1. Introduction

Indisputably, the two biggest mysteries in the sciences right now-in fact, perhaps the biggest mysteries science has ever faced- are the (apparent?) consciousness of the human being and the (apparent?) collapse of the wavefunction in quantum mechanics.

When we are faced with two problems whose difficulty exceeds all reasonable expectations, we must consider the possibility that both the problems share something more than just their complexity in common, that they share something deeper in common, and that their difficulty is but a symptom of this thing they share.

Let us then view these two problems from a certain angle, a specific angle which will give us, perhaps, a unique perspective, a perspective which would bring out hitherto unobserved analogues between the two.

2. Collapse

It is a well-known fact (perhaps the most well-known fact in quantum mechanics) that quantum measurements are not *gentle.*

What does this mean? Let us take the most typical example:

We measure the z-axis spin of an electron. It is up. We then measure the y-axis spin of an electron. It is down. We then once again measure the z-axis spin of an electron-and find that it has a 50-50 chance of being up or down.

And so we may say that the measurement of the y-axis spin was not *gentle* with respect to the property of spin along the z-axis; that measuring the y-axis spin somehow *disturbed* the z-axis spin. (This phenomenon, of course, is what Heisenberg's uncertainty principle quantifies; essentially, one can never simultaneously know the y-axis spin as well as the z-axis spin.) These observations would, of course, have held even if we had interchanged the roles of y and z, or replaced one of them with x.

After having measured the y-component, the z-spin lacks a well-defined value; essentially, it is neither up, nor down, nor somehow both up and down, nor somehow neither up nor down. The superposition state defies conventional Boolean logic.

And yet we somehow always get a comprehensible answer when we make a measurement. It is this mysterious phenomenon which, exclusively on performing a measurement, induces a well-defined value from the mystical superposition which is referred to as the collapse of the wavefunction.

3. Consciousness

'Thinking (about our thoughts) affects our thoughts,' said Marvin Minsky.

The statement is almost self-obvious; a little introspection will go a long way in validating it. There is a sort of intuitive difference between one's mind-state (whatever that may be) when one is observing a table and when one is observing oneself observing a table. When our mind turns to a part of its own self, many other thoughts are disturbed and the net sum of our thoughts inevitably changes.

This is, of course, nothing other than an assertion that "measurements" made by us on our own thoughts in order to become aware of them are not *gentle.* Thinking about our thoughts changes

our thoughts, so that just like how we can never know all three spin components of an electron, we can never have full knowledge of the exact net sum of our thoughts at a given point of time.

4. Conclusion

Also noteworthy is the fact that both are, in a sense, meta-measurements-there have been suggestions of this being a critical reason behind the lack of gentleness of quantum mechanical experiments.

Our apparatus, made of electrons, we use to measure electrons. Our thoughts, we use to measure thoughts. And of course, the turning point-the 'hand-of-God' moment of both the events-hinges upon the moment of measurement. Some photons and the like impede onto the electron. Some neurons fire.

And then something truly astonishing happens.

And so what I want to suggest here is that-taking into consideration these unignorably strong parallels-perhaps the manner in which some light may be shed upon both these problems is similar. Extending my analogy with further comparisons between the two could be strangely illuminating.

For example:

The first thing which stands out to us is the centrality of the phenomenon of measurement in both these questions. Modern day cognitive science has, however, engineered ways in which we can learn more about the brain without relying entirely on thought-on-thought measurements (something which, I believe, was considered impossible), and has been, as a field, extremely illuminating. Perhaps, then, a similar novelty, a bypass of measurement itself is what is required to make similar progress in the mystery of the collapse of the wavefunction?