

Connecting Consciousness and Matter:  
seeing them together in a non-reductive way, paying  
respect to simple acknowledged scientific facts about  
matter and the human brain

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[This is consc\_spellco.pdf, which is a lightly spell-corrected version of the consciousness.pdf also available there, and made some days earlier. It also adds some sentences to make some points more clear. In addition, an appendix is added to explain how this is compatible with free will in decision-making despite the time-factors in Benjamin Libet's brain research and similar research after that.]  
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## Preface

In this little text I seek to create a thought-image which makes sense both for those who come from a more scientific viewpoint, and for those who come from a more spiritual viewpoint (in some vague sense). The scientific concepts in this text are widely known and depicted in a large number of easily available books and articles over the past century, including in articles and books by the physicists Richard Feynman, David Bohm and Roger Penrose. The easy availability of the few scientific facts that I refer to in this text is the reason why there is no 'reading list' in the sense of footnotes at the completion. [Some of the formulations in this text were helped by conversations with my late father, Stein Braten, in connection to his last book, see [stein-braten.com](http://stein-braten.com). Also thanks for conversation with Dr Helene Amundsen Nissen-Lie about the response of the humanities to the notion of 'Artificial Intelligence'. After the conversation, and after listening to an interview at YouTube with Nobel Laureate Roger Penrose where he said that 'AI is a misnomer', it appeared to me that 'AI research' should be rather called 'HIE research', or 'Human Imitation Engine research'.]

I'm going to attempt to construct a thought-image which will, or at least can, satisfy both those who come from a spiritual outlook and wish to understand brain/mind/body, and those who come from what we loosely can call a more 'scientific' outlook. The spiritual outlook may be vague or, for some, more precise, but it is found in all those who are fascinated by such as what philosophers call e.g., 'the stream of consciousness', while at the same time being uneasy about assuming that this is merely the result of machine-like activity e.g. of the brain. In other words, those who do not wish to reduce the immediacy of human consciousness, feeling, mind and intelligence to a mechanical description, have what I here call a more 'spiritual outlook'. Many have both a spiritual outlook and a scientific outlook. The task of the following little article is to suggest a way in which these two outlooks can be at peace with each other. Simultaneously, we are describing a way, or some would say, a 'theory', of how consciousness relates to matter.

For centuries, before the advent of computers in mid 20th century, there were machines around with interesting features, including clocks and damp engines. The idea of trying to see the human as a machine was to some gripping, but even for Newton it didn't deeply challenge the more spiritual view that whatever the human body is, it also has something else--soul, consciousness, the light of the mind,--something which is present with the living aware human being and absent in the case of a dead human body.

With computers mimicking and replaying many features of human behaviour, the machine image is a far more potent competitor in the mind of people--as regards how we view the human being. And this more potent image is tougher to fight--it becomes more and more easy to view the human being as a machine, and the spiritual outlook does not

seem to have had a similar nurturing. So in some schools of thought in brain science, for instance, the view is held that the brain is a machine, and that the neurons interact by cause-and-effect principles although there are also more or less random fluctuations going on. These same people might regard consciousness as merely a fancy way of describing the activity, and might not object to applying such concepts to any machine, such as a robot with a vast computer program mimicking human mindful actions including talking, if it's convenient. These people regard consciousness as what we can call an 'emergent' phenomenon: in their view, when a human being says, "I am conscious and I have consciousness and I use this consciousness in making decisions", they do not interpret this as there being in fact something separate from the machine, called 'consciousness', which interacts with the machine, and changes the cause-effect actions of the machine. Rather, they regard it as a way that the machinery of the brain--the human brain, in this case--describes to itself some features of its mechanical activity. They can be said to take a 'reductionistic' attitude to consciousness: whether it is an emergent phenomenon or not, it is, as they see it, merely the activity of a vastly complex machine.

In such a strict 'atheistic' view of the human being, some forms of science--such as computer science, and the analysis of how chemicals interact, including those with electric charges, such as in nerves--are often taken to be the scientific attitude; and those who have a more spiritual outlook, regarding consciousness in some sense as existing separately from matter, may appear to these reductionists as wishful thinkers, employing concepts which at best is unnecessary and at worst contradict clear logical thinking about the reality of human beings.

