A Relativistic Theory of the Tensional Psychological State

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***Abstract*—**Psychological functionality is governed by the satisfaction of a major desideratum: the perpetuation and/or the progress of the human species. The psychological dynamics, as tensional dynamics, must be reported to the above mentioned desideratum which determines essential behaviour. At the level of science the essential has repeatable valences. In psychology the repeatable ensures the physical and psychological existence of the individual, whereas the unrepeatable contributes to the progress of the person. The theory presented in the paper starts from the hypothesis that the dynamics of the psychological measures – which determines a psychological space topology – is influenced by the tensional consistency [12]. The purpose of this approach consists in the identifying of those stable structures – of the type of constants – which explain the mechanisms of psychological functionality. Emphasis is laid on the indentifying of the specific constants of the unconscious instance. The mathematical results prove a similar functionality of the conscious instance which suggests the existence of the identical processes aimed at the maintaining of the tensional equilibrium. The identified constants – the time necessary for the activation of a psychological pulsion, the psychological experience and the processing time of the stimulus – represent the psychological coordinates in which the actions of conscious and unconscious nature are realized.

***Keywords*—**Capacity of the stimulus to attract attention, Equation, Functional, Metrics, Variation.

I. Introduction. Pleading for a New Psychology

The science of psychology raises serious questions as to how psychology should be understood. Efforts should be directed towards finding a true theory of the psyche.

The difficulties of any psychological analysis are due to the fact that the object of psychology, the psyche, is not accessible in a form that allows an objective evaluation of its dynamics and this leads to questions of the kind: why can we not visualize the psyche? what could be the finality of its study? is the psychological existence determined by an external informational component of the physiological plane? if the answer is in the negative, then, theoretically we could speak of the myth of eternity, that would render meaningless the existential-energetic efficiency of life according to which the physical and spiritual existence generates information, that is never redundant in the system; are we capable of distinguishing between purpose and goal?

It is known that reality, in the most objective sense of the word escapes our observation. What can be observed is a mental model of reality, distorted by the human capacity limited to the identifying of a 4-dimensional reality. Beside this fundamental mental restriction, there is also the effect of the law of cognitive economy, restraining the observation strictly to the field necessary for the conservation and development of existence.

Returning to the field of psychology, we could try a definition in terms of a science of subtle energies. Why subtle? Because, in the absence of a psyche, seen as an object in the classical sense of the word, we could suggest an object-model inaccessible to sight, even if only under the form of incoherent energy in which consistency does not depend on pressure.

The invisibility of the psyche qua object, is paralleled by the invisibility of the laws of the psyche that makes this fluid component manifest itself in such bizarre ways. This fact should present psychological science with the necessity to study in reality what we may presume to call the mind of creation. Of course this could lead to strange questions, such as: if creation was not conscious of what it created, could then the object of creation dispose of apparently coherent laws?
We could try to advance psychological science by treating the person under the form of a systemic version where observable (physiological, behavioural) and unobservable (law-type) dynamics are involved. It seems plausible, in this context, to posit the hypothesis that a law dictates the physiological dynamics manifested through a behavioural dynamics.

The inconsistence of the association of the physiological plane with psychological causation is regrettable in the context where the results of the detection by the psyche of certain artificial dynamics, oftentimes forced, are not known. More plausible is the idea that the psyche is governed by independent laws of physiological hard, their conversion into physiological actions being operated through an interpreter type component.

On the other hand, it is not clear whether the psyche can be efficiently influenced through common psychological techniques, such as psychotherapy, hypnosis, hypnotherapy etc. The doubt arises from the extremely simplified way of treating the psyche only at the conscious level. But any person interacts with offers of conscious and unconscious psychological products. Only a part of the unconscious products on offer is transfered to the conscious instance,

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respectively those products which are translatable in terms of the agreeable and disagreeable. The inability of translating the other products is due to the existence of certain types of cold information, unconvertible in terms of the principle of pleasure, but whose dynamics is subject to the principle of interpersonal development. If this judgement is correct, it leads to the idea that the psychological intervention is altered, at least at the level of its result, by the unconscious endowments of the person, that cannot be changed and that continue to produce information, even if it is the repeatable kind. Here the paradox is given by the existence of information in spite of its inexistence. The repeatable information constitutes the reason for the existence of the unconscious instance. The negation of the generator of repeatable information eliminates the reason for the purpose, with major effects in increasing the psychological vulnerability of the person.

The substantiation of the techniques of psychological intervention needs the profound study of psychoanalytical theory. Connected to this aspect, the theoretical approach raises many problems connected to the reasons for the existence of psychological instances.

If concerning the aspects connected to the instance of the unconscious there is a unitary point of view concerning its invincibility, the aspects connected to the instance of the conscious do not seem clear at all. The conscious instance should guarantee the task of emotional-affective discrimination between similar situations.

On the other hand, there is a minimal tensional associated with the state of abolished consciousness that assures the existence of the instance. As a result we may find the existence of an unconscious component of the conscious instance! The emotional-affective discrimination should be realized by a consciousness of the conscious instance meant to modulate a constant tensional state governed by unknown laws. This fact supposes that the unconscious component manifests itself similarly with the unconscious instance. The behaviour of the psychological instances accredits the idea that the personality is a mixture of variable dosages between psychopathia and depression. If we associate this argument with psychological normality, interesting situations may appear when the functionality of the unconscious instance is altered. In this context it is interesting to study if the inconsistence of the functioning of the unconscious instance transfers to the unconscious component of the conscious instance. If yes, what might be the justification of the existence of the consciousness of the conscious instance? This reasoning should suggest the possibility to study effectively the consciousness of the conscious instance when this one is not, genetically, pre-defined. If it is genetically pre-defined, then we could posit the hypothesis of a psychological predefinition which eliminates the possibility to talk about the intelligible problem of determination in psychology!

