Re: My paper, and the cheaters

Source: http://sci.tech−archive.net/Archive/sci.math/2004−10/0783.html

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From: James Harris (*jstevh_at_msn.com*)
Date: 10/03/04

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Date: 2 Oct 2004 20:46:12 −0700
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norabaron@hotmail.com (Nora Baron) wrote in message news:<36024859.0410021158.ac8a482@posting.google.com>...
> *jstevh@msn.com (James Harris) wrote in message news:<3c65f87.0410020413.134388e6@posting.google.com>...*

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*> >> Now you say: *because P(0) is constant*, for other values of*
> >> m, f must again factor out of the first term and the second
> >> term, but not out of the third.
> >
> >They are constant terms.
> >
>
> No, here I think you misunderstand. When I say "first term"
> I mean
>
*> a1*x + uf.*
>
> That, of course, is NOT constant, because a1 is a function of m.

Yup.

> That is, a1(0) is constant (and equals 0) but a1(m) is a variable
> function of m.
>
*> Therefore (a1(m)*x + uf) is NOT constant.*

That's true.

However, the constant term of a_1 x + uf IS constant.

Understand?

>
> >> That does not follow. It WOULD follow if a1 and a2 were
> >> constant. But they are not. If they were constant, they
> >> would always be zero. We know they are not. They are functions

> >> of m. I will say, a1(m), a2(m), and a3(m). Note that
> >> a1(0) = 0 and a2(0) = 0. Right?
> >
> >Ah, now I see your trivial error in thinking.
> >
> >You are focusing on the a's, when I am focusing on the constant terms.
> >
> >The a's vary with m, but the constant terms DO NOT VARY WITH m, so m=0
> >is NOT a special case for them. It's just another irrelevant case.
> >
> >Do you understand?
> >
> >The terms constant with respect to m do not vary with m; therefore,
> >m=0 is just another irrelevant case to them, but for mathematicians,
> >it's a case where you can *see* the constant terms, without m getting
> >in the way.
> >
> >That essential point is all you need to understand.
> >
>
>
> When I write a1(m)*x + uf, the constant term with
> respect to m is a1(0)*x + uf = uf. Is that all you
> are saying?
>

That's not all. The full expression is

$$P(m) = f^2 ((m^3 f^4 - 3m^2 f^2 + 3m) x^3 - 3(-1 + mf^2) xu^2 + u^3 f)$$

with the factorization

$$P(m) = (a_1 x + uf)(a_2 x + uf)(a_3 x + uf)$$

and the question is, how does the f^2 multiple of P(m) divide off?

You've argued for quite some time that it divides off from each term
in a way that varies as m varies.

However, I focus on the constant terms, and note that they CANNOT
change as variables with respect to m.

Therefore, you can look at the constant terms for any value of m, to
see what they are if f^2 is divided off.

After all, dividing f^2 is the important event.

If you accept that the constant terms with respect to m are in fact
constant with respect to me, then their value does not change as m
changes.

Then the value of the constant term for a_1 x + uf is uf.

BUT, if you divide f^2 from P(m), you find that NONE of the constant
terms have f as a factor; therefore, it follows that the f must have
been divided off from the constant term of a_1 x + uf.

It's basic and logical. To argue over this point you must claim that
somehow the constant term is in fact varying dependent on the value of
m.

What actually happens is that a_1 is constrained by the constant term,
and must, algebraically have a factor that is f, without regard to the
value of m.

>
> >If you have any continuing disagreement, it has to do with this
> >section and this section alone.
> >
> >I am curious about how you respond now.
> >
>
> Good. I think you are right that here is the center
> of the problem.
>

Yup. The logic is clear, but I have explained this to you before.

My hope now is to demonstrate to astute readers that posters like
yourself *deliberately* avoid the truth, and basically lie to them,
often quite brazenly!

> What you want to show is that
>
> a1(m)*x + uf
>
> is divisible by f for all integer values of m.
>

The algebra shows that it is.