I think, for those not coming from a scientific outlook, it is important to appreciate that there is no official 'dogma' in science on the view of the brain versus consciousness. In fact, some of the most brilliant thinkers have diverged, and this is true to this day. Some of them were even friends or close collaborators in science. For instance, Alfred North Whitehead and Bertrand Russell were together in shaping brilliant expositions in logic. But while Bertrand Russell viewed the human mind and brain much along the lines of a machine, Whitehead eventually, especially after contact with quantum physics, regarded the human mind as something going beyond the machine. Similarly, Roger Penrose and Stephen Hawking worked closely together in shaping cosmological theories, but while Hawking preferred a more machine-like view of the human being and mind, Penrose decided that by his understanding of quantum physics, there are reasons to regard consciousness as not mechanical.

In the following text in this article, I will sometimes refer to words which make most sense to those who are acquainted with the fundamentals of modern physics. But if your starting-point is more humanistic, so to speak, you can skim more lightly over just those parts of the text initially and focus, at first, on that which makes most sense. Eventually, like a jigsaw where everything gradually comes into place as the whole image emerges, you may want to re-read the more physics-oriented parts to make still more sense of the entire thought-image of consciousness relative to the human brain as here presented. And while the comments on the human body focus on the brain, they are meant to be applicable, in many ways, to the whole of the human body.

Those who skim through the developments of the physics worldview since around the 1920s find that, in what is called quantum physics, we hear of light particles, or photons, as something which interact with matter particles, such as electrons. The photons seem to be able to be 'many in one place', in contrast to matter particles which are also called 'fermions', where 'only one in one place' seems to be the principle.

It has been said by many that quantum fluctuations have the appearance of random at some time, but that these fluctuations also may involve not only wave patterns, but intense orderings challenging even the time-space continuum as conceived in the theories of Albert Einstein. We speak of nonlocality--that there are some sort of non-transferring--perhaps in a sense instantaneous--connection or interconnectedness. What we call 'quantum fluctuations' may mask a spectrum from the more random through more wave-like pattern all the way to something highly coherent and light-transcending.

Those whom, as I said, come from a more 'scientific' outlook are probably more or less nodding to all the latter formulations; while those who come from a more spiritual approach perhaps do not easily see a clear line from their thought to such thoughts. Indeed, it's rather complex, and the image of the computer, which is ever-present in every affluent society, is far more easy to conjure up; and so we are seeing a situation in which the computer image can, if we don't watch it, be the main image that we have of brains, minds, and human beings and our hearts and lives in general--in other words, that the computer and its activities provide the main metaphor for the sort of thinking we do about ourselves, about humanity.

And so my task here is to try and construct a thought-image that learns from the spiritual outlook, and which

learns from that which we vaguely can call the scientific outlook, and which is not subjecting the human being to the reductionism of being viewed as yet another machine. It goes without saying that I regard the view of the human being as a machine as wrong in all important aspects.

In the following paragraphs, I will use the word 'consciousness' much, but I don't mean it to the exclusion of feeling, nor do I mean to put it in contrast to such as attention and awareness, but I use it in an inclusive sense, so that it includes also leaps of imagination, intelligent understanding, intuition, creativity, love, compassion, a relationship to pain, etc. Nor do I wish to exclude such as 'the unconscious'. Those who come from the spiritual outlook should therefore feel free to include such as soul and spirit in this rather encompassing concept of 'consciousness'. And, as said, when I refer to the human brain, I don't mean to exclude reference to the whole human body; I merely regard it as convenient to focus on brain as that which most obviously, for all, associated with human thinking and consciousness, and so representative of the relevant type of 'matter' when we seek a view of consciousness. And for those who wish to apply it to relationships, see e.g. my father's book on sociological aspects of M. Buber's 'Ich und Du'.

Since the early days of quantum physics, with some rather 'dogmatic' schools of thought around it connected to such as (the otherwise very intelligent) Niels Bohr, a lot of opening up of interpretations have taken place. For those who are knowledgeable about the historical discussions in this field, I'm not merely speaking of the pilot wave theory by Louis de Broglie, the hidden variable theory of David Bohm, but of the many re-definitions by an array of

physicists esp. of the notion of 'probability density' and where the original assumption by Einstein that 'no signal can transfer faster than light' has been hammered on, successfully, from many angles. Only rather insignificant features of this re-interpretation has gone into the notion of the proposed 'qubit' for a so-called 'quantum computer'. All computers rely, as is known, on semi-conductors, whose theories are grounded in some properties of quantum physics. So all computers are in that sense 'quantum computers'. A suggested 'qubit quantum computer' is merely an attempt to make gains on speed on an otherwise entirely mechanical product and is in no way reflecting more than a superficial aspect of the whole quantum theory. (Same with 'tribit' etc.)

