FRAGMENTS OF
EXISTENTIAL MATHEMATICS

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Fragments of Existential Mathematics

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– DELIRIUM –

Ask one to draw a line,
and you'll end up with a maze…

CHAPTER I

Mazes

Let us define maze as the weighted sum of the distances between the real, experienced and ideal beings that make up a person, and the real, experienced and ideal worlds that the person inhabits. The maze will be represented by the symbol Λ and expressed through the following formula:

$$\Lambda = k_1\left[\alpha_1\left(\tilde{l},\hat{l}\right)+\beta_1\left(\hat{l},\bar{l}\right)+\gamma_1\left(\bar{l},\tilde{l}\right)\right]+k_2\left[\alpha_2\left(\tilde{L},\hat{L}\right)+\beta_2\left(\hat{L},\bar{L}\right)+\gamma_2\left(\bar{L},\tilde{L}\right)\right]$$

DEFINITIONS

The following premises and hypotheses are the axioms for the model of minimization of mazes.

Beings and worlds

Let l be a subject and L a world:

$$l=\begin{pmatrix}\bar{l}\\ \tilde{l}\\ \hat{l}\end{pmatrix} \qquad L=\begin{pmatrix}\bar{L}\\ \tilde{L}\\ \hat{L}\end{pmatrix}$$

Beings and worlds:
real, experienced, and ideal

The subject, *l,* is a vector of the three beings that define its identity.

$\bar{l}$: the real being – *l* as one is objectively.
$\tilde{l}$: the experienced being – *l* as one experiences oneself.
$\hat{l}$: the ideal being – *l* as one would like to be.

The world, *L,* is the matrix of external beings important to the subject.

$\bar{L}$: the real world – *L* as it is according to the subject.
$\tilde{L}$: the experienced world – *L* as experienced by the subject.
$\hat{L}$: the ideal world – *L* as the subject would like it to be.

Existential metric

The distances between beings and between worlds are indicated by putting them in brackets as follows:

$$\left(\tilde{l},\hat{l}\right)$$

Distance between the experienced being and the ideal being

$$\left(\hat{L},\bar{L}\right)$$

Distance between the ideal world and the real world

Only the subject has the relevant information to evaluate these distances.

System of values

The combination of the values for the distances of the maze represent the subject's system of values.

$$\Lambda = k_1\left[\alpha_1\left(\bar{l},\hat{l}\right)+\beta_1\left(\hat{l},\bar{l}\right)+\gamma_1\left(\bar{l},\tilde{l}\right)\right]+k_2\left[\alpha_2\left(\tilde{L},\hat{L}\right)+\beta_2\left(\hat{L},\bar{L}\right)+\gamma_2\left(\bar{L},\tilde{L}\right)\right]$$

$$\begin{cases}|k_1|+|k_2|=1\\ |\alpha_1|+|\beta_1|+|\gamma_1|=1\\ |\alpha_2|+|\beta_2|+|\gamma_2|=1\end{cases}$$

System of values of a maze

k_1 : importance given to the self (coefficient of egoism).
k_2 : importance given to the world (coefficient of altruism).

α : importance given to pleasure relative to the self (α_1) or to the world (α_2).
β : importance given to virtue relative to the self (β_1) or to the world (β_2).
γ : importance given to knowledge relative to the self (γ_1) or to the world (γ_2).

The proximity between the 'experienced' and the 'ideal' is hypothetically correlated with the feeling of pleasure, that between the 'ideal' and the 'real' with virtue, and that between the 'real' and the 'experienced' with knowledge.

Together the ethical coefficients $\Phi = \{k_1, k_2, \alpha_1, \beta_1, \gamma_1, \alpha_2, \beta_2, \gamma_2\}$ represent the system of values of a subject at a given moment.

MINIMIZATION OF THE MAZE

The maze indicates the subject's torment and the principle of the model is to minimize this.

$$Min\ \Lambda$$

Minimization principle of the maze

To minimize one's maze means to sculpt oneself, one's values, and one's worlds so as to reduce as much as possible the bitter distances between one's beings and worlds.

Maze reduction

Only a minute maze can be serene: a minimal maze is a necessary condition for happiness but not a sufficient one.

REMARK 1. There are two complementary procedures for resolving a maze: reduce the distances between beings or reduce the values that affect them. If Δ symbolizes all variation we have:

$$Min\ \Lambda\ ;\ \Delta\Phi = 0$$

Resolution by changing beings and worlds

$$Min\ \Lambda\ ;\ \Delta l = \Delta L = 0$$

Resolution by revising values

REMARK 2. There are two complementary procedures for reducing the distance between two beings: bring the first closer to the second or the second closer to the first. For example:

$$Min\ \left(\hat{l},\bar{l}\right)\ ;\ \Delta\hat{l} = 0$$

Resolution by evolution of the real being

$$Min\ \left(\hat{l},\bar{l}\right)\ ;\ \Delta\bar{l} = 0$$

Resolution by evolution of the ideal being

REMARK 3. To minimize is not to nullify but to reduce as much as possible. The objective is more to reconcile the beings than to merge them, to find harmonious distances rather than to eliminate them: to reduce the maze while retaining a living dynamic.

Negativity of ethical coefficients

k_2 (coefficient of altruism) is usually thought of as a positive. However it can also be negative. Sadists for instance, reduce their mazes while increasing the mazes of others.

$$\Lambda = k_1\left[\alpha_1\left(\tilde{l},\hat{l}\right) + \beta_1\left(\hat{l},\bar{l}\right) + \gamma_1\left(\bar{l},\tilde{l}\right)\right] + k_2\left[\alpha_2\left(\tilde{L},\hat{L}\right) + \beta_2\left(\hat{L},\bar{L}\right) + \gamma_2\left(\bar{L},\tilde{L}\right)\right]$$

$$k_2 < 0\ ;\ |k_1| + |k_2| = 1$$

Sade's maze

We can also imagine the coefficient of egoism being negative:

$$\Lambda = k_1\left[\alpha_1\left(\tilde{l},\hat{l}\right)+\beta_1\left(\hat{l},\bar{l}\right)+\gamma_1\left(\bar{l},\tilde{l}\right)\right]+k_2\left[\alpha_2\left(\tilde{L},\hat{L}\right)+\beta_2\left(\hat{L},\bar{L}\right)+\gamma_2\left(\bar{L},\tilde{L}\right)\right]$$
$$k_1 < 0\ ;\ |k_1|+|k_2|=1$$

Masoch's maze

The negativity of other ethical coefficients – pleasure, knowledge, virtue – is equally conceivable. It could be that the Γνοτι σεαυτον, the maxim of Thales commanding us to seek self-knowledge might provoke anxiety. In this case, γ_1 is negative and increasing the distance between the experienced and real beings contributes to the reduction of the maze.

$$\Lambda = k_1\left[\alpha_1\left(\tilde{l},\hat{l}\right)+\beta_1\left(\hat{l},\bar{l}\right)+\gamma_1\left(\bar{l},\tilde{l}\right)\right]+k_2\left[\alpha_2\left(\tilde{L},\hat{L}\right)+\beta_2\left(\hat{L},\bar{L}\right)+\gamma_2\left(\bar{L},\tilde{L}\right)\right]$$
$$\gamma_1 < 0\ ;\ \gamma_2 < 0$$

Maze of a subject in denial

REMARK. For the moment we are concentrating on classical western values where pleasure, virtue, knowledge, egoism and altruism are seen as positive. Later on we will study cases where these values are negative.

$$\Lambda = k_1\left[\alpha_1\left(\tilde{l},\hat{l}\right)+\beta_1\left(\hat{l},\bar{l}\right)+\gamma_1\left(\bar{l},\tilde{l}\right)\right]+k_2\left[\alpha_2\left(\tilde{L},\hat{L}\right)+\beta_2\left(\hat{L},\bar{L}\right)+\gamma_2\left(\bar{L},\tilde{L}\right)\right]$$
$$k_1,k_2,\alpha_1,\beta_1,\gamma_1,\alpha_2,\beta_2,\gamma_2 \geq 0$$

Classical maze

Icarus' deviations and Tantalus' distances

Attempting to reduce a maze is not a guarantee of success. The subject can try to reduce a distance and instead increase it through ineptitude or misfortune.

$$Min\left(\bar{l},\hat{l}\right) \text{ and } \Delta\left(\bar{l},\hat{l}\right) > 0$$

