The optimal web of interconnected human intellects, is it achievable?

© Dmitri Martila
eestidima@gmail.com
Vambola 24, Pärnu 80026, Estonia

The Clay Institute Millennium Prize Problems are not wired to the collective intellect of the humankind. Sadly, such a shame! I mean, what evil envy, aborts and terrorism do destroy the global intellect. We must not build the artificial intellect in PC, we shall better to support evaluation of the human ability to think. Any individual's brain and soul is like the super-computer, more powerful and more beautifully designed, than the entire Universe. So, connecting the human abilities into the social media, one makes the super-super-super powerful intellect. The global intellect, which is capable to solve such hardly solvable Millennium Prize problems. Who likes my mind? I got it from my Lord Creator. Glory to the Jesus Christ!

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Глава 1

$P \neq NP$

There are can be made up an unbounded number of tasks, so the probability, what every one of them has exactly $P = NP$ is zero.©

Moreover. You are trying to brake an ISIS computer site. If you are given a password (true or false), then you enter it and check it out for n seconds. But if you are trying to find the true password, you need to enter the very first one. And the probability for it to be true is very low. Therefore, on average, the $P \neq NP$.

For, sure, at least some tasks will for ever have $P \neq NP$. Here are the simplest examples.

1) Person has a password for his bank account. There is meaningless small probability, what Hacker's very first try will match the password of the person. In the long run, the total time of success will be less, than of failer: $P \neq NP$. Hackers' universal keys are all ignored by ignoring all incoming files.

2) The quadratic equation $x^2+b\,x+c=0$, where $b=34$, $c=12$. The solution is $-(b/2)+\sqrt{b^2-4\,c}/2$, $-b/2-\sqrt{b^2-4\,c}/2$. Note, what there are two solutions. But even, if the chosen is $-(b/2)+\sqrt{b^2-4\,c}/2$, the CPU time for its calculation is 3 times more, than for finding $x^2+b\,x+c$ if is known $x=-0.35668302$. Thus, $P \neq NP$.

The quantum computer will also have $P \neq NP$ in this situation, because some tasks can not be computed in instant: the case with determinant has 7 CPU unit of times (because at first CPU step the operations: b^2, $-b/2$, $4c$ are made, at second and third CPU steps of time the Determinant is calculated, then it is divided by 2 and the final addition is made). But the $x^2+b\,x=-c$ has only 3 CPU units of time (1: to find x^2, $b\,x$; 2: to add these two $x^2+b\,x$; 3: to compare result with $-c$).

Глава 2

Millennium problem and the wishful thinking. Is Perelmann wrong?

It is amazing to see, how the problems find their solutions. Even such extremely long as the 1200 pages of the ABC-hypothesis proof of the "Japan Perelman", which is needed to be consumed by the most brilliant men to come. And like the first PCs were huge but became compact, the large proofs can turn into very compact ones. ©

2.1 Is it so hard to prove the Poincare Conjecture?

2.2 First Proof

The spacetime metric is g_{ij}, $i, j = 1, 2, 3$. The according Ricci tensor is R_{ij}. The according deformation equation

$$R_{ij}(\kappa) = \kappa\, U_{ij} + (1-\kappa)\, R_{ij}(0)\,, \tag{2.1}$$

has allways a singularity-free solution, which is the metric $g_{ij}(\kappa)$. Because the metric has 6 independent components and there are 6 independent functions $R_{ij}(\kappa)$. The U_{ij} is the Ricci tensor of the Friedman closed Universe:

$$ds^2 = dr^2 + (\epsilon + \sin r)^2\, (d\theta^2 + (\beta + \sin\theta)^2\, d\phi^2)\,, \tag{2.2}$$

where constants $\epsilon = \beta = 0$.

2.3 Second Proof

The metric (2.2) with $\beta = 0$, $\epsilon \neq 0$ can be transformed using the $\theta = \theta(v, w)$, $\phi = \phi(v, w)$ into the metric $\hat{g}_{ij}$, which has $\hat{g}_{v\,w} = 0$, $\det \hat{g} = 1 + \det g$. These are two equations for two transformation functions. So, it has the solution.

Through the coordinate transformation the original metric can allways be transformed to the diagonal form:

$$ds^2 = f_1\, dv^2 + f_2\, dw^2 + f_3\, dq^2\,. \tag{2.3}$$

The corresponding RicciScalar is non-singular, if the $\det \bar{g} = f_1\, f_2\, f_3 \neq 0$ in all the manifold. Let us make the deformation transformation

$$\bar{g}_{ij}(\kappa) = \kappa\, \hat{g}_{ij} + (1-\kappa)\, \bar{g}_{ij}(0) \tag{2.4}$$

During all the $0 \leq \kappa \leq 1$ the determinant is non-zero, thus, there is no curvature singularity. The nonzero of ϵ implies to the singularity-free mini-wormhole, which mouths are connecting the south and north poles: $r = 0$ and the $r = \pi$. By turning $\epsilon \to 0$ this wormhole shrinks to zero – vanishes.