While I have my takes on interpretations of quantum physics, I'm going to use here a concept that can be seen as compatible with most versions of quantum theory that has learned some lessons from the early days of discussion and at least picked up a tiny bit of ideas from the counter-perspectives presented by Louis de Broglie (including their nonlocal later forms).

In other words, what I will here talk of as a quantum feature is something that is compatible with many or most modern takes on quantum physics--in some cases after some discussion, in other cases more obviously so.

This quantum feature is this: extra information inside the probability cloud. Let us make this long phrase easy to refer to: Extra Information inside the Probability cloud = EIP.



I will endeavour to make EIP a lively concept for those who have not, prior to this point, thought much about quantum theory or physics in its various shapes and forms.

A fundamental idea in quantum theory is that there is a certain minimum 'quantum of action', and this in many cases appear as a particle, and often a particle of very tiny energy. Thus for instance, while light--which can be described as particles, photo-particles, or photons, are reaching, eg. from distant stars, the human retina, so that an activation of neurons in the retina arises, the light doesn't arrive as a wave that gradually builds up. Rather the flash of a star--and indeed the human retina has nerves sensitive enough to pick up light from just a dozen or so photons--suddenly emerges at some spots. But when more and more of these photos arrives, a wave-like pattern is seen to arise which correspond to the wave-like understanding of light. [A process which has a degree of analogy to this is found when a telescope shines its starlight to a photographic plate of very weakly shining stars: at first, apparently random spots arise; then, particle by particle, the expected wave-like light pattern builds up on the plate.] So while wave features are intact, the actual interaction between light and matter are particle-like. When and where a particle of light, or photon, interacts with a particle of matter, is in each particular concrete case unknown before it arises. We're speaking here of probabilities associate with energies as 'densities', or 'clouds', and these probabilities are ingrained in the core of the quantum physics apparatus.

In other words, when light--which is a wave or a sort of field--we can, informally, say, a 'photonic field', spreads, as it meets matter, there is the probability cloud and features of within this probability cloud is

connected to when and where of photons manifest. The word 'probability' refers to the fact that there is something or other, with a pattern, about to arise, but its more concrete manifestations are unknown before they do in fact arise. As the early quantum explorers found, the way we measure photonic fields affect the shape of the probability cloud. We may focus, for instance, on the movement or momentum aspects of the photonic fields, and that makes the probability cloud get other properties than if we focus on the position aspects of the field.

Without splitting hairs about probability clouds, when we speak of EIP, or extra information inside the probability cloud, we refer to the simple fact that inside probability lies the notion of the unknown--in the sense of room for more structure, more information if you like. Instead of dogmatically ruling this out, with a hundred years of discussion and further research in the quantum physics and related domains such as gravitation physics, behind us, there's a lot of general nodding amongst physicists that the probability clouds do have room for more structure than that which is confined to the typical measurements of position and momentum, and other such classical measuring situations. It is also generally assumed that the reality of the probability clouds is not merely a mathematical abstract idea, but something which, though somewhat immaterial and elusive and 'beyond-energy' in nature, is a fundamental part of the way the universe unfolds. The probability clouds, though in their original formulation tied up to what we humans know and do not know of a physical situation, are now considered somehow subtle structures of events themselves (and indeed active in making such as super-conductivity and super-magnetism possible; and there are countless other examples of this).

Whenever there is a finer study of material processes of any kind, then, there is the notion of probability clouds of some kind--whatever exact term is used--and due to the unpredictability here, we speak of 'quantum fluctuations' as also an intrinsic part of \_all\_ matter, \_all\_ energy.

Moreover, the quantum fluctuations are sometimes, in cases where there is more coherence and less noise, more orchestrated in some ways. This is related to how the probability clouds are different in some cases with more coherence and less noise. The exploration of what it means to reduce noise in situations where quantum fluctuations take place is often an essential part of the work.