Standard deviation of Icarus

Thus we have the maze of Icarus' fall. Another example of this deviation would be Oedipus committing the patricide he was trying to avoid:

$$Min\,\Lambda \text{ and } \Delta\Lambda > 0$$

Icarian expansion of a maze

There are other biases in the reduction of mazes that we shall call Tantalus' distances. Let $\bar{E}$ be the domain of definition for the real beings of a subject. That is, all the possible real beings that the subject could hope for.

$$\hat{l}_X \notin \bar{E} \quad \lim_{\bar{l}\to\hat{l}_X}\left(\hat{l}_X,\bar{l}\right)=\infty$$

Tantalus' distance

The proximity of some unreachable ideal is anxiogenous for the one who aspires to it.

$$\left\{\begin{array}{l}\hat{l}_X \notin \bar{E} \;\; ; \;\; k_1\beta_1 >> 0 \\ \lim\limits_{\bar{l}\to\hat{l}_X}\left(\hat{l}_X, \bar{l}\right) = \infty\end{array}\right\} \Rightarrow \lim_{\bar{l}\to\hat{l}_X}\left[\Lambda\right] = \infty$$

Dead end of a maze

There are only four possible ways out of this expanding maze: to revise the ideal ($\hat{l}$), to extinguish the coefficient of egoism (k_1) or of virtue (β_1) or to forcibly expand the domain of possible beings ($\bar{E}$) so that it can tolerate the new ideal.

CHAPTER II

Vestals

Sometimes at the threshold of expected happiness a person blows apart the beings and worlds they have spent their life bringing together. How can these existential dislocations at the point of attaining a minimal maze be explained? To answer this we must add a theory of catastrophe to the model of minimization of mazes and introduce the principle of mobility.

To do this, let us define vestal as the weighted sum of transformational speeds of the beings and worlds of a subject. The vestal will be represented by the symbol V and expressed by the following formula:

$$V = |k_1|\left[\bar{\psi}_1\frac{\partial\bar{l}}{\partial t} + \tilde{\psi}_1\frac{\partial\tilde{l}}{\partial t} + \hat{\psi}_1\frac{\partial\hat{l}}{\partial t}\right] + |k_2|\left[\bar{\psi}_2\frac{\partial\bar{L}}{\partial t} + \tilde{\psi}_2\frac{\partial\tilde{L}}{\partial t} + \hat{\psi}_2\frac{\partial\hat{L}}{\partial t}\right]$$

Vestal,
convex combination of the speeds
of transformation of beings and worlds

DEFINITIONS

The following premises and hypotheses are the axioms for the optimization of vestals.

Mobility of beings and worlds

The mobility of a subject is assessed by recording the speed at which their beings and worlds are modified. This is done quite simply by dividing the distances that separate beings by the time of separation:

$$\frac{\partial \hat{l}}{\partial t} = \lim_{h \to 0} \frac{(\hat{l}_t, \hat{l}_{t+h})}{h}$$

Speed of conversion of the ideal being

$$\frac{\partial \overline{L}}{\partial t} = \lim_{h \to 0} \frac{(\overline{L}_t, \overline{L}_{t+h})}{h}$$

Speed of mutation of the real world

REMARK 1. The concepts of speed defined above are only relevant if the beings move apart or together in continuous motion. On this basis we will use Bacon's hypothesis, "natura non facit saltus": the movement of beings and worlds will be assumed to be always and everywhere continuous.

REMARK 2. We must distinguish two kinds of motion of beings and worlds: 'inter' and 'intra'. To illustrate this, imagine the satellite relationship between real and ideal beings revolving around each other. The separation between them is maintained while both are in constant evolution.

$$\frac{\partial\left(\overline{l}, \hat{l}\right)}{\partial t} = 0 \qquad \frac{\partial \hat{l}}{\partial t} > 0$$

Real and ideal beings as satellites of each other

REMARK 3. The acceleration of a being is the second derivative of its trajectory with respect to time:

$$\omega_{\tilde{l}} = \frac{\partial^2 \tilde{l}}{\partial t^2}$$

Acceleration of the movements of the experienced being

REMARK 4. We can imagine a translation of Newton's second law:

$$F_{\hat{l}} = \frac{\partial^2 \hat{l}}{\partial t^2}\, \hat{\psi}$$

Attraction of the ideal being

The force of attraction of the ideal being is proportional to its acceleration and to the ascendant of the ideal ($\hat{\psi}$).

Ascendants of beings and worlds

The set of weighted speeds of the vestal represent the system of ascendants of the subject.

$$V = |k_1|\left[\bar{\psi}_1 \frac{\partial \bar{l}}{\partial t} + \tilde{\psi}_1 \frac{\partial \tilde{l}}{\partial t} + \hat{\psi}_1 \frac{\partial \hat{l}}{\partial t}\right] + |k_2|\left[\bar{\psi}_2 \frac{\partial \bar{L}}{\partial t} + \tilde{\psi}_2 \frac{\partial \tilde{L}}{\partial t} + \hat{\psi}_2 \frac{\partial \hat{L}}{\partial t}\right]$$

$$\begin{cases} |k_1| + |k_2| = 1 \\ \bar{\psi}_1 + \tilde{\psi}_1 + \hat{\psi}_1 = 1 \\ \bar{\psi}_2 + \tilde{\psi}_2 + \hat{\psi}_2 = 1 \end{cases}$$

System of ascendants of a vestal

$\bar{\psi}$: ascendant of the real, shows the importance the subject gives to materiality and objectivity, concerning either themselves ($\bar{\psi}_1$) or the world ($\bar{\psi}_2$).

$\tilde{\psi}$: ascendant of the experienced, shows the importance the subject gives to perceptions and subjectivity, concerning either themselves ($\tilde{\psi}_1$) or the world ($\tilde{\psi}_2$).

$\hat{\psi}$: ascendant of the ideal, shows the importance the subject gives to dreams and fantasies, concerning either themselves ($\hat{\psi}_1$) or the world ($\hat{\psi}_2$).

Terence's theorem

The values of the maze and the ascendants of the vestal are interdependent.
For example, the ascendant of the 'experienced' in the vestal is the average weight of the values that place the experienced being in the maze, namely pleasure and knowledge.

$$\tilde{\psi} = \frac{\alpha + \gamma}{2} \; ; \; \hat{\psi} = \frac{\alpha + \beta}{2} \; ; \; \bar{\psi} = \frac{\beta + \gamma}{2}$$

Because of this interdependence it is necessary to balance the ascendants. Anything that disproportionately favours the ideal ($\hat{\psi}$), the experienced ($\tilde{\psi}$) or the real ($\bar{\psi}$) fatally undermines knowledge (γ), virtue (β) or pleasure (α).

Thus Terence's theorem:

$$\alpha, \beta, \gamma > 0 \Rightarrow \bar{\psi}, \tilde{\psi}, \hat{\psi} < \frac{1}{2}$$

Μηδὲν Ἄγαν – *Ne quid nimis*

The positivity of classical values
implies the moderation of the ascendants[1]

1. Demonstration:

$$\alpha + \beta + \gamma = 1 \Rightarrow \bar{\psi} = \frac{\beta + \gamma}{2} = \frac{1 - \alpha}{2} \text{ hence } \alpha > 0 \Rightarrow \bar{\psi} = \frac{1 - \alpha}{2} < \frac{1}{2}$$

OPTIMIZATION OF THE VESTAL

As previously mentioned, not all existential shocks come from external sources. Sometimes the subject decides suddenly, in contradiction to their lifelong efforts, to blow apart the beings that they had patiently tried to bring together. This is the case where the mobility of the subject is either extinguished or over-developed.

