

Schrödinger's Cat of Psychotherapy

We reflect on the use of neuroscience in psychotherapy, cognitive dissonance and nondeterministic cognitive workarounds that arise. We ultimately rule against the Schrödinger's cat. Sorry kitty.



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This is a story about what happens when, as therapists, we believe we are using neuroscience-based theories, only to find that they begin to show their unscientific cracks. It is also about the stories we tell ourselves to reconcile the cognitive dissonance that ensues while keeping everyone happy.

There are numerous examples of such theories and techniques in psychotherapy, many of which have been extensively referenced

throughout this publication - see [here](#), [here](#), [here](#).

But to start, let's establish some basic postulates that we can hopefully agree on and build our conceptual edifice from.

Postulate 1 Not all therapy needs to be supported by neuroscience.

Neuroscience lacks both the authority and wisdom to dictate what therapy is or is not. In fact, no science holds that authority. Science is science, and psychotherapy is psychotherapy.

Many great therapies and therapists have no particular interest in science and certainly not in neuroscience. In fact, some openly express disdain for the scientific way of thinking. And that is fine - that does not make them any less of a good therapies or therapists.

Postulate 2 Science is (or can be) friendly.

Science and scientists may sometimes seem cold, detached, overly clinical, or even entirely wrong on certain issues. History shows that, despite its hyper-rational façade, science can be - and often is - influenced by dominant ideologies, which can lead it astray. That said, science and scientific thinking offer a wealth of knowledge and a valuable lens that we, as therapists, can greatly benefit from when we choose to use it.

Postulate 3 Neuroscience is useful to psychotherapy.

Although neuroscience and psychotherapy are very different, and in fact different conceptual realms, they share one crucial interest: the mind. For those of you who agree with us that the mind, or at least a significant part of it, resides in the brain, Postulate 3 becomes then self-evident.

Postulate 4 If a therapeutic approach is said to be based on neuroscience then it has to be supported by neuroscience findings.

In other words, if we decide that neuroscience input is useful in a particular intervention, it must come directly from neuroscience itself - meaning it should be grounded in neuroscience research, supported by published studies, or established scientific knowledge.

Where is the Schrodinger's cat in all that? Please bear with us, we are coming to that shortly.

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Non-deterministic cognitive workarounds to navigate the fuzzy landscape of cognitive dissonance

As of late, as some the theories known for their neuroscience foundations start showing their unscientific cracks, different interesting lines of arguments start to appear in order to navigate the fuzzy conceptual landscape and the cognitive dissonance that arise as a result.

Now, we are going to be annoyingly finicky here - or, if you prefer, applying the necessary rigor, depending on your critical disposition. But either way, hear us out.

For start, let's try to classify those different lines of argument into categories.

Discourse 1 The Unwarranted Middle Ground

The science doesn't support it, but the proponent of the theory 'X' says it is true, therefore it is 'controversial' and as such we can still say it is controversial neuroscience?

Discourse 2 The Fuzzy Logic

I know it is not true, but it works for me (and my clients) therefore it must be true.

Discourse 3 The Relativistic Loophole

It is only a metaphor anyways, so it does not matter whether it is *bona fide* neuroscience. But I will still call it neuroscience.

Discourse 4 The Neurobiology Truism

Everything we experience is ultimately neurobiological therefore any mental manifestation is supported by neuroscience.

In a trivial sense, yes, we could say that everything is based on neurobiology. However, it is a fallacy to then conclude that everything is supported by neuroscience.

Consider this example: a person is experiencing hallucinations or visions due to a neurological condition or a psychotic episode. That phenomenon is real for that person because it is experienced neurobiologically. However, to then conclude that the experience itself is supported by neuroscience is a logical fallacy, as it shifts the focus from the existence of the experience to the content of the experience.

What the above discourses - except for the Discourse 4 - all have in common is that, while acknowledging that something is not a neuroscience fact, they still maintain that it somehow is. In other words, these discourses introduce a level of indeterminism into the mix in order to overcome the cognitive dissonance.

Deterministic or nondeterministic: can something simultaneously be neuroscience and non-neuroscience?

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What's Schrödinger's cat got to do with it?

In a thought experiment devised by a pioneer quantum physicist Erwin Schrödinger, a cat is placed in a box where a toxic substance is released depending on the stochastic laws of emission of quantum particles. The experiment came to symbolize the fundamental indeterminism of subatomic events. The paradox of it is that, while the box remains closed and no one is observing, due to this fundamental indeterminism, the cat *is neither dead nor alive*.