If the psychological program is genetically encoded, at least one problem is worth being discussed, namely the role of defence mechanism seen as a mechanism of tensional psychological regulation [3]–[4]–[5]–[8]–[12]–[13]. The treatment of defence mechanisms in terms of situational impulses runs the risk of missing their reason for existence. The psychological system, as a dynamic system [1]–[6]–[11], is an entity whose dynamics follows the principle of allostasis. It has structuring capacity. The ratio between the effort of the defence mechanism – involved in reaching and maintaining an optimal psychological tension – and the capacity of the psychological system to function within appropriate parameters is a constant [12]. This result, associated with the constant of the denominator mentioned above supports the idea that the effort of the defence mechanism is also a constant. But this fact seems to cancel a hypothetical role of the defence mechanism. In fact the action of the defence mechanism is meant to generate and preserve the information needed for the functioning and invincibility of the unconscious instance!

In spite of the above mentioned conclusion, the literature deals with the problem of the defence mechanisms in terms of the situational grading and its efficiency. This fact is due to the conciousness of the conscious instance (the interpreter) that is in charge of the situational discrimination. The generation of a modulated tensional state is, in fact, a transposition into law of a constant tensional state.

II. A Mathematical Theory of the Dynamics of Psychological Instances

A. Introduction

The psychological dynamics is modulated by two measures, respectively the interest which acts as a tensional attractor and the curiosity as a repulsive measure. The interest presents the characteristics of a gravitational type source. The emotional-affective configuration of a person consists of the set of all gravitational type sources in the sense mentioned above.

The gravitational type source generates gravitational type fields which appear as an effect of the dissonance between the effective finality and the expected one of a desire. The source of these gravitational fields could be identified in terms of a fluid having properties which are determined by the invariant character of a minimal tensional state. The invariance of the tensional state has to assure the physical and psychological existence of the person.

If the physical existence of the person is determined strictly physiologically, the psychological one is realized at the informational level. There exists an apparent demarcation between the physiological level and the informational one. In fact there is a command system which works hierarchically. The appearance of an alteration of the predeterminated informational program determines the activation of certain destructive programmes at the physiological level.

At the informational level there is a basic level constituted by cold information which is devoid of hedonic potential, and a dynamic level, warm (hedonic), generated by the pleasure principle. The source of the psychological development is represented by cold information, an authentic program of the

saturation of personality. The role of hedonic information should be looked for in its capacity to realize the memorizing of cold information.

B. A Mathematical Theory of the Invariant Tensional State

Let $f(\rho)-$ be the function representing the invariant [10] tensional state and ρ – the invariant psychological tension determined by the capacity of the person to generate information in her area of existence. This tension could be represented through the expression $K^{\alpha}K_{\alpha}$ where K^{α} is the potential of the tensional need – as generator of information – and K_{α} – the potential of tensional annihilation. Consider the measure:

$$L = f(\rho)\sqrt{-g} \tag{1}$$

where $g = |g_{ij}|$ $i, j = \overline{1,\ldots,n}$, g_{ij} – the components of the metric tensor.

We calculate the variation of L function in $g_{\mu\nu}$. The result

$$\delta\left(\rho\sqrt{-g}\right) \equiv \delta\left\{\sqrt{-g}\left(\rho g^{\mu\nu}U_{\mu}U_{\nu}\right)\right\} = \\ = -\frac{1}{2}\sqrt{-g}\left\{\rho U_{\mu}U_{\nu}\right\}\delta g^{\mu\nu} \tag{2}$$

in which $U_{\mu} = \frac{dx_{\mu}}{ds}$, $ds = \sqrt{g_{\mu\nu}\frac{dx^{\mu}}{ds}\frac{dx^{\nu}}{ds}}$, $g^{\mu\nu}U_{\mu}U_{\nu} = 1$

combined with, $\delta\sqrt{-g} = -\frac{1}{2}\sqrt{-g}\,g_{\mu\nu}\delta g^{\mu\nu}$ leads to the expression:

$$\delta\rho = \frac{1}{2}\rho\left(g_{\mu\nu} - U_{\mu}U_{\nu}\right)\delta g^{\mu\nu} \tag{3}$$

Indeed

$$\delta\left(\rho\sqrt{-g}\right) = \rho\delta\sqrt{-g} + \sqrt{-g}\delta\rho = -\frac{1}{2}\sqrt{-g}\left\{\rho U_{\mu}U_{\nu}\right\}\delta g^{\mu\nu} \tag{4}$$

or

$$-\frac{1}{2}\rho\sqrt{-g}\,g_{\mu\nu}\delta g^{\mu\nu} + \sqrt{-g}\delta\rho = -\frac{1}{2}\sqrt{-g}\,\rho U_{\mu}U_{\nu}\delta g^{\mu\nu} \tag{5}$$

Therefore

$$\delta L = \sqrt{-g}\delta f(\rho) + f(\rho)\delta\sqrt{-g} = \sqrt{-g}\frac{df}{d\rho}\delta\rho - \\ -\frac{1}{2}\sqrt{-g}\,f(\rho)\,g_{\mu\nu}\delta g^{\mu\nu} = \sqrt{-g}\frac{df}{d\rho}\left[\frac{1}{2}\rho k_{\mu\nu}\delta g^{\mu\nu}\right] - \\ -\frac{1}{2}\sqrt{-g}\,f(\rho)\,g_{\mu\nu}\delta g^{\mu\nu} = -\frac{1}{2}\sqrt{-g}\cdot \\ \cdot\left\{\rho\frac{df}{d\rho}U_{\mu}U_{\nu} + \left(f - \rho\frac{df}{d\rho}\right)g_{\mu\nu}\right\}\delta g^{\mu\nu} \tag{6}$$

where $k_{\mu\nu} = g_{\mu\nu} - U_{\mu}U_{\nu}$.

