Defining Aesthesis Mathematically

For the variable X in the system, integrablized using Gore 2018,

[Note for integrablizing meaningful variables & their activities including functions using Gore 2018,
-all system is quantifiably continuous in general system variable from primordial null variable-activity, via universal system variable-activity through to all variables themselves & their axes as there is continuing infinite variation from the system through to the infinitesimals given neutral infinite variation at the system origin from plain equality conjecture (Gore 2018). This leads system entities & phenomena to be quantified as activities over system points & compared with respect to their activities to yield the ultimate continuous quantitatively ordered system along with its qualitative description;
- unification is ultimately essential content & resource for emergent meaning for any entity or system; continuous ultimate unification corresponds to ultimate continuous integrability, e.g., of system variables & their functions;
-the system could thus, be partitioned into successively meaningful i.e. increasingly unified-integrable variables & their such activities matching in pattern normally or complex way, from general original to intermediate through to the ultimate evolutionary teleology;
-as all the parallel activities are neutrally additive & horizontally continuous, the meaningful integrable functions suggested above could be used instead of additives.]

- **System & Definitions:-**

Consider the set of system atoms of index j, corresponding to set of i^{th} variables x_i, with s_i self-ness to x_i, x-act_i or x-activity including their magnitudes, changes $\Delta_x$and other activities associated with them, where,

$$x - act_i^{total} = \sum_j x - activity_{j,i} = \int_j x - activity_{j,i} dj_{j,i}$$

$$= \int_j s_i \cdot x - act_{i,j}^{active}\, dj, \text{ where,}$$

$$s_i = x - act_i(definition(x_i)) = \sum_j x - activity_{j,i} definitional = \int_j x - activity_{j,i} definitional.\, dj_{j,i}$$

$$x - act_i^{active} = x - act_i(post - definitional\ activity) = \sum_j x - activity - active_{j,i} = \int_j x - activity - active_{j,i} dj_{j,i}$$

$$\Delta_x = \sum_j \Delta x - activity_{j,i} definitional \wedge active = \int_j \Delta x - activity_{j,i} dj_{j,i}$$

$$p_{j,i} = (definitional\ \&\ active\ \overrightarrow{sign}(x_{j,i})) - act_{p,j,i}/1$$

$$p_{j,i} = {(definitional\ \&\ active\ \overrightarrow{sign}(x_{j,i}) - activity)}\Big/_1$$

- **The total general fitness defined in terms Sign fitnesses and their relation to the Sexwise fitnesses:-**

$$total\ general\ fitness = [selfness\ of\ variable\ x][x - activity] = \sum_{i,j} s_i \cdot x - act_{i,j}$$

$$total\ general\ fitness\ (x) = \int_i \int_j (|p \vee n \equiv sgn|)_{j,i} \{s_i \cdot x - act_{j,i}\} \cdot djdi$$
$$= \int_i \int_{p=-\infty}^{p=\infty} [(|p_{p,j,i} \leq 0|)\{s_i \cdot x - act_{p,j,i}\} + (|n|_{p,j,i})\{s_i \cdot x - act_{p,j,i}\} + (p_{p,j,i} > 0)\{s_i \cdot x - act_{p,j,i}\}]\, dpdi$$

$$= \int_i \int_j \int_{p=-\infty}^{p=\infty} (|p_{p,j,i} \leq 0|)\, \{s_i \cdot x - act_{j,i}\} \cdot dpdjdi + \int_i \int_j \int_{p=-\infty}^{p=+\infty} (|n|_{n,j,i})\, \{s_i \cdot x - act_{j,i}\} \cdot dpdjdi + \int_i \int_j \int_{p=-\infty}^{p=+\infty} (p_{p,j,i} > 0)\, \{s_i \cdot x - act_{j,i}\} \cdot dpdjdi$$

