

Free will in Neuron

Moderators: [Mr.Samsa](#), [Calilasseia](#), [Mantisdreamz](#), [Lazar](#), [Mazille](#)

[Post a reply](#)

60 posts • [Page 1 of 3](#) • [1](#), [2](#), [3](#)

Free will in Neuron

by [SpeedOfSound](#) » Feb 09, 2011 10:06 pm

[http://www.cell.com/neuron/abstract/S08 ... 1F:4J4XHM1](http://www.cell.com/neuron/abstract/S08...1F:4J4XHM1)

Nice video abstract in Neuron on the subject of free will.

Internally Generated Preactivation of Single Neurons in Human Medial Frontal Cortex Predicts Volition

Understanding how self-initiated behavior is encoded by neuronal circuits in the human brain remains elusive. We recorded the activity of 1019 neurons while twelve subjects performed self-initiated finger movement. We report progressive neuronal recruitment over ~1500 ms before subjects report making the decision to move. We observed progressive increase or decrease in neuronal firing rate, particularly in the supplementary motor area (SMA), as the reported time of decision was approached. A population of 256 SMA neurons is sufficient to predict in single trials the impending decision to move with accuracy greater than 80% already 700 ms prior to subjects' awareness. Furthermore, we predict, with a precision of a few hundred ms, the actual time point of this voluntary decision to move. We implement a computational model whereby volition emerges once a change in internally generated firing rate of neuronal assemblies crosses a threshold.

My take is that we feel we have free will exactly because we do not. Our feeling of deciding is a result of the same mechanism that initiates the action.

jamest "I will address this tomorrow."

jamest "That's a biggie, requiring alot of reasoning. I'll get to it in time."

jamest "I shall be doing this at a time of my choosing, which is not today."



[SpeedOfSound](#)

Posts: 5814

Age: 60

♂



[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [natselrox](#) » Feb 10, 2011 12:50 pm

Libet 2.0. 😊

Wir müssen wissen. Wir werden wissen.

"Aunt Maggie [or your grandmother]... does not exist in one single site in your brain. She is distributed all over it." - Antonio Damasio



[natselrox](#)

Posts: 7175

Age: 22

♂



[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [seeker](#) » Feb 11, 2011 2:47 am

SpeedOfSound [wrote](#): My take is that we feel we have free will exactly because we do not.

I don't "feel" that I have free will. I feel that I have a "caused will", and that I know only some of its causes. I guess that, if it's really a "feeling", it's not universal. I've linked an article about "belief in free will" in another thread, but I'm not sure that it's a well-defined and well-operationalized construct yet.

[seeker](#)

Posts: 286

[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [JayWilson](#) » Feb 11, 2011 3:31 am

SpeedOfSound [wrote](#):

My take is that we feel we have free will exactly because we do not. Our feeling of deciding is a result of the same mechanism that initiates the action.

Well, in a way, yes. I'd say the feeling of deciding is likely *fed* by the cascade of neural activity that preempts the decision. That feeling, of course, is the conscious realisation that a decision has been made — the sequence of neural activity associated with decision making passing into the awareness.



[JayWilson](#)

Name: Jay Wilson

Posts: 194

Country: Scotland



[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [seeker](#) » Feb 11, 2011 5:48 pm

JayWilson wrote:

SpeedOfSound wrote:

My take is that we feel we have free will exactly because we do not. Our feeling of deciding is a result of the same mechanism that initiates the action.

Well, in a way, yes. I'd say the feeling of deciding is likely *fed* by the cascade of neural activity that preempts the decision. That feeling, of course, is the conscious realisation that a decision has been made — the sequence of neural activity associated with decision making passing into the awareness.

But such feeling is more properly called a "feeling of selecting one option among others" rather than a "feeling of free will". We're aware that we have some future options, that we prefer some options over others, that we make plans and anticipate consequences, that we finally perform one of the options. But all of this doesn't include an awareness of "being free of causes".

[seeker](#)

Posts: 286

[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [SpeedOfSound](#) » Feb 11, 2011 6:07 pm

seeker [wrote](#):

JayWilson [wrote](#):

SpeedOfSound [wrote](#):

My take is that we feel we have free will exactly because we do not. Our feeling of deciding is a result of the same mechanism that initiates the action.

