Abstract Looking into Universe 2 2NdV.2A_EN.

Authors: brilliant predecessors in my interpretation.
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We consider a hypothetical model of space-time with spatially constant curvature, which expands equally at every point in space, because there is no **EXCEPTIONAL** place in it where anything can happen differently. I call this kind of expansion the **ECSTASY** of space. It means that the **SUBSTITUTIVE CIRCLE**, which substitutes a straight direction in a uniformly curved space, will increase its radius **R** with time **t**, $\mathbf{dR/dt= \Delta V_\theta >0}$.

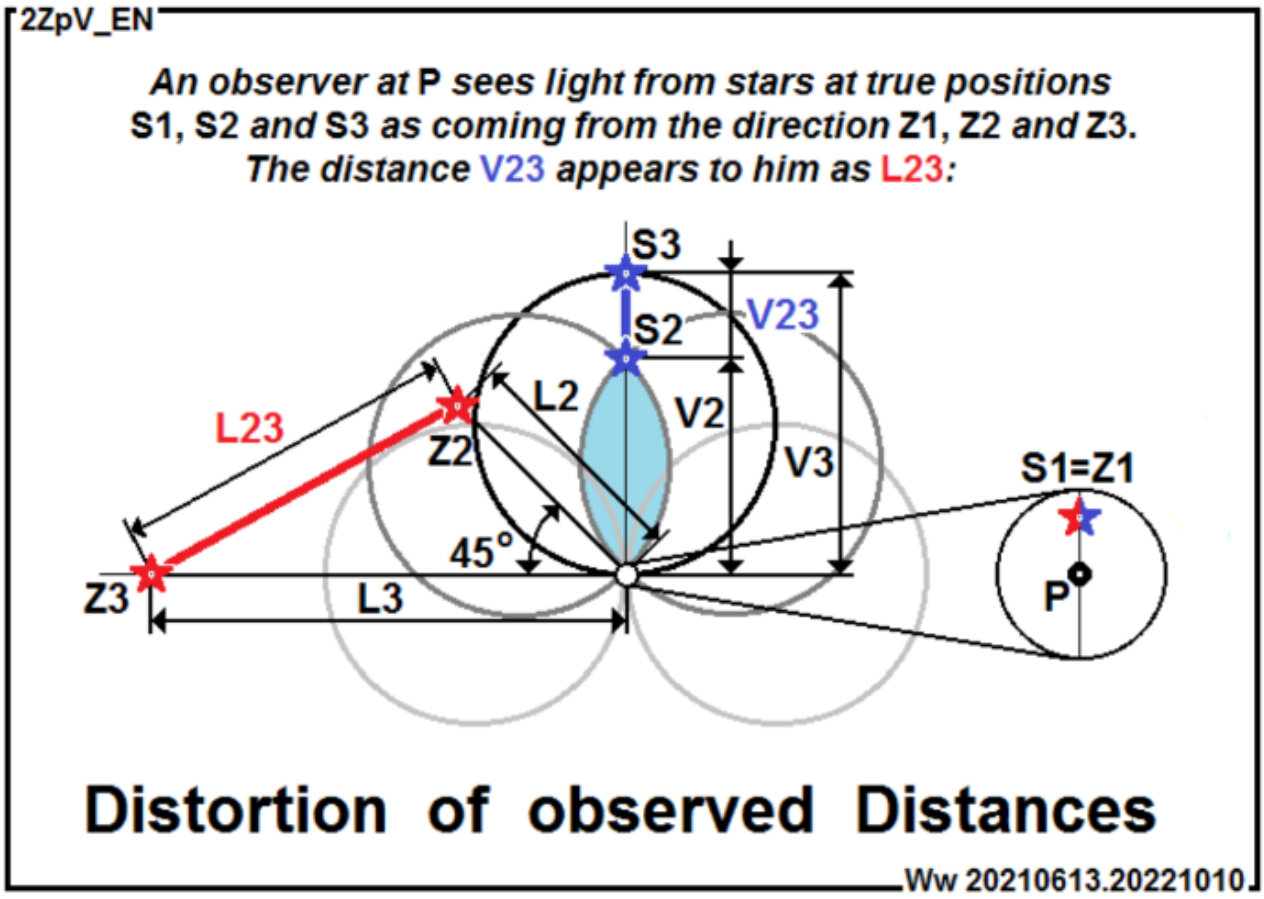
The distance of objects from us $\mathbf{z=R\cdot\varphi}$, where **R** is the radius of curvature and the angle $\boldsymbol{\varphi}$ is measured in an arc measure with the origin at the point of observation, will not grow at the rate $\boldsymbol{\Delta V_\theta}$, but at the rate $\mathbf{dz/dt= dR/dt\cdot\varphi}$, or $\boldsymbol{\Delta V}=\boldsymbol{\Delta V_\theta}\cdot\boldsymbol{\varphi}$. Therefore, **the increase in the observed speed of objects receding** with the distance $\boldsymbol{\varphi}$ from us observers **is an inherent property of the model**.