2.4 Third Proof

The deformation (2.4) with $\hat{g}^{ij}$ in form of the (2.2) with non-zero ϵ, and the β. After we get from the original manifold the $\hat{g}^{ij}$, we can turn the β to zero, without any singularity of the RicciScalar (please check it), and then to shrink the mini-wormhole to zero by taking the limit $\epsilon \to 0$.

2.5 The connectivity of manifold

Because the metric above does not distinguish the simple from multiply-connected manifold, then, in the end, all manifolds are homeomorphic to the sphere. An example of multiply connected manifold are two mouths of a wormhole, connecting two distant areas of our Universe.

2.6 Discussion

The simple-minded people think, what if the Fields medal as well as the Clay Millennium prize were attributed to Perelman, then there are the Prizes. But he refused them both, and, so, his extremely complicated proof has no Prize attached to it. The deal with Prize is not finished, therefore, in the end, the Clay Institute still can give us the Prize. The process is not finished, until the "champaign is opened". The right social behavior is the necessary part of the scientific process.

The best explanation of Grigori'es arXiv paper on finds there to read for free of charge. The well known explanatory book starts with concise description of what the Grigori has done. But it can hardly contain all of the Grigori'es arguments, which one could find in the remaining text. However, I have not the required skills to read it. I can only present my comments to the concise description.

Let us open the John W. Morgan and Gang Tian, "Ricci Flow and the Poincaré Conjecture" arXiv:math/0607607 and read at page 9 the text of overall complexity:

"(ii) If the initial manifold is simpler then all the time-slices are simpler: If (M, G) is a Ricci flow with surgery whose initial manifold is prime, then every time-slice is a disjoint union of connected components, all but at most one being diffeomorphic to a three-sphere and if there is one (my remark (R1)) not diffeomorphic to a three-sphere, then it is diffeomorphic to the initial manifold. (R2) If the initial manifold is a simply connected manifold M_0, then every component (R3) of every time-slice M_t (R4) must be simply connected (R5) and thus *a posteriori* every time-slice is a disjoint union of manifolds diffeomorphic to the three-sphere."

List of Martila's remarks:

(R1) "let us use a symbol for this: the A"

(R2) Let us add in this place: "after the making the surgeries (cut outs) tiny small, because fareign elements (which fill the surgery holes) must not come into the final manifold." And let us call this manifold A as final stage of the "Ricci flow" process: ie, the symbol $M_T = A$ as the John W. Morgan and Gang Tian use.

(R3) "the S_i".

(R4) "Dear John Morgan, please, it is not the M_T, but the M_t!!!"

(R5) "the S_i are made tiny small, so they can be ignored at all. The important is the final M_T. Has it the constant Curvature R or has not?"

I am sorry, but this non-mathematical description of Grigori proof can not possibly demonstrate, what the initial manifold M_0 turns into manifold M_T of constant positive Scalar Curvature R or a collection of manifolds $(\sum S_i)$ with each of them $\{S_0, S_1, S_2, \ldots, S_N\}$ having fixed positive curvatures R_i. We hope to find the strict math of it in the rest of the book.

From this short description the Perelman's method of surgery implants foreign manifolds F_i into original manifold M_0? Yes, it does. Is it threat to homeomorphism? Yes, it is. Shall the combination of cut-outs m_i (which are replaced by the F_i) be carefully re-attached into the final Sphere S to preserve homeomorphism $M_0 \leftrightarrow S$? Yes, it must. Note, Perelman's talk about scalar curvature R is no more general, than the Einstein's use of Riemann's Curvature Tensor: the zero of Scalar Curvature might not be a flat spacetime without singularities.

Глава 3

On Navier-Stokes problem

3.1 О гладкости текущих струй

При гладком начальном состоянии системы (т.е., производные конечны в начальный момент), уравнения Навье – Стокса (Н.-С.) будут удовлетворены на протяжении всей эволюции системы. Поэтому уравнения Н.-С. не являются источником сингулярности и прекращения эволюции.

3.2 Введение

Уравнения Навье – Стокса есть система дифференциальных уравнений в частных производных, описывающая движение вязкой ньютоновской жидкости. Уравнения Навье – Стокса являются одними из важнейших в гидродинамике и применяются в математическом моделировании многих природных явлений и технических задач. Названы по имени французского физика Анри Навье и британского математика Джорджа Стокса. [4]

Гладкость некоей функции это когда график функции и первая производная этой функции не имеет обрывов в форме ступеньки: функция и её первая производная "непрерывны". Гладка ли текущая жидкость? Это есть так называемая Задача Тысячелетия, за решение которой обещан денежный приз и всемирная слава.