Well, in a way, yes. I'd say the feeling of deciding is likely *fed* by the cascade of neural activity that preempts the decision. That feeling, of course, is the conscious realisation that a decision has been made — the sequence of neural activity associated with decision making passing into the awareness.

But such feeling is more properly called a "feeling of selecting one option among others" rather than a "feeling of free will". We're aware that we have some future options, that we prefer some options over others, that we make plans and anticipate consequences, that we finally perform one of the options. But all of this doesn't include an awareness of "being free of causes".

But that is how we feel. We can't sense what lies beneath that is actually causal in any decision and we are conscious of weighing options. We are well associated with the body that lifts it's hand. All this adds up to a pervasive feeling of having will. Integral to this is paradoxically not having free will. If we were aware of the mechanism of a decision it would appear to us as if the mechanism were doing it. Our lack of awareness of the mechanics allows us to feel as if it comes from nowhere. We have identified this nowhere with our mind.

jamest "I will address this tomorrow."

jamest "That's a biggie, requiring alot of reasoning. I'll get to it in time."

jamest "I shall be doing this at a time of my choosing, which is not today."



[SpeedOfSound](#)

Posts: 5814

Age: 60

♂



[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [tolman](#) » Feb 11, 2011 6:52 pm

Even if when it comes to decisions, what I see as consciousness appears to be some kind of serial, verbal after-the-event process running strangely on underlying parallel hardware, and even if what I think of as the higher 'I' doesn't actually directly take many decisions at the time, that doesn't mean that it's just a passenger.

If someone attacks me in the street, I might respond in a pretty reflexive way.

If that doesn't work out well, and my internal commentary crystallises the underlying feelings into something like "*That was pretty bad - we'd better do something about it!*" and as a result I take self-defence classes and do better the next time I'm attacked, my responses then may little more than reflex, but they're reflexes resulting from a decision that my conscious mind was involved in.

Even if the immediate role of my consciousness seems to be largely generating an internal commentary, if that commentary becomes a significant part of an 'official history' of me accessible to the brain more generally (possibly unavoidably so if the hardware generating the commentary is actually largely common with hardware doing some of the more hidden processing), the 'higher 'I' could have profound effects on how the 'general I' actually behaves in future, even if it's always just a bit behind the action in other ways.

If I decide *now* not to do a particular thing again, and formalise that as a 'higher decision' and as a result feel bad in future if I backslide and end up eventually not doing the thing, though a future act or avoidance might effectively be a self-conditioned reflex, could the decision to end up like that not be counted as at least partly being down to the past 'higher me'?

I couldn't be 'free of causes' unless I had zero history, in which case I wouldn't be me anyway.

[tolman](#)

Posts: 409

Country: UK

[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [GrahamH](#) » Feb 12, 2011 11:24 am

SpeedOfSound wrote: If we were aware of the mechanism of a decision it would appear to us as if the mechanism were doing it.

That would be the mechanism that I am, so it is 'me' making the choice. It means that the 'me' I know myself as is only a small part of who I am. Plenty of mystics have recognised some of this, but located the 'I am more than I know' aspect outside the person. The physicalist view claims it back, reintegrates 'body, mind' and soul'.

Clearly some see any mention of mechanism as scary but it seems to have something positive to offer. It is faith's certainty that it has a grasp on truth, combined with its inability to actually find it, that is its great weakness. - borrowing from Jerry Coyne

[GrahamH](#)

Posts: 2164

[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [seeker](#) » Feb 12, 2011 8:52 pm

SpeedOfSound wrote: But that is how we feel. We can't sense what lies beneath that is actually causal in any decision and we are conscious of weighing options. We are well associated with the body that lifts it's hand. All this adds up to a pervasive feeling of having will. Integral to this is paradoxically not having free will.

My point was that I have a feeling of "will", but I don't have a feeling of "free" will. I've never experienced that my will was "free". So, either we have the same feeling and a different label, or we have different feelings.

[seeker](#)

Posts: 286

[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [SpeedOfSound](#) » Feb 12, 2011 9:10 pm

seeker [wrote](#):

SpeedOfSound [wrote](#): But that is how we feel. We can't sense what lies beneath that is actually causal in any decision and we are conscious of weighing options. We are well associated with the body that lifts it's hand. All this adds up to a pervasive feeling of having will. Integral to this is paradoxically not having free will.

