



Beyond brain network - Conscious Spacetime

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Tononi's IIT besides five "self-evident" axioms, uses at least two assumptions, which are neither self-evident nor necessary. Tononi and Koch (2014) states; "I am seeing, hearing feeling something *here*, inside my own head." This is actually refuted by data, as *sensory experiences* are never localized in the brain/head but in the body or the surroundings.

"Subjective localization of a sensory stimulus in space ... still mysterious" Libet (1979).

Arguments for *Consciousness outside the head* in Francois Tonneau 2004, and in *The Spread Mind*, Manzotti 2014.

But what about memory and thoughts e.g. about future? They are not in space outside brain now, so must be in the brain? No. Physics shows that spacetime is ontologically four dimensional, that is all that has happened and all that will happen in time exist all at once, but outside the now. So it is argued that memories and thoughts are located in spacetime outside the now and thus outside 3D brain and that conscious experiences extend in time as in space.

Tononi and Koch further states; "Every experience will have associated NCC " (neural correlate of consciousness). This is a plausible hypothesis but not self-evident and ought to be taken as a further axiom A1. It is possible to take an alternative axiom: A2: There are two sets of conscious experiences: M1, where all Experiences has NCC, *and* M2, where Experiences has no NCC *and* M2 are not empty. As there is no known explanation of *how* brain can "produce" experiences it is legitimate to take out-of-body experiences at face value and as a tentative support for A2.

At first it seems impossible to *empirically* decide which of A1 or A2 best fits the set of *all experiences*, as neither seems possible to falsify.

Near-death-experiences where people see past, present and future events at once can be interpreted as an experience of the 4D spacetime. When a person also "moves" to different events of his life, this can be interpreted as existence of an extra time dimension for moving in 4D and the experience can be interpreted as a 5D experience.

My conjecture is that a 4D experiential structure (brain in 4D spacetime) in no sense can "create", "produce", "emerge" etc. a 5D experiential structure and that this could be possible to prove mathematically-logically.

Thus existence of $\geq 5D$ experiences and a mathematical proof of the conjecture would constitute a proof that there are experiences not created by 4D brain. Experiences are supposedly describable as located in 4/6D spacetime, Pilotti TSC 2014.

PC. post conference thought perhaps clearing the logic between, brain, correlation, "producing" and conscious experience:

Logically we have the possibility of two different relations between NCC and conscious experiences = c.e.

and thus two different disjoint subsets of the set of all c.e. = $\mathcal{C}. \mathcal{E}. = \{ \forall c.e.; c.e. \exists \}$

$M1 = \{ c.e. \in \mathcal{C}. \mathcal{E}. ; c.e. \text{ has NCC} \}$

$M2 = \{ c.e. \in \mathcal{C}. \mathcal{E}. ; c.e. \text{ has no NCC} \}$ (and thus fulfil even the stronger claim not being produced by the brain)

$M1 \cup M2 = \mathcal{C}. \mathcal{E}. \quad M1 \cap M2 = \emptyset$

$M3 = \{ c.e. \in \mathcal{C}. \mathcal{E}. ; c.e. \text{ has NCC and } c.e. \text{ yet not produced by the brain} \} \subseteq M1$ is also an interesting subset.

So we can have an alternative axiom A2 to A1. Thus

A1. "Every experience will have associated NCC ". $M1 = \{ \forall c.e.; c.e. \exists \}$ and thus $M2 = \emptyset$

A2: "There are experiences without associated NCC". $M1 \neq \{ \forall c.e.; c.e. \exists \}$ and $M2 \neq \emptyset$

As there is no known explanation of *how* brain can “produce” experiences it is legitimate to take out-of-body experiences at face value and a tentative support that $M3 \neq \emptyset$ but not necessarily that $M2 \neq \emptyset$, i.e. an OBE seemingly can have NCC even if not produced by brain.

At first it seems impossible to *empirically* decide which of A1 or A2 best fits the set of *all experientially verified experiences*, as neither seems possible to falsify. It **seems** impossible to falsify A2 as it is not possible to prove non-existence that is to prove $M2 = \emptyset$. As one for almost every non-ordinary experience can say “this was strange but it must be something in the brain” it is seemingly practically impossible to falsify even A! But perhaps there is yet a possibility to falsify A1.