We introduce in the mathematical approach the tensor of the tensional consistency:

$$T^{\mu\nu} = \rho\frac{df}{d\rho}U^{\mu}U^{\nu} + \left(f - \rho\frac{df}{d\rho}\right)g^{\mu\nu} \tag{7}$$

This tensor is conservative. The condition of null divergence of the tensor of tensional consistency leads to the moving equations:

$$\nabla_{\nu}T^{\mu\nu} = U^{\mu}U^{\nu}\nabla_{\nu}\left(\rho\frac{df}{d\rho}\right) + \rho\frac{df}{d\rho}W^{\mu} + \nabla_{\nu}\left(fg^{\mu\nu}\right) - \\ -g^{\mu\nu}\nabla_{\nu}\left(\rho\frac{df}{d\rho}\right) = \rho\frac{df}{d\rho}W^{\mu} - k^{\mu\nu}\nabla_{\nu}\left(\rho\frac{df}{d\rho}\right) = \\ = \left(\frac{d^2x^{\mu}}{ds^2} + \Gamma^{\mu}_{\nu\lambda}\frac{dx^{\nu}}{ds}\frac{dx^{\lambda}}{ds}\right)\rho\frac{df}{d\rho} - k^{\mu\nu}\nabla_{\nu}\left(\rho\frac{df}{d\rho}\right) = \\ = \rho\frac{df}{d\rho}\left[\left(\frac{d^2x^{\mu}}{ds^2} + \Gamma^{\mu}_{\nu\lambda}\frac{dx^{\nu}}{ds}\frac{dx^{\lambda}}{ds}\right) - k^{\mu\nu}\frac{\nabla_{\nu}\left(\rho\frac{df}{d\rho}\right)}{\rho\frac{df}{d\rho}}\right] = 0 \tag{8}$$

or

$$\left(\frac{d^2x^{\mu}}{ds^2} + \Gamma^{\mu}_{\nu\lambda}\frac{dx^{\nu}}{ds}\frac{dx^{\lambda}}{ds}\right) - k^{\mu\nu}\nabla_{\nu}\ln\left(M\rho\frac{df}{d\rho}\right) = 0 \tag{9}$$

where $W^{\mu} = U^{\nu}\nabla_{\nu}U^{\mu}$, M – a constant of integration, $x^{\alpha} \equiv \left(\tilde{t}, \vec{r}\left(\tilde{t}\right)\right)$. $\vec{r}$ has the components m, v, b where m – neuropsychological activation, v – apperception, b – the amplitude of the tensional state and $\tilde{t}$ – the psychological experience; $\tilde{t}$ does not depend on m, v, b.

The presence of an authentic condition of the physical and psychological existence should take the concrete form of the conservative type theory. Indeed, the presented theory is conservative because $\nabla_{\nu}\ln\left(M\rho\frac{df}{d\rho}\right) = 0$.

In the following we define the psychological experience $\left(\tilde{t}\right)$ (psychological time) as a product between the physical time (t) and the capacity of the stimulus to attract the person's attention (I) [12].

$$\tilde{t} = I\left(\tilde{t}\right)t \tag{10}$$

The tensional dynamics is determined by an invariant tensional component and by an adaptive one. Both components assess the effort of the psychological instances to reach the fundamental hedonic state.

The tensional exclusive content of the psychological instances, the functionality and the reason for their existence suggest the following mathematical relations [13]:

for the unconscious instance:

$$\frac{Q\left(\tilde{t}\right)}{R\left(\tilde{t}\right)} = c \tag{11}$$

where $Q(\tilde{t})$ – the tensional equivalent of the implying of the defence mechanism in order to reach and maintain an optimum psychological tension, $R(\tilde{t})$ – the tensional capacity of destructuring of the psychological system, c – a constant of the person.

for the conscious instance:

$$Q(\tilde{t})+R(\tilde{t})=cR(\tilde{t})+R(\tilde{t})=R(\tilde{t})(c+1) \tag{12}$$

The left side of this equation indicates the tensional effort which is necessary in order to carry out the situational comparisons.

for the adaptive component of the tensional dynamics:

$$c+Q(\tilde{t})+R(\tilde{t})=F(\tilde{t}) \tag{13}$$

The tensional dynamics submitted to equilibrium laws assures the premisses of the physical and psychological existence of the person. The informational nature of the psychological system suggests for its dynamics the implying of a scalar field materialized through the contribution of a scalar function $\rho+F(\tilde{t})\rho$ and also of the gradient $\nabla_\lambda\tilde{t}\nabla^\lambda\tilde{t}$. Thus, the form of the tensional action could be conceived as a functional whose variation is null.

$$\Theta=\int\left[\rho+F(\tilde{t})\rho+n\nabla_\lambda\tilde{t}\nabla^\lambda\tilde{t}\right]\sqrt{-g}\left(d^4x\right) \tag{14}$$

$$\delta\Theta=0 \tag{15}$$

where n is a constant.

III. The Relativistic Equations of the Tensional Dynamics. Implications

The following preliminary calculations are used to evaluate the variation of the functional (14):

$$\begin{aligned}&\delta F(\tilde{t})\rho\sqrt{-g}=-\frac{\partial}{\partial x^\nu}\left\{F(\tilde{t})\rho\sqrt{-g}R^\nu_\sigma\delta x^\sigma\right\}+\\&+F(\tilde{t})\rho\sqrt{-g}\left\{R^\nu_\sigma\left[\ln F(\tilde{t})\right]_{,\nu}-W_\sigma\right\}dx^\sigma-\\&-\frac{1}{2}F(\tilde{t})\rho\sqrt{-g}\left\{U_\mu U_\nu\right\}\delta g^{\mu\nu}+\rho\sqrt{-g}F'(\tilde{t})\delta\tilde{t}\end{aligned} \tag{16}$$

$$\begin{aligned}&\delta\left\{\nabla_\lambda\tilde{t}\nabla^\lambda\tilde{t}\sqrt{-g}\right\}=2\frac{\partial}{\partial x^\nu}\left\{\sqrt{-g}g^{\mu\nu}\frac{\partial\tilde{t}}{\partial x^\mu}\delta\tilde{t}\right\}+\\&+\sqrt{-g}\left\{\nabla_\mu\tilde{t}\nabla_\nu\tilde{t}-\frac{1}{2}g_{\mu\nu}\nabla_\lambda\tilde{t}\nabla^\lambda\tilde{t}\right\}\delta g^{\mu\nu}-\\&-2\sqrt{-g}\left\{\frac{1}{\sqrt{-g}}\frac{\partial}{\partial x^\nu}\left(\sqrt{-g}g^{\mu\nu}\frac{\partial\tilde{t}}{\partial x^\mu}\right)\right\}\delta\tilde{t}\end{aligned} \tag{17}$$

$$\delta\rho\sqrt{-g}=\rho\sqrt{-g}\left\{-W_\sigma\right\}\delta x^\sigma-\rho\sqrt{-g}\frac{1}{2}U_\mu U_\nu\delta g^{\mu\nu} \tag{18}$$

where $R^\nu_\sigma=\delta^\nu_\sigma-U_\sigma U^\nu$.