My point was that I have a feeling of "will", but I don't have a feeling of "free" will. I've never experienced that my will was "free". So, either we have the same feeling and a different label, or we have different feelings.

Ahh! Point taken.

jamest "I will address this tomorrow."

jamest "That's a biggie, requiring alot of reasoning. I'll get to it in time."

jamest "I shall be doing this at a time of my choosing, which is not today."



[SpeedOfSound](#)

Posts: 5814

Age: 60



[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [seeker](#) » Feb 15, 2011 12:08 am

SpeedOfSound [wrote](#):

seeker [wrote](#):

SpeedOfSound [wrote](#): But that is how we feel. We can't sense what lies beneath that is actually causal in any decision and we are conscious of weighing options. We are well associated with the body that lifts it's hand. All this adds up to a pervasive feeling of having will. Integral to this is paradoxically not having free will.

My point was that I have a feeling of "will", but I don't have a feeling of "free" will. I've never experienced that my will was "free". So, either we have the same feeling and a different label, or we have different feelings.

Ahh! Point taken.

What hypothesis do you think is more plausible? Do people have different feelings ("feeling of free will" vs "feeling of caused will")? Do they have different labels and beliefs, but a similar feeling (e.g. just a "feeling of will")? Is "belief in free will" universal or cultural?

[seeker](#)

Posts: 286

[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [SpeedOfSound](#) » Feb 15, 2011 11:01 am

seeker wrote:

SpeedOfSound wrote:

seeker wrote:

My point was that I have a feeling of "will", but I don't have a feeling of "free" will. I've never experienced that my will was "free". So, either we have the same feeling and a different label, or we have different feelings.

Ahh! Point taken.

What hypothesis do you think is more plausible? Do people have different feelings ("feeling of free will" vs "feeling of caused will")? Do they have different labels and beliefs, but a similar feeling (e.g. just a "feeling of will")? Is "belief in free will" universal or cultural?

I would think people have a similar feeling and different beliefs to describe or experience that feeling. When it comes to subjective experiences beliefs will have a lot to do with what you find to be the case. That may require some elaboration.

jamest "I will address this tomorrow."

jamest "That's a biggie, requiring alot of reasoning. I'll get to it in time."

jamest "I shall be doing this at a time of my choosing, which is not today."



[SpeedOfSound](#)

Posts: 5814

Age: 60

♂



[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [GrahamH](#) » Feb 15, 2011 11:34 am

seeker wrote:

SpeedOfSound wrote:

seeker wrote:

My point was that I have a feeling of "will", but I don't have a feeling of "free" will. I've never experienced that my will was "free". So, either we have the same feeling and a different label, or we have different feelings.

Ahh! Point taken.

What hypothesis do you think is more plausible? Do people have different feelings ("feeling of free will" vs "feeling of caused will")? Do they have different labels and beliefs, but a similar feeling (e.g. just a "feeling of will")? Is "belief in free will" universal or cultural?

I don't think there is a "feeling of free will" as such. There is a sense of being aware of options and control. There is also a human tendency to preferentially attribute intentional cause to all events. That is, if an event might be construed as a possibly intentional act of another person we tend to favour that interpretation. I think this is the result of evolution in a social context, where the primary concerns are to spot who did what, why, what

that might indicate they will do in future and what can I do to benefit?

If an obvious cause is not detected then assume a hidden intentional cause as a null hypothesis because it matters if it's true, and doesn't cost much if it's false. If you act and can't identify why you have acted then presume the default, that it was intentional rather than subtly caused or random. That is, that you intended it without knowing what the intention was. Compare this to observing someone else act without obvious cause. Assume it is intentional, and therefore subject to your social influence, rather than subtly caused (and therefore non-conscious) or random, which are unlikely to be predictably influenced by your actions.

It is faith's certainty that it has a grasp on truth, combined with its inability to actually find it, that is its great weakness. - borrowing from Jerry Coyne

[GrahamH](#)

Posts: 2164

[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [SpeedOfSound](#) » Feb 15, 2011 11:40 am

GrahamH wrote:

seeker wrote:

SpeedOfSound wrote:

Ahh! Point taken.

