Why Remain Troubled

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Something which is mathematically true is almost closer (approximation) to the truth.

I will put few mathematical arguments for some social problems which are prevalent in some societies, that are directly or indirectly related specifically to order and size and I will discuss about problems and the reasons of not solving them (which results in dodging them).

Axiom 1 *Order is the most important phenomenon in creating a purposeful and meaningful structure. It is a glue and abstract force which keeps things together so that we can see them and get the most and best out of them.*

Somalia is a point in case where the absence of social order simply makes it illegible to be considered as a modern human society, and Iraq is heading towards that state of existence, where order, love of humanity and courtesy are disappearing into thin air.

Imagine the many fascinating and beautiful complex structures in nature, specially the ones which are called fractals whose dimensions of existence even are non integral, imagine the surface of our sun(the most explosive and chaotic celestial body in our solar system) in which the highest form of radioactive reaction takes place but remain intact and useful for all creatures of our solar system , imagine the immense universe that we live in including the black holes (collapsed stars from their own gravity because of the existence of nothing around them) where even light that passes around it, manages to escape with a curved path, but those which are closer to it, their paths are bend towards it to a point of no return and there by attracted and sink in it. All these and other chaotic structures which have chaotic order(highest form of order) exist for billions of years and attract our sight, love and imagination with what they are, because of the fascinating abstract force called natural order or natural law which ever you want to call it, that keeps them like that.

As we humans evolve from the primitive stage of existence where order was not that important and only existed in small groups, to the modern society that we are now, we pride our selves as the most ordered, highly structured societies on earth than other creatures and for that reason, we take order as a precursor and measure of courtesy (or civility), but practically, we all are almost as savage

if not more in civility as our ancestors. In fact, we are worst and dangerous to our own species and to other habitants of earth than any other creature.

As the history of mankind tells us, we still use the same way and method of solving old types of problems as that of our ancestors. This indicates that we are different from our ancestors only by the way we live, not by the way we think and by the methods we use to solve problems. In short, the problem of man kind is our own nature of being human, where we use our brain to do the job of non-thinking creatures, violence instead of argument and compromise to settle differences in ideas(this embedded behavior is reflected in religious conflicts), and also our problem solving skills and methods are more of societal bases than mathematical or natural one. Mathematical solutions are consistent and naturally valid and therefore are stable, which shortly means they are valid for all and for longer period of time. But solutions which have purely societal bases are politically driven by particular group(or groups) and last short and in most cases cause conflicts, because others which are victims need the right and better solutions.

When we attempt to find solutions to problems, we have to search the truth, which I assume are of two types: purely societal truth from the perspective of the group that claims to solve the problems, which in most cases are ephemeral and live the society in conflicts.

The other one is the natural truth which lasts longer and valid for all reasoning imaginative and thinking people. I call these solutions mathematically envisioned solutions.

As most problems are non-linear(linear to mean simple and straight forward) multivariable relations, which are super complex quasi-natural problems, we don't have to attempt to solve such complex societal problems only by societal and traditional skills (or means). Such complex problems indeed require complex solutions which require critical thinking or simply mathematical reasoning and mathematical understanding through mathematical lenses and imaginations. I therefore say :

Criterion 2 *Let no man enter to politics who lacks mathematical thinking.*

We live differently from the way our ancestors lived with different sense and out look, about our world in general and the place where we live in, particular about humanity and man's purpose of existence and its achievements in science and technology to solve problems that threaten life on earth, to make life better and enjoyable, to travel deep in to space and discover the outer universe so that we the human race can be benefited from the discoveries and findings of these extraordinary space missions, to live extremely interconnected and very much closer to each other, than ever before through electronic media, and all these things to happen, and to function properly, order is imperative.

That is why we mathematicians and physicists try to know how things behave in the universe (i.e.,study their behaviors) which in short terms, what orders do they have, this in tern helps man to live in harmony with nature, by being adherent to the orders or simply called natural laws so that we can fix problems when ever they happen, such as global worming, hurricanes, tornadoes, earth quakes, pandemics and epidemic, etc., by being adherent to their orders of nature.

Besides order, size of a set also matters in creating big enough structure so that almost all conceivable problems now and in the future can be solved in it.

Size for societal structure to mean, abundance of different types of natural and human resources which by default include the actual geographic size in which that particular society lives. I therefore write the following axioms concerning the size of the set that forms the structure which will give an eye opener for readers.

Axiom 3 *The bigger the set the more conducive it is to form many substructures, and thereby create a complex structure.*

Axiom 4 *The existence of more structures leads to the creation of more relations between elements, subsets, substructures, etc.*

Axiom 5 *The more structured a set, the more likely that problems can be solved with in the existing system.*

Contrary to these axiom is that if a system is less structured, it is unlikely that many problems will be solved within the system. Even for a highly structured system there always exist a problem which can not be solved with in the system : Gödel's incompleteness/ or undecidability axiom is a point in case.