Verlaine's conjecture

The immobility of beings and worlds is a cause of catastrophe.

$$\mathrm{V_t} < \dot{v} \Rightarrow P\left(\Lambda_{t+1} >> \Lambda_t\right) \simeq 1$$

When the vestal falls below a critical level
known as Verlaine's threshold ($\dot{v}$)
an explosion of the maze is highly probable

REMARK. Constant motion of the subject is not necessarily the way to attain a consequential vestal. If the subject is particularly altruistic then the movements of the worlds alone will be sufficient.

$$\left\{k_2 \hat{\psi}_2 \simeq 1\right\} \Rightarrow \left\{\mathrm{V}_t > \dot{v} \Leftrightarrow \frac{\partial \hat{L}}{\partial t} >> 0\right\}$$

The dynamic of the ideal worlds can sustain
that of the idealistic altruist

Rimbaud's lemma

Hyper-mobility of beings and worlds can provoke catastrophe.

$$\mathrm{V_t} > \dot{r} \Rightarrow P\left(\Lambda_{t+1} >> \Lambda_t\right) \simeq 1$$

When the vestal rises above a critical level
known as Rimbaud's ceiling ($\dot{r}$)
an explosion of the maze is almost certain

REMARK. The hyper-mobiity of the subject is not inevitably catastrophic. In the case of extreme altruism, only the movement of the world can cause instability.

$$\left\{k_2 \bar{\psi}_2 \simeq 1\right\} \Rightarrow \left\{\mathrm{V}_t < \dot{r} \Leftrightarrow \frac{\partial \bar{L}}{\partial t} \simeq 0\right\}$$

The serenity of the real world moderates
the vestal of the reality obsessed altruist

Thus the reduction of mazes is only stable when the vestals are maintained between a vital minimum and a fatal maximum of mobility.

$$Min\,\Lambda$$
$$sc.\ \dot{v} < \mathrm{V} < \dot{r}$$

Minimizing the maze
while keeping the vestal between Verlaine's
threshold and Rimbaud's ceiling

REMARK 1. The Ophelia uncertainty principle prevents us from prejudging the causes of the expansion of a maze. Excessive vestals of the type Verlaine or Rimbaud, Icarian deviations, external shocks, and Tantalian dead ends are equiprobable causes.

REMARK 2. Mobility is not only quantitive: it is possible to add qualitative constraints to the movement of beings. For example, we can avoid cyclic trajectories for which the torture of Sisyphus is the archetype:

$$\exists \sigma > 0 : \begin{pmatrix} \bar{l}_t \\ \tilde{l}_t \\ \hat{l}_t \end{pmatrix} = \begin{pmatrix} \bar{l}_{t+\sigma} \\ \tilde{l}_{t+\sigma} \\ \hat{l}_{t+\sigma} \end{pmatrix} \quad \forall t \in T$$

Cycle of Sisyphus

We can keep the choreography of beings as a component of the optimization model.
And thus, from the millions of formulas, the ideal being draws an ellipse around the experienced and real beings:

$$\wp_{\hat{l}} : \left\{ \begin{array}{l} \dfrac{\partial\left(\tilde{l}, \bar{l}\right)}{\partial t} = 0 \; ; \; \dfrac{\partial \hat{l}}{\partial t} \neq 0 \\ \left(\hat{l}, \tilde{l}\right) + \left(\hat{l}, \bar{l}\right) = R \end{array} \right\}$$

Elliptical carousel of the ideal being

Jekyll and Hyde modeling

The dynamic of the model, in particular the integration of speeds of transformation of beings and worlds, permits us to account for cases of schizophrenia that until now had been difficult to analyze. In effect, schizophrenia could be comparable with a fraction of the beings, worlds, and values that characterize a person. Dr. Jekyll and Mr. Hyde each have their own value systems, beings and worlds both experienced and ideal. The issue is their cohabitation of a single objective individual.

We might think that the minimization of the schizophrenic's maze is futile, since reducing Jekyll's maze would only cause Hyde's to grow, and vice versa. It is necessary, however, to take into account the sudden mutation of one and the other and their non-coexistence at the same time. At night, Hyde is the lone surveyor of his maze while by day Jeckyll returns to harmonize his daytime beings. The vectors of the two entities do not exist simultaneously. The maze of Stevenson's character can be expressed thus:

$$\Lambda = k_j \, \lambda(l_j) + k_h \, \lambda(l_h) + k_J \, \lambda(L_J) + k_H \, \lambda(L_H)$$

Schizophrenic maze

$\lambda(l_j)$ = Jekyll's ego-maze $\quad \lambda(l_h)$ = Hyde's ego-maze

$\lambda(L_J)$ = Jekyll's alter-maze $\quad \lambda(L_H)$ = Hyde's alter-maze

k_j = Jekyll's coefficient of egoism $\quad k_h$ = Hyde's coefficient of egoism

k_J = Jekyll's coefficient of altruism $\quad k_H$ = Hyde's coefficient of altruism

$$\left| k_j \right| + \left| k_h \right| + \left| k_J \right| + \left| k_H \right| = 1$$

Schizophrenia is characterized in the model by frequent hyper-accelerations in the transformation of beings and worlds and by a strong elasticity of values.

CHAPTER III

Indices of Inconstancy

The indices of inconstancy are the analytical tools that allow us to plot the wanderings of a person and map out the contours of their intellectual and emotional life.

VARIABILITY OF MAZES AND VESTALS

The coefficients of variation of the mazes and vestals are the primary indicators of the life dynamic of a subject, giving information on the abundance of existential shocks and their absorption.

Stability of a maze

To calculate the standard deviation of the maze we use the classical method of calculating its variance. First we establish the maze's mean value (with T as the time of life):

$$\Lambda_{moy} = \frac{1}{T}\int_0^T \Lambda(t).\ dt$$

From this we calculate the index of instability:

$$\zeta_{\Lambda} = \frac{\sqrt{\frac{1}{T}\int_0^T \left[\Lambda(t) - \Lambda_{moy}\right]^2 . dt}}{\Lambda_{moy}}$$

Degree of inconstancy of the maze

We will verify that the degree of inconstancy of the maze is a number between 0 and 1, 0 being the lack of variability of stable mazes and 1 being the coefficient of maximum variability, indicative of the greatest disorders of the intellectual and emotional life.

$$\text{Sup } \zeta_{\Lambda} = 1$$

Maximum inconstancy
of the maze of tumultuous lives

Instability of a vestal

The same method of calculation is valid for the coefficient of variation of the vestal. First we calculate the vestal mean value:

$$V_{moy} = \frac{1}{T}\int_0^T V(t).\, dt$$

Next we establish the standard deviation of the vestal as a measure of its variability:

$$\zeta_{V} = \frac{\sqrt{\frac{1}{T}\int_0^T \left[V(t) - V_{moy}\right]^2 . dt}}{V_{moy}}$$

Degree of inconstancy of the vestal

When the carousel of the mind turns at a constant speed, ζ_V is 0; when it constantly accelerates and decelerates ζ_V approaches 1.

$$\text{Inf } \zeta_{V} = 0$$

Minimal inconstancy
of the vestal of analogous lives

OSCILLATION OF VALUES

The oscillation of values shows the ethical inconstancies of a person during the course of their life. It should be noted that the revision of a value system – $\Phi = [k_1, k_2, \alpha_1, \beta_1, \gamma_1, \alpha_2, \beta_2, \gamma_2]$ – is often the quickest way to block the expansion of a maze.

Vacillation of values

Let $\varphi \in \Phi$ be a value, and $\varphi(t)$ its importance relative to the moment t. We denote M_{φ} as the mean subjective importance of φ:

$$M_{\varphi} = \frac{1}{T}\int_0^T \varphi(t).\, dt$$

And I_{φ} as the inconstancy of this value in the life of the subject:

$$I_{\varphi} = \frac{1}{T}\int_0^T \left|\varphi(t) - M_{\varphi}\right|. dt$$

Mean vacillation of the value φ

Take for example the index of the variations of altruism in the course of the subject's life:

$$\mathrm{I}_{k_2} = \frac{1}{T}\int_0^T \left| k_2(t) - \mathrm{M}_{k_2} \right| . \, dt$$

Inconstancy of altruism

Ethical elasticity

It is possible to calculate the coefficient of variation for each of the values by relating the standard deviation to the mean weight. For example:

$$\zeta_{k_1} = \frac{\mathrm{I}_{k_1}}{\mathrm{M}_{k_1}}$$

Degree of inconstancy of egoism

The rigidity of the system of values of a subject can be estimated by taking the average of all the coefficients of variations of the n values weighted in the maze.

$$\mathrm{Z} = \frac{\sum_i \zeta_i}{\mathrm{n}}$$

Index of ethical elasticity

The value of Z will always be between 0 and 1. The closer Z is to 0, the more constant the value system **Φ**.

$$\mathrm{Inf}\ \mathrm{Z} = 0$$

Ethical rigidity

PHANTASMAGORIA OF BEINGS AND WORLDS

The inconstancy of beings and worlds is formally more delicate to analyze than the elasticity of values and the variability of mazes. We will introduce several complementary indices that suggest the volatility of beings and the course of their movements.

Existential volatility

The instability of beings and worlds can be located with the help of four indices. We will use as an example the ideal being.