What hypothesis do you think is more plausible? Do people have different feelings ("feeling of free will" vs "feeling of caused will")? Do they have different labels and beliefs, but a similar feeling (e.g. just a "feeling of will")? Is "belief in free will" universal or cultural?

I don't think there is a "feeling of free will" as such.

But a lot of people do indeed feel that way. I do.

jamest "I will address this tomorrow."

jamest "That's a biggie, requiring alot of reasoning. I'll get to it in time."

jamest "I shall be doing this at a time of my choosing, which is not today."



[SpeedOfSound](#)

Posts: 5814

Age: 60

♂



[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [GrahamH](#) » Feb 15, 2011 11:49 am

SpeedOfSound wrote:

GrahamH wrote:

seeker wrote:

What hypothesis do you think is more plausible? Do people have different feelings ("feeling of free will" vs "feeling of caused will")? Do they have different labels and beliefs, but a similar feeling (e.g. just a "feeling of will")? Is "belief in free will" universal or cultural?

I don't think there is a "feeling of free will" as such.

But a lot of people do indeed feel that way. I do.

What is it like? 😊

It is faith's certainty that it has a grasp on truth, combined with its inability to actually find it, that is its great weakness. - borrowing from Jerry Coyne

[GrahamH](#)

Posts: 2164

[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [SpeedOfSound](#) » Feb 15, 2011 12:05 pm

GrahamH wrote:

SpeedOfSound wrote:

GrahamH wrote:

I don't think there is a "feeling of free will" as such.

But a lot of people do indeed feel that way. I do.

What is it like? 😊

I was having my blood sugar attack so I got milk on the left and some Doritos on the right. I was thinking about your post and decided to have a chip. My hand went down to the bowl and then diverted to the arm of the chair because the chips were not going down so well. This little experience makes it obvious to me that my will is not free at all yet I sat there feeling in charge of my choices. I looked over at my monitor and saw two notifications from the forum and thought one would be your post. I knew that I could *decide* to get up and go reply whenever I wanted to. All I had to do was think it and my body would take care of all the details of getting out of the chair and walking over and writing all of this.

This has been going on for 60 years on the outside of my mom and for a few months inside. I think moving my arms about was probably my first imprinting of the feeling of will. Over all those years a sense of being able to decide things has been built of hundreds of experiences each day. **It feels free precisely because it isn't.** I have created a body of knowledge about this thing I am and I attribute the unknown parts of it to my mind. The thing that made my hand move to the chips and then divert away is a thing that I call my will. I have no sense of its mechanics but I have a feel of it being in control and being me.

jamest "I will address this tomorrow."

jamest "That's a biggie, requiring alot of reasoning. I'll get to it in time."

jamest "I shall be doing this at a time of my choosing, which is not today."



[SpeedOfSound](#)

Posts: 5814

Age: 60

♂



[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [GrahamH](#) » Feb 15, 2011 12:17 pm

SpeedOfSound wrote:

GrahamH wrote:

SpeedOfSound wrote:

But a lot of people do indeed feel that way. I do.

What is it like? 😊

I was having my blood sugar attack so I got milk on the left and some Doritos on the right. I was thinking about your post and decided to have a chip. My hand went down to the bowl and then diverted to the arm of the chair because the chips were not going down so well. This little experience makes it obvious to me that my will is not free at all yet I sat there feeling in charge of my choices. I looked over at my monitor and saw two notifications from the forum and thought one would be your post. I knew that I could *decide* to get up and go reply whenever I wanted to. All I had to do was think it and my body would take care of all the details of getting out of the chair and walking over and writing all of this.

This has been going on for 60 years on the outside of my mom and for a few months inside. I think moving my arms about was probably my first imprinting of the feeling of will. Over all those years a sense of being able to decide things has been built of hundreds of experiences each day. **It feels free precisely because it isn't.** I have created a body of knowledge about this thing I am and I attribute the unknown parts of it to my mind. The thing that made my hand move to the chips and then divert away is a thing that I call my will. I have no sense of its mechanics but I have a feel of it being in control and being me.

Being aware of making choices, recognising options and opting for one rather than the others, isn't philosophical Free Will. That is about whether the choices we end up making are, in some hard to define sense, free of cause.