i.e respectively,

$$total\ general\ fitness =$$

$$(female\ dynamic\ fitness, x - net \leq 0 \wedge x - act > 0,\ p_{j,i} \leq 0, \Delta_x < 0) +$$
$$(female\ static\ fitness\ i.e. with\ x - net \leq 0 \wedge x - act > 0 \wedge\ p_{j,i} \leq 0,\ \Delta_x = 0)$$
$$+(\ null\ neuter - hermaphrodite\ fitness\ with\ x - net = 0 \wedge x - act = 0 \wedge\ n_{j,i} > 0\ \&\ \Delta_x = 0)$$
$$+ (massed\ neuter - hermaphrodite\ fitness\ with\ x - net > 0 \wedge x - act > 0 \wedge n_{j,i} > 0\ \&\ \Delta_x = 0)$$
$$+(male\ static\ fitness\ with\ x - net > 0 \wedge x - act > 0 \wedge\ p_{j,i} > 0\ \&\ \Delta_x = 0)$$
$$+ \ (male\ dynamic\ fitness\ x - net > 0 \wedge x - act > 0, p_{j,i} > 0,\ \Delta_x > 0)$$
$$+ (other\ intermediate\ fitnesses : (|inter| > 0) \wedge\ [(-\infty = p_{min}) < (p \neq 0) < (p_{max} = +\infty)] \wedge (n\ \neq \pm \infty))\ ;$$

$$= \int_i \int_{p\vee n} (|fem > 0\ \ i.e.\ p \leqslant 0|)_{p\vee n,j,i} \cdot x - act^{active}_{p\vee n,j,i} \cdot d(p \vee n)di + \int_i \int_{p\vee n} (|neu = n > 0|)_{p\vee n,j,i} \cdot x - act^{active}_{p\vee n,j,i} d(p \vee n)di + \int_i \int_{inter \equiv p\vee n} (|inter > 0|)_{p\vee n,j,i} \cdot x - act^{active}_{p\vee n,j,i} \cdot d(p \vee n)di + \int_i \int_{p\vee n} (|mel = p > 0|)_{p\vee n,j,i} \cdot x - act^{active}_{p\vee n,j,i} \cdot d(p \vee n)di$$

$$= \int_i \int_{p\vee n} (|sx|)_{p\vee n,j,i} \cdot x - act^{active}_{p\vee n,j,i} \cdot d(p \vee n)di = \int_i \int_{sx} (|sx|)_{p\vee n,j,i} \cdot x - act^{active}_{p\vee n,j,i} \cdot d(sx)di$$

- **Total General Fitness in terms of Aesthetic/Strength Fitnesses:-**

$totalgeneralfitness = \int_i \int_j \int_{b=f}^{b=a} (|p \vee n|)_{b,p,j,i} \cdot s_i \cdot x - act_{b,p,j,i} \cdot dbdjdi$ where,
b towards its negative minimum f is intensity directional and b towards its maximum a, is aesthetic and anti-intense.

$$b(x) = beauty(x) = \int_i \int_j \left(|p_{j,i} - act| : p_{j,i} \leq 0\right)_{j,i} \cdot s_{j,i} \cdot x - act^{active}_{j,i} \cdot d(j \vee p)di$$

=

$affluence(x) = aff(x) = \int_i \int_{b=f}^{b=a} \left(|p_{j,i} - act| : p_{j,i} \leq 0, i.e. af > 0\right)_{j,i} \cdot s_{j,i} \cdot x - act_{p,j,i}^{active} \cdot d(p)di$

$affluence(x) = aff(x) = \int_i \int_{p \vee n} ((|n: |n| > 0| \wedge p = 0) \vee p < 0)_{p\vee n,j,i} \cdot x - act_{p\vee n,j,i}^{active} d(p \vee n)di$

$fitness(x) = ft(x) = \int_i \int_{itn=-\infty:b=a}^{itn=+\infty:b=f} (|(itn > 0|)_{itn,j,i} \cdot x - act_{itn,j,i}^{active} \cdot d(itn)di$ where, $intensity\ coefficient, itn_{itn,j,i} = p_{itn,j,i} = p_{p,j,i}$

$fitness(x) = ft(x) = \int_i \int_{p\vee n} (|p > 0|)_{p\vee n,j,i} \cdot x - act_{p\vee n,j,i}^{active} \cdot d(p \vee n)di$

$\boldsymbol{total\ general\ fitness} = \boldsymbol{aff(x) + ft(x)}$=

$$\int_i \int_{p\vee n} (|p \leqslant 0|)_{p\vee n,j,i} \cdot x - act_{p\vee n,j,i}^{active} \cdot d(p \vee n)di + \int_i \int_{p\vee n} (|p > 0|)_{p\vee n,j,i} \cdot x - act_{p\vee n,j,i}^{active} \cdot d(p \vee n)di$$

$$= \int_{\boldsymbol{i}} \int_{\boldsymbol{af\vee int}} (|\boldsymbol{af} = -\boldsymbol{int}| = |\boldsymbol{str}|)_{\boldsymbol{p\vee n,j,i}} \cdot \boldsymbol{x} - \boldsymbol{act_{p\vee n,j,i}^{active}} \cdot \boldsymbol{d(af \vee int)di}$$