Near-death-experiences where people see past, present and future events at once can be interpreted as an experience of the 4D spacetime. When a person also “moves” to different events of his life, this can be interpreted as existence of an extra time dimension for moving in 4D and the experience can be interpreted as a 5D experience.

Mathematical conjecture

My conjecture is that a 4D experiential structure (e.g. brain in 4D spacetime) in no sense can “create”, “produce”, “emerge” etc. a 5D experiential structure and that this could be possible to prove mathematically-logically. $\forall \mathcal{M} \subseteq \mathcal{S}_N = \{x_1, x_2, \dots, x_N\} \nexists \mathcal{ESF}; \mathcal{ESF}\{\mathcal{M}\} \subset \mathcal{S}_N$ The crucial point yet to develop is a rigorous characterisation of *ESF experientialstructure function* which intuitively is expressing possible transformations on experiential structures \mathcal{M} .

Thus existence of $\geq 5D$ experiences and a mathematical proof of the conjecture would constitute a proof that there are experiences not created by 4D brain that is $M2 \neq \emptyset$. Experiences are supposedly describable as located in 4/6D spacetime.

A heuristically or pictorial support for the conjecture seems to be the intuitive truth that In Flatland out of a flat hat a flat-magician can conjecture a flat cat but not even by ordinary magic a three dimensional cat. It intuitively seems to me that the space must already exist as three-dimensional for a 3D cat to be conjectured out of the hat. Or another picture: from two flat dolls you cant get a 3D baby. If this intuition is possible to transform to rigorous proof of the conjecture is still to see.

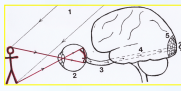
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Conscious Spacetime

Beyond brain network

"There is nothing that we know more intimately than conscious experience but there is nothing that is harder to explain" (1).

What can a brain really do?



"No one has produced any plausible explanation as to how the experience of the redness of red could arise from the action of the brain"(2)

Correlations are no explanations

Need for a theory

Must start from consciousness

Integration Information Theory

Tononi (3)

5 axioms about consciousness

Existence: that my experience exists is the only fact I can be absolutely sure of

Composition Consciousness structured composed of many phenomenological distinctions as red triangle to the left

Information Consciousness is differentiated each experience is the specific way it is

Integration Consciousness is unified each experience is irreducible to non-interdependent components

Exclusion Consciousness is singular in content and spatio-temporal grain

From these 5 axioms Tononi proposes 5 postulates about physical systems to account for experience in mathematical information theoretical language .

Implicit assumption 1

"I am seeing, hearing feeling something *here*, inside my own head."(3)

Where are our sensory experiences?

- Where is this poster located?
- Where is your visual experience of the poster located?
- Learnt "projection" with survival value (Georg von Békésy (4)).
- "Subjective localization of a sensory stimulus in space...still mysterious..." (Benjamin Libet (5))

Not any sensory experience localised in my brain, and I doubt that any one else has.

Sensory experiences localised outside my brain, in the body or in the space around. Touch in the body, Taste in the mouth, Smell in the nose. Sight and hearing is out there in the space around the body. Hearing also in time.

I claim implicit assumption 1 refuted by data:

Sensory experiences outside the brain

This is also well argued for by Tonneau *Consciousness outside the head* (6) and Manzotti *The spread mind* (7)

But where are our mental images?

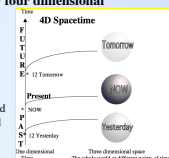
Thoughts (going to bed tonight), memories (breakfast this morning) and mental images (pink elephant) are not events in the 3D space outside the brain NOW. Must be in the brain?

No consensus among scientists/philosophers about localization of thoughts/ the mental:

- in brain because thoughts are brain processes (8). But begs the question.
- where you are, but meaningless to locate the thought to some part of the body. (9)
- not possible to locate, seemingly, thought, the mental, in (3D) space at all. (10)
- in temporally extended environment outside the brain (neorealism (6))

Spacetime is ontologically four dimensional

Physics shows that all that has happened and all that will happen in time exist all at once, but outside the now. So it is argued that memories and thoughts are located in spacetime outside the now and thus outside 3D brain and that conscious experiences extend in time as in space.



Implicit assumption 2

"Every experience will have associated NCC" (3) (neural correlate of consciousness). Plausible hypothesis but not self-evident ought to be taken as a further axiom A1.