A. AVERAGE SPEED. We assume that the quicker a being moves, the greater the inconstancy. The average speed is the integral of the instantaneous speeds of its variations in relation to its age.

$$\underset{\sim}{\mathrm{v}}^{\hat{l}}_{moy} = \frac{1}{T}\int_0^T \left(\frac{d\hat{l}}{dt} \right) . \, dt$$

Average speed of evaporation of the ideal being

B. LENGTH OF THE TRAJECTORY. This is equal to the sum of all the variations of the being caused by its transformation.

$$N_{\hat{l}} = \lim_{\varepsilon \to 0} \sum_{t=0}^{T} \left(\hat{l}_t, \hat{l}_{t+\varepsilon} \right)$$

Trajectory length of the ideal being

C. AMPLITUDE OF MOVEMENT. The distance that a tiger travels in a cage may equal that he travels in the jungle, but the amplitude of these movements is without common measure. It is therefore necessary to integrate the magnitude of the movements of a being in order to account for its inconstancy.

$$G_{\hat{l}} = \sup_{t,t' \in [0,T]} \left[\left(\hat{l}_t, \hat{l}_{t'} \right) \right]$$

Amplitude of the wanderings of the ideal being

D. AVERAGE DEVIATION FROM THE CENTRE OF GRAVITY. The inconstancy will be that much greater if the average deviation from the center of gravity is high. Let be $\hat{l}_{\odot}$ the centre of gravity of the ideal being:

$$\Theta_{\hat{l}} = \frac{1}{T} \int_0^T (\hat{l}_t, \hat{l}_{\odot}) \, . \, dt$$

Mean distance of the ideal beings from their centre of gravity

Existential path

It is necessary to distinguish between the constancy of a being and the constancy of its evolution, that is to say, the extent of its wanderings and the rectitude of its movements. This can be measured by relating the distances between beings to the course that unites them.

$$\Gamma_l = \frac{(l_0, l_T)}{N_l}$$

Index of the rectitude of the movements of a being

We will verify that this index is between 0 and 1, where 1 denotes the perfect rectitude of movement.

REMARK 1. The shortest path, particularly in a maze, is not necessarily the straightest. The index does not designate the rectilinear path but the optimal one.

REMARK 2. There can only be perfect rectitude if the movement is one way. The index Γ designates the shortest route with no return.

REMARK 3. The articulation of the preceding indices allows us to categorize subjects according to the degree and the nature of their inconstancy. An example would be a life that was nomadic within a limited area:

$$N_{\hat{l}} >> 0 \quad \text{and} \quad G_{\hat{l}}, \Theta_{\hat{l}}, \Gamma_{\hat{l}} \approx 0$$

Typical indices of the butterfly ideal

REMARK 4. Syllogism of Hortense. Let E be the domain of definition of l, that is to say all of the possibilities of l. And let z be the moment of a poetic experience.

Proposition H1:

$$E_1 \subset E_2 \Rightarrow \Gamma_{l \in E_1} \leq \Gamma_{l \in E_2}$$

The trajectory of a being straightens
as the space of its possibilities grows

Proposition H2:

$$\forall \varepsilon > 0 \quad E_{z-\varepsilon} \subset E_{z+\varepsilon}$$

Each poetic experience expands
the domain of possible beings

Conclusion:

$$\left.\begin{array}{l} E_{z-\varepsilon} \subset E_{z+\varepsilon} \\ E_1 \subset E_2 \Rightarrow \Gamma_{l \in E_1} \leq \Gamma_{l \in E_2} \end{array}\right\} \Rightarrow \Gamma_{l \in E_{z-\varepsilon}} \leq \Gamma_{l \in E_{z+\varepsilon}}$$

Poetic experience straightens
the movements of a being

CHAPTER IV

Models of Passion

Radical and exclusive passion is expressed in the model by the coefficient of altruism taking wing ($\Delta k_2 > 0$) while the world is restricted to the beloved: in formal terms l^* is substituted for L.

$$l^* = \begin{pmatrix} \overline{l^*} \\ \widetilde{l^*} \\ \widehat{l^*} \end{pmatrix} \quad \begin{array}{ll} \overline{l^*} & = \text{real being of the beloved} \\ \widetilde{l^*} & = \text{experienced being of the beloved} \\ \widehat{l^*} & = \text{ideal being of the beloved} \end{array}$$

MAZES AND VESTALS OF PASSION

Consequently, the mazes and vestals of the passionate subject are written as:

$$\Lambda = k_1\left[\alpha_1\left(\tilde{l},\hat{l}\right) + \beta_1\left(\hat{l},\bar{l}\right) + \gamma_1\left(\bar{l},\tilde{l}\right)\right] + k_2\left[\alpha_1^*\left(\widetilde{l^*},\widehat{l^*}\right) + \beta_1^*\left(\widehat{l^*},\overline{l^*}\right) + \gamma_1^*\left(\overline{l^*},\widetilde{l^*}\right)\right]$$

$$V = k_1\left[\bar{\psi}_1\frac{\partial \bar{l}}{\partial t} + \tilde{\psi}_1\frac{\partial \tilde{l}}{\partial t} + \hat{\psi}_1\frac{\partial \hat{l}}{\partial t}\right] + k_2\left[\bar{\psi}_2\frac{\partial \overline{l^*}}{\partial t} + \tilde{\psi}_2\frac{\partial \widetilde{l^*}}{\partial t} + \hat{\psi}_2\frac{\partial \widehat{l^*}}{\partial t}\right]$$

Taking this further, to love somebody is to take part in the world in which they believe. The maze of the person that is loved is integrated into that of the lover.

$$\Lambda = k_1\lambda(l) + k_2\Lambda^*$$

Passionate maze

The same model applies to vestals:

$$V = k_1\upsilon(l) + k_2V^*$$

Romantic vestal

where $\lambda(l)$ is the ego-maze of l, Λ^* the complete maze of l^*, and $\upsilon(l)$ is the ego-vestal of l, V^* the complete vestal of l^*.

Interlocking mazes of lovers

If two subjects are impassioned with each other, the following system of interdependence results.

For l:
k_1 : degree of egoism *a priori*
k_2 : degree of altruism *a priori*, for l^* and L^*
K_1 : degree of egoism *a posteriori*
K_2 : degree of altruism *a posteriori*, for l^* only

And reciprocally for l^*:
k_1^* : degree of egoism *a priori*
k_2^* : degree of altruism *a priori*, for l and L
K_1^* : degree of egoism *a posteriori*
K_2^* : degree of altruism *a posteriori*, for l only

$$\left.\begin{aligned}\Lambda &= k_1\lambda(l) + k_2\Lambda^*\\ \Lambda^* &= k_1^*\lambda(l^*) + k_2^*\Lambda\end{aligned}\right\} \Leftrightarrow \begin{cases}\Lambda = \dfrac{k_1}{1-k_2k_2^*}\lambda(l) + \dfrac{k_2k_1^*}{1-k_2k_2^*}\lambda(l^*) = K_1\lambda(l) + K_2\lambda(l^*)\\ \Lambda^* = \dfrac{k_1^*}{1-k_2k_2^*}\lambda(l^*) + \dfrac{k_2^*k_1}{1-k_2k_2^*}\lambda(l) = K_1^*\lambda(l^*) + K_2^*\lambda(l)\end{cases}$$

Confusion of passionate mazes[1]

Thus the interlocking of passionate mazes increases the consideration each lover accords to themselves. Your love (k_2^*) increases the interest I accord to myself ($k_2^* > 0 \Rightarrow K_1 > k_1$). Reciprocally, the more I love you (k_2), the more you cherish yourself (K_1^*).

Among other corollaries of these mixes, we have:

$$\frac{\partial k_2}{\partial K_2^*} < 0$$

The more I love you the less you cherish me

$$\frac{\partial K_2}{\partial k_2^*} < 0$$

The less I cherish you the more you love me

1. Demonstration: $\Lambda = k_1\lambda(l) + k_2\Lambda^*$ and $\Lambda^* = k_1^*\lambda(l^*) + k_2^*\Lambda$

hence $\Lambda = k_1\lambda(l) + k_2\left[k_1^*\lambda(l^*) + k_2^*\Lambda\right]$ i.e. $\Lambda\left(1-k_2k_2^*\right) = k_1\lambda(l) + k_2k_1^*\lambda(l^*)$

Thus $\Lambda = \dfrac{k_1}{1-k_2k_2^*}\lambda(l) + \dfrac{k_2k_1^*}{1-k_2k_2^*}\lambda(l^*)$ when $k_2k_2^* \neq 1$

REMARK 1. These remarks are valid in the case where the two lovers are positively passionate about each other. The results change when one of the two has a coefficient of negative altruism (cf. jealous love).