Axiom 6 *Every set can be well ordered and therefore can create a well ordered structure.*

Proposition 7 *It is possible to create a problem within a set where the solution is not in that set.*

Problem 8 *Find a solution to the equation :* $3x+5=0$ *in the structure* $\langle \mathbb{Z}, +, \cdot \rangle$

Solution 9 *Here the set in which we are allowed to solve the problem is the set of integers* $\mathbb{Z}$*. But the number that gives the true equality for the equation is* $-\frac{5}{3}$ *which is not an integer and therefore it is not in* $\mathbb{Z}$*. Therefore, we conclude that the problem given is not solvable in the given structure and the reason is because the set is small.*

The steps to be taken now depends on the people that are handling the problem, i.e., whether the structure (i.e.,society) has a right group of people who really will transform the structure and create a better super structure which enables them to solve the problem or the kind of people which will declare the problem as wrong in the first place and throw out of their set of problems to be solved in their tenure (which in most cases is life long and the structure lives with these people for decades and decades and remain stack only on solving integral problems whose only solutions are integers) and any idea which they are not aware off and which is out of their modes and capacity of thinking will be treated as an idea of an enemy.

But other societies appreciate that such insoluble problems exist and try to ponder and think a larger domain where this problem can be solvable and there by create a superstructure which will be not only a space where that particular problem is soluble, but the many similar problems will be soluble there. Here we see the difference between creating a super-structure to solve an insoluble problem in an existing structure which basically is what constitutes growth and which is a measure of development and the inability to recognize that the problem is correct, and the existing structure is not good enough to solve the problem and similar problems of the type.

Let us consider an other example which demands expanded super-structure for its solution. The problem of searching a solution for $x^2 + 5x + 6 = 0$ in $\mathbb{R}$ is done by writing the quadratic trinomial as a product of its binomial linear factors as : $x^2 + 5x + 6 = (x + 3)(x + 2)$, then equating to zero, we have $x^2 + 5x + 6 = (x + 3)(x + 2) = 0$. Now, from the zero product principle and since $\langle \mathbb{R}, +, \cdot \rangle$ is an integral domain, we have that either the first factor is zero or (inclusive or) the second factor is zero and therefore the solution set is $\{-3, -2\}$. But when searching for solutions of $x^2 + 1 = 0$ in $\langle \mathbb{R}, +, \cdot \rangle$ either they will insist that $x = -1$ (which is in $\mathbb{R}$) and force others to accept that and use it when ever such problems arise in the future, which is tantamount to replacing the two dimensional Gaussian plane $\mathbb{C}$ by the unidimensional line $\mathbb{R}$ and forcing you to ignore the square on the variable x: wrong solution in a wrong set, or they will declare that this problem and any such similar problems which look right are dead wrong and should not be listed as problems perceived which need to be solved. Here comes again dodging and killing every fiber of reasoning, thinking, imagination and creating super(or higher order) structures of solving higher order problems which are paramount to growth and development of a society.

Now returning back to our original problem: better socities look at the form of the solution $-\frac{5}{3}$ and try to create problems which have similar solutions and try to find a better and larger set which will handle such kinds of numbers and the integers as well.

They consider the collection of numbers of the form $\frac{a}{b}$ where a, b are from $\mathbb{Z}$

with $b \neq 0$, which is denoted by $\mathbb{Q}$ and called the set of rational numbers. This collection of numbers indeed contains the solution of the above non solvable problem in $\mathbb{Z}$ and solutions of many unsolvable problems in $\mathbb{Z}$.

Therefore, they succeeded in creating a more structured mathematical system $\langle \mathbb{Q}, +, \cdot \rangle$ where $\langle \mathbb{Z}, +, \cdot \rangle$ is a substructure and in which problems in $\langle \mathbb{Z}, +, \cdot \rangle$ with fractional(or rational) solutions can be solved.

In some other cases, where the solution exists in the system, the way we get the solution has to be done very carefully, because, we may generalize a wrong way and apply it again and again which is totally wrong.

For example, solving the equation, $2x + 6 = 0$ in the structure $\langle \mathbb{Q}, +, \cdot \rangle$ is not bad at all, it is a regular problem in a division ring. $2x + 6 = 0$ and taking 6 to the right side of the equation, we have $2x = -6$, and the by multiplying both sides of the equation by the multiplicative inverse of 2 which is $\frac{1}{2}$, we get : $\frac{1}{2}(2x) = \frac{1}{2}(-6)$. Using the associative property of multiplication, we have $x = -3$. All the steps taken and the works done are with out violations of any rule or law of the structure of the rational numbers.