> What you know is that a1(0) = 0, and of course 0
> is divisible by f.
>
> Of course you also know that 'uf' is divisible by f.

Setting m=0 isolates those terms in a_1 x + uf that do not vary when m
varies.

As they do not vary when m varies, they don't care what value m has.

So the mathematician doing the analysis can set m to zero to clear it
out and see what the constant terms are.

It's basic. All you have to accept is that there are terms that do
not vary as m varies, then what happens when f^2 is divided off is
clear.

And it's also clear then that the a's are constrained by the terms
constant to m, such that only two can have f as a factor,
algebraically.

> *So certainly a1(0)*x + uf is divisible by f.*

Yes.

> *Therefore what you need to be able to show *in general**
> *is that a1(m), and therefore a1(m)*x + uf, is divisible by f.*
>

That follows trivially, if you accept that terms constant with respect
to m are in fact constant with respect to m.

> *Yes, it is divisible by f when m = 0: or as you may*
> *prefer to put it, the constant term is divisible by f.*
>
> *So HOW does this imply that a1(m) is divisible by f*
> *when m <> 0 ?*
>

It's not implied, it's forced.

Let's consider what happens if a_1 has some other factor I'll call
w_1, where

w_1 w_2 = f, then you have after you divide off f^2

a_1 x/w_1 + uw_2

but, the constant term does not have w_2 as a factor after f^2 is
divided off.

That is easy to see at m=0, as then the constant term is u.

Now then, if the constant term does not vary with m, then it's value
after m has been divided off is *always* u.

Do you understand?

> *You must have some logical or mathematical principle*
> *in mind when you come to that conclusion.*

>
> *What is it?*
>

That terms constant with respect to a variable are in fact constant
with respect to that variable.

Given that the constant terms with respect to m can be looked at, it's
not a question of their value.

Now you know what their values are, and I challenge you to give them.

What are the constant terms with respect to m of the a's?

Now what are the constant terms with respect to m of those factors of
P(m) when f^2 is divided off?

>
> >> *Therefore when m <> 0 and you want to consider whether*
> >>
> >> *g1(m) = a1(m)*x + uf*
> >>
> >> *is divisible by f, you have to consider not only whether*
> >> *the "constant term" g1(0) = uf is divisible by f (obviously*
> >> *it is), but also whether a1(m) is divisible by f when m <> 0.*
> >>
> >> *[To see this, note that g1(m)/f = a1(m)/f)*x + u .]*
> >>
> >>
> >> *But the fact that the "constant term" a1(0) is divisible by*
> >> *m tells you nothing about a1(m) for other values of m.*
> >
> >*You think the tail wags the dog.*
> >
>
> *No, I think it's the other way around. You think that*
> *divisibility of the constant term of a1(m) by f implies*
> *divisibility of a1(m) by f in general. YOU think the tail*
> *wags the dog.*
>

No.

I know that the constant term with respect to m DOES NOT VARY with m.

Therefore, I can look at the constant terms with respect to m, which
is accomplished by setting m=0.

Those terms do not vary as m varies, so m=0 is not a special case to
them, but just another irrelevant case.

>
> >Constant terms are in a sense more powerful than varying terms because
> >they are rigid.
> >
>
> Again, I think you must believe that if you have a function
> k(x), and the constant term k(0) is divisible by, say, 5, then
> k(x) is divisible by 5 for all k.
>

No.

>
> >Imagine you're in jail, and you wish to get out. You're a variable,
> >but the walls of the jail are constants.
> >
> >You are stuck in the jail, no matter how much you might wish to get
> >out, unless you can break through the walls.
> >
> >However, mathematically, the constants I use cannot be broken through,
> >and are like the walls of a jail constraining the a's.
> >
> >Do you understand now?
> >
>
> This is a considerably sillier analogy than most you have
> put forward. And anyway, analogies are not proofs. If you
> have an actual proof you should give it and skip the analogy.
> Instead you have given the analogy and skipped the actual proof.

I'm using an analogy as you're being inconsistent.

First you claim to accept that constant terms are constant.

