

# Conformal scaling of the massformula in terms of the flat metric in the black-white plane of psychological profiles.

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October 22, 2018

## Abstract

Black-white or yellow-black representing spiritual energies of living creatures automatically determine an Einsteinian spiritual mass. During  $SU(2)$  valued interactions, the spiritual rest mass of a person may change due to absorption or radiative effects. We propose a general approximate formula based upon scaling covariance of the interactions for the rest mass.

## 1 Introduction.

In non-abelian gauge theory with spinor fields, one disposes on an interesting symmetry; scaling of the spinor field by a factor  $\lambda$  can be undone by a rescaling of the metric on the representation space by a factor  $\lambda^{-2}$ . This requires the term  $\gamma^i e_i^\mu A_{\mu a} \tau^a$  to remain invariant given that the Dirac operator does. Henceforth, given that the metric on spacetime does not alter, the gauge covariant derivative does neither and likewise does the field strength  $F_{\mu\nu a}$  which is the commutator of both covariant derivatives. Taking the trace

$$\text{Tr}(\mathbf{F}_{\mu\nu} g^{\mu\kappa} g^{\nu\zeta} \mathbf{F}_{\kappa\zeta})$$

gives then a scalar invariant. On the other hand, rescaling the spinor field by  $\lambda$  and the spacetime metric by  $\lambda^{2\alpha}$  scales the interaction term by  $\lambda^{3\alpha+2}$  which suggests  $\alpha$  to be  $-\frac{2}{3}$ . The gauge kinetic term is conformally invariant in four dimensions in the absence of a Higgs field. One could also combine the scalings

$$\lambda^{3\alpha+2}$$

where only a rescaling of the spacetime and representation metric happen  $g_{\mu\nu} \rightarrow \lambda^{2\alpha} g$  and  $h_{rs} \rightarrow \lambda^2 h_{rs}$  which also results in  $\alpha = -\frac{2}{3}$ . The spatial energy then scales as  $\lambda^{-3\frac{2}{3}+2} = \lambda$  which suggests effective formulae which we shall derive below.

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## 2 Phenomenology explained by theory.

Suppose one has  $N$  persons and one resorts to the dipole ‘‘Coulomb’’ approximation where the spatially integrated densities

$$\Phi_i := \frac{\int_{\mathcal{B}_i} \Phi(x) \sqrt{h(x)} d^3 \vec{x}}{\sqrt{\int_{\mathcal{B}_i} \sqrt{h(x)} d^3 \vec{x}}}$$

as two vectors with black-white components integrated over the spatial bodies of the person and with  $\Phi(x)$  of slow variation over the body, determine the effective psychic content of the person. Then, on basis of conformal invariance and the absence of dimensionful parameters

$$M_i^2 = \|\Phi_i\|^2 + a_{ij} \sum_{j \neq i} \langle \Phi_i | \Phi_j \rangle + b_{ij} \sum_{j \neq i} \|\Phi_i\| \|\Phi_j\| + c_{ij} \sum_{j \neq i} \|\phi_j\|^2$$

is the most general formula possible where the  $a_{ij}, b_{ij}, c_{ij}$  are coupling functions depending upon other physico-spiritual entities as well as an average distance between the bodies using the length scales set by the coupling constants of the theory. In a way, those are needed to include the last term which does not depend upon  $\Phi_i$  given that otherwise  $b_{ij} > |a_{ij}| > 0$  given that otherwise  $M_i^2$  can always become negative which is forbidden. This conclusion cannot be valid as  $M_i^2$  would always increase in the presence of other entities which is clearly false given that radiative effects lower the mass in a  $U(1)$ , and therefore in any theory. The coupling functions vanish in the limit for distances  $r_{ij}$  going to infinity and one must conclude from this formula that  $b_{ij}, c_{ij}$  go to zero if  $\|\Phi_j\|$  goes to infinity and  $\langle \Phi_i | \Phi_j \rangle = 0$ . This happens for example when a black spirit meets a giant white one. There exist several interesting considerations; experience dictates that sexuality plays an important role in the interactions. Modelling it by means of a binary variable  $S_i$  where  $S_i = -1$  if and only if the subject is male and  $+1$  if it is female, then a simple expansion gives

$$a_{ij}(r_{ij}, S_i, S_j) = \frac{\tilde{a}_{ij} + \hat{a}_{ij} S_i + \dots}{r_{ij}}$$

and likewise so for  $b_{ij}, c_{ij}$  must, however be of the form

$$c_{ij}(r_{ij}, S_i, S_j) = \frac{\hat{c}_{ij} S_i + \dots}{r_{ij}}$$

given that it must contain further information about  $i$ . Resorting terms gives

$$M_i^2 = \|\Phi_i\|^2 + \sum_{i \neq j} \frac{\tilde{a}_{ij} \langle \Phi_i | \Phi_j \rangle + \tilde{b}_{ij} \|\Phi_i\| \|\Phi_j\|}{r_{ij}} + S_i \sum_{i \neq j} \frac{\hat{a}_{ij} \langle \Phi_i | \Phi_j \rangle + \hat{b}_{ij} \|\Phi_i\| \|\Phi_j\| + \hat{c}_{ij} \|\Phi_j\|^2}{r_{ij}}$$

leading to the conclusion that  $\tilde{b}_{ij} < 0$  and  $\tilde{a}_{ij} > |\tilde{b}_{ij}|$  for reasons mentioned before. Obviously, due to the quadratic nature  $\hat{c}_{ij} > 0$  and  $|\hat{b}_{ij}| < \hat{c}_{ij}, \hat{a}_{ij}$  as well as  $0 < \hat{a}_{ij}$  (positive self interaction). It is also most likely due that

$$\hat{a}_{ij} + \hat{b}_{ij} + \hat{c}_{ij} \sim 0$$

meaning that self admiration is mostly sex-symmetric. Also, we assume that the first correction always dominates the second one. This formula then confirms the following observations:

- white male - white female increase their individual spiritual rest energy unless their spiritual strength differs extremely significantly; moreover, the females are more spiritual than males resulting in pieceful strong galant males and nervous females
- white male - black female decrease their spiritual rest energy with more spiritual females as males. The well known phenomenon of talkative small woman and big men falling asleep.
- white male - white male leads in general to rest energy increase.
- white male - black male leads to rest energy decrease on both sides with a lesser effect on the white side given that white males are usually more spiritual than black ones.
- white female - black female, in general decrease of individual rest energy but less so than with males.
- white female - black male, in general decrease of individual rest energy but less so with the female than male. This results often in black men weakening their white jewel with chemical substances.
- white female - white female, leads to mutual enhancement and more than with males which results in physically active females as opposed to their male counterparts.
- black male - black female, same as white male-female.

I have experienced these observations to be correct and given that they follow more or less from very simple considerations, I deem it appropriate to spend due attention to this unbroken  $SU(2)$  model.

## References

- [1] J. Noldus, Foundations of science with applications in sociology and medicine, Amazon.