By analogy, if you gently pad your eyelids when you have your eyes closed, you'll see some light-like effects and, when you open your eyes in an open space without artificial lights around to more clearly see dim stars, your eyes need all the quietude they can get to pick up stars. As in the center of the focus the more color-oriented neural rods are, --these color-oriented rods not being quite as sensitive to individual photon groups as the more black'n'white oriented rods: it can help, to pick up a dim star, to look very slightly away from it--just some degrees lets say to the left or right of it. In doing these things, you are directly experiencing two things: the energy interactions at the quantum level, and the interaction between the photonic field--also called the electromagnetic field--and the electrons (and more) in the matter of your neurons in the retina, --which in a certain sense of it are more or less part of your brain.

The conditions for interaction between electromagnetic fields, or photonic fields, and neurons, in this case, is tied up to the frequencies and wavelengths of the light.

But it is well known that associated with the general motion of electrons in the brain, and other activity, there is electromagnetism surrounding and penetrating the brain--in other words, a photonic field--but of entirely different frequencies and wavelength. This is not merely a question of emanation of a field, such as picked up by the well-known EEG measurements, where we speak of alpha, beta, theta and delta waves and such, but also a question of receptiveness on the parts of electrons in the brain to this field. The photonic field as studied in the field of EEG has frequencies such as around 10 to 13 Hertz for alpha waves, and the wavelengths of the photonic field in this case is in the range of tens of thousands of kilometers--this you can work out by using the equation that relates the speed of light to the frequency, with 10 Hertz meaning ten cycles pr second.

Now let us be very clear that a photonic field has a probability cloud associated with it. The photonic field--the electromagnetism--may have, if it comes from such as a radio transmitter, the shape of pop music; which, when converted into air waves, becomes audible pop music. But this photonic field, when it arrives and is picked up by the antenna and this is studied on the quantum level, comes across as individual energetic particles, namely photons, and while their patterns add up to reproduce the pop music, the individual energetic particles pop forth in ways and in places that is in each case determined by the probability cloud--ie., by the extra information in the probability cloud, the EIP. So the radio wave with the pop music goes along with an EIP that has additional structure.

So also in the case of the brain's photonic field. The shape of this field is one thing; the EIP is another thing --but associated with it. The shape of the field can be

measured and when it is measured, the EIP is called on to give some results to our measuring apparatus. But the EIP is never directly measured. In a certain key sense, the EIP is immeasurable.

But while the EIP is immeasurable--and most thinkers in quantum physics over the past hundred years would agree to this, I think it is fair to say--it is also the case that some of the features of the EIP come forth in the quantum fluctuations. The photonic field of the brain affects, and is affected by, (in particular) electrons in the neurons. [Research has shown that EEG-like photonic fields can be applied rather than just measured so as to induce the expected mood-changes in the living human brains; besides, electromagnetic fields are always two-way in interaction with the structures that makes them.] Electrons are matter; the photonic field is a wave energy. The wave energy is spread out; the matter of the electrons is vast compared to the energy of each photon. The electrons are example of such 'fermions' as we referred to earlier--two electrons cannot exist on top of each other. When electrons interact with anything, quantum fluctuations are involved. When electrons interact with each other--indeed, when any matter in the brain interact with any other in the brain--this sort of energy is more condensed to areas in between the matter particles: this can easily be a case of 'local' interaction--one thing influencing the things that are next to it. This is what a machine typically is about--the things that are (locally) near each other influence the other things; and if we spell out the rules of this interaction and the fluctuations are relatively limited, the behaviour as a whole mimics a bit of that of a computer program--ie, it is rule-based. [And even if speed of a machine is enhanced by a nonlocal 'spread-out' probability cloud

between some particles, it is still a machine when its rules can be spelled out as if it were local interactions.]

Now most of those who wish to see how the concepts of the quantum can affect the understanding of the biology of the brain have been looking for e.g. quantum coherence in the brain--and there are various candidates for this; and, as historically often has been the case with biology, when there are competing theories, the answer is 'both-and' rather than either-or. There is, for instance, interesting research into something which has a degree of analogy to coherent light, or laser light, in the concept of coherent water, and there is water in some of the strands of the neurons and speculation of an active form of quantum coherence in these. The neurons are surrounded by glia cells and these have features of interest also. And so on and on. And this is what I have heard about, and read about, --and while I've found this interesting and fascinating, it appears to me that the most obvious way in which the quantum has a say relative to the brain has not earlier on been spelled out (as far as I know).