But, when the set and hence the structure is changed to $\langle \mathbb{Z}, +, \cdot \rangle$, which is a different and weaker structure in which we are no more free as we were in $\langle \mathbb{Q}, +, \cdot \rangle$. The method, where all first year students immediately want to apply when solving such a linear equation, dividing both sides of the equation by the coefficient of the variable, is no more valid, and hence, the problem is solved differently with a fine walk, and here is how. The step which was multiplying by $\frac{1}{2}$ is no more valid here, because $\frac{1}{2}$ is no more a legal element of the set of integers $\mathbb{Z}$ and hence can not be used in solving the problem. Therefore, we need a different method which will obey the rules and regulations of the structure and here it is.

$2x+6 = 0$, factoring the common factor 2 on the two terms of the left side of the equation, we have $2(x + 3) = 0$. Since $\langle \mathbb{Z}, +, \cdot \rangle$ is an integral domain, from the product of zero principle, we have either $2 = 0$ which is not, so $x + 3 = 0$. Then adding the additive inverse of 3 on both sides of the last equation, we get $x = -3$. Therefore, in both cases the solutions are the same, but the methods used are set(and hence structure) dependent.

Conclusion 10 *Solutions of problems are structure dependent and hence the structures determine the method of solving them.*

Proposition 11 *From a big set, it is always possible to create a well ordered, highly structured with more than enough relations among elements, subsets, and substructures of the set in which any conceivable problem is almost solvable with in the system.*

Proposition 12 *Highly structured and well ordered societies are courteous and more civilized societies.*

Proposition 13 *In least structured sets, almost nothing can be proved or solved, even if the set is big.*

Conjecture 14 *Underdeveloped societies are less structured and less ordered.*

Corollary 15 *A developed society is a civilized society which is courteous and humane more than the underdeveloped ones.*

Proposition 16 *If the set is too small, it is likely that many problems remain unsolved, because there are not enough elements to form the necessary relations and there by the necessary structures to solve the many problems imagined or existed in the system.*

Corollary 17 *Small countries which are created by guerilla fighters from host countries, will remain under developed unless assisted by another developed country.*

Case 18 *Somalia is an example of a sub-structured, sub-ordered society of our modern world, while Iraq is a quasi-structured but still chaotic social structure which needs immediate interventions from all institutions of reason, scientific communities and civilized religions to bring the society to its sense of civility where above of everything lies humanity.*

Case 19 *All underdeveloped societies are the ones which are weakly structured, and weakly ordered where the structures are so weak almost all problems that exist can not be solved there, and they are so weakly ordered, most of the time we observe the absence of order and rule of law.*

Case 20 *In developed countries, there is order, citizens rights are protected by law (with the natural law of no more or no less equals) justice is immediate. The system is structured that most social, political, economic problems are addressed in a timely and meaningful way.*

The next idea that I want to discuss is about partitioning of a set that creates a structure. This relates to the point I mentioned above which is size.

What happens to a structure, when we partition the set that forms an existing structure?

Partitioning of a set (if allowed) is a continuous process in which a set of one element can also form a set different from the main set. With out loss of generality, let us assume that only one sub set is created from the existing set. The point to consider is, what impact will it bring to the bigger set and to see if the new set can form a structure which is a properly working and viable structure which is at par with that of the existing structures?.

In some cases, the new set created may not be able to form a working structure by it self for many reasons: among the many things, its few elements and the inability to create a working and viable well ordered structure that works well with in (for its members) and out side, which disables their existence as a small structure,

If a subset created by partitioning from an existing structure is unable to create a working structure, then the very attempt in the first place is flawed. It does not make the elements work and used in it, and it does not serve as a good working co-structure for other existing structures.

Let me produce a mathematical example that explains this in the worst form.

Consider, the algebraic structure $\langle \mathbb{R}, +, \cdot \rangle$, the set of real numbers $\mathbb{R}$, under $+$(addition) and $\cdot$ (multiplication), which we know is a complete mathematical system. Just take away two elements 0 and 1 from it, i.e., $\mathbb{R} \setminus \{0, 1\}$, what is left structurally is nothing concerning solving problems in it. Because invertibility for both addition and multiplication which are fundamental for solving equations are no more valid in the remaining set and the set looses being a structure, as the identity and unity elements are no more in the set. At the same time, the subset formed from the two elements is as useless as the previous one, because nothing can be done from the two elements.

Imagine now for a moment, if there are societies in which what I explained above happened exactly on them. The question is, whose mistake is it ? What does it require to amend this societal fall out precisely described by the mathematical argument above and which is proven time and again to be true by their performances as a supposed to be working and viable social structure.