Research on the a priori of Physics

Geometric Critique of Pure Mathematical Reasoning

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(3.256) $\quad \vec{\omega}_c = \omega_c \mathbf{e}_3 \; [\hat{\omega}]$.

In addition, we define an eternal evolution parameter $t_{\overline{c^\varnothing}} \in \vec{\mathbb{R}}_+$ for such a noumenon carrier. *The first creation*, event $A_0, (t_{\overline{c^\varnothing}} = 0)$, provides carrier **subtons**$_0$ (all simultaneous).

(3.257) $\quad |\psi_{\pm\vec{\omega}_c\perp\odot}(t_{\overline{c^\varnothing}})\rangle_0 = a^\dagger_{\odot\pm\vec{\omega}_c}|0,0\rangle = \odot 2\tilde{r}(\rho)e^{i\phi_{\overline{c^\varnothing}}} = \odot 2\tilde{r}(\rho)e^{\pm i\omega_c t_{\overline{c^\varnothing}}}, \quad$ for $\forall\rho\geq 0, \forall t_{\overline{c^\varnothing}}\geq 0.$

This eternal (constant) carrier transmits a transversal front into the future with the **direction** $\vec{\omega}_c = \omega_c \mathbf{e}_3$. This idea produce a parameter for the past $t_{\overline{c^\varnothing}} = |\phi_{\overline{c^\varnothing}}|/|\omega_c|$ in our thoughts, to be passed, as a real value $t_{\overline{c^\varnothing}} \in \vec{\mathbb{R}}$, at the location of the cause of the creation event

(3.258) $\quad A_0 = A_{local}^{transmit}(0_{\overline{c^\varnothing}}) = A_{local}^{transmit}(t_{\overline{c^\varnothing}})$, for $\forall t_{\overline{c^\varnothing}} \geq 0.$

The reason for the creation of the eternal carrier is called a transmitter site location. $t_{\overline{c^\varnothing}}$ *is* called the carrier chronometer time[132] counted in the creative transmitter location. In everyday speech, we switch on the radio transmitter A and sets its clock to the start value $t_{\overline{c^\varnothing}} = 0$. An imaginary virtual carrier annihilation in an event $B_{\overline{c^\varnothing}}^{front} = B_{\overline{c^\varnothing}}^{front}(0_{\overline{c^\varnothing}})$ has always carrier time $t_{\overline{c^\varnothing}} = 0$, at the front of the first creation. At least one carrier **subton**$_0$ is eternal[133] and $B_{\overline{c^\varnothing}}^{front}$ rushes with the velocity of light $c\mathbf{e}_3$ in the space of the development parameter $t_{\overline{c^\varnothing}}$ through the coordinate $x_{3,\overline{c^\varnothing}} = -ct_{\overline{c^\varnothing}}$ spanned by $(x_{3,\overline{c^\varnothing}})\mathbf{e}_3 \; [\hat{\omega}^{-1}]$. We remember that the distance to the front $B_{\overline{c^\varnothing}}^{front}(0_{\overline{c^\varnothing}})$ from the first creation $A_{local}^{transmitter}(t_{\overline{c^\varnothing}})$ just is $|x_{3,\overline{c^\varnothing}}| = |ct_{\overline{c^\varnothing}}|$.

I assume in this ideal naïve thinking that annihilation never occurs for at least one first **subton**$_0$ and that this intuition as in Figure 3.13 can be viewed as always growing and by this defines a carrier chronometer time $t_{\overline{c\infty}}$ in the created location $A_0 = A_{local}^{transmit}(t_{\overline{c^\varnothing}})$ by 'counting' the local angular phase $\phi_{\overline{c^\varnothing}} = \omega_c t_{\overline{c^\varnothing}}$ of for this first **subton**$_0$ under its eternal extension and expansion. The time axis (**direction** left in Figure 3.13) has a zero point $B_{\overline{c^\varnothing}}^{front}(0_{\overline{c^\varnothing}})$ which is moved into the future (to the right) with the velocity of light $c\mathbf{e}_3 \parallel \widehat{\vec{\omega}}$. The local time at the front is always 0, $t_{c,B^{front}} = 0$ and the time axis from this has the **direction** into the past.[134]

