Correction to the paper, "An addendum to the theory, "On the consequences of a probabilistic space-time continuum".

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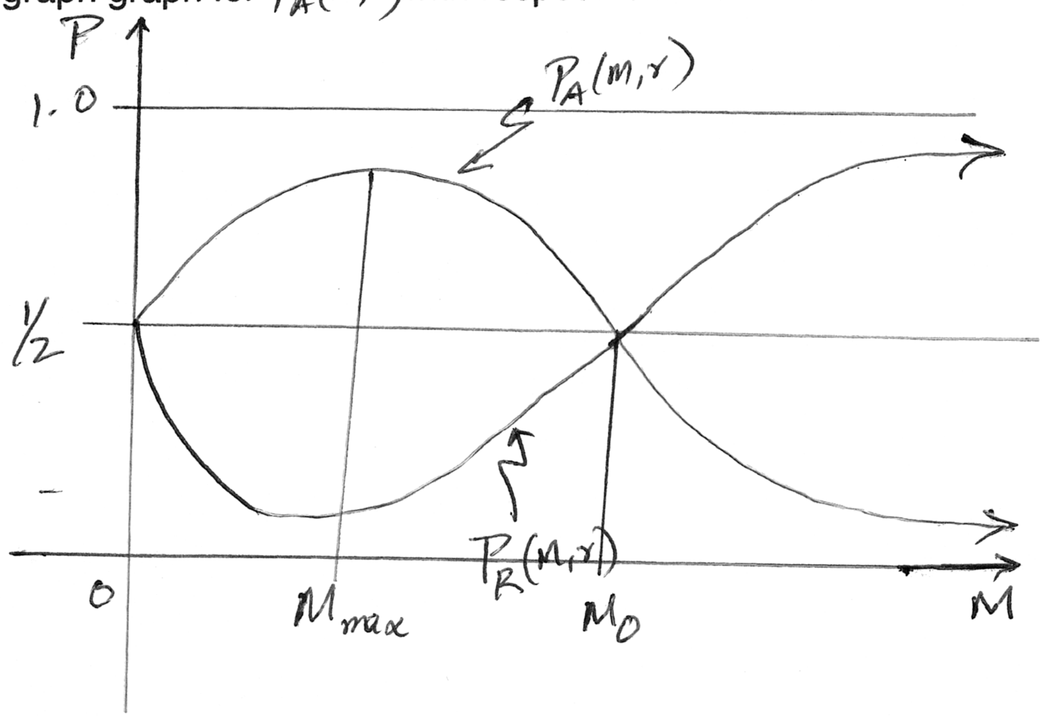
I) Introduction:

In the paper, "An addendum to the theory, "On the consequences of a probabilistic space-time continuum", I discussed the relationship between the probabilities for gravity to be attracting or repelling and mass 'M'. I assumed that $\underset{M\to\infty}{\text{limit}} P_A(M,r) \to 1$ and $\underset{M\to\infty}{\text{limit}} P_R(M,r) \to 0$, for all 'r'. However, from my article, "On the consequences of a probabilistic space-time continuum", we have as one of the properties of $P_A(M,r)$ that $\underset{r\to\infty}{\text{limit}} P_A(M,r) \to 0$, for all 'M'. One can clearly see that the two limits, (a) $\underset{M\to\infty}{\text{limit}} P_A(M,r) \to 1$, for all 'r' and (b) $\underset{r\to\infty}{\text{limit}} P_A(M,r) \to 0$, for all 'M' contradict each other, since from (a) we see that the larger the 'M' the closer is the $P_A(M,r)$ to one for all 'r', including $r \to \infty$, but (b) says that for $r \to \infty$, $P_A(M,r)$ should approach zero. This means that we need to change either (a) or (b) to make them compatible with each other.

II) Resolution of the contradiction:

From all the experiments and practical applications since the time Newton formulated his law for gravitation, we have found that $\lim\limits_{r \to 0} P_A(M,r) \to 1$, for all 'M' to be correct. An object is more likely to be attracted the closer it is to another object than to be repelled. This means our other limit, $\lim\limits_{r \to \infty} P_A(M,r) \to 0$ is also most likely to be correct, i.e the chances for a mass, 'm', to be attracted by another mass, 'M', gets less the farther away is 'm' from 'M'. This leads us to conclude that the $\lim\limits_{m \to \infty} P_A(M,r) \to 1$ needs to be changed. This forces us to conclude that the $\lim\limits_{M \to \infty} P_A(M,r) \to 0$, for all 'r' is the correct expression to resolve the contradiction. We can easily see that no matter how large the 'M', when $r \to \infty$, the $P_A(M,r) \to 0$. Thus we have $\lim\limits_{\substack{m \to \infty \\ r \to \infty}} P_A(M,r) \to 0$. This means, given $P_R(M,r) = 1 - P_A(M,r)$ that $\lim\limits_{\substack{m \to \infty \\ r \to \infty}} P_R(M,r) \to 1$. This means the more massive an object, 'M', the more likely it is to repel an object, 'm', the farther away it is from 'M'. This is also consistent with our assumption that $\text{dark Energy} = \sum\limits_{'M'} \text{anti-gravitational fields}$, where 'M' is all the matter in the universe. The more massive an object, the bigger is it's contribution to dark energy, the farther we are from the object.

The graph graph for $P_A(M,r)$ with respect to 'M' will look as follows:



III) Conclusions:

Based upon the figure # 1 we can arrive at the following conclusions:

1) The $P_A(M,r)$ first increases with 'M' until $M = M_{max}$, after which it starts to decline. The reverse is the case for $P_R(M,r)$.

2) There is a non-zero mass M_0 which has zero net gravitational field around it. This means we can have an object without a gravitational field!

3) The relationship we had derived $\frac{-\partial P_A(M,r)}{\partial M} \propto 1/M^2$, for "large" 'M', we can now make more specific. By "large" 'M' we mean $M > M_0$. The figure does confirm that the rate of decrease of $P_A(M,r)$ is slower the larger the 'M' is compared to .

4) Einstein's General Theory of Relativity says that a non-zero mass must produce a gravitational field around itself due to the distortion of the space-time continuum. Here, we found that one can have a non-zero mass that produces zero net gravitational field around itself.

5) From astronomical observations we should be able to find objects with $M = M_0$. If we find two stars with one orbiting the other and find that the star about which the other star is orbiting is not being "tugged" at all, then we can say that the orbiting star has the mass of .