins here, or whales?

11. [# Pete Aon 06 Feb 2017 at 1:05 pm](#)

“So that means horses don’t form social groups?”

Very obviously, not!

<https://en.oxforddictionaries.com/definition/fuckwit>

12. [# Pete Aon 06 Feb 2017 at 1:13 pm](#)

“So that means horses don’t form social groups?”

Very obviously, not!

My comment that included an appropriate link to Oxford Living Dictionaries is currently awaiting moderation.

13. [# Steven Novella on 06 Feb 2017 at 1:26 pm](#)

As I mentioned in the article, many animals communicate with each other. However, there is nothing remotely like human language in any other animal. The difference is not just one of degree. That was Chomski’s position, which is why I referenced him.

Cetaceans certainly have large brains. There is more than one path, obviously, to enlarged brains. Their brains are very different than humans in that they have far more white matter which appears to be dedicated to processing echolocation.

This is just simplistic sniping. Typical from HN. That along with handwaving dismissal of anything he doesn’t like as “materialist mythology.”

14. [# Pete Aon 06 Feb 2017 at 1:46 pm](#)

Stephen,

My particular consciousness is the epitome of “materialist mythology”: I know damn well that my “self” is nothing other than an illusion. However, I continue to increase my understanding of the biology, chemistry, neurology, and physics that lead to the creation of my personal illusion.

I thank the stars for it. By far the most stunning moment in my life was discovering that we are all made of stardust!

15. [# Pete Aon 06 Feb 2017 at 1:52 pm](#)

Steven, My apologies for misspelling your name.

16. [# TheGorilla on 06 Feb 2017 at 2:09 pm](#)

Steve,

What does it mean to say that consciousness is an illusion? Or that self is an illusion? To whom?

17. [# TheGorilla on 06 Feb 2017 at 2:09 pm](#)

I don’t know why I wrote Steve when I was responding to Pete.

18. [# Steve Crosson 06 Feb 2017 at 2:11 pm](#)

Peta A,

I suspect he is used to it. It happens quite a bit to us “Steves”.

On the other hand, I recall being quite confused when I received a birthday card just as I was learning to read. I could not understand what a “hen” sitting on a “step” had to do with my birthday.

19. [# chikoppion 06 Feb 2017 at 2:42 pm](#)

[Steven Novella] As I mentioned in the article, many animals communicate with each other. However, there is nothing remotely like human language in any other animal. The difference is not just one of degree. That was Chomski’s position, which is why I referenced him.

Steven Pinker (another Steve!) makes interesting observations about this. In particular, how linguistic expressions of cognitive conceptual frameworks mirror the physical experience of objects in relation to the self and to each other

20. [# hardnose on 06 Feb 2017 at 2:48 pm](#)

“there is nothing remotely like human language in any other animal. The difference is not just one of degree. That was Chomski’s position, which is why I referenced him.”

Chomski wants to say humans are so special. He has no scientific reason for saying that. But if Chomski said it, well it just HAS to be true!

Humans have human language, other animals have other ways of communication. All communication systems have a lot in common.

We don’t understand the communication systems of other animals. Therefore, we cannot assume ours is better and special and different.

21. [# hardnose on 06 Feb 2017 at 2:51 pm](#)

Human society and language and culture does NOT explain consciousness! If it did, then other animals would not be conscious!

Where is the scientific evidence, where is the logic??

22. [# Pete Aon 06 Feb 2017 at 2:59 pm](#)

TheGorilla,

“I don’t know why I wrote Steve when I was responding to Pete.”

It seems that you have answered your own question, which was: “What does it mean to say that consciousness is an illusion? Or that self is an illusion? To whom?”

23. [# TheGorilla on 06 Feb 2017 at 3:06 pm](#)

Hardnose,

Are you really going to choose to battle over whether or not human language is special? Would you even argue about that if it weren't being used as part of an account of consciousness? You're right that Chomsky saying something does not make it right, but that's not what anyone was arguing. I feel like if someone said that blowholes are unique you'd retort that other animals also breathe.

24. # [Steven Novella](#) on 06 Feb 2017 at 3:08 pm

Gorilla – “Illusion” is an imperfect word. We don't have the vocabulary to really capture what is meant by this.

Essentially, what you experience as your own consciousness is a constructed fiction. It is an active process that weaves together multiple sensory streams, that are dramatically filtered and tweaked, time-shifted, blended together, and then compared with what we think we know about the world, to create a narrative stream that we experience as our consciousness. That experience is largely an illusion, which does not mean that you don't exist or that you are not truly conscious. It is the technical sense of an illusion, which neurologically means that your perception of reality is not accurate because of internal processing reasons.

25. # [TheGorilla](#) on 06 Feb 2017 at 3:08 pm

Pete,

That's not an answer. Saying those things are illusions is amazingly vague — it could be anywhere from patently ridiculous or trivially true, and nobody is going to know which if you won't make some sort of explicit commitment.

26. # [TheGorilla](#) on 06 Feb 2017 at 3:15 pm

Dr Novella,

Do you mean what I *experience* is an illusion — because in that case it seems that the experience is the reality, and there's no room for a mismatch.

Or do you mean that how I might *describe* my experience — an ineffable, private whole — does not match with the distributed activity in my body and brain?

Or I guess another option is in the sense that there's no color floating out in space, and when we perceive a red apple it's what happens when our body interacts with certain stimuli?

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- [May 2014](#)
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- [February 2012](#)
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