In the following we consider the integral:

$$I=\int R\sqrt{-g}\left(d^4x\right) \tag{19}$$

where R is the curvature scalar $R=R_{\mu\nu}g^{\mu\nu}$ and $R_{\mu\nu}$ are the components of the curvature tensor.

Its variation is:

$$\delta I=\int\left(R_{\mu\nu}-\frac{1}{2}g_{\mu\nu}R\right)\delta g^{\mu\nu}\sqrt{-g}\left(d^4x\right) \tag{20}$$

The relativistic equations are obtained computing the variation of the measure:

$$M=I-\Theta \tag{21}$$

respectively,

$$\begin{aligned}&R_{\mu\nu}-\frac{1}{2}g_{\mu\nu}R=-\frac{1}{2}\left(1+F(\tilde{t})\right)\rho U_\mu U_\nu+\\&+n\left[\nabla_\mu\tilde{t}\nabla_\nu\tilde{t}-\frac{1}{2}g_{\mu\nu}\nabla_\lambda\tilde{t}\nabla^\lambda\tilde{t}\right]\end{aligned} \tag{22}$$

$$\rho\sqrt{-g}F'(\tilde{t})=2n\sqrt{-g}\left\{\frac{1}{\sqrt{-g}}\frac{\partial}{\partial x^\nu}\left(\sqrt{-g}g^{\mu\nu}\frac{\partial\tilde{t}}{\partial x^\mu}\right)\right\} \tag{23}$$

$$R^\nu_\sigma F'(\tilde{t})\nabla_\nu\tilde{t}-\left[1+F(\tilde{t})\right]W_\sigma=0 \tag{24}$$

Using Einstein's equations [2] – [7] – [9] – [14] $R_{\mu\nu}-\frac{1}{2}g_{\mu\nu}R=-\chi T_{\mu\nu}$ and the relation (22) the tensional consistency tensor results:

$$T_{\mu\nu}\equiv\left(1+F(\tilde{t})\right)\rho U_\mu U_\nu-2n\left[\nabla_\mu\tilde{t}\nabla_\nu\tilde{t}-\frac{1}{2}g_{\mu\nu}\nabla_\lambda\tilde{t}\nabla^\lambda\tilde{t}\right] \tag{25}$$

Using (24) we obtain:

$$F(\tilde{t})=-1 \tag{26}$$

The consequences of the relativistic equations are surprising. Thus, taking into account the relations (13) and (26) the following equation results:

$$c+Q(\tilde{t})+R(\tilde{t})=-1 \tag{27}$$

or

$$c+cR(\tilde{t})+R(\tilde{t})=-1 \tag{28}$$

Therefore,

$$R(\tilde{t})=-1 \tag{29}$$

This result shows that the psychological system has a constant capacity for preservation and not for destruction! On the other hand the relation (26) leads to the following interesting relation:

$$F(\tilde{t})=P(\tilde{t}) \tag{30}$$

where $P(\tilde{t})$ – the tensional capacity of preservation of the psychological system.

Using the metrics [12],

$$ds^2=(idt)^2+\frac{4}{\left(o\tilde{t}+p\right)^2}\left[dm^2+dv^2+db^2\right] \tag{31}$$

and taking into account the relation (10), the following alternative form of the relation above results:

$$ds^2 = -\left(\frac{I - \frac{dI}{d\tilde{t}}\tilde{t}}{I^2}\right) d\tilde{t}^2 + \frac{4}{\left(o\tilde{t} + p\right)^2}\left(dm^2 + dv^2 + db^2\right) \quad (32)$$

Using the relations (23) and (26), we obtain:

$$-16I\frac{dI}{d\tilde{t}}\left(o\tilde{t} + p\right)^{-3}\left(I - \frac{dI}{d\tilde{t}}\tilde{t}\right)^{-1} + 24I^2\left(o\tilde{t} + p\right)^{-4} o \cdot$$
$$\cdot\left(I - \frac{dI}{d\tilde{t}}\tilde{t}\right)^{-1} - 8I^2\left(o\tilde{t} + p\right)^{-3}\left(I - \frac{dI}{d\tilde{t}}\tilde{t}\right)^{-2}\frac{d^2I}{d\tilde{t}^2}\tilde{t} = 0 \quad (33)$$

The above equation is satisfied by the relations:

$$o = 0 \quad (34)$$

$$\frac{dI}{d\tilde{t}} = 0 \quad (35)$$

$$I \neq 0 \quad (36)$$

The relation (34) shows that the effort of the defence mechanism in its attempt to reach and maintain an optimum psychological tension is constant! The psychological adaptation is a systemic one, which means that the equilibrium factors do not depend explicitly on the external situational dynamics, but rather, conversely, on the parameters of the psychological system which take into consideration the informational dynamics. In this context the mathematical conclusion seems logical and connects the constant action of the defence mechanism to the necessity of generating and maintaing the information at the unconscious instance level. On the other hand, the relations (35) indicates a maximal potential in the processing of the details of a stimulus, a potential which is meant to preserve the constant of the capacity of the stimulus to attract the person's attention.

The relation (23) is equivalent to:

$$\square\tilde{t} = 0 \quad (37)$$

Thus, the metrics (31) can be also expressed using the following expressions:

$$ds^2 = \left(idt\right)^2 + M\left(\tilde{t}\right)\left[dm^2 + dv^2 + db^2\right] \quad (38)$$

or

$$ds^2 = -\left(\frac{1}{I}\right)^2 d\tilde{t}^2 + M\left(\tilde{t}\right)\left(dm^2 + dv^2 + db^2\right) \quad (39)$$

where $M\left(\tilde{t}\right) = 4\left(\left(\square\tilde{t}\right)\tilde{t} + p\right)^{-2}$

The forms of the metrics (31) suggest the presence of a mechanism which records the psychological experience. This mechanism seems to have no effect on the alteration of the action of the defence mechanism.