Имеем уравнение. Если параметры уравнения не гладки, то движение жидкости тоже не будет вполне гладким. То есть само течение будет плавно изменяться, но скорость изменения (или же скорость скорости изменения) будет уже резко меняющейся. Это естественно: например, по второму закону Ньютона резкое изменение силового поля вызывает резкое изменение ускорения вещества.

Если же все параметры уравнения гладки (их изменения, и все изменения изменений – гладки), то и решение будет гладким, так как нет источника резкого изменения. При этом решения не могут стать бесконечными, ведь можно показать (см. ниже), что изначальное гладкое решение будет оставаться ограниченным во всё время.

Такое сложное, как теория движения вязких тел была опубликована уже в первой половине 19-го века? Тем не менее, мы до сих пор сталкиваемся с трудностями при анализе уравнений. Совсем недавно (по сравнению с 19-ым веком), в 2015 году, была обнаружена угроза сингулярностей [1]. Но отсутствие окончательного успеха, продиктовано отсутствием самих Н.-С. уравнений в этой [1].

Назовем функцию “регулярной”, если функция и все ее производные меньше бесконечности.

Если начальное состояние является регулярным (и выражается через ряд Тейлора в момент $t = 0$ с диапазоном сходимости $0 < t < T$) и удовлетворяет в начальный момент времени уравнению Н.-С., то уравнение будут удовлетворено во всем диапазоне $0 < t < T$ (см Приложение А). Таким образом, нет никакого источника сингулярностей.

Диапазон сходимости может быть сделан очень большим, если в исходном состоянии производные высокого порядка могут быть меньше, чем $M =$ фиксированное

$$|\sum f^{(k)}\,\frac{t^k}{k!}| < \sum |f^{(k)}|\,\frac{t^k}{k!} < M \sum \frac{t^k}{k!} < \infty$$

с любым $0 < t < \infty$.

3.3 Приложение: форма уравнения Н.-С.

Известно, что уравнение Навье-Стокса может иметь такую простую форму [2]

$$\rho\left(\frac{\partial\vec{v}}{\partial t} + (\vec{v}\,\nabla)\vec{v}\right) = \rho\vec{F} - \nabla\,p + (\gamma+\mu)\,\nabla\,(\operatorname{div}\vec{v}) + \mu\,\triangle\vec{v}\,, \tag{3.1}$$

с уравнением состояния $p = p(\rho, T)$, и диссипативными постоянными γ, μ. Когда же γ и μ являются функциями пространства и времени, тогда уравнение Н.-С. становится [3]

$$\rho\left(\frac{\partial\vec{v}}{\partial t} + (\vec{v}\,\nabla)\vec{v}\right) = \tag{3.2}$$

$$= \rho\vec{F} - \nabla\,p + (\gamma+\mu)\,\nabla\,(\operatorname{div}\vec{v}) + \mu\,\triangle\vec{v} +$$

$$+A\,\nabla v^i + B^i\operatorname{div}\vec{v} + C_k\,\nabla v^k\,,$$

где $A := \nabla\mu$, $B := \nabla\gamma$, k-ная компонента вектора есть $C_k := (\nabla\mu)_k$.

3.4 Приложение A

Уравнение Н.-С. имеет вид $N(t, x, y, z) = 0$ при всех t. Поэтому при $t = 0$ у нас следующие уравнения

$$n_k := \frac{\partial^k N}{\partial t^k}\Big|_{t=0} = 0\,,$$

для всех $k = 1, 2, 3, \ldots$.

С другой стороны, ряд Тейлора

$$f = \sum f^{(k)}\,\frac{t^k}{k!}\,,$$

где в роли f может выступать плотность ρ, внешняя сила $\vec{F}$, давление p, скорость $\vec{v}$, вязкость μ и т.д. Вставляем все эти разложенные в ряд Тейлора величины в Н.-С. уравнение $N(t, x, y, z) = 0$, и группируем члены с одинаковыми степенями у t

$$N = N_0 + N_1\,t + N_2\,t^2 + N_3\,t^3 + \ldots\,.$$

Оказалось, что все $N_k \sim n_k = 0$, поэтому все $N_k = 0$.

Заключение

В статье показан оригинальный подход к решению проблемы Иститута Клея. Получены новые результаты. В заключении приводится следующее рассуждение:

Я показал, что если в какой-то момент конфигурация является гладкой и регулярной, то она гладкая и регулярная всё время. Но если в данный момент конфигурация не является гладкой, то это означает, что сила F не является гладкой (см. структуру уравнений, там сила – линейный член). Таким образом, путем добавления вспомогательного члена, $\vec{F} + \delta\vec{F}$, и затем уменьшая его значение $\delta\vec{F} \to 0$, делаем конфигурацию гладкой снова.