Then you try to dodge the mathematical consequences of that reality.

So I came up with an analogy, which is a good one.

If you're in jail the walls are constant, right?

If they move around a lot, or someone blows them down, then you can
get out, right?

But if the walls remain constant, along with the door, then you're
stuck in the jail, even though you, as a function can vary.

You can vary all you want, bouncing off the walls as long as you stay
in the jail!

Get it?

:-)

>
> >Your basic error is to imagine that the a's are the power here and
> >that they can force the constants,
>
>
> No, I don't imagine that at all. a1(0) is the constant term, and
> it is not "forced" in any sense by a1(m) for other m <> 0.
>

What's important is that the constant term with respect to m DOES NOT CHANGE as m changes.

But for at least two of the factors a_1 x + uf, a_2 x + uf, and a_3 x + uf, the constant term goes from uf, to u, when f^2 is divided off of P(m).

There is only one way that you can get from uf to u, which is to divide off f.

Or do you deny that?

> > but it's the opposite, and I don't
> > know how I can explain it to you so that you'll understand, but I
> >understand how it's easy to get confused.
> >
> >It's a basic *human* error of looking at the world in a particular
> >way.
> >
> >Mathematicians tend to focus on functions--terms that vary--so in your
> >brain, more than likely there are circuits that give functions a LOT
> >of weight.
> >
>
>
> The fact is, a1(m) IS a variable function of m. Its divisibility
> by f is therefore also dependent on the value of m. Just because
> it is divisible by f when m = 0, why should it be divisible by f
> when m = 1 ?
>

The constant term with respect to m of the factor a_1 x + uf is uf.

When you divide f^2 from P(m) the constant term with respect to m is then u.

The a_1 is pulled along, as the only way a_1 x + uf, can have a constant term of u, is to have a_1 x/f + u.

>
> [delete section dealing with FEELINGS, etc.]
>
> >
> >Consider what comes next in your post.
> >
> >> You seem to think otherwise.
> >>
> >> You seem to think there is a theorem like the following:
> >>
> >> Theorem. If a1(m) is a function of m and the constant
> >> term a1(0) is divisible by a prime f, then a1(m) is
> >> divisible by f for all other values of m also.
> >>
> >> Is there such a theorem? Is that the flying leap?
> >
>
> Look, this is quite simple. You note that when m = 0,
>
> a1(m)*x + uf = a1(0)*x + uf = 0 = 0 + uf = uf,
>
> and therefore when m = 0, a1(m)*x + uf is divisible by f.
>
> You can say if you want that the "constant term" of
>
> a1(m)*x + uf
>
> is uf. That's fine. IT'S CONSTANT. No problem. It's
> divisible by f. No problem there either.
>
> Then you APPEAR to be saying, "Because the CONSTANT
> TERM of a1(m)*x + uf is divisible by f, this function
> must be divisible by f for all other values of m also."

That's not what I'm saying.

> That's where we part company.

I've explained to you before.

This exercise is more of a demonstration to other readers than
anything else.

I want them to see what you do despite a careful explanation on my
part.

> >
> >>
> >>
> >> [snip]

> >>
> >> Nora B.
> >
> >Consider the jailhouse analogy "Nora Baron" and think about if you
> >were in a perfect jail with constant walls.
> >
> >You are a function trying to break out of jail.
> >
> >Can you do it?
> >
> >You mind may scream YES, but the reality is no. The jailhouse will
> >keep you in as long as it's walls are constant.

Should be, its walls are constant.

> >
>
> I don't see that this analogy moves anything forward. Certainly
> it is not a proof of anything. In reality jail walls are not
> constant.
>

But in mathematics you have absolutes.

I think you're having a problem understanding that math can be a lot
more rigid than your experiences of the real world.

Sure, in the real world, a jailhouse walls can be broken down, but in
mathematics the walls put up by the constants in my result are
absolutes that cannot be broken by the functions.

The a's are trapped within those walls, forever.

