A Possible Reason Why Mathematicians Are Unwilling to Read My Paper, "A Solution to the 3*x* + 1 Problem", on occampress.com

by

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Jan. 31, 2019

I get no pleasure in saying this, but it now seems to me incontrovertible that the reason why mathematicians are unable to bring themselves to read the above paper is that I am not an academic mathematician. (My degree is in computer science, and much of my career has been spent doing research in the computer industry.)

It has seemed that every mathematician who has deigned to communicate with me, has had but one goal: to convince himself that an outsider has not solved this very difficult problem. The criticisms of the paper that have been sent to me have been, when not incomprehensible, then plain wrong, or else merely dismissive ("too vague", with no specifics as to what exactly is too vague). I feel justified in saying "plain wrong" because, in 2017 I began sending copies of the criticisms to a world authority on mathematical logic — of course, without mentioning the names or university affiliations of the mathematicians making the criticisms. The authority always replied that the criticisms were wrong.

Of course, when I try to point out the errors in the criticisms, I am often told that mathematicians have long known that a sure sign of a crackpot is an outsider who questions a mathematician's criticisms..

If the reader suspects that I am unable to accept criticism, let me say first that on the one occasion when a criticism was clear and correct — it pointed out a fundamental error in a strategy I had pinned great hopes on — I thanked the mathematician profusely, and set to work immediately trying to repair the error. Which I was eventually able to do.

In early 2016, I suddenly realized that two proofs of central importance to my efforts contained errors. Fortunately, again, I was able to repair them. The errors were easily described in a couple of sentences, and did not require the pages of incomprehensible emails about the proofs that I had received from several mathematicians.

In all the years that the paper has been on my web site, not one mathematician has made constructive suggestions for repairing the errors he claimed to have found. And yet, I am sure that such behavior seldom if ever occurs when a mathematician is reviewing the paper of a colleague.

On more than one occasion, I have been told, "Nothing of importance in mathematics has ever come from outside the university" — an assertion that reveals a shocking ignorance of the history of mathematics, since Descartes, Pascal, Fermat, Leibniz, and Galois, to mention only the most famous, all worked entirely outside the university. There have been others in the 19th and 20th centuries a major portion of whose careers were spent outside the university.

I must not fail to mention another reason for mathematicians' reluctance to read the paper, and

that is the online presence of obsolete criticisms of the paper. I know of one website that contains criticisms of a 2015 version. Not only were the criticisms false, but the proof that was criticized has long since been removed from the paper. Yet despite repeated pleas on my part, the managers of the website have refused to add a note to the website stating that the criticisms do not apply to the current version of the paper. The result is that potential readers — especially mathematicians — are turned away. Apparently I have no recourse in this matter.

It appears that the managers of the above web site have no experience of actually doing research. They believe that if a paper is published online and contains an error, that means that the author is incapable of correcting the error, and that his underlying ideas do not deserve any attention. But errors are almost inevitable in the course of attempting to solve very difficult problems. I remind the reader that Wiles' first proposed proof of the Taniyama–Shimura Conjecture in the early 90s, which implied a proof of Fermat's Last Theorem, contained an error that took him, with the help of the mathematician Richard Taylor, more than a year to repair. The important question obviously was, Do the underlying ideas in this paper offer hope for correcting the error? And the answer was yes.

One of the many virtues of my paper, in my opinion, is that it sets forth two structures — *tuple-sets* and *recursive "spiral*"s (or *y-trees*)— that underlie the $3x + 1$ function[1]. (The set of recursive "spiral"s that contains only non-counterexamples, is called the *1-tree* in the paper.) Both of these structures are extremely simple and, at least in the case of the first, I think elegant. They make crystal clear that the $3x + 1$ function is not "chaotic", as it is often said to be, at least informally. What brought these structures to light is the fact that I use an alternative, little-known, but equivalent definition of the $3x + 1$ function, in which successive divisions by 2 are collapsed into a single exponent of 2. (See definition of the function in above paper.) No one has questioned the validity of these structures, or of their supporting lemmas, and yet no $3x + 1$ researcher has had anything positive to say about either structure. One researcher went so far as to assert that there is nothing of importance in tuple-sets because whatever results I claim for them can be derived using the original definition of the function. But that is the equivalent of saying that there is nothing important in Lisp (generally regarded as the greatest of all programming languages) because anything that can be computed in Lisp, can be computed by a Turing machine, an assertion that is literally true, but that would be laughed at by any computer scientist.

The reader might be inclined to say that the researcher may simply have had a blind spot, and not have had any prejudice against outsiders at all. However, the record of his criticisms of the various versions of my paper — criticisms bordering on genius in their pedantry and devious logic — make clear that he most certainly was not eager to give an outsider any encouragement in possibly achieving a solution to a problem that he had spent years working on. (I offered him shared-authorship in return for help with the paper; he declined.)

The other structure underlying the $3x + 1$ function, namely, recursive "spiral"s or y-trees, is likewise an enormously simpler one than the tedious, obfuscating trees that are found in the literature. (See, for example, the papers resulting from a Google search on "Collatz graphs".) It is simply not believable that the reason that $3x + 1$ researchers have ignored this structure is that they all have the same blind spot.

I state without a moment's hesitation that even if my proposed proofs of the $3x + 1$ Conjec-

1. The paper, "The Remarkably Simple Structure of the $3x + 1$ Function", on occampress.com, is devoted exclusively to setting forth these two structures.

ture, and my possible strategies for other proofs, all turn out to have fatal errors, a description of tuple-sets and recursive "spiral"s should unquestionably be part of the $3x + 1$ literature. (I will offer shared authorship to the first mathematician who helps me prepare such a paper.)

Other evidence that mathematicians are unwilling to read the paper is the fact that when I write to them about it, giving its online address or sending a .pdf file copy, I almost never receive a reply.

However, in fairness, it must be said that many mathematicians ignore the paper because of the number of false solutions of the $3x + 1$ Problem that have been set forth by various persons, most of them amateurs. There is really nothing that an outsider can say to counter this, except that either one has the gift of curiosity, or one doesn't.

It must also be said that some mathematicians make a practice of searching the Internet for comments on a paper by an unknown person, before actually looking at the paper. However, there is a certain naiveté in this practice, for it assumes that authors who have been criticized on the Internet never attempt to repair the source of the criticisms. See above example of the web site whose managers refuse to remove false criticisms of a proof that is no longer in any of my papers.

I should not fail to mention that since 2016, no journal to which I have submitted my paper has even acknowledged receipt of it. The only explanation that I can come up with is that, years before, I submitted a version of the paper that was found to have errors. Apparently journal editors then notified each other that in no future version of the paper could the errors possibly have been corrected.

So far, it has seemed that the rarest two qualities in combination that mathematicians have are courage and insight — the courage to temporarily put aside the strictures of the Culture and actually read and think about the work of an outsider; and the insight to see the possibilities that work might have. But I remain confident that mathematicians with these qualities exist in this world.