REMARK 2. These remarks are pertinent only in the closed circuit of a passionate relationship: one's world is fundamentally the other person. Here again the results change if the passion of one of the lovers opens to other people or objects (cf. plural loves).

REMARK 3. Finally, the affective coefficients here are not absolute but relative to the quantum of attention and affection that is given, of which the lovers are the vectors. The results change if this quantum χ changes over time (cf. modulations Acqua Alta).

Correlation of romantic vestals

Equally for the vestals, the romanticism unites the vitality of the lovers.

$$\left.\begin{aligned} V &= k_1 v(l) + k_2 V^* \\ V^* &= k_1^* v\left(l^*\right) + k_2^* V \end{aligned}\right\} \Rightarrow \begin{cases} V = \dfrac{k_1 v(l) + k_2 k_1^* v\left(l^*\right)}{1 - k_2 k_2^*} = K_1 v(l) + K_2 v\left(l^*\right) \\ V^* = \dfrac{k_1^* v\left(l^*\right) + k_2^* k_1 v(l)}{1 - k_2 k_2^*} = K_1^* v\left(l^*\right) + K_2^* v(l) \end{cases}$$

Mixture of passionate vestals

The interdependence of vestals amplifies the vital energy that each lover invests in themselves. Thus, as with a couple dancing, each partner will give increased consideration to the vigor of their steps in order to better lead the other. Among other corollaries of the mixture of vestals, we have:

$$\frac{\partial k_2^*}{\partial K_1} > 0$$

The more you love me the more I allow myself to dance

$$\frac{\partial k_2}{\partial K_2^*} < 0$$

The less I love you the more I allow you to dance

$$\frac{\partial k_2}{\partial K_2} > 0$$

The more I love you the more you allow me to dance

PASSIONATE TWISTS AND TURNS

The above blueprint is valid for an absolute and ethereal love. Yet passion provokes tensions of obsessive desire to transform the other: the fantasies each lover projects onto the other must thus be included in our understanding of the maze.

Let f_{l^*} and f_l^* be the following fantasized beings:

$$f_l^* = \begin{cases} \tilde{f}_l^* : \ l^* \text{ seen by } l \\ \hat{f}_l^* : \ l^* \text{ dreamed by } l \end{cases} \qquad f_{l^*} = \begin{cases} \tilde{f}_{l^*} : \ l \text{ seen by } l^* \\ \hat{f}_{l^*} : \ l \text{ dreamed by } l^* \end{cases}$$

$$\Lambda = \begin{cases} k_1\left[\alpha_1\left(\tilde{l},\hat{l}\right) + \beta_1\left(\hat{l},\bar{l}\right) + \gamma_1\left(\bar{l},\tilde{l}\right)\right] \\ + k_2\left[\alpha_2\left(\tilde{l}^*,\hat{l}^*\right) + \beta_2\left(\hat{l}^*,\bar{l}^*\right) + \gamma_2\left(\bar{l}^*,\tilde{l}^*\right)\right] \\ + k_3\begin{bmatrix} \eta_1\left(\hat{f}_l^*,\bar{l}^*\right) + \eta_2\left(\tilde{f}_l^*,\bar{l}^*\right) + \eta_3\left(\hat{f}_l^*,\hat{l}^*\right) + \eta_4\left(\tilde{f}_l^*,\tilde{l}^*\right) \\ + \eta_5\left(\hat{f}_l^*,\tilde{l}^*\right) + \eta_6\left(\tilde{f}_l^*,\hat{l}^*\right) + \eta_7\left(\hat{f}_l^*,\tilde{f}_l^*\right) \end{bmatrix} \\ + k_4\begin{bmatrix} \mu_1\left(\hat{f}_{l^*},\bar{l}\right) + \mu_2\left(\tilde{f}_{l^*},\bar{l}\right) + \mu_3\left(\hat{f}_{l^*},\hat{l}\right) + \mu_4\left(\tilde{f}_{l^*},\tilde{l}\right) \\ + \mu_5\left(\hat{f}_{l^*},\tilde{l}\right) + \mu_6\left(\tilde{f}_{l^*},\hat{l}\right) + \mu_7\left(\hat{f}_{l^*},\tilde{f}_{l^*}\right) \end{bmatrix} \end{cases}$$

with $k_1 + k_2 + k_3 + k_4 = 1$

Passionate maze informed by the lovers' fantasies

k_1: degree of pure egoism

k_2: degree of pure altruism

k_3: degree of ego-altruism (oneself through another)

k_4: degree of alter-egoism (another through oneself)

Lovers try to bring together their beings and fantasies by acting as both Pygmalion and Galatea, both sculptor and sculpture. Each of the lines of the preceding formula will be known as 'twists and turns'. For example:

$$\lambda\left(f_l^*\right) = \begin{bmatrix} \eta_1\left(\hat{f}_l^*,\bar{l}^*\right) + \eta_2\left(\tilde{f}_l^*,\bar{l}^*\right) + \eta_3\left(\hat{f}_l^*,\hat{l}^*\right) + \eta_4\left(\tilde{f}_l^*,\tilde{l}^*\right) \\ + \eta_5\left(\hat{f}_l^*,\tilde{l}^*\right) + \eta_6\left(\tilde{f}_l^*,\hat{l}^*\right) + \eta_7\left(\hat{f}_l^*,\tilde{f}_l^*\right) \end{bmatrix}$$

Twist and turn of the lover's fantasy

$$\lambda\left(f_{l^*}\right) = \begin{bmatrix} \mu_1\left(\hat{f}_{l^*},\bar{l}\right) + \mu_2\left(\tilde{f}_{l^*},\bar{l}\right) + \mu_3\left(\hat{f}_{l^*},\hat{l}\right) + \mu_4\left(\tilde{f}_{l^*},\tilde{l}\right) \\ + \mu_5\left(\hat{f}_{l^*},\tilde{l}\right) + \mu_6\left(\tilde{f}_{l^*},\hat{l}\right) + \mu_7\left(\hat{f}_{l^*},\tilde{f}_{l^*}\right) \end{bmatrix}$$

Twist and turn of the beloved's fantasy

At this point it is necessary to refine the definitions of the coefficients of egoism and altruism. Let the synthetic formula of the phantasmagoric maze be:

$$\Lambda = k_1\lambda(l) + k_2\lambda\left(l^*\right) + k_3\lambda\left(f_l^*\right) + k_4\lambda\left(f_{l^*}\right)$$

Abridged form of the passionate maze

k_n is the part of attention and affection a subject accords to themselves whether through their beings or through their worlds (k_3). For Narcissus the world is simply a mirror.

$$k_n = k_1 + k_3$$

Narcissus' degree

Inversely k_e is the part of attention and affection directed at the world whether through its matrix (k_2) or through the self (k_4). The voice of Echo is simply a reflection.

$$k_e = k_2 + k_4$$

Echo's degree

By definition the maze is the sum of its twists and turns. We could also characterize it succinctly according to its k values. Thus the general form of narcissistic altruism:

$$k_3 \simeq 1 \quad \Lambda \simeq \lambda\left(f_l^*\right)$$

Maze of a narco-altruist or Pygmalion subject

or that of altruistic egoism:

$$k_4 \simeq 1 \quad \Lambda \simeq \lambda\left(f_{l^*}\right)$$

Maze of a echo-egoist or Galatea subject

Pygmalion and Galatea mazes

The woman I loved - I wanted her to fulfill my vision of the world and to share my ideal of an Italian princess. Of course I wanted her to be happy, but I passionately wished her to fit these insane archetypes, ignoring the true identity she scarcely dared to reveal. The ending is obvious. Nonetheless I'll translate it into a mathematical law: when fantasy becomes obsessively inflexible the Galatea and Pygmalion mazes are destined for catastrophe.