Possible alternative axiom:
 A2: Two subsets of CE= (all conscious experiences (ce))
 $M1 = \{ce \in CE; (ce \text{ has } NCC)\}$ and
 $M2 = \{ce \in CE; (ce \text{ has no } NCC)\}$ and $M2 \neq \emptyset$

A1 or A2 "seems" not possible to falsify then undecidable
 But perhaps possible to prove A2?

Heuristical

From a flat hat by magic can have a flat cat
 But not a three dimensional cat

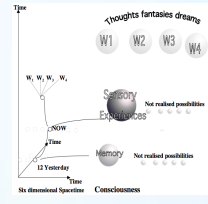
Mathematical Conjecture

A N-dimensional experiential structure can in no sense "create", "produce", "emerge" a (N+1) dimensional experiential structure and that this is possible to prove mathematically-logically-topologically.

Near-death-experience:
 "Total awareness. I could see everything at the same time and it was not limited by distance and not limited by time either ... felt as if everything was happening at once. Past, present and future, it all felt like it was happening simultaneously". (11)
 This can be interpreted as a direct experience of 4D spacetime
 No known explanation of how brain can "produce" experiences. So is legitimate to take out-of-body experiences at face value and as a tentative support for A2.
 If one also can "move" to different events of ones life (12), this can be interpreted as existence of an extra time dimension for moving in 4D and the experience can be interpreted as a 5D experience.

Conclusion

Existence of $\geq 5D$ experiences and a mathematical proof of the conjecture would constitute a proof that there are experiences not created by 4D brain. Experiences are supposedly describable as located in six dimensional spacetime, three space- and three time-dimensions for which there are mathematical and physical reason. (see reference list)



Main reference: Pilotti J. Conscious Spacetime. An outline to experiential monism. In *The Mysteries of Consciousness. Essays on Spacetime, Evolution and Well-Being*. Fredriksson I. ed. McFarland. Sep 2015

Reference list and poster at



<http://www.drpilotti.info/eng/>

References

- (1) Chalmers, D. 2010. *The Character of Consciousness*. Oxford University Press.
- (2) Crick, F., Koch, C. 2003 *A framework for consciousness*. Nature Neuroscience 6 no 2, pp.119- 126 <http://www.klab.caltech.edu/koch/crick-koch-03.pdf>
- (3) Tononi G., Koch C., 2014 *Consciousness: Here, There but Not Everywhere* <http://arxiv.org/abs/1405.7089> video https://www.youtube.com/watch?v=1cO4R_H4Kww
- (4) v Békésy , G. (1967) *Sensory Inhibition*. Princeton Univ.Press. See reference map <http://www.drpilotti.info/eng/towards-a-science-of-consciousness.html>
- (5) Libet, B. (1978). Cerebral correlates of conscious experiences INSERM Symp. no 6 North-Holland Publ. Comp. See reference map (4)
- (6) Tonneau, F. (2004) Consciousness outside the head. *Behavior and Philosophy*, 32, p.97-123 <http://escola.psi.uminho.pt/unidades/lca/artigos/philosophy/Tonneau2004.pdf>
- (7) Manzotti, R. (2015) The Spread mind video lecture <http://www.consciousness.it/>.
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- (10) Cornman, J.W. (1968). The Mind-Body problem. In Cornman J.W. et al (eds.), *Philosophical Problems and Arguments*. London: Macmillan Company.
- (11) Moorjani, A. (2012). Dying to be me. House Inc. <http://anitamoorjani.com/>
- (12) Göran G. M.D. Personal communication 2015. See Also *The Aspects of Consciousness. Essays on Physics, Death and the Mind*. McFarland 2012

Se also Poster from Towards a Science of Consciousness 2014 *Conscious Spacetime. A possible connection between phenomenal properties and six-dimensional spacetime* <http://www.drpilotti.info/eng/towards-a-science-of-consciousness.html>

More elaborated in

Pilotti J. *Conscious Spacetime. An outline to experiential monism*. In *The Mysteries of Consciousness. Essays on Spacetime, Evolution and Well-Being*. Fredriksson I. ed. McFarland. Hösten 2015 <http://www.mcfarlandbooks.com/book-2.php?id=978-0-7864-7768-5>

In more popular form in Swedish a chapter

Pilotti J Medvetandet och Hjärnan in *Nytänkande* red N-O Jacobson Norstedts 1987 . Can be downloaded from my homepage <http://www.drpilotti.info> as Nära-döden-upplevelser och medvetandet. <http://media.angelfire.lycos.com/2776779/1450723.pdf>