At a practical everyday level we can of course say we make choices free of duress, which means we recognise no sufficient set of causes that we can see forces just available action to be taken. Is that what you mean by a feeling of free will?

What do you choose to eat the chips, or not? You don't know why, so you call it "free". It is impossible to tell if any choice is free in the philosophical sense, so how can you tell if a feeling of free will means anything? I suspect what you call a feeling of free will is actually an awareness of possibilities. If you are aware of the chips you have the option to eat them or not.

In fact, I suspect the feeling of free will, such as it may be, is felt when we don't act according to the few causal factors we are able to identify. If you like chips you can recognise a desire to eat them as a non-free influence, and if you don't act in accordance with that desire you might somehow feel you had rejected an identifiably non-free option, which you take to be a "free choice" because you are unencumbered with information about what caused it.

It is faith's certainty that it has a grasp on truth, combined with its inability to actually find it, that is its great weakness. - borrowing from Jerry Coyne

[GrahamH](#)

Posts: 2164

[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [SpeedOfSound](#) » Feb 15, 2011 12:21 pm

GrahamH wrote:

Being aware of making choices, recognising options and opting for one rather than the others, isn't philosophical Free Will. THAT is about whether the choices we end up making are, in some hard to define sense, free of cause.

...and this isn't the philosophy section. This topic is about the cortex having areas that have been trained to give the feeling of free will.

jamest "I will address this tomorrow."

jamest "That's a biggie, requiring alot of reasoning. I'll get to it in time."

jamest "I shall be doing this at a time of my choosing, which is not today."



[SpeedOfSound](#)

Posts: 5814

Age: 60



[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [SpeedOfSound](#) » Feb 15, 2011 12:23 pm

I'm using Damasio's definition of feeling as cortical cognits that fire as a result of the interplay of emotions and other goings on.

jamest "I will address this tomorrow."

jamest "That's a biggie, requiring alot of reasoning. I'll get to it in time."

jamest "I shall be doing this at a time of my choosing, which is not today."



[SpeedOfSound](#)

Posts: 5814

Age: 60



[Top](#)

[Print view this post](#)

[Re: Free will in Neuron](#)

by [SpeedOfSound](#) » Feb 15, 2011 12:25 pm

GrahamH wrote:

Being aware of making choices, recognising options and opting for one rather than the others, isn't philosophical Free Will. THAT is about whether the choices we end up making are, in some hard to define sense, free of cause.

At a practical everyday level we can of course say we make choices free of duress, which means we recognise no sufficient set of causes that we can see forces just available action to be taken. Is that what you mean by a feeling of free will?

What do you choose to eat the chips, or not? You don't know why, so you call it "free". It is impossible to tell if any choice is free in the philosophical sense, so how can you tell if a feeling of free will means anything? I suspect what you call a feeling of free will is actually an awareness of possibilities. If you are aware of the chips you have the option to eat them or not.

In fact, I suspect the feeling of free will, such as it may be, is felt when we don't act according to the few causal factors we are able to identify. If you like chips you can recognise a desire to eat them as a non-free influence, and if you don't act in accordance with that desire you might somehow feel you had rejected an identifiably non-free option, which you take to be a "free choice" because you are unencumbered with information about what caused it.

That's what I mean when I say it feels free precisely because it isn't. If I were aware of all the backing mechanisms it would feel mechanical not free. I could identify all of the causes.

jamest "I will address this tomorrow."

jamest "That's a biggie, requiring alot of reasoning. I'll get to it in time."

jamest "I shall be doing this at a time of my choosing, which is not today."



[SpeedOfSound](#)

Posts: 5814

Age: 60

♂



[Top](#)

[Print view this post](#)

[Next](#) Display posts from previous: Sort by

[Post a reply](#)

60 posts • [Page 1 of 3](#) • [1](#), [2](#), [3](#)

[Return to Psychology & Neuroscience](#)

Jump to:

Who is online

Users viewing this topic: No registered users and 1 guest

- [Board index](#)
- [Your posts](#)
- [The team](#) • [Delete all board cookies](#) • All times are UTC

Powered by [phpBB](#) © 2010 rationalskepticism.org | Theme by Oliver, [Green Leaf Apps](#).