The probability that a Pygmalion with inflexible fantasies will desolate his lover is close to 1.

$$\left.\begin{array}{l}\forall\left(t_1,t_2\right)\in T,\ t_1<t_2\\ T = \text{ time of passion}\end{array}\right] \quad \left.\begin{array}{l}k_3 \simeq 1\\ f^*_{l_{t_1}} = f^*_{l_{t_2}}\end{array}\right\} \Rightarrow P\left(\Lambda^*_{t_2} > \Lambda^*_{t_1}\right) \simeq 1$$

If you try too hard to sculpt another
you risk losing them

The Galatean reciprocal is equally verifiable.

$$\left.\begin{array}{l}\forall\left(t_1,t_2\right)\in T,\ t_1<t_2\\ T = \text{time of passion}\end{array}\right] \quad \left.\begin{array}{l}k_4 \simeq 1\\ f_{l^*_{t_1}} = f_{l^*_{t_2}}\end{array}\right\} \Rightarrow P\left(\Lambda_{t_2} > \Lambda_{t_1}\right) \simeq 1$$

If you allow another to sculpt you too much
you risk losing yourself

Plural loves

When a subject has several loves, the form of the maze is of course more complicated. Let us begin with the model for two loves l^* and l^{**}:

$$\Lambda = \left\{ \begin{array}{l} \qquad\qquad\qquad\qquad\qquad\qquad \text{with } \sum k_i = 1 \\ k_1\left[\alpha_1(\tilde{l},\hat{l}) + \beta_1(\hat{l},\bar{l}) + \gamma_1(\bar{l},\tilde{l})\right] \\ + k_2'\left[\alpha_2'\left(\tilde{l}^*,\hat{l}^*\right) + \beta_2'\left(\hat{l}^*,\bar{l}^*\right) + \gamma_2'\left(\bar{l}^*,\tilde{l}^*\right)\right] \\ + k_3'\left[\begin{array}{l} \eta_1'\left(\hat{f}_l^*,\bar{l}^*\right) + \eta_2'\left(\tilde{f}_l^*,\bar{l}^*\right) + \eta_3'\left(\hat{f}_l^*,\hat{l}^*\right) + \eta_4'\left(\tilde{f}_l^*,\tilde{l}^*\right) \\ + \eta_5'\left(\hat{f}_l^*,\tilde{l}^*\right) + \eta_6'\left(\tilde{f}_l^*,\hat{l}^*\right) + \eta_7'\left(\hat{f}_l^*,\tilde{f}_l^*\right) \end{array}\right] \\ + k_4'\left[\begin{array}{l} \mu_1'\left(\hat{f}_{l^*},\bar{l}\right) + \mu_2'\left(\tilde{f}_{l^*},\bar{l}\right) + \mu_3'\left(\hat{f}_{l^*},\hat{l}\right) + \mu_4'\left(\tilde{f}_{l^*},\tilde{l}\right) \\ + \mu_5'\left(\hat{f}_{l^*},\tilde{l}\right) + \mu_6'\left(\tilde{f}_{l^*},\hat{l}\right) + \mu_7'\left(\hat{f}_{l^*},\tilde{f}_{l^*}\right) \end{array}\right] \\ + k_2''\left[\alpha_2''\left(\tilde{l}^{**},\hat{l}^{**}\right) + \beta_2''\left(\hat{l}^{**},\bar{l}^{**}\right) + \gamma_2''\left(\bar{l}^{**},\tilde{l}^{**}\right)\right] \\ + k_3''\left[\begin{array}{l} \eta_1''\left(\hat{f}_l^{**},\bar{l}^{**}\right) + \eta_2''\left(\tilde{f}_l^{**},\bar{l}^{**}\right) + \eta_3''\left(\hat{f}_l^{**},\hat{l}^{**}\right) + \eta_4''\left(\tilde{f}_l^{**},\tilde{l}^{**}\right) \\ + \eta_5''\left(\hat{f}_l^{**},\tilde{l}^{**}\right) + \eta_6''\left(\tilde{f}_l^{**},\hat{l}^{**}\right) + \eta_7''\left(\hat{f}_l^{**},\tilde{f}_l^{**}\right) \end{array}\right] \\ + k_4''\left[\begin{array}{l} \mu_1''\left(\hat{f}_{l^{**}},\bar{l}\right) + \mu_2''\left(\tilde{f}_{l^{**}},\bar{l}\right) + \mu_3''\left(\hat{f}_{l^{**}},\hat{l}\right) + \mu_4''\left(\tilde{f}_{l^{**}},\tilde{l}\right) \\ + \mu_5''\left(\hat{f}_{l^{**}},\tilde{l}\right) + \mu_6''\left(\tilde{f}_{l^{**}},\hat{l}\right) + \mu_7''\left(\hat{f}_{l^{**}},\tilde{f}_{l^{**}}\right) \end{array}\right] \end{array} \right\}$$

Twists and turns of the maze of plural loves

The above formula can be extended to n loves with the subsequent complications that we can imagine.

INDEX OF CORTO AND ARIADNE'S VARIABLE

To be loved by those we love divides the maze; inversely, unhappy love multiplies it.
Ariadne's variable, A, is infused with the sentiment of loving and being loved. And Corto's index, Ω, is the supreme index of anguish represented by the following formula:

$$\Omega = \frac{\Lambda}{A}$$

Corto's equation

Corto's index

The Corto increases with the maze and diminishes with the sentiment of shared love.

$$\Omega = \frac{\Lambda}{A} \qquad \frac{\partial \Omega}{\partial A} < 0$$

Anguish is inversely proportional
to the sentiment of being loved by those we love

The ultimate point is that well-being is attained through the resolution of the Corto. To do this either we reduce the numerator or increase the denominator, minimizing the maze and/or elevating the Ariadne (relieving anxiety and learning to love).

$$Min\left[\Omega = \frac{\Lambda}{A}\right]$$

Minimization of the Corto

For those who are no longer able to reduce their mazes the only solution is to multiply love in order to ease their torments. But those who fear emotional instability frequently prefer to work on the reduction of their mazes. There are two ways to minimize anxiety: reducing its multipliers and augmenting its dividers.

Ariadne's variable

Corto's sensitivity to the notion of requited love, embodied by Ariadne's variable, is difficult to model. For this sentiment is highly versatile: its impact differs according to each person and moment. We can nonetheless specify a set of properties that characterize Ariadne's variable.

Let k_2 be the degree of affection for the beloved and let k_2^* be its reciprocal.

PROPERTY OF MONTAGUE, also called "Nature Boy Property". *The greatest thing, you'll ever learn, is just to love and be loved in return.* The highest value of A is obtained when the love is absolute and absolutely shared.

$$\operatorname{Sup}\left[\mathrm{A}_{\left(k_2,k_2^*\right)}\right]=\mathrm{A}_{(1,1)}$$

Ariadne's variable culminates
in the reciprocity of consummate love

PROPERTY OF CAPULET. The weakest value of A is obtained from the feeling of utter abandonment.

$$\operatorname{Inf}\left[\mathrm{A}_{\left(k_2,k_2^*\right)}\right]=\mathrm{A}_{(1,0)}$$

The indifference of those we love
minimizes Ariadne's variable

CONSTRAINT OF THESEUS. To be loved by someone we don't love or to abandon somebody that loves us increases the torment of the maze.

$$k_2^*\sim 1\Rightarrow \lim_{k_2\to 0}\mathrm{A}_{(k_2,k_2^*)}<1\ \ (\Rightarrow\ \Omega=\frac{\Lambda}{\mathrm{A}}>\Lambda)$$

Eminent love increases the anxiety
of those who don't requite it

This constraint of Theseus in conjunction with the property of Capulet forms a family of functions of Ariadne known as the Naxos (א), in which relationships that are significantly asymmetrical are doomed.

$$\mathrm{A}\in\aleph\ \Rightarrow\ \exists\tau<1\ :\ \left|k_2-k_2^*\right|>\tau\Rightarrow \mathrm{A}_{\left(k_2,\,k_2^*\right)}<1$$

Family of Naxos
hyper asymmetrical loves are condemned to anxiety

We can identify another family of functions called Ithaca (ℑ) by specifying the limits of Ariadne in addition to the properties of Capulet and Montague.

To get a taste of these limits think of Penelope and Ulysses, the sighs that time could not erase and the vows unbroken despite the promise of immortality.

$$A \in \Im \Rightarrow \begin{cases} \lim\limits_{k_2^* \to 1} A\left(1, k_2^*\right) = \infty \\ \lim\limits_{k_2^* \to 0} A\left(1, k_2^*\right) = 0 \end{cases}$$

Family of Ithaca
the limit of Ariadne is infinite or infinitesimal
as the passion is symmetrical or asymmetrical

ILLUSTRATION. Imagine a lover whose function of Ariadne belongs to the family of Ithaca. Madly in love, he receives a letter assuring him of the reciprocity of his sentiments:

$$k_2 \approx 1 \; ; \; k_2^* \approx 1 \Rightarrow A\left(k_2, k_2^*\right) \approx +\infty$$

$$\Rightarrow \Omega = \frac{\Lambda}{A} \approx 0 \text{ (infinitesimal anguish)}$$

Then on checking the envelope he discovers that the letter is destined for another:

$$k_2 \approx 1 \; ; \; k_2^* \approx 0 \Rightarrow A\left(k_2, k_2^*\right) \approx 0$$

$$\Rightarrow \Omega = \frac{\Lambda}{A} \approx +\infty \text{ (infinite anguish)}$$

Even the weightiest torments of the maze seem like a feather to the requited lover. *A contrario*, the sentiment of abandonment swells even the smallest of mazes.