By increasing the angle $\boldsymbol{\varphi}$, we reach the limit situation, i.e. $\boldsymbol{\Delta V=c}$, where **c** is the speed of light propagation. This is a consequence of the model, and I call that limit the **LIGHT BARRIER** of the Universe ($\mathbf{SB_V}$). In physics, it is best matched by established terms such as the **cosmological horizon** or the **Horizon of the Universe** ($\mathbf{H_V}$), or the **limit of the observable Universe** from the observer's point of view.

The term **AGE of UNIVERSE** ($\mathbf{V_V}$) is introduced as the time of light's flight to us from this distance $\mathbf{H_V\equiv SB_V= c\cdot V_V}$, and the term **Observable SIZE of UNIVERSE** $\boldsymbol{RP_V}$, as the distance to which the space was carried away by ECSTASY from us in all directions at a speed of $\boldsymbol{\Delta V_\theta}$ during that time, $\boldsymbol{RP_V= \Delta V_\theta\cdot V_V}$. Since the farthest object observed along a circular arc can never lie further than on the opposite side of the circle from the observer $\boldsymbol{\varphi= \pi}$, then the corresponding **SIZE of UNIVERSE** comes out as $\boldsymbol{Rv= R\cdot\pi}$.

Another consequence that the model draws our attention to is that **we observe distances between objects in the distant Universe greater** than they are in space. This distortion of our observation is the reason why there seems to be a lack of gravity in the distant Universe, as if there is a **GRAVITY DEFICIT**. This is made visible, for example, by the

figure **Distortion of Observed Distances [2ZpV_EN]**, which combines all 3 sketches from the figure **STARS and LIGHT PROPAGATION G [2phG_EN]** from the first part of this file into one:

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The situation is simplified by considering the drawn stars "**S1**", "**S2**" and "**S3**" as existing simultaneously by stopping the flow of time, thus freezing their positions in space-time. Although, for example, the light flew from **S2** to us observers at point "**P**" along an arc distance **L2=R·π/2** and from **S3** a distance twice **L3=R·π** (**R** is the radius of curvature of space), and thus we actually observe the star **S3** in a double past than the **S2** star, we consider their positions by freezing the course of time in space unchanging.

Comparing the observed distance **L23** and the actual distance **V23** gives **L23/ V23≈ 3,95**. Thus, the distorted **L23** distance is almost four times larger (**!**) than the true **V23** distance, and thus the corresponding mutual gravitational effect would be almost sixteen times

weaker (**!!**) for this situation. Similarly, for the star **S1**, which is so close to us (**L1≈V1≈0**) that we consider the influence of the curvature of space on its observation still negligible, the ratio of the distorted to the real distance will be **L12/V12≈ 1,11**. Due to the distortion, the observed distance also increased, but only slightly by approximately **11%** compared to the actual distance.

Although we considered the special case of observing objects from us in a straight line behind one another, and by freezing the passage of time we limit its validity to mutual distances significantly smaller than the radius of curvature of space, and the speed of their changes in position in space significantly smaller than the speed of light, we showed that as **the model predicts an amplifying effect of increasing mutual distances between observed objects as their distance from us increases.**

This could point to a hitherto misinterpreted curvature effect, which may have required so-called **dark matter** to be introduced to compensate for the missing gravity. That is, some invisible matter, the amount of which is estimated in the quote https://en.wikipedia.org/wiki/Dark_matter to be approximately 85% of the matter in the universe. That is, such a large amount that only **15%** (**!!!**) of observable "light matter" would be left in the Universe.

In conclusion, the second challenge is presented: to determine the consequence of the distortion of the mutual distances that the model predicts, in specific situations, and thus also to determine the size of the GRAVITY DEFICIT. It would be verified to what extent the observed lack of gravity is due to the predicted distortion of the observed mutual distances.