The opposite x_3-axis, $x_3\mathbf{e}_3 \; [c\hat{\omega}^{-1}]$ in the transmission **direction** $\mathbf{e}_3$ starts with $x_3 = 0$ at the transmitter $A_0 = A_{local}^{transmitter}$. Now, the idea that the transmitter A_0 is a concrete physical local object with a generator oscillator, the real angular phase $\phi_c = \phi_{\overline{c^\varnothing}}$ from the first[135] **subton**$_0$ conceivably maintained and counted, hence for this object

(3.259) $\quad t_c = t_{c,A} = |\phi_c|/|\omega_c| \; [\hat{\omega}^{-1}] \qquad = t_{\overline{c^\varnothing}} = |\phi_{\overline{c^\varnothing}}|/|\omega_c|.$

This real physical transmitter carrier oscillator with the angular frequency ω_c constitutes a chronometer watch called a **carrier clock** $\{t_c\}$, generated from the transmitter location

$A_0 = A_{local}^{transmit}(t_c)$, as a propagating development parameter t_c. The idea of a constant internal carrier frequency $\omega_c = \omega_{\overline{c^\varnothing}}$ is totally dependent on the idea of an eternal first carrier **subton**$_0$ with the angular frequency $\omega_{\overline{c^\varnothing}}$, both of course considered relative to our external reference $|\hat{\omega}| \equiv 1 \; [\hat{\omega}]$. For an arbitrary point B, with the coordinate $x_{3,B}$ along the space-axis,[136] we define the chronometer time as $t_B = t_c - x_{3,B}/c$, which locally is delayed by the propagation from transmitter A.

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[132] The chronometer time follows the increased order representation over the real numbers, one specific number after another $\vec{\mathbb{R}}$.
[133] Eternity is only a thought, but for it to have meaning at least one subject element is necessary for this substance in thought.
[134] Where is the past in the real world?
[135] The first **subton** is eternal in the idealistic thought, therefore $t_{\overline{c^\varnothing}}$. The term t_c is the objective chronometer time in A.
[136] The space-axis into the future space from the first creation (3.246) in the **direction** $\mathbf{e}_3$
(as developed with the past back from the front of expansion. From A created extension.)

The idea of the carrier is continuous to create new carrier **subtons** $_{t_c}$ from $A_{local}^{transmit}(t_c)$.

In order, not to complicate this description unnecessarily a synchronism is assumed in creation with the periodicity interval $\Delta t_c = 2\pi/|\omega_c|$, and by an imagined numbering of the periods $m \in \mathbb{N}$, we have the creation times $t_{c,m} = 2\pi m/|\omega_c|$

The carrier creation is not only thought synchronous but also as phase angle coherent for a macroscopic carrier.[137] As **subton** creation in principle considered countable, the chronological times $t_{c,m}$ are countable too. In addition, there can be created several **subtons** for each period. We say, for each period are created $N_\pm(m) \in \mathbb{N}$ **subtons** $_{t_{c,m}}$ which contribute to carrier amplitude, at time stamps $t_{c,m} = 2\pi m/|\omega_c|$. The carrier wave can then be written as a function of the coordinate development parameter $t_3 = t_c - x_3/c$

(3.260) $\quad |\psi_{\pm\Sigma\vec{\omega}_c\perp\odot}^{macro}(t_3)\rangle = AN(m)\,a^\dagger_{\odot\pm\vec{\omega}_c}|0,0\rangle_{t_{c,m}}$

