Pain.
Peine. **Schmerzen**.

Abstract: We present a speculation on pain from mathematical Spaces and their properties as well as the Poisson and Binomial Process.

Passage and Path of Pain.

Clearly Pain is defined as $\exists f_i$ such that $X_1 + X_2 + .. X_n \leq n$, with the Separation Condition: $x_i \neq y_j$ such that $f_n(x_i) \to f_\infty(x_i) \ \ \forall i,j \in \mathbb{N}$

$$\left\langle \sum_{i=1}^{n} \frac{X_i}{n}, \sum_{i=1}^{n} \frac{X_i}{n} + \frac{X_{n+1}}{n+1} \right\rangle \Rightarrow \left(\frac{X_{n+1}}{n+1} \to 0 \right) \quad \text{and} \quad \Pr(\sum_{i=1}^{n} X_i) = np$$

This is a Banach Space. We say p is the step, and t the time, and $\Pr(X_i)$ the availability of path.

Waiting and Pain in a Space.

In time $[0;t)$ we have the number of events $E_i = x_i$ in time i. We determine λ (that takes time) for $\frac{1}{e^\lambda} E(\sum_{i=1}^{n} x_i) = \frac{\lambda}{e^\lambda}$. This is known as the rapport $\lambda : e^\lambda$ or $1 : \ln x$. We have the one experiment $\frac{1}{1-x_i}$ as big as possible, finding x_i big. (It is ordered by Pleasure in the Hilbert Space).

1.**The Metric Space** M_i.

The Continuity feature is $f : M_1 \to M_2 \Rightarrow f(M_1)$ as Compact. (Compact if the Subsequence of a Sequence of Points in M_i is converging)

The Hope condition (or Heine Borel Condition) is that an Open covering G_i of M_j then M_j is compact and $G_1 G_{2..,}$ convergent as Open for Closing them. (Spaces are Metric and go as Compact). We want $\bigcap_{i=1}^{n} G_i$ with intersections of $\bigcap_{j=1}^{n} f_j(G_i)$. The function feature that comes regularly is $\exists \max_x f(x \in G_i)$. f is bijective (injective and surjective) on a compact M_i, then $f^{-1}(M_i)$ is also continous. We are conscious of $f(G_i)$ as a sequence in M_i or M_j. The metric spaces are uniform (*écarts finis en séquence*; and Space Seperation Condition $x_i \neq y_j$ such that $f_n(x_i) \to f_\infty(x_i) \ \ \forall i,j \in \mathbb{N}$ – (also called the Condition of Kolmogorov)). We also expect the Space to be Affine. A uniform and affine Space is Normal.

2.**Spaces and The Projection Theorem**.

We have the Projection Theorem.

In The *Hahn Banach Theorem*: in front of Convexity (Sphere) and a point out of the Sphere x, $\exists$ a hyperplane separating the point and Sphere (Cones and Convexities). $F : [a,b] \to f([a,b])$, is a Space of continous functions in a Vector Space.

We know that the *Normed Linear Space* with $\|x + y\| \leq \|x\| \|y\|$ and $\|x\| - \|y\| \leq \|x - y\|$. The Space S is Open, with $x_i \in S$, and it is Closed if all limit points of

S are in *S*.

We laso know that $\sum_{i=1}^{\infty} |\xi_i \eta_i| \leq |x|_p |y|_q$ and $\left(\sum_{i=1}^{\infty} |\xi_i + \eta_i|^p \right)^{\frac{1}{p}} \leq |x|_p + |y|_q$. we know the Cauchy Sequences in the Banach Space are bounded. *The Hilbert Space*: as $\exists$ a Projection Theorem and Orthogonal Complement Activity, with the Gram-Schmidt Procedure: $e_1 = \frac{x_1}{\|x_1\|}$, and $z_2 = x_2 - \langle x_2 \mid e_1 \rangle e_1$.

We have a projection on a Convex Set (as the Sphere), and there is a Separation: $\exists x_0$ such that $\|x - x_0\| \leq \|x - k\|$. $\forall k$.