The model of existential mathematics, reduced to its simplest form, can be expressed thus:

$$\underset{\dot{v} < \mathrm{V} < \dot{r}}{Min} \left[\Omega = \frac{\Lambda}{A} \right]$$

Minimization of the Corto
within vestals' constraints
through Ariadne expansion
and maze reduction

CHAPTER V

Appendices

All that is simple is false, all that is complex is unmanageable. This maxim will rule our amendments to the model.

COMPLEX BEINGS AND MAZES

The formulae condensed in the preceding pages outline the concepts of beings, worlds and mazes. We will now attempt to develop them in a complex universe.

Complexity of beings

The concept of real, experienced and ideal beings that constitute a person is founded on an ambiguity that needs to be addressed. Inspired by complex numbers which have one term that is real and another imaginary (i), here is a proposition for the expansion of the model:

$\bar{l} = \underset{\sim}{\bar{l}} + i\bar{\bar{l}}$ the real being

with $\begin{cases} \underset{\sim}{\bar{l}} & \text{the real part of the real being} \\ \bar{\bar{l}} & \text{the imaginary part of the real being} \end{cases}$

$\tilde{l} = \underset{\sim}{\tilde{l}} + i\tilde{\bar{l}}$ the experienced being

with $\begin{cases} \underset{\sim}{\tilde{l}} & \text{the real part of experienced being} \\ \tilde{\bar{l}} & \text{the imaginary part of the experienced being} \end{cases}$

$\hat{l} = \underset{\sim}{\hat{l}} + i\hat{\bar{l}}$ the ideal being

with $\begin{cases} \underset{\sim}{\hat{l}} & \text{the real part of the ideal being} \\ \hat{\bar{l}} & \text{the imaginary part of the ideal being} \end{cases}$

The real being has two components, one objective, the other inter-subjective: the authentic being and the public being – the intrinsic properties of a subject as opposed to what other people see.

The same applies to the experienced being which has a purely subjective part and another which is trans-subjective: the subject as themselves as opposed to the role they have created for themselves.

The same again for the ideal being which has both heroic and dream-like dimensions, the first calling out to become reality and the second resisting it: the hero that a subject would like to become and the fantasies of their dream life.

Complications of the mazes

The doubling of beings to include real and imaginary parts leads to new combinations of distances among the beings that constitute the maze. Six distinct beings gives rise to

fifteen distances in the system that need to be measured and weighed. The same goes for the worlds. We can now describe the complex formula for the maze of a subject:

$$\Lambda = k_1 \begin{bmatrix} \alpha_1(\tilde{l},\hat{l}) + \beta_1(\hat{l},\bar{l}) + \gamma_1(\bar{l},\tilde{l}) \\ \theta_1(\tilde{\bar{l}},\hat{\bar{l}}) + \theta_2(\hat{\bar{l}},\bar{\bar{l}}) + \theta_3(\bar{\bar{l}},\tilde{\bar{l}}) \\ \theta_4(\bar{\bar{l}},\tilde{\bar{l}}) + \theta_5(\tilde{\bar{l}},\hat{\bar{l}}) + \theta_6(\hat{\bar{l}},\hat{l}) \\ \theta_7(\tilde{\bar{l}},\hat{l}) + \theta_8(\hat{\bar{l}},\bar{\bar{l}}) + \theta_9(\bar{\bar{l}},\tilde{\bar{l}}) \\ \theta_{10}(\tilde{\bar{l}},\hat{\bar{l}}) + \theta_{11}(\hat{\bar{l}},\bar{\bar{l}}) + \theta_{12}(\bar{\bar{l}},\tilde{\bar{l}}) \end{bmatrix} + k_2 \begin{bmatrix} \alpha_2(\tilde{\underset{\sim}{L}},\hat{\underset{\sim}{L}}) + \beta_2(\hat{\underset{\sim}{L}},\bar{\underset{\sim}{L}}) + \gamma_2(\bar{\underset{\sim}{L}},\tilde{\underset{\sim}{L}}) \\ \theta'_1(\tilde{\bar{\underset{\sim}{L}}},\hat{\bar{\underset{\sim}{L}}}) + \theta'_2(\hat{\bar{\underset{\sim}{L}}},\bar{\bar{\underset{\sim}{L}}}) + \theta'_3(\bar{\bar{\underset{\sim}{L}}},\tilde{\bar{\underset{\sim}{L}}}) \\ \theta'_4(\bar{\underset{\sim}{L}},\tilde{\bar{\underset{\sim}{L}}}) + \theta'_5(\tilde{\underset{\sim}{L}},\hat{\bar{\underset{\sim}{L}}}) + \theta'_6(\hat{\underset{\sim}{L}},\hat{\underset{\sim}{L}}) \\ \theta'_7(\tilde{\underset{\sim}{L}},\hat{\underset{\sim}{L}}) + \theta'_8(\hat{\underset{\sim}{L}},\bar{\underset{\sim}{L}}) + \theta'_9(\bar{\underset{\sim}{L}},\tilde{\underset{\sim}{L}}) \\ \theta'_{10}(\tilde{\bar{\underset{\sim}{L}}},\hat{\underset{\sim}{L}}) + \theta'_{11}(\hat{\bar{\underset{\sim}{L}}},\bar{\underset{\sim}{L}}) + \theta'_{12}(\bar{\bar{\underset{\sim}{L}}},\tilde{\underset{\sim}{L}}) \end{bmatrix}$$

Maze of complex beings and worlds

or further, in virtue of the properties of *i,* the pure imaginary number ($i^2 = -1$):

$$\Lambda = \begin{cases} k_1 \begin{bmatrix} \alpha_1 \operatorname{Re}(\tilde{l},\hat{l}) + \beta_1 \operatorname{Re}(\hat{l},\bar{l}) + \gamma_1 \operatorname{Re}(\bar{l},\tilde{l}) \\ \theta_1 \operatorname{Im}(\tilde{l},\hat{l}) + \theta_2 \operatorname{Im}(\hat{l},\bar{l}) + \theta_3 \operatorname{Im}(\bar{l},\tilde{l}) \\ \theta_4 \operatorname{Im}(\bar{l},i\bar{l}) + \theta_5 \operatorname{Im}(\tilde{l},i\tilde{l}) + \theta_6 \operatorname{Im}(\hat{l},i\hat{l}) \\ \theta_7 \operatorname{Im}(\hat{l},i\tilde{l}) + \theta_8 \operatorname{Im}(\bar{l},i\hat{l}) + \theta_9 \operatorname{Im}(\tilde{l},i\bar{l}) \\ \theta_{10} \operatorname{Im}(\tilde{l},i\hat{l}) + \theta_{11} \operatorname{Im}(\hat{l},i\bar{l}) + \theta_{12} \operatorname{Im}(\bar{l},i\tilde{l}) \end{bmatrix} \\ + k_2 \begin{bmatrix} \alpha_2 \operatorname{Re}(\tilde{L},\hat{L}) + \beta_2 \operatorname{Re}(\hat{L},\bar{L}) + \gamma_2 \operatorname{Re}(\bar{L},\tilde{L}) \\ \theta'_1 \operatorname{Im}(\tilde{L},\hat{L}) + \theta'_2 \operatorname{Im}(\hat{L},\bar{L}) + \theta'_3 \operatorname{Im}(\bar{L},\tilde{L}) \\ \theta'_4 \operatorname{Im}(\bar{L},i\bar{L}) + \theta'_5 \operatorname{Im}(\tilde{L},i\tilde{L}) + \theta'_6 \operatorname{Im}(\hat{L},i\hat{L}) \\ \theta'_7 \operatorname{Im}(\hat{L},i\tilde{L}) + \theta'_8 \operatorname{Im}(\bar{L},i\hat{L}) + \theta'_9 \operatorname{Im}(\tilde{L},i\bar{L}) \\ \theta'_{10} \operatorname{Im}(\tilde{L},i\hat{L}) + \theta'_{11} \operatorname{Im}(\hat{L},i\bar{L}) + \theta'_{12} \operatorname{Im}(\bar{L},i\tilde{L}) \end{bmatrix} \end{cases}$$

Aggregation of real and imaginary distances among beings and worlds

As the architectural metaphor suggests, the detours are the essence of the maze. The labyrinth highlights the divorce between contiguity and proximity, that is, the geographical separation of two points as opposed to the length of travel necessary to pass from one point to the other.