Глава 4

The Riemann hypothesis

Derived the Statistics of the un-solved problems (conjectures). The probability, what a conjecture will be solved is 50%. The probability, that a conjecture is true is $p = 37\%$. *The probability, what we get to know the latter is* $\psi = 29\%$. *Within the list of un-solved conjectures in Wikipedia (they are* $w = 140$*) are only* $n = 33$ *right ones, which could be proved positively. But the humankind is able to prove only* $X = 16$. *It is 50% of probability, what given conjecture will not ever be solved (I call a problem "solved", if it is either proved or rejected.) So, the famous David Hilbert's "Wir müssen wissen, wir werden wissen" is not correct. The Rimann conjecture is true with probability 100%. The others un-solved ones are true with probability* $p = 37\%$. ©

4.1 The solution to Riemann Conjecture

If after the $N \gg 1$ tests the theory fails one time, then from definition of probability one says: probability of the failure is $1/N$. It is the start of the statistics, hereby more tests will not follow; moreover, because $N \gg 1$, the collection of more numbers of failures is meaningless, because the "true probability" can change during these successful $N - 1$ tests in between. Therefore, the Scientific probability of failure is $1/N$.

That is fully describing the randomness in the system. So, if there is some collapse of latter, then one writes: $0/N$ and so the theory is true with certainty. About the Riemann Conjecture the Russian Wikipedia says in 2016: "Is known, what if the Conjecture is wrong, then it can be demonstrated." But starting from my formulas there is probability 50%, what the Conjecture will never be solved. Therefore, the Conjecture is True.

Moreover, in one interview the leading mathematician John F. Nash says "The Riemann Conjecture is number one problem in math, but possibly it can not be proved. However it is possible to prove, what the Conjecture is not provable." See 30-th minute in the video: https://youtu.be/q1I0UY204J8

4.1.1 Calculation of probabilities

Suppose now, what N first tests were successful. What is the probability, what remaining tests are successful?

$$p := (1 - 1/(N+k))^k = 1/exp(1)\,, \qquad k \to \infty\,.$$

Thus, it is nothing says, what the theory is successful yet. It is still more probable to fail.

If you open the article "List of unsolved problems in mathematics" in Wikipedia-2016, the total number of words "conjecture" is $w = 140$ (the obvious doublets we do not count in) and the total number of solved (I assume, word "solved" is not "debunked") conjectures is $m = 50$.

The total number of conjectures is simply

$$N = \beta_1\,(m+n)/p\,,$$

here and after the $\beta_i = 1 + \epsilon_i \approx 1$. The n is the number of true, but not solved yet conjectures.

The total number of solved conjectures is

$$M = \beta_2\, m/U\,,$$

where U is probability, what the solved conjecture is true. Then, the wrong solved conjectures are $d = M - m$.

From $N = w + m + d$ one finds the n. From $n/(w-m) = p$ one finds the U. Then the probability, what a conjecture is true and what the humankind will get to know this is $H = p\,(m+X)/(n+m)$, where X is the number of conjectures, which humankind will solve to be true. The probability, what conjecture is false, and what the humankind will discover it, is

$$h = (1-p)\,\frac{d+D}{N-(n+m)}\,,$$

where

$$D := \beta_3\, X\,(1/U - 1)$$

is the number of conjectures, which humankind will solve to be false. The $N - (n+m)$ is the total number of false conjectures, which are not solved yet. Then from $1 - H - h = (M + \beta_4\, X/U)/N$ one finds the X. It is 16.

Using the Taylor series for small ϵ_1, ϵ_2, ϵ_3, ϵ_4 one finds in first term the probability, what a problem will be solved: $1 - H - h = 1/2$. It is like the saying: "the probability to meet a dinosaur is 1/2: you meet him or you meet him not." I think, it is subconscious knowledge of the people, about the 1/2, which is derived here. Therefore, it is expected, what 3 of 7 Millennium Problems will not ever be solved. With my help are solved 4 Problems from the Millennium list, therefore there is nothing more, what is left to do with these 7 Problems.

The probability

$$\psi := (m+X)/N = \frac{1}{2\exp(1) - 2} \approx 29\%$$

is the chance, what the Riemann's hypothesis will be solved to be true. Note, what holds $H = \psi$.

Surprisingly, the $\psi < p$. Therefore: The holder of Verity is not the humankind. Note, what the derived probabilities U, p, ψ, h and $1 - H - h$ are expressed through the fundamental constant e only, and are not dependent on the system (the $m-$ and $w-$ independent) and, thus, the system management.

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