$\qquad\qquad = AN(m)\odot 2\tilde{r}(\rho)e^{i(\omega_c t_3 - 2\pi m)} = AN\left(\left[\frac{\omega_c t_c}{2\pi}\right]\right)\odot 2\tilde{r}(\rho)e^{\pm i\omega_c(t_c - x_3/c)}$

The normalization of this quantum state requires $A = 1/N(m)$, as the beam 'thickness' holds independent of the number $N(m)$. From this, we write the **field** of a circularly polarized coherent (monochromatic) carrier wave in the **direction** $\mathbf{e}_3$

(3.261) $\quad W_{\pm\omega_c\mathbf{e}_3}^{helix}(t_c, x_3) = \mathbf{A}_m\mathbf{A}_{loss}(x_3)\left(e^{\pm i(\omega_c(t_c - x_3/c) - 2\pi m)}\right)_{\perp\mathbf{e}_3} = \mathbf{A}(t_c)\mathbf{A}_{loss}\left((x_3)e^{\pm i(\omega_c t_c - k_{c,3}x_3)}\right)_{\perp\mathbf{e}_3}$

where $k_{c,3} = \omega_c/c$ is the wave number in the extensive spaces along $x_3\mathbf{e}_3$. The factor $0 \leq \mathbf{A}_{loss}(x_3) \leq 1$ indicating the loss of **subtons** at random annihilation along the development extension x_3, can not affect the coherence. To make the transversal plane carrier wave coherent, the creative variations in the transmitter amplitude $\mathbf{A}$ must be synchronised with the period

(3.262) $\quad \mathbf{A}(t_c) = \mathbf{A}\left(\frac{2\pi}{\omega_c}\left[\frac{\omega_c t_c}{2\pi}\right]\right) = \mathbf{A}_m \sim \sqrt{N\left(\left[\frac{\omega_c t_c}{2\pi}\right]\right)}, \quad$ where $\left[\frac{\omega_c t_c}{2\pi} \in \mathbb{R}\right] \in \mathbb{Z}$, and $N(t_{c,m})$ a function.

As the carrier in its idea is eternal $\vec{\omega}_c = \omega_c\mathbf{e}_3$ it demands persistent creation that happens as new events in the transmitter location (continuous eternally). Therefore, regarding (3.258) I ask the reader to consider the **inequalities** of the events as ontological ideas:

(3.263) $\quad A_0 = A^{transmitter}(0_c, 0_3) \neq A^{transmitter}(t_c, 0_3) \neq B(t_c, x_3)$ for $\forall t_c > 0$ and $x_3 > 0$.

For a **subton entity** $^{AB}\Psi_{\pm\vec{\omega}_c}$ from creation $A(t_c, 0_3)$ to annihilation $B(t_c, x_3)$ I point out and claim, that a valid ontologically for each **subtone** is

(3.264) $\quad {}^A\Psi_{\pm\vec{\omega}_c}(t_c, 0_3) = {}^B\Psi_{\pm\vec{\omega}_c}(t_c, x_3)$.

The state of the **subton** is the same when it is created, as when it annihilates, thus t_c is the same in both events $t_{c,A} = t_{c,B}$. Therefore, I conclude; the **subton** can transfer information. – I.e., the **subton** as feeder brings among other things the clock $\{t_c\}$. Remember that the past never reaches the present nor even the first frontier![138] The **subton** 'count' its own internal angular phase, thereby generating the extension

(3.265) $\quad |x_3| = c\,|^{AB}\phi_c|/|\omega_c| = c|t_{c,B} + t_3| - c|t_{c,A}| = c|t_3| \quad [c\hat{\omega}^{-1}]$

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[137] A continuous creation can be explained by the freedom in the circle group $\odot = \{U_\theta: \theta \to e^{i\theta} \in U(1)| \forall\theta \in \mathbb{R}\}$, which allows coherency, but obviously does not require nor cause coherency.
[138] The 20th-century special theory of relativity has taught us, that objective time travel to the past is impossible (a taboo). By contrast, the past is disappearing away at the speed of light. Only our memory remains.