For common to all the structures of the brain is that they are bathed in a photonic field. This is known. This field is not concentrated in pockets but to some extent spread out, because photonic fields are by nature spread out. The photonic fields are not composed of fermions, but are composed of whatever-it-is, perhaps photons, which can 'stack-up' on top of one another with apparent effortless-ness, having zero (or, as Louis de Broglie wanted it, near-zero) rest mass. Their energy is chiefly their energy of movement. The photonic fields are everywhere in the human body and in the brain, and they interact two-way with the electrons, the electrons having a charge that are

especially susceptible to interaction and resonance with an electromagnetic, or photonic, field.

Wherever there is a photonic field, there is also a probability cloud--it is real but it is ephemeral, or subtle--it is an energy that is not quite an energy; a structure that makes itself revealed only partially, each time the field interacts with something so that energy is manifested. The probability cloud has, by the fact that we speak of it through the concept of probability, room for extra information. The EIP, or extra information of the probability cloud, goes together with the photonic field but cannot be reduced to the photonic field. But whenever the photonic field interacts with the brain, ie, with the electrons in the brain, something of it reveals itself by the exact manifestation of energy--just how an electron changes direction, or just when it gets its extra energy--and that fact that it is was this electron rather than the neighbouring electron that got its photonic interaction--all this is due to EIP.

Those who have studied how the brain is active during such as alpha relative to such as beta, using now the EEG terminology, have noticed that during the alpha states, the activity of the brain tends to be more symphonic. The alpha waves often go together with some more wholeness in the brain, while beta is more typically associated with 'light frustration'. If you dig into EEG archives, you'll find that people have been measuring on masters of a field while they perform actions in which they are masters, relative to how people's EEG waves are when they are about to learn a field. The masters have more of the deep, slow and well-orchestrated fields, while the beginners stumble into lightly frustrated 'beta' bursts of 30-40 Hz activity. Similarly, one has found that under some forms of light

hypnosis learning can take place more deeply and this is again typically associated with alpha, or even slower waves, such as theta.

In the more quiet states of the mind, it follows, logically, that more quiet thoughts can be listened to by the rest of the mind. Again, the concept of star-gazing is apt: to pick up the dim light from stars that might be fascinatingly far away--so far away they may even be whole galaxies onto themselves--we must have a situation in which there are fewer 'distracting lights'. Now in the same way, if you have a good knowledge of a complex situation, and look for a solution of how to handle it, while you have many competing thoughts of how to handle it, the challenge may be that, in this state of mind of competing thoughts, the most genius thought is but a too-dim 'light', not readily appearing. But after rest and sleep and music and motion and focus on other things, when one again turn attention to the subject, these distractions may no longer be present. Instead, a solution may present itself. Its "light", as it were, shines forth, and--unless we're stretching the analogy too far--perhaps better by not staring straight at it, but slightly to the side of it.

It's pretty clear that there is some machine-like aspects of the brain and that the brain, like a computer program, can come into states which resemble a bit that which we in programming call a 'loop'. A loop can, indeed, prevent other activity of the computer; in some cases, a loop may prevent even keyboard interaction to the extent that a reboot of the computer is necessary before other work can take place on it. So when there is a state of the brain in which the electrons interact rather feverishly, and 'locally'--one 'pushes' into the other--that is a state of



the brain different from one in which there is a sense of overall listening so that an individual manifestation of a particular good thought concept can be readily attended to by all the mind.

While brain science is still a young science, it is clear that there is often an activity in some neurons and some synapses when there is an activation or presence of some thoughts in the mind. This correlation doesn't mean that anybody has ever proved causation, or that a thought can be reduced to this neuronal activity. But that there is a correlation, and that this correlation is indeed part of what enables the brain to both store, and retrieve memories of past thought thoughts, has been fairly much established. So for living human being the health of the brain is a necessity for the health of consciousness. And the particular synaptic and neural activity at some spots are, as it seems, typically correlated with events, such as a thought attended to, in consciousness.