$totalgeneralfitness = ft(x) + aff(x)$=
$\int_i \int_j \int_{p>0} |p_{p,j,i}|\, x - act_{p,j,i} \cdot dpdjdi + \int_i \int_j \int_{p=-\infty}^{p=0} |p \vee n|_{p,j,i} \cdot x - act_{p,j,i} \cdot d(p \vee n)djdi$, i.e. respectively,

= Fitness (Including survival and reproductive success) + Aesthetic Fitness

- **Equalities of Total General Fitness with Sign, Sex-wise & Strength fitnesses**

& as $(sgn) = (sx) = (str)\ as\ by\ definitions, ((p = mel = int = -af = -fem = -p)] \vee [(sgn\ n \equiv p = 0) = (sx\ neu \equiv (fem = mel = 0)) = (str\ 0 \equiv (af = int = 0))] \vee [sgn\ inter = sx\ inter = str\ inter \equiv p\ \&\ n\ inter])$,

$\boldsymbol{total\ general\ fitness}\ (\boldsymbol{x}) = \int_{\boldsymbol{i}} \int_{\boldsymbol{j}} (|\boldsymbol{p} \vee \boldsymbol{n}|)_{\boldsymbol{j,i}} \{\boldsymbol{s_i} \cdot \boldsymbol{x} - \boldsymbol{act_{j,i}}\} \cdot \boldsymbol{djdi}$
$= \int_{\boldsymbol{i}} \int_{\boldsymbol{sgn}} (|\boldsymbol{sgn}|)_{\boldsymbol{j,i}} \{\boldsymbol{s_i} \cdot \boldsymbol{x} - \boldsymbol{act_{j,i}}\} \cdot \boldsymbol{d(sgn)di} = \int_{\boldsymbol{i}} \int_{\boldsymbol{sx}} (|\boldsymbol{sx}|)_{\boldsymbol{j,i}} \{\boldsymbol{s_i} \cdot \boldsymbol{x} - \boldsymbol{act_{j,i}}\} \cdot \boldsymbol{d(sx)\ di} =$
$\int_{\boldsymbol{i}} \int_{\boldsymbol{str}} (|\boldsymbol{str}|)_{\boldsymbol{j,i}} \{\boldsymbol{s_i} \cdot \boldsymbol{x} - \boldsymbol{act_{j,i}}\} \cdot \boldsymbol{d(str)di}$

- **Relevant Formulae for this study:-**

The quantity of interest is the Aesthetic Fitness. i.e.
b(x) =$\int_{\boldsymbol{i}} \int_{-\infty<\mathbf{p}\leq \mathbf{0}} |\boldsymbol{str}| \cdot \boldsymbol{s_i} \cdot \boldsymbol{x} - \boldsymbol{act_{p,j,i}} \cdot \boldsymbol{dpdi} = \int_{\boldsymbol{i}} \int_{-\infty}^{\mathbf{p}\leq \mathbf{0}} |\boldsymbol{p}|_{\boldsymbol{j,i}} \cdot \boldsymbol{s_i} \cdot \boldsymbol{x} - \boldsymbol{act_{p,j,i}} \cdot \boldsymbol{dpdi}$

We have,

Fitness = dynamic male fitness + $p > 0$ fitness from inter, neu & fem;

& Aesthetic Fitness = Female Dynamic fitness + $p \leq 0$ fitness from inter, neu & mel;

Total Female fitness= Aesthetic Fitness and Total Male fitness = Fitness including Survival and Reproductive Fitness;

However, a male or female organism's fitness could be a combination of both male and female components leading up to its own kind of net fitness.

$$
\begin{aligned}
Individual's fitness, I_f \\
&= Fitness, F \ (Including\ for\ Reproductive \wedge Survival) \\
&+ AestheticFitness, Æ \\
&= Malefitness, M_f + Femalefitness, F_f \ + \ Neuter\ fitness\ N_f \\
&+ \ Intermediates\ Fitness\ Im_f
\end{aligned}
$$