

## Free will: what would it mean and how would you recognize it?

What would free will entail? It would mean that I can do something, “just because I want to.” -- for no other reason. That is, we would have to be able to produce an effect that arises from no perfectly predictable cause. If we behave like decaying radioactive particles, then our behavior would meet two criteria. 1. The behavior of a large group would be quite precisely predictable, and 2. The behavior of the individual could only be probabilistically predicted. This is pretty much how we live our lives -- with fairly accurately predictable outcomes for the behaviors of large groups and less accurate guesses at the behavior of individuals. We generally attribute this unpredictability to the individual’s free will.

**The seventh sense** Without conceding the existence of a “sixth sense” let me acknowledge that the term is already spoken for and move on to the seventh sense. A “sense” can be defined as a mode of gathering information. The first six senses could be defined as the modes of gathering *external* information. I propose that the 7<sup>th</sup> sense is the one that gathers *internal* information. This assumes that one’s thought processes are capable of actual acts of creation -- taking the word *creation* to mean the producing of something that did not previously exist. An example: Suppose I imagine an analogy between Guthrun -- a character in a book -- and Iceland -- the country in which she lives. I see that they are both well described by the phrase “fire and ice.” On the basis of this analogy I write a song. I am asked “From where did you get the idea for the analogy.” I say that, “I created it.” It seems an act of free will. That is to say that the separate, external ingredients seem insufficient to explain the outcome. Clearly I had inputs into the process: Iceland is famously labeled “the land of fire and ice,” and Guthrun is a passionate, cold woman. So where did the analogy “come from.” I suggest that it “came from” my 7<sup>th</sup> sense. If information can be internally generated, then no amount of external observation can ferret out the individual’s behavior, lacking perfect access to this information.

Rebut: anyone else who had lived *exactly* my life would have arrived at the same analogy

ReRebut: It is impossible for anyone else to have lived my life. (see comments on the quantum world, following.)

## Quantum World

Descriptions of the quantum world have painted a picture of a weird reality, foreign to our sense observations. But the quantum world has opened a possible explanation for free will, at least at the quantum level. A faint hope arises that such freedom at the quantum level might manifest itself as genuine free will at the macro level of human experience.

I would like to suggest that:

1. the quantum world is not much different from, and really no weirder than, the world we inhabit, and
2. that may pave the way for a description of human free will.



## Analogies with the quantum world.

I will suggest some ways in which the behavior of our world sounds exactly like the behavior of the quantum world. Granted, this may be merely slight-of-hand analogy, but maybe not.

**1. Observation always affects the observed.** This seems to be an inescapable fact of our reality. It is impossible to ever see what a thing “really” is, as you can only see what you can observe, and observation is impossible without influencing the system observed.

**2. The more you know about one thing the less you know about another.** In Heisenberg’s formulation it is momentum and position that cannot both be simultaneously known. The most perfect parallel in our world is the apparently inevitable tradeoff between type I error (accepting a false statement as true) and type II error (rejecting a true statement as false). The skewing of a legal system towards the rights of the accused or the accuser is a significant example of this fact. The ability to see a situation as an insider or as an outsider is another. It is impossible to do both.

**3. Threshold effects.** In the quantum world no action can occur until a threshold of energy -- a quanta -- has been amassed, and then things happen, “all at once.” This describes any number of phenomena in our experience, from losing one’s temper to breaking glass or a camel’s back.

**4. Perfect knowledge is impossible,** i.e. some effects are untraceable to causes. Why a particular atom decays at a particular moment seems to be unknowable; it decays “just because.” This is exactly how much of the behavior of others and even of one’s own appears. Put another way, if we say that the particular electron decays, “because it wanted to,” its behavior looks pretty human.

**5. There can be no answer to some questions.** The quantum classic is whether Schrodinger’s cat ‘really’ is or isn’t dead. Compare the unknowability of that question to the question, “Who ‘really’ won the 2000 presidential election.” There simply is no answer to the question.

**Back to Free Will** In the realm of “questions with no answers,” free will raises its head. Isn’t a freely willed behavior an action for which one cannot answer questions of causality?

Quantum physicists always insist that one should not interpret quantum uncertainty as the result of imperfect measurement technology. It’s always hard not to do that. If one imagines a consciousness vastly larger than ours, spying down at us, I think that we would appear as atoms do to us: predictable in the large, inscrutable in the small. Why? Because we have free will, just as atoms do.

Put it this way. Suppose you had all the information in the universe and indefinite computational ability and you were still able to prove to yourself that *in principle*, you would still never be able to perfectly predict my actions. Wouldn’t you construe the residual, unpredictable part of my behavior as free will? Isn’t that what free will is?