These detours that oblige us at first to twist, turn and move away from our destination need to be integrated in the model. It is sometimes necessary to distance and reshape our beings to be better able to bring them together and harmonize them. A musician often practices his scales reluctantly, against his momentary aspirations, in the hope of excelling later on. At the instant 't', the maze has grown, but only with the goal of reducing it at 't+1'. The temporal horizon is thus decisive in our modeling.

These observations invite us to establish two points: 1) the identity of the subject as the matrix of their beings over time; 2) a metamaze, or maze of mazes which overlaps the distances between beings with respect to time. This is the crux of minimization.

Identity matrices

It's possible to think of the history of a subject as the set of their physical and psychical lives, that is to say, the aggregate of the vectors of their real, experienced and ideal beings at all moments of their life until the present (m).

$$Y = \begin{pmatrix} \bar{l}_0 & \bar{l}_1 & \dots & \bar{l}_{m-1} & \bar{l}_m \\ \tilde{l}_0 & \tilde{l}_1 & \dots & \tilde{l}_{m-1} & \tilde{l}_m \\ \hat{l}_0 & \hat{l}_1 & \dots & \hat{l}_{m-1} & \hat{l}_m \end{pmatrix}$$

Identity matrix

That said, to better map the identity of a subject we must add to their history the aggregate of their projections into their future ($l_{i>m}$). A person is not only what they have lived and now live but also what they think they will live.

$$Y = \begin{pmatrix} \bar{l}_0 & \bar{l}_1 & \dots & \bar{l}_{m-1} & \bar{l}_m & \bar{l}_{m+1} & \dots & \bar{l}_\omega \\ \tilde{l}_0 & \tilde{l}_1 & \dots & \tilde{l}_{m-1} & \tilde{l}_m & \tilde{l}_{m+1} & \dots & \tilde{l}_\omega \\ \hat{l}_0 & \hat{l}_1 & \dots & \hat{l}_{m-1} & \hat{l}_m & \hat{l}_{m+1} & \dots & \hat{l}_\omega \end{pmatrix}$$

Matrix of beings past, present, and future of beings real, experienced, and ideal

REMARK 1. A subject is the matrix of their past, present and future beings. Their identity is this combination orchestrated by their valuation of time.

$$H = \begin{pmatrix} h_0 \\ \cdots \\ h_{m-1} \\ h_m \\ h_{m+1} \\ \cdots \\ h_\omega \end{pmatrix} \text{ with } \sum_{i=0}^{\omega} h_i = 1$$

Vector of time valuation

REMARK 2. We could at this stage introduce a plurality of future beings weighted by probability, but we will restrict ourselves here to singular projections of the future.

Metamazes

Without the pressure of time, each labyrinth would be futile, because all difficulties would vanish and only skeptics would find any. The fundamental maze, or metamaze, is the overlapping of the mazes past, present, and future.

$$\left[\Lambda\right] = \sum_{i=0}^{\omega} h_i \Lambda_i$$

Metamaze,
linear combination of mazes
past, present and future

SOME ARCHETYPAL ATTITUDES. Some individuals, like the Grasshopper, only deal with the now ($i=m$). Their maze is only about the present.

$$h_m \simeq 1 \text{ and } \left[\Lambda\right] \simeq \Lambda_m$$

Dominance of the now-maze

Others, like the Ant ($i>m$), only think of the future. Their metamaze is a combination of mazes to come.

$$\sum_{i>m} h_i >> \sum_{i\leq m} h_i \text{ and } \left[\Lambda\right] \approx \sum_{i>m} h_i \Lambda_i$$

Ascendance of future mazes

Still others are haunted by their pasts ($i<m$); their metamaze is the sum of past mazes.

$$\sum_{i<m} h_i >> \sum_{i\geq m} h_i \text{ and } \left[\Lambda\right] \approx \sum_{i<m} h_i \Lambda_i$$

Prevalence of archaeo-mazes

This last radical attitude, which consists in valuing only what has already happened in one's life and in trying to solve only past mazes, is difficult to understand. Don't past beings and worlds always remain as they are and the distances between them remain frozen?

It is probably one of the ambitions of psychoanalysis to question and model these past beings in order to untangle the mazes associated with them.

Certain magic rituals also disrupt the arrow of time in order to redraw past mazes[1]. *In fine,* the past beings and worlds that structure our lives are not unchangeable. The profiles of ghosts and the curve of the labyrinths of our past are movable and our consciousness possesses keys to hidden doors in past mazes.

REMARK 1. Locked mazes. When we think a future maze cannot be resolved and it seems that its minimization in a given system will be insufficient no matter what we do, the only course of action is to blow up the maze in the hope of resolving it at a later date. Sometimes we run away from happiness that is too predictable, putting our beings at risk in order to avoid the greater peril of a gradual demise. Pirates were known to scuttle their own ships when faced with the possibility of conquering a better vessel in order to leave no choice but victory.

1. A friend was unable to avoid bitter separations from the women he loved because of the ominous shadow of past relationships. His emotional maze was closed off by the spectral mazes of his former loves. He believed he had not sufficiently cherished these women and was thus cursed with the repetition of his sentimental failures. He decided to undertake a ritual to repair these unresolved break-ups. In his imagination he invited his first wife to a goodbye dinner. There alone with the specter of his love he told her of the passion he felt for her and thanked…

REMARK 2. The previous remark about the feeling of suffocation in a programmed happiness leads us to locate more precisely the concept of liberty in the model. Liberty fits into the experienced being and world, specifically within our capacity to minimize the Corto. But we can be more explicit: the locks that seal our mazes often serve to enclose possible beings in exclusive and narrow domains of definition.

$\bar{E}$ and $\bar{M}$: domains of real beings and worlds that we can hope for.

$\tilde{E}$ and $\tilde{M}$: domains of experienced beings and worlds that we can feel.

$\hat{E}$ and $\hat{M}$: domains of ideal beings and worlds that we can imagine.

The sentiment of liberty is proportional to the size of the domains of possible beings and worlds. Without doubt, we work as much on the extension of these domains as on their intersection.

… her for the time they had spent together. He didn't beg her to stay but blessed her departure. He waved her off with gratitude then closed the door and opened it again to the second woman in his life. He repeated the ritual until every woman he had ever loved had passed through in the same way. At the end of the evening he collapsed from fatigue but woke the next day infinitely lighter and ready to love again. He had relived the key moments of his life. The goodbyes were accomplished and the twists and turns of his separations redrawn.

$$\langle E \rangle = \bar{E} \cap \tilde{E} \cap \hat{E}$$
$$\langle M \rangle = \bar{M} \cap \tilde{M} \cap \hat{M}$$

Spaces of real liberty

REMARK 3. Intertemporal mazes. The metamaze may not be a simple linear combination of our past, present and future mazes. The distances between beings and worlds of different times overrun consciousness. And so with prophetic words, oracles reduce the distance between the experienced world of today and the real world of tomorrow.

$$\left[\Lambda\right] \simeq \left(\tilde{L}_m, \bar{L}_{d>m}\right)$$

Oracle metamaze

REMARK 4. Taking into account time raises the issue of the dynamic of vital energy of a subject. The fluctuation of this dynamic needs to be modeled. Let *Chi*, χ, be the quantum of vital energy that animates a subject. Until now the theory has been limited to cases where χ is constant. The general theory will extend to all the possible levels of energy.

The program of research opened here consists in minimizing the Corto and maximizing the Chi.

$$\text{Min } \Omega \ \vdots \ \text{Max } \chi$$

Reduce as much as possible the anguish
while vitalizing as much as possible the beings

REMARK 5. Ultimate reflection – the interlocking of beings of a tribe in a transgenerational maze. The trouble of resolving within oneself the maze of beings passed away and those yet to come.

$$[\![\Lambda]\!]$$

Transgenerational maze
Formula to be defined...

TABLE OF CONTENTS

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