On the other hand, using the metrics (32) the following coefficients of the metric tensor result:

$$g_{11} = -\left(\frac{I - \frac{dI}{d\tilde{t}}\tilde{t}}{I^2}\right),\ g_{22} = g_{33} = g_{44} = \left(\frac{2}{o\tilde{t} + p}\right)^2 \quad (40)$$

Taking into account Einstein's equations and the property

$$\nabla_n\left(R^{mn} - \frac{1}{2}g^{mn}R\right) = 0 \quad (41)$$

the components of the conservation equations become:

$$T^{mn}_{,n} = \frac{\partial T^{mn}}{\partial x^n} + \Gamma^m_{sn}T^{sn} + \Gamma^n_{ns}T^{ms} = 0 \quad (42)$$

To compute the relations (42) we use the Christoffel symbols:

$$\Gamma^p_{hk} = \frac{1}{2}g^{lp}\left(\frac{\partial g_{kl}}{\partial x^h} + \frac{\partial g_{lh}}{\partial x^k} - \frac{\partial g_{hk}}{\partial x^l}\right) \quad (43)$$

These are:

$$\Gamma^1_{11} = \frac{1}{2}g^{l1}\left(\frac{\partial g_{l1}}{\partial x^1} + \frac{\partial g_{l1}}{\partial x^1} - \frac{\partial g_{11}}{\partial x^l}\right) = -2\frac{\frac{dI}{d\tilde{t}}}{I} - \frac{\frac{d^2I}{d\tilde{t}^2}\tilde{t}}{I - \frac{dI}{d\tilde{t}}\tilde{t}} \quad (44)$$

$$\Gamma^1_{12} = \frac{1}{2}g^{l1}\left(\frac{\partial g_{l1}}{\partial x^2} + \frac{\partial g_{l2}}{\partial x^1} - \frac{\partial g_{12}}{\partial x^l}\right) = 0 \quad (45)$$

$$\Gamma^1_{13} = \frac{1}{2}g^{l1}\left(\frac{\partial g_{l1}}{\partial x^3} + \frac{\partial g_{l3}}{\partial x^1} - \frac{\partial g_{13}}{\partial x^l}\right) = 0 \quad (46)$$

$$\Gamma^1_{14} = \frac{1}{2}g^{l1}\left(\frac{\partial g_{l1}}{\partial x^4} + \frac{\partial g_{l4}}{\partial x^1} - \frac{\partial g_{14}}{\partial x^l}\right) = 0 \quad (47)$$

$$\Gamma^1_{23} = \frac{1}{2}g^{l1}\left(\frac{\partial g_{l2}}{\partial x^3} + \frac{\partial g_{l3}}{\partial x^2} - \frac{\partial g_{23}}{\partial x^l}\right) = 0 \quad (48)$$

$$\Gamma^1_{24} = \frac{1}{2}g^{l1}\left(\frac{\partial g_{l2}}{\partial x^4} + \frac{\partial g_{l4}}{\partial x^2} - \frac{\partial g_{24}}{\partial x^l}\right) = 0 \quad (49)$$

$$\Gamma^1_{34} = \frac{1}{2}g^{l1}\left(\frac{\partial g_{l3}}{\partial x^4} + \frac{\partial g_{l4}}{\partial x^3} - \frac{\partial g_{34}}{\partial x^l}\right) = 0 \quad (50)$$

$$\Gamma^2_{11} = \frac{1}{2}g^{l2}\left(\frac{\partial g_{l1}}{\partial x^1} + \frac{\partial g_{l1}}{\partial x^1} - \frac{\partial g_{11}}{\partial x^l}\right) = 0 \quad (51)$$

$$\Gamma^2_{12} = \frac{1}{2}g^{l2}\left(\frac{\partial g_{l1}}{\partial x^2} + \frac{\partial g_{l2}}{\partial x^1} - \frac{\partial g_{12}}{\partial x^l}\right) = -o\left(o\tilde{t} + p\right)^{-1} \quad (52)$$

$$\Gamma^2_{13} = \frac{1}{2}g^{l2}\left(\frac{\partial g_{l1}}{\partial x^3} + \frac{\partial g_{l3}}{\partial x^1} - \frac{\partial g_{13}}{\partial x^l}\right) = 0 \quad (53)$$

$$\Gamma^2_{14} = \frac{1}{2}g^{l2}\left(\frac{\partial g_{l1}}{\partial x^4} + \frac{\partial g_{l4}}{\partial x^1} - \frac{\partial g_{14}}{\partial x^l}\right) = 0 \quad (54)$$

$$\Gamma^2_{23} = \frac{1}{2}g^{l2}\left(\frac{\partial g_{l2}}{\partial x^3} + \frac{\partial g_{l3}}{\partial x^2} - \frac{\partial g_{23}}{\partial x^l}\right) = 0 \quad (55)$$

$$\Gamma^2_{24} = \frac{1}{2}g^{l2}\left(\frac{\partial g_{l2}}{\partial x^4} + \frac{\partial g_{l4}}{\partial x^2} - \frac{\partial g_{24}}{\partial x^l}\right) = 0 \quad (56)$$

$$\Gamma_{34}^{2}=\frac{1}{2}g^{l2}\left(\frac{\partial g_{l3}}{\partial x^{4}}+\frac{\partial g_{l4}}{\partial x^{3}}-\frac{\partial g_{34}}{\partial x^{l}}\right)=0 \tag{57}$$

$$\Gamma_{11}^{3}=\frac{1}{2}g^{l3}\left(\frac{\partial g_{l1}}{\partial x^{1}}+\frac{\partial g_{l1}}{\partial x^{1}}-\frac{\partial g_{11}}{\partial x^{l}}\right)=0 \tag{58}$$

$$\Gamma_{12}^{3}=\frac{1}{2}g^{l3}\left(\frac{\partial g_{l1}}{\partial x^{2}}+\frac{\partial g_{l2}}{\partial x^{1}}-\frac{\partial g_{12}}{\partial x^{l}}\right)=0 \tag{59}$$

$$\Gamma_{13}^{3}=\frac{1}{2}g^{l3}\left(\frac{\partial g_{l1}}{\partial x^{3}}+\frac{\partial g_{l3}}{\partial x^{1}}-\frac{\partial g_{13}}{\partial x^{l}}\right)=-o\left(o\tilde{t}+p\right)^{-1} \tag{60}$$