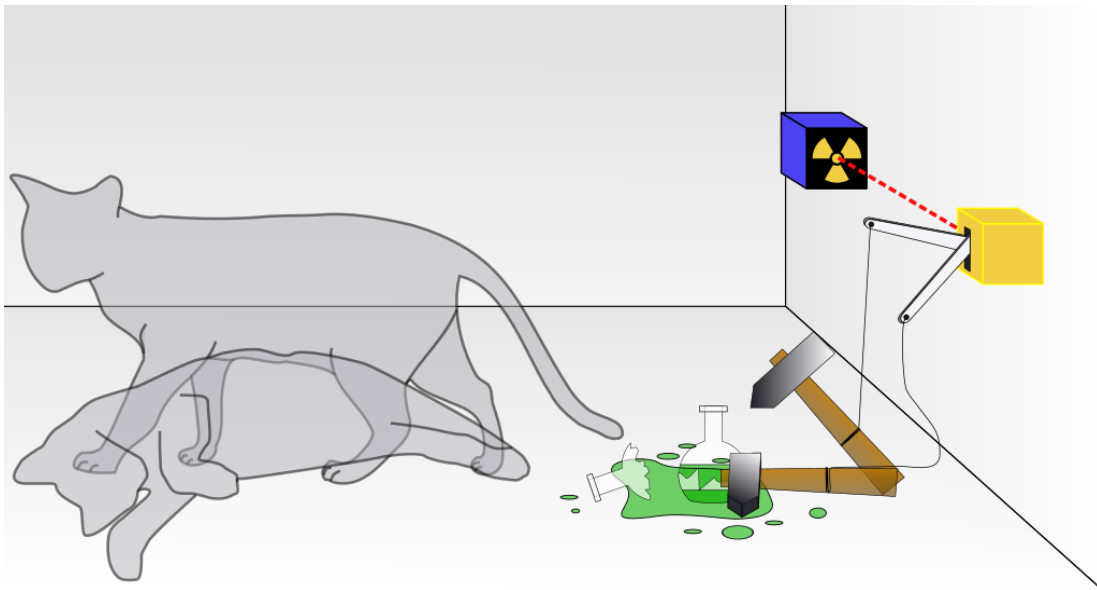


Illustration of the Schrödinger's cat thought experiment.
Source Wiki Commons.

Now, if we apply the same principle of indeterminism onto the statement "is something supported by neuroscience" we arrive to some of the vague, fuzzy and noncommittal discourses described above.

They essentially say 'it is not neuroscience but, in the same time, it might be neuroscience'. We call it the Schrödinger's cat of psychotherapy.

What does it mean that a theory or a technique is supported by neuroscience?

While some quantum properties of electrons might be fundamentally non-deterministic whether something is or is not neuroscience is a deterministic proposition. We should always try to answer the following question:

Is there (yes or no) a neuroscience study - and ideally a body of evidence - meaning a number of converging findings - that support that claim?

While, as a therapist, you do not need to be aware or understand those, it is important that the proponents of theories and thought leaders are able to provide such evidence, ideally with studies that are recent, not from the '90s.

In fact, if we claim that something is neuroscience-based but there is no actual neuroscience supporting it, we are approaching 'neuro-snake-oil' territory.

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Some reasons why “something works” doesn't necessarily mean that the underlying neurosciency narrative is true

1. 'Framework Placebo': Having a Theory (Even a Flawed One) Can Boost Confidence

The placebo effect in the context of therapy could be defined as follows: having a theory or framework that we believe to be true can boost our confidence in our work, precisely because we are

operating within a framework. This increased confidence can make us appear more effective to our clients, thereby providing reassurance that we know what to do and how to help them. As a result, clients might experience feeling better partly due to this placebo-like effect.

For example, and this is a true case, Ana has a client who alternates between attending therapy sessions with Ana one week, visiting a psychic the next. Both help the client. There's no question about that.

The psychic works within a framework they believe in, which is fine. However, should we conclude that this framework is scientifically valid simply because it 'works'? Should it then be promoted as a legitimate method for gaining insight?

It ultimately depends on your critical disposition, but you get our point.

2. Alternative mechanism explanation



Plague doctor costume. Wikipedia.

For instance, during the Middle Ages, amidst the various waves of the bubonic plague that, according to some accounts, decimated up to 30-

50% of the European population, plague doctors used to wear masks. These masks were believed to protect the doctors by stuffing medicinal herbs into the nose of the mask, which were thought to ward off the plague. While these masks may have offered some protection, it was not due to the herbs but rather because the masks created a barrier and increased the distance between the infected individual and the doctor, making it more difficult for the bacteria, *Yersinia pestis*, to be passed on.

Now, the same idea can be applied in our context. Some things might work in therapy, but not necessarily because the oversimplified or inaccurate neuro-explanation we give it. Remember, not everything in psychotherapy has to be supported by neuroscience (unless we use *The Neurobiology Truism* discourse).

The Bottom Line

If the current view of neuroscience is X can therapists say that they think it is Y? In other words, if we claim to use neuroscience do we have to follow the neuroscience?

Before you answer this question, let us ask you this:

You are a therapist with years of experience, dedicated to understanding, untangling, helping individuals with their mental health, inner struggles and emotional difficulties and even suffering. How would you feel if a neuroscientist came along and told you, 'What you do is not therapy, and I will tell you what therapy is.'?

Would the neuroscientist have the mandate or authority to tell you what therapy is or is not? For us, the answer is a definite 'no.' Therapists possess a unique set of skills, experience, and understanding of the human soul that is unmatched by any other profession (except perhaps for some writers).

Now, see what you think when we reverse that question. In other words, do we as psychotherapists have the authority and mandate to say and decide what is neuroscience? From where we stand, the answer is a hard 'no'.

As always, thank you for reading 🙏.

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