Re: The Collatz discrete primes!

Source: http://sci.tech−archive.net/Archive/sci.math/2007−04/msg00244.html

* *From*: "Danny" <fasttrack2a@xxxxxxxxxxxxx>
* *Date*: 2 Apr 2007 07:53:04 −0700

On 1 Apr, 11:35, "mensana...@xxxxxxxxxxx" <mensana...@xxxxxxx> wrote:

> On Mar 31, 9:43 am, "Danny" <fasttrac...@xxxxxxxxxxxxx> wrote:
>
> WTF? Google is trying to censor my work!
>
> Trying agin with some of the detail trimmed.
>
>> It appears you do not want to commit to the idea that
>> an odd pure (only) will trigger a counter example
>> if indeed a counter example exists?
>
> I don't want to commit without proof, no.
>
>> I could be wrong here in my assumption.
>
> And you could be right. What you CAN do is take the assumption
> and see if either true or false leads to a contradiction.
>
>> Explaining it better, I still maintain that if there is a
>> counter example and you are doing a sequential seed
>> search,
>
> This is important − IF you are doing a sequential seed search.
>
>> which is the only way to find all the pures,

You haven't proved that sequential seed search is the ONLY
way to find all pures.

For example, take the 1(mod3) odd integer

348027878181429113886589510202950778854114697011752319885508943825773514l9

there's no way purity can resolved by sequential seed searching.
But all I have to do to demonstrate impurity is to show a smaller
number that leads to it in aCollatzsequence:

3562191662859645825772777219239755072232830437249231770406464115509311
10686574988578937477318331657719265216698491311747695311219392346527934
.
.
.
<sequence trimmed of 483 large numbers>
.
.
.
556844605090286582218543216324721246166583515218803711816814310121237622704
278422302545143291109271608162360623083291757609401855908407155060618811352
139211151272571645554635804081180311541645878804700927954203577530309405676
69605575636285822777317902040590155770822939402350463977101788765154702838
3480278781814291138865895102029507788541146970117523198855089438257735141 9

And the seed number

3562191662859645825772777219239755072232830437249231770406464115509311

is indeed smaller than the hailstone

34802787818142911388658951020295077885411469701175231988550894382577351419

so the hailstone is impure. I don't know whether I can find pure
numbers with similar techniques, but I haven't given it any thought.

> then the first odd integer would have to be pure
> that leads into or is part of this loop.

And I don't dispute that.

> With a further explanation, if it were not a pure
> odd then how would you explain that every integer
> connected with this counter example has to be pure
> to the entireCollatztree.

I'm unsure what you mean here. "Entire" I take to mean the union of the disjoint trees. "Trivial" means the tree rooted at 1. "Non−trivial" would be a tree rooted at the counter example. If you mean every odd integer on the non−trivial tree is pure with respect to the trivial tree (vacuous), ok. But not all integers on the non−trivial tree are absolutely pure, they are impure with respect to other numbers on the non−trivial tree. This is what I meant earlier, does the definition of pure have to take into account disjoint trees?

> So as a counter example it would have to be an infinite pure tree made infinite because of the reverse doubling effect where this pure tree falls outside of the infinite Collatztree!

A counter example tree cannot be infinitely pure. Here I'm saying all the odd integers could be vacuously pure with respect to the trivial tree while also being impure with respect to the counter example tree. There cannot be a tree where every odd integer is pure with respect to both trees.

> In the above sentance translation −−−
> (infinite = −−−−>oo) or approching infinity.

> Hard to imagine because now when this pure is found in the sequential seed search,IF EVER, it creates more pures in theCollatztree but these pures will never be entered in the sequential seed search for pures in the Collatztree.

Why wouldn't they? Every number is part of the sequential seed search.

> In other words skipped over because they are not part of theCollatztree.

No, they wouldn't be skipped, what would happen is that they would never be encountered in any priorCollatzsequence which implies they are pure. But the definition of "pure" you gave also implies thatCollatzis true (has only the trivial tree). IfCollatzis false, this implication is actually "vacuously pure" and you will have to further determine whether it is absolutely pure (pure on the non−trivial tree).

> Only the first key seed
> odd pure will be entered exposing the counter example.

> Then who is to say that another or more counter examples exist creating 2 or more sepparate trees outside theCollatz tree?

Of course, if there is one counter example, there's no reason to think there couldn't be many. That's the signicance of the −17 counter example. Not because it's in the negative domain, but it proves that the set of counter examples can't be empty, so there cannot be a proof that the set of counter examples is empty.

> Is this just a little food for thought or my logic gone awry in the pursuit of a proof of the 3x+1 problem?

Like a lot of things, it reamins food for thought until it's utilized to make a proof. Personally, I don't see how purity can help, but then again, I don't have a proof, so who cares what I think.

> Dan− Hide quoted text −

− Show quoted text −

You make valid points but it is hard for me to come around to your way of thinking on pure or impure as being the smallest odd integer triggering a counter example. So your thought is

if there is a counter example it could be a pure or an impure odd
that triggers the counter example.

The trivial tree with all its pure trivial 0(mod 3)'s and the more
seleted complex 1(mod 3)'s is one thing but any thing outside the
trivial tree (counter example tree) is also pure odd or even in
its relation to the trivial tree.

As far as generating these pures in the trivial tree the 0(mod 3)'s
are trivial because it involves all of them but the more complex
1(mod 3)'s where only some are pure is the hitch in generating
a complete list of pures without a sequential seed search.

Sure you can find many impures by checking for any 2(mod 3)'s,
all impure, but find a very large 1(mod 3) that is pure without
a sequential seed search. Or even a large 1(mod 3) that is impure
like in your example through trial and error but that is impure.

As it stands now there is no known closed form to find these
elusive 1(mod 3)'s thus a sequential seed search is necessary.

A good analogy is like the factorials, there is no closed
form method to fine any given factorial but only a gamma function
approximation.
In this problem we need more than an approximation, it needs to be
exact!

Dan

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