$$\Gamma_{14}^{3}=\frac{1}{2}g^{l3}\left(\frac{\partial g_{l1}}{\partial x^{4}}+\frac{\partial g_{l4}}{\partial x^{1}}-\frac{\partial g_{14}}{\partial x^{l}}\right)=0 \tag{61}$$

$$\Gamma_{23}^{3}=\frac{1}{2}g^{l3}\left(\frac{\partial g_{l2}}{\partial x^{3}}+\frac{\partial g_{l3}}{\partial x^{2}}-\frac{\partial g_{23}}{\partial x^{l}}\right)=0 \tag{62}$$

$$\Gamma_{24}^{3}=\frac{1}{2}g^{l3}\left(\frac{\partial g_{l2}}{\partial x^{4}}+\frac{\partial g_{l4}}{\partial x^{2}}-\frac{\partial g_{24}}{\partial x^{l}}\right)=0 \tag{63}$$

$$\Gamma_{34}^{3}=\frac{1}{2}g^{l3}\left(\frac{\partial g_{l3}}{\partial x^{4}}+\frac{\partial g_{l4}}{\partial x^{3}}-\frac{\partial g_{34}}{\partial x^{l}}\right)=0 \tag{64}$$

$$\Gamma_{11}^{4}=\frac{1}{2}g^{l4}\left(\frac{\partial g_{l1}}{\partial x^{1}}+\frac{\partial g_{l1}}{\partial x^{1}}-\frac{\partial g_{11}}{\partial x^{l}}\right)=0 \tag{65}$$

$$\Gamma_{12}^{4}=\frac{1}{2}g^{l4}\left(\frac{\partial g_{l1}}{\partial x^{2}}+\frac{\partial g_{l2}}{\partial x^{1}}-\frac{\partial g_{12}}{\partial x^{l}}\right)=0 \tag{66}$$

$$\Gamma_{13}^{4}=\frac{1}{2}g^{l4}\left(\frac{\partial g_{l1}}{\partial x^{3}}+\frac{\partial g_{l3}}{\partial x^{1}}-\frac{\partial g_{13}}{\partial x^{l}}\right)=0 \tag{67}$$

$$\Gamma_{14}^{4}=\frac{1}{2}g^{l4}\left(\frac{\partial g_{l1}}{\partial x^{4}}+\frac{\partial g_{l4}}{\partial x^{1}}-\frac{\partial g_{14}}{\partial x^{l}}\right)=-o\left(o\tilde{t}+p\right)^{-1} \tag{68}$$

$$\Gamma_{23}^{4}=\frac{1}{2}g^{l4}\left(\frac{\partial g_{l2}}{\partial x^{3}}+\frac{\partial g_{l3}}{\partial x^{2}}-\frac{\partial g_{23}}{\partial x^{l}}\right)=0 \tag{69}$$

$$\Gamma_{24}^{4}=\frac{1}{2}g^{l4}\left(\frac{\partial g_{l2}}{\partial x^{4}}+\frac{\partial g_{l4}}{\partial x^{2}}-\frac{\partial g_{24}}{\partial x^{l}}\right)=0 \tag{70}$$

$$\Gamma_{34}^{4}=\frac{1}{2}g^{l4}\left(\frac{\partial g_{l3}}{\partial x^{4}}+\frac{\partial g_{l4}}{\partial x^{3}}-\frac{\partial g_{34}}{\partial x^{l}}\right)=0 \tag{71}$$

$$\Gamma_{22}^{2}=\frac{1}{2}g^{l2}\left(\frac{\partial g_{l2}}{\partial x^{2}}+\frac{\partial g_{l2}}{\partial x^{2}}-\frac{\partial g_{22}}{\partial x^{l}}\right)=0 \tag{72}$$

$$\Gamma_{33}^{3}=\frac{1}{2}g^{l3}\left(\frac{\partial g_{l3}}{\partial x^{3}}+\frac{\partial g_{l3}}{\partial x^{3}}-\frac{\partial g_{33}}{\partial x^{l}}\right)=0 \tag{73}$$

$$\Gamma_{44}^{4}=\frac{1}{2}g^{l4}\left(\frac{\partial g_{l4}}{\partial x^{4}}+\frac{\partial g_{l4}}{\partial x^{4}}-\frac{\partial g_{44}}{\partial x^{l}}\right)=0 \tag{74}$$

$$\Gamma_{22}^{1}=\Gamma_{33}^{1}=\Gamma_{44}^{1}=-4I^{4}\left(I-\frac{dI}{d\tilde{t}}\tilde{t}\right)^{-2}o\left(o\tilde{t}+p\right)^{-3} \tag{75}$$

Taking into account the relation (26) the expression for the tensional consistency tensor results:

$$T^{\mu\nu}=-2n\left(\nabla^{\mu}\tilde{t}\nabla^{\nu}\tilde{t}-\frac{1}{2}g^{\mu\nu}\nabla_{\lambda}\tilde{t}\nabla^{\lambda}\tilde{t}\right) \tag{76}$$

or

$$T^{11}=-2n\left(\nabla^{1}\tilde{t}\nabla^{1}\tilde{t}-\frac{1}{2}g^{11}\nabla_{\lambda}\tilde{t}\nabla^{\lambda}\tilde{t}\right)=H\left(g^{11}\right)^{2} \tag{77}$$

where H is a constant.

$$T^{22}=-2n\left(\nabla^{2}\tilde{t}\nabla^{2}\tilde{t}-\frac{1}{2}g^{22}\nabla_{\lambda}\tilde{t}\nabla^{\lambda}\tilde{t}\right)=ng^{22}g^{11} \tag{78}$$

$$T^{33}=-2n\left(\nabla^{3}\tilde{t}\nabla^{3}\tilde{t}-\frac{1}{2}g^{33}\nabla_{\lambda}\tilde{t}\nabla^{\lambda}\tilde{t}\right)=ng^{33}g^{11} \tag{79}$$

$$T^{44}=-2n\left(\nabla^{4}\tilde{t}\nabla^{4}\tilde{t}-\frac{1}{2}g^{44}\nabla_{\lambda}\tilde{t}\nabla^{\lambda}\tilde{t}\right)=ng^{44}g^{11} \tag{80}$$

