

## **The frog and the swarm of flies, different views of the universe. Georgina Woodward**

In Max Tegmark's paper 'shut up and calculate' the idea of the frog and birds eye, different viewpoints of the universe idea is introduced. The frog has a view from within the universe whereas the bird can 'fly above' and see the 'larger picture' of the whole. The notion of different equally valid perspectives is useful. Working from that different points of view idea, it would be good to have a frogs eye view and the view of the hive mind of a swarm of intelligent flies. The flies can then have multiple viewpoints of the same arrangement and relations within the universe, rather than a singular viewpoint. All of the flies, though having different individual opinions on variable values, orientations and so on will all be correct. This ties in with relativity.

The hive mind view of a swarm of flies encompass a view of an external reality that is fully relative to many independent sensors, providing an aggregate multi state, multi orientation , multi value characterization of variables. That could be called a variable profile. That represents, a 'world' of many possibilities prior to selection of a singular viewpoint, ( or apparatus and method, or protocol ) giving a singular state or value. This ties together relativity with a solution to the many worlds conundrum of QM. In that way the picture constructed comes closer to the truth than the impoverished single viewpoint, singular value and states that are the product of singular observers 'saying what is there'. The flies hive mind view, rather than frog's, is many measurement values or states for the same variable. That become just one value or state for a single frog. For the frog, the many worlds, other than its own view, are not other universes but different views of the universe not made by the frog. So for him they are just other possibilities. For the fly collective they are actual measurements (though still a sub set of all measurements that could have potentially been made, taking in to account all possible arrangements and motions of flies.)

The multiverse is not formed at selection of a singular state but the singular state is extracted form the multiverse of possibilities that are potentially detectable in the singular existent universe. Being human we approach the universe from a literally human centred perspective. What we find as a result of our investigations is bound to the context used obtain those findings. To clarify; viewpoint of observation ( eg. such as from a single camera), or the protocol (eg. in a coin toss), or apparatus and method (eg. use of Stern Gerlach apparatus), used to obtain a measurement that is a singular, limited, fixed state outcome.

For example,'velocity' is velocity of something, relative to the observer or other reference object. Primarily the variable must pertain to something. Then, relative, because it is the way variables have been identified; measured by imposing a particular perspective. That, gives a singular value result -rather than the complete profile of all possible relative measurements. The value or state determined is relational and not intrinsic to the object alone. Calling the measurable variables 'properties' does not help as it seems from the word that they entirely belong to the entity under consideration. Rather than to the relation formed by the context; viewpoint, protocol or apparatus and method. Therefore the word 'attribute' is more fitting than 'property', for variables that are not intrinsic qualities.

In "No rule without an exception, except this rule." Stefan Weckbach points out that true falsehood is a kind of truth itself. Truth could theoretically be arrived at by finding all of the falsehoods and putting them out of the way. Which is how the scientific method at its best works.'Certainly not like that' is potentially closer to the truth than 'it might be like this *or it might not*' of a not dis-proven hypothesis. A theory, hypothesis or method can not be known as truth even after long standing. It may just have not be pitted against the necessary challenge to its validity. It (considering the truth of both truths and falsehoods), is rather like drawing done by outlining the positive filled spaces or by drawing the outline of the negative empty spaces. The techniques arrive at the same outcome if done accurately. Using both can help with accuracy of the drawing. So the scientific method provides both positive (preliminary) not disprovens and certain disproven hypotheses or discredited methods, bringing us closer to 'how it is'/'is happening'. Which is a 'realm of truth', by which I mean the existent universe, as it fully is and is happening, 'alive' rather than static; comprised of the ever changing pattern of existence, that is also changing relations between the different differentiated parts of that existence.

## References

Tegmark, M., (2007), "Shut up and calculate" via <https://arxiv.org/abs/0709.4024>

Weckbach, S., (2017), "No rule without an exception, except this rule." via <https://fqxi.org/community/forum/topic/2973>