THE HIV/AIDS VIRUS

CAN A CURE BE FOUND?

A MATHEMATICAL APPROACH
TO THE QUESTION

BY

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Sept. 2006

Infection with HIV produces a strong immune response to HIV Antigens. Although antibody levels are high, the neutralising antibody responses against HIV are not strong and are rapidly followed by the production of viruses resistant to the neutralising activities of these antibodies.

(The above is from the Textbook of HIV Disease from the University of California and San Francisco General Hospital 6/9/2006)

This means that there is something unique about the HIV virus as compared with other viruses and that the acquisition of HIV and the production of the consequent antibodies automatically stimulates the production of further viruses which have the effect of neutralising the body's own immune system and the whole process is cyclical in it's nature. Thus we can infer that the HIV virus in some way causes the immune system to attack itself and that any further production of antibodies will only result in the production of viruses resistant to the neutralising effect of those antibodies.

The purpose of this paper is to attempt to mathematise this process and to establish by way of a mathematical proof whether or not a cure for this disease can ever be found.

I have approached this problem from the point of view that it is fundamentally a paradox, that is to say that any approach to the problem contains an element which is in it's essence self contradictory.

What is a logical paradox? A good example would be the so called Liar Paradox as follows:-

''This statement is false''

We ask ourselves ''Is this statement true or is it false?'' and the answer self evidently is:-

If it is true, then it is false and conversely if it is false then it is true.

A paradox such as the Liar Paradox can be mathematised, that is to say it can be brought in to the realms of conventional mathematics and number theory in the following manner by employing the Richard Paradox after the French mathematician Jules Richard (1905).

What is the Richard Paradox?

The property of being Richardian describes a numerical property of an integer for example ‘’an integer is divisible by another” or ‘’an integer is the product of two integers” or ‘’an integer is not divisible by any integer other than 1 and itself (i.e. the definition of a prime number).

We can clearly see that each definition will contain only a finite number of words and therefore only a finite number of letters of the alphabet. Thus the definitions can be placed in a serial order ascending from the fewest number of letters per definition to the greatest. If two definitions have the same number of letters, one of them will precede the other on the basis of the alphabetical order of the letters in each.

Since each definition is associated with a unique integer, it may turn out that an integer will possess the very property designated by the definition with which that integer is correlated. For example if the expression ‘’not divisible by any integer other than 1 and itself” happens to be correlated with the order number 17 then obviously 17 itself has the property designated by that expression. On the other hand , suppose that the defining expression ‘’being the product of some integer by itself” were correlated with the order number 15; then clearly 15 does not have the property designated by the expression (i.e. 15 has no square root).

In the second example we will say that the number 15 is Richardian and that the first example the number 17 is NOT Richardian or more generally we can say that ‘x is Richardian’ is the same as saying ‘’x does NOT have the property whereby ‘x’ directly relates to the serially ordered set of definitions” (i.e. in this case any prime number cannot be Richardian.

Following from the foregoing the statement ‘’x is Richardian” must have a position fixing integer in the general sequence. Let us suppose that this integer is in fact ‘n’ and let us pose the question ‘’Is ‘n’ Richardian?”.

Here we are faced with a fatal contradiction. If we say that ‘n’ is Richardian then it does NOT have the property designated by the defining expression with which it is correlated in the series (I.e. it does nt have the property of being Richardian). In short, ‘n’ is Richardian if and only if ‘n’ is NOT Richardian. Thus the system contains a fatal contradiction or more particularly the logical series contains the seeds of it’s own demise because the statement ‘’n is Richardian’’ is both true and false. Therefore the series, logical though it may seem is in fact inconsistent.
How can these paradoxes in logic have any bearing on the HIV/Aids epidemic? the reader may ask.

The purpose of this long and possibly obscure preamble is to show that even a seemingly logical mathematical system can contain contradictions which are fatal to the system itself. More to the point we can say that any solution to the Aids question would comprise of some algorithm and by the same token we can say that there is some algorithm which describes the regenerative processes underlying the Aids virus as previously described. Thus it should be possible to describe mathematically or at least within the rules of logic the cycle of the HIV/Aids infection, and I propose to address the question in the following manner.-

There is a theorem in elementary logic which formulates a necessary truth and which is a direct consequence and is derived from the Liar paradox and more particularly from the Richard paradox as discussed above and which reads as follows;-

$(p \supset r) \supset [(q \supset r) \supset ((p \vee q) \supset r)]$

In words this means that;-

(if p then r), then [if (if q then r) then (if (either p or q then) then r)].

Now let the following be the case:-

Let p = the Disease
Let r = the Antibody
Let q = the Cure

Now to relate the foregoing to the HIV/Aids virus and it's inherent property for self re-generation we can write as follows;-

(if there is a disease p then there is an antibody r), then [(if there is a cure q then there is an antibody r) then (if (then there is either a disease p or a cure q) then there must be an antibody r)].

From this we deduce that the resulting antibody r will produce more of the disease p and that the cycle will repeat itself.

Thus we deduce that there is no cure for the disease HIV/ Aids nor can there ever be because the underlying algorithm of the mechanism of the virus/antibody cycle of the virus is Richardian in it's nature and contains within itself it's own negation.

END