$$T^{12}=-2n\left(\nabla^{1}\tilde{t}\nabla^{2}\tilde{t}-\frac{1}{2}g^{12}\nabla_{\lambda}\tilde{t}\nabla^{\lambda}\tilde{t}\right)=0 \tag{81}$$

$$T^{13}=-2n\left(\nabla^{1}\tilde{t}\nabla^{3}\tilde{t}-\frac{1}{2}g^{13}\nabla_{\lambda}\tilde{t}\nabla^{\lambda}\tilde{t}\right)=0 \tag{82}$$

$$T^{14}=-2n\left(\nabla^{1}\tilde{t}\nabla^{4}\tilde{t}-\frac{1}{2}g^{14}\nabla_{\lambda}\tilde{t}\nabla^{\lambda}\tilde{t}\right)=0 \tag{83}$$

$$T^{23}=-2n\left(\nabla^{2}\tilde{t}\nabla^{3}\tilde{t}-\frac{1}{2}g^{23}\nabla_{\lambda}\tilde{t}\nabla^{\lambda}\tilde{t}\right)=0 \tag{84}$$

$$T^{24}=-2n\left(\nabla^{2}\tilde{t}\nabla^{4}\tilde{t}-\frac{1}{2}g^{24}\nabla_{\lambda}\tilde{t}\nabla^{\lambda}\tilde{t}\right)=0 \tag{85}$$

$$T^{34}=-2n\left(\nabla^{3}\tilde{t}\nabla^{4}\tilde{t}-\frac{1}{2}g^{34}\nabla_{\lambda}\tilde{t}\nabla^{\lambda}\tilde{t}\right)=0 \tag{86}$$

The components $T_{,n}^{mn}$ become:

$$T_{,1}^{11}=\frac{\partial T^{11}}{\partial x^{1}}+2\Gamma_{11}^{1}T^{11}=\frac{\partial T^{11}}{\partial x^{1}}+4n\left(2\frac{\frac{dI}{d\tilde{t}}}{I}+\frac{\frac{d^{2}I}{d\tilde{t}^{2}}\tilde{t}}{I-\frac{dI}{d\tilde{t}}\tilde{t}}\right)\cdot \left(\nabla^{1}\tilde{t}\nabla^{1}\tilde{t}-\frac{1}{2}g^{11}\nabla_{\lambda}\tilde{t}\nabla^{\lambda}\tilde{t}\right) \tag{87}$$

$$T_{,2}^{12}=\frac{\partial T^{12}}{\partial x^{2}}+\Gamma_{22}^{1}T^{22}+\Gamma_{21}^{2}T^{11}=o\left(o\tilde{t}+p\right)^{-1}I^{8}\cdot \cdot\left(I-\frac{dI}{d\tilde{t}}\tilde{t}\right)^{-4}\left(n-H\right) \tag{88}$$

$$T_{,3}^{13}=\frac{\partial T^{13}}{\partial x^{3}}+\Gamma_{33}^{1}T^{33}+\Gamma_{31}^{3}T^{11}=o\left(o\tilde{t}+p\right)^{-1}I^{8}\cdot \cdot\left(I-\frac{dI}{d\tilde{t}}\tilde{t}\right)^{-4}\left(n-H\right) \tag{89}$$

$$T_{,4}^{14}=\frac{\partial T^{14}}{\partial x^{4}}+\Gamma_{44}^{1}T^{44}+\Gamma_{41}^{4}T^{11}=o\left(o\tilde{t}+p\right)^{-1}I^{8}\cdot \cdot\left(I-\frac{dI}{d\tilde{t}}\tilde{t}\right)^{-4}\left(n-H\right) \tag{90}$$

Using the relations (87)–(90) the conservation equation becomes:

$$\frac{\partial T^{11}}{\partial x^1}+$$

$$+4n\left(2\frac{\frac{dI}{d\tilde{t}}}{I}+\frac{\frac{d^2I}{d\tilde{t}^2}\tilde{t}}{I-\frac{dI}{d\tilde{t}}\tilde{t}}\right)\left(\nabla^1\tilde{t}\nabla^1\tilde{t}-\frac{1}{2}g^{11}\nabla_\lambda\tilde{t}\nabla^\lambda\tilde{t}\right)+ \qquad (91)$$

$$+3o\left(o\tilde{t}+p\right)^{-1}I^8\left(I-\frac{dI}{d\tilde{t}}\tilde{t}\right)^{-4}\left(n-H\right)=0$$

If $o=0$, a particular solution of the equation (91) results from:

$$g^{11}=\frac{2\left(\nabla^1\tilde{t}\nabla^1\tilde{t}-m\right)}{\nabla_\lambda\tilde{t}\nabla^\lambda\tilde{t}} \qquad (92)$$

– where m is a constant – replacing I with V ($V-$the time necessary for the activation of a psychological pulsion) – if $\frac{dI}{d\tilde{t}}=\frac{dV}{d\tilde{t}}=0$. In this case

$$\nabla^1\tilde{t}=\tilde{\nabla}^1\tilde{t} \qquad (93)$$

$$-\frac{V^4}{\left(V-\frac{dV}{d\tilde{t}}\tilde{t}\right)^2}=\frac{2\left(\nabla^1\tilde{t}\nabla^1\tilde{t}-m\right)}{\nabla_\lambda\tilde{t}\nabla^\lambda\tilde{t}} \qquad (94)$$

Therefore,

$$V=\sqrt{\left(\tilde{\nabla}^1\tilde{t}\right)} \qquad (95)$$

At the level of the human species $\left(\tilde{\nabla}^1\tilde{t}\right)$ will be interpreted as a parameter. Why does the solution (95) present psychological significance? Because the psychological buildup is invincible over the whole existence of the person. The unconscious instance and the conscious one, as components of the psychological system, process the information of the stimulus type in a similar way – in time! This behaviour – manifested through constant measures – assures the invincibility of the psychological system.

How could the number $\sqrt{\tilde{\nabla}^1\tilde{t}}$ be interpreted? Any person processes permanently internal and/or external stimuli. The capacity of the stimulus to attract attention is governed by the existence of a psychological lack of balance. What generates the psychological lack of balance? This psychological state is dependent on the activation of the psychological pulsions. Since the capacity of the stimulus to attract attention is a constant and the psychological system processes stimuli permanently in an unconscious and/or a conscious manner we could interpret the value $\sqrt{\tilde{\nabla}^1\tilde{t}}$ as being the time necessary for the activation of a psychological pulsion. This time is a constant per person.