And, as we've amply justified, there's a photonic field associated with all the human brain. In the states of brain activity--perhaps vaguely associated with the alpha or near-alpha states--where individual thoughts, even if initially dim, can be 'amplified' in strength by attention to them, rather than get lost in an ocean of distracting thoughts, it is not too much to assume that neural activity inside the brain, just as neural activity inside the retina when watching stars, are sensitive all the way to the quantum level, in which photonic fields are having their effects. And we said, alongside a photonic field, there is EIP. And let's be clear that for a photonic field --which can be further analyzed into many simultaneously existing photonic fields of different frequencies existing on top of each other, all in and around a human being with the living human brain--the EIP has room for a gigantic

amount of subtle structure. There is no rule that says that the EIP is just this size or that size. It being subtle and not-quite-manifest as far as energy goes, being there rather to guide each energy interaction, also means that it can carry a wealth of structure or information which goes entirely beyond the waveform of the photonic wave.

It is also clear that the EIP constantly changes, in a two-way manner, because of the two-way interactions that constantly takes place between electrons and photons. With every interaction that probability cloud is completely, and in a nonlocal way changed, in a manner that is not merely a change in the photonic field. In the cases where the brain is suitably picking up and amplifying events as small as those that take place on the quantum level, or in which the quantum level events are suitably coherent so that they in an accumulated sense add up to a significant energy event in the brain, the EIP is directly affecting how the consciousness unfolds. It is a vehicle that unfolds information by each of its interaction events with the electrons, and which constantly is informed by the presence of the electrons, and other matter features in the brain--and the body more generally.

So while, in this thought-image, we have not said that the electromagnetic field, or photonic field, has a shape that is equal to consciousness, we have now built up an argument that permits this thought image: the EIP associated with the photonic field, in interaction with the brain in suitably sensitive states, may have structure going far beyond the structure of the brain and its photonic field, and may be fairly near to a level of that which we personally experience as "consciousness". [There

are other takes on consciousness, see for instance R. Penrose's way, in which he connects it to gravitation; and, in general, of course, ever since eg Erwin Scroedingers essays on Life and Matter there has been a sense in which people have wished to connect something of probability cloud to something of consciousness somehow; but as far as I know, this direct way of connecting a whole level of consciousness to the probability cloud of the ca 5-50 Hertz well-known photonic field of the brain --and not to the EEG field itself and without requiring particular quantum coherent structures in the brain to be found--is something new with this article; as said, I do regard 'both-and' as a healthy attitude to biological theories and regard it as likely that other vehicles for probability clouds to interact with neurons also exist; very exciting research has been done e.g. on human olfactory organs in this regard, connected to quantum geometry, suggesting that we are all 'born with' a quantum laboratory in our noses. I also would regard both neural water and glia cells as being interesting candidates for probability density activity in the brain, though laboratory research on the extent to which there is quantum coherence in living human brains in these structures has science fiction like complexities.]

There is an ancient understanding, or view, of consciousness that equates it, to some extent, to "light". While in a mechanical interpretation of light, light is something that enters the eyes as the eyes are opened, in this old and venerable view, light 'comes' from the eyes as consciousness of the person unfolds and meets the whole scene. If we allow for the Newton/Einstein conception of light as a field of energy and which, as Einstein proposed, emerges as energetic particles or photons, then

we can by the 'latter-day understanding' of quantum theory say that the feature of probability cloud associated with these photons allow for the living type of information-oriented structure that we associate with consciousness. The extra information in the probability cloud, or EIP, may match the old understanding of light as consciousness and as something which exists in parallel to matter and which is not reducible to matter.

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APPENDIX [2025:4:25]

ABOUT THE REALITY AND NON-ILLUSIONARY FORM OF FREE WILL AND  
DECISION-MAKING IN THE WAKE OF BENJAMIN LIBET'S BRAIN  
STUDIES AND LATER VERSIONS OF THE SAME

For those who have appreciated the article as quoted in full form above and to which this is an added appendix some days later (article by myself from April 2025), they will no doubt have in mind the importance of distinguishing between aspects of mental functioning which is more machine-like and that which properly connect to the EIP through a suspension of the dominance of the machine-like aspect coupled with proper attentiveness. In this context, free will comes forth in that the wholeness of one's being is expressed, rather than just a mechanical aspect of it. To make decisions through one's whole being and exercise this freedom is obviously an art and not something that can just be assumed. When one applies these concepts properly one will see that the attempt by some in brain science to summarize certain findings as indication of 'illusion of free will' is rather an instance of disconfirmation for their idea of what the brain is all about.