The only psychological component which gives the variability of the external psychological behaviour is the interpreter. Why? Because it is neccesary for any person to be endowed with optimism and the interpreter supplies it. How? Through the modulation of the psychological tension and of the nature of the psychological experience. For any person, the optimism – seen as a desire to carry out experiments – must hit two important targets, respectively the perpetuation and/or the progress of the human species.

Using the relation (23) other important consequences result. Under relation (26), the relativistic equation (23), replacing I with V, takes the form:

$$V^2\left(V-\frac{dV}{d\tilde{t}}\tilde{t}\right)^{-1}\left(o\tilde{t}+p\right)^{-3}=N \qquad (96)$$

where N is a constant of the human species.

The constant p which appears in the metrics (32) must be understood as an unconscious psychological experience. The equation above, together with the conditions (34) leads to the following expression of p:

$$p=\sqrt[3]{\frac{\sqrt{\tilde{\nabla}^1\tilde{t}}}{N}} \qquad (97)$$

How could this result be interpreted? The relation (97) contains two factors; an inert factor – $\sqrt[3]{\frac{1}{N}}$ – which can be interpreted as the level of the unconscious psychological experience specific to the human species and an oneness factor – $\sqrt[6]{\tilde{\nabla}^1\tilde{t}}$ – which is meant to individualize the unconscious psychological experience at the level of the person.

The relation [12] of the psychological experience

$$p=Vt \qquad (98)$$

leads to the expression of the time which is necessary for the unconscious instance to process the information of the stimulus.

$$t=\frac{\sqrt[3]{\frac{\sqrt{\tilde{\nabla}^1\tilde{t}}}{N}}}{\sqrt{\tilde{\nabla}^1\tilde{t}}} \qquad (99)$$

The ratio between the unconscious psychological experience (psychological time) and the physical time is:

$$\frac{p}{t}=\sqrt{\tilde{\nabla}^1\tilde{t}} \qquad (100)$$

On the other hand, at the level of the conscious instance the condition of invincibility $\frac{dI}{d\tilde{t}}=0$ – as a consequence of the relation (27) – is maintained. The same relations (97), (99) exist at the level of the conscious instance too. What is the reason for the presence of an instance which functions identically with the unconscious one? The difference appears at the level of the psychological products which are processed by these instances. The conscious instance processes instincts and difuse activisms whereas the unconscious one processes pulsions. The instincts and the diffuse activisms are superior forms of processing of the pulsions. The circuit generation-

tensional annihilation is represented by the following transformations: pulsion-instinct-diffuse activism-emergent behaviour of tensional annihilation. The tensional equilibrium at the conscious instance level and at the unconscious one is expressed by the following mathematical relations:

$$v_p = v_i \tag{101}$$

$$v_i = v_{ad} \tag{102}$$

$$v_{ad} = v_c \tag{103}$$

where v_p – the speed of the activation of pulsions, v_i – the speed of the activation of instincts, v_{ad} – the speed of the activation of diffuse activisms and v_c – the speed of the generation of the emergent behaviours of tensional annihilation.

IV. Conclusion

1) The psychological system functions with a perfectly preserved component and with an interpreter type which has to maintain, at the level of the person, the desire to experiment tensional states. The purpose of the interpreter type component is the assurance of the progress of the human species;
2) The tensional psychological state depends on a minimal tension, as an inert component, which is determined by the capacity of the person to generate information in her area of existence; it is further modulated by the activity of the psychological instances which generates the active component of the tensional psychological state;
3) The psychological system has a constant capacity for conservation (see relation 29) which reinforces the idea of a psychological predetermination operating intra and interpersonally at the informational level, without explicitly doing so at the situational level;
4) The action of the defence mechanism involved in the tensional psychological regulation is constant. (see relation (34)). This seems to open a new perspective in psychology, linked exclusively to its role. The role of the defence mechanism should be sought in its capacity to integrate the informational dynamics into the psychological system. The components of the psychological system exist through the information that they process. The mechanism of tensional regulation is of an unconscious nature. Consequently, the role of the action of the defence mechanism (of the tensional adjustment) is limited to the production of information necessary for the conservation of the functionality of the unconscious instance;
5) The capacity of the stimulus to draw the person's attention is a constant; this suggests a maximal capacity of unconscious processing of the details of a stimulus. Attention operates at the conscious level, being triggered by that part of the details of the stimulus that is amenable to be interpreted in terms of agreeable/disagreeable;
6) The psychological system is multiple coded. These codes indicate an essential psychological signification which is un-altered by the pleasure principle and a conjuncture signification dominated by pleasure and un-pleasure. The cold information preserves perfectly the conscious instance and the unconscious one whereas the functionality of the interpreter type instance is affected by the perception of agreeable and disagreeable. The functionality of the conscious instance and of the unconscious one is ensured in the same functional parameters represented by the time necessary of the activation of a pulsion or of an instinct, the level of the unconscious psychological experience and the processing time of a stimulus. The specific values for each of these parameters are:
   - the capacity of the stimulus to attract the person's attention:
     at the level of the human species: 1[time];
     at the level of the person: $\sqrt{\tilde{\nabla}^1\tilde{t}}$ [time];
   - the time necessary for the activation of a psychological pulsion:
     at the level of the person: $\sqrt{\tilde{\nabla}^1\tilde{t}}$ [time];
   - the psychological experience at the level of the unconscious instance:
     at the level of the human species: $\sqrt[3]{\frac{1}{N}}$ [time]$\times$[time];
     at the level of the person: $\sqrt[6]{\frac{\tilde{\nabla}^1\tilde{t}}{N^2}}$ [time]$\times$[time];
   - the time necessary for processing the information of the stimulus at the level of the unconscious instance:
     at the level of the human species: $\sqrt[3]{\frac{1}{N}}$ [time];
     at the level of the person: $\sqrt[6]{\frac{1}{\left(\tilde{\nabla}^1\tilde{t}\right)^2 N^2}}$ [time].
7) The result (39) applies at the level of the interpreter instance. This instance is the only one which operates with variable measures.

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