The way I see free will is that free will is an expression of one's entire being--I will not say that free will is the expression of my whole being if it is made just after a succession of more or less logical thoughts and such. I do believe that I can make decisions according to my free will, in the sense that I can let my entire being express itself in deciding questions that I have pondered on for

some time. Does this take 0.2s or 0.5s or 10 seconds? While in an artistic or generally creative process with proper preparation I submit that it can happen rather inststantaneously--on condition that one knows what one is doing and is engaged with the whole of one's being and that one is particularly harmonious--I would normally say that making a decision by free will is something that takes, at the very least, days. It begins by the questions being asked. As long as I experience the brain coming forth with one thought after another about it, I do not regard it possible for the expression to come from my essence or higher self or whatever one wishes to call it--so the expression from my entire being is something I must call on, and it takes time. The brain can put the question, but it must then consciously let go and become quiet and attentive and receptive. To become properly receptive after a lot of thoughts and emotions have been attended to, and where facts have been sorted and not-too-factual thoughts have been corrected, takes time. It is absurd to assume that this can be a question of mere seconds in the normal case.

If somebody has the idea that free will and decisions from free will is simply the result of permutations of thoughts and emotions in a typical slightly frustrated day-state of mind, which in EEG terms normally is associated with such as beta, they have a rather mechanical conception of will and freedom and decision-making. In such a case, they have not distinguished between the more (local) interactions between thoughts of the more manifest kind, which obviously has a lot of correlations with neural activity and where the more clear thoughts obviously may be preceded by more subtle thoughts which can show up in sensitive neural measurements--and something entirely different, which is this: the receptiveness of the fullness of the thought-

structure to something which can come by means of attention to the subtlest of idea-impulses in the wake of earlier enquiry into a subject. It is this cycle between the more superficial aspects of mental being and the wholeness of mental being over time that allows, as it were, for decision-making to come about as dialogue between conscious ego and the wholeness of oneself.

Freedom of will in this conception is the manifestation of harmonious dialogue between conscious ego and the wholeness of oneself if need be over days, weeks, months. It can take seconds, or work in split seconds, but only for the highly experienced, creative master of a field who with proper pre-meditation and full engagement is in tune with what is done and in full resonance with oneself.

In this context, studies such as by Benjamin Libet in the 1980s--such as here--

Libet B, Gleason CA, Wright EW, Pearl DK, Time of conscious intention to act in relation to onset of cerebral activity (readiness-potential): the unconscious initiation of a freely voluntary act. 1983, Brain 106:623-642

and extended, also for time duration, with a number of other studies and summarized in such as

Consciousness, decision making, and volition: freedom beyond chance and necessity, Hans Liljenstrom, Theory in Biosciences (2022) 141:125-140

cannot do any other than suggest to those who have the rather unfounded assumption that consecutive thought-making in a unengaged state of mind has anything particularly 'free' about it.

To conclude this appendix on a positive note, the value of the research initiated by Benjamin Libet and other brain scientists is that it suggests that attention to our mental states and understanding of what it means to act from the non-mechanical aspects of oneself must be part of every schoolchild's upbringing in order for them to foster genuine free will and true decision-making from the fullness of this free will of their entire being.

[APPENDIX COMPLETED]



Article information:

[This is consc\_spellco.pdf, which is a lightly spell-corrected version of the consciousness.pdf also available there, and made some days earlier. It also adds some sentences to make some points more clear. In addition, an appendix is added to explain how this is compatible with free will in decision-making despite the time-factors in Benjamin Libet's brain research and similar research after that.]  
This article, "Connecting Consciousness and Matter: seeing them together in a non-reductive way, paying respect to simple acknowledged scientific facts about matter and the human brain", by Stein Henning Braten Reusch, is available at [yoga6d.org/library/sciencefolder](http://yoga6d.org/library/sciencefolder) and original work first published there, April 20, 2025. Copyright Stein Henning Braten Reusch, alias Aristo Tacoma; you are free to further distribute this text in all respectable contexts on condition that you do not remove this article information nor any part of the text, and do not edit nor insert new texts into it in any way. The author can be contacted at [berlinib@aol.com](mailto:berlinib@aol.com) and has made a programming language which is available at [g15pmn.com](http://g15pmn.com), a place where also a number of references to physics studies can be found; as well as a long list of acknowledgments highly relevant also for this article. Please use this email to get permission to embed an edited version of this article in a publishing context. Yoga6d.org is a website owned by Yoga4d:VRGM, Norway. Yoga4d:VRGM is a registered publisher with the Norwegian National Library.