>
> >Similarly with
> >
> >P(m) = f^2 ((m^3 f^4 − 3m^2 f^2 + 3m) x^3 − 3(−1 + mf^2) xu^2 + u^3 f)
> >
> >you find the walls of the jail using m=0, as P(0), gives you the
> >*constant* terms with respect to m.
> >
> >Then the a's from
> >
> >P(m) = (a_1 x + uf)(a_2 x + uf)(a_3 x + uf)
> >
> >are constrained by the constants!
> >
>
> They are not. You yourself have said that the a's are
> functions of m. They are not constant, and I don't see
> any sense in which they are "constrained by the constants."

>
> Can you explain that phrase, "constrained by the
> constants?"
>

Yes. Two of the constants with respect to m vary from uf, to u, which
can only happen if they have f divided off.

That constrains what can happen for the a's, forcing two of the a's to
have f as a factor as well.

Remember P(m) has f^2 as a multiple. What is happening is that the
f^2 is divided from P(m).

>
> >It's such a trivial thing in most algebra that you probably don't pay
> >attention to it, but here the techniques are advanced.
> >
> >For instance, consider P(x) = 2x^2 + 10x + 12, and at P(0) = 12.
> >
> >Now then, does 12 EVER vary with respect to x?
> >
>
> Of course not.
>
> I like this example.
>
> P(0) = 12 is divisible by 3. The constant term is
> divisible by 3.
>
> Does that imply P(5) is also divisible by 3 ?

No.

What's necessary though is that you fully accept that constant terms
with respect to m do not vary as m varies.

> >No. It's a CONSTANT TERM. So why do you think the terms of P(m) are
> >any different?
> >
>
> See just above.
>
>
> >Use logic, and not emotion and the answer is clear.
> >
>
> You are assigning some kind of magical power to the
> "constant term". I don't see why.

It's not magical; it's mathematics.

> The root problem here is that f^2 has to divide out of
>
> (a1(m)*x + uf)*(a2(m)*x + uf)*(a3(m)*x + uf)
>
> in some way. I think we both agree on that. When m = 0,
> we can agree that you can divide f out of each of the
> first two terms, because a1(0) = a2(0) = 0. I even
> agree that when m = 0, that is essentially the ONLY
> way to divide out f^2.
>
> That is, this works because a1(0) and a2(0) are divisible
> by f.
>
> But I see no way to conclude from this that a1(1) and a2(1)
> are also divisible by f. Incantations about "constant terms"
> do not seem to me to lead anywhere. The fact that the
> constant term h(0) of a function is divisible by f does NOT
> tell me that the function h(m) is divisible by f for other
> values of m. It just is not so. Take the most trivial
> kind of polynomial function you can think of, say,
>
> h(m) = m*x + 15.
>
> Let f = 5. Note that h(0) is divisible by 5. But also
> note that h(1) = x + 15, and this (as a polynomial in x)
> is NOT divisible by 5: (1/5)*x + 3 is not a polynomial
> with integer (or algebraic integer) coefficients.

Relevance?

> In the case of a1(m), a2(m), and a3(m): when m = 0,
> two are divisible by f and the third is not. However
> it CAN BE SHOWN that when m = 1,
>
> a1(m) = a1(1) is NOT divisible by f,
>
> a2(m) = a2(1) is NOT divisible by f, and
>
> a3(m) = a3(1) is NOT divisible by f.

That's true in the ring of algebraic integers.

> But *all three* of them, when m = 1, have algebraic
> integer factors in common with f. These are the
> functions w1(m), w2(m), and w3(m) that you have
> seen before. What this implies is that f^2 can
> be divided out of
>
> (a1(m)*x + uf)*(a2(m)*x + uf)*(a3(x)*x + uf)

>
> in ANOTHER WAY than just dividing the first two
> parentheses by f, and the result after the division
> is three terms, all of which have algebraic integer
> coefficients.
>
> You have seen something very much like this before.
*> You saw *essentially* this same thing back in January−February*
> of this year. Do you recall that? Do you recall Keith
> Ramsay's computation of factors of (1 + sqrt(−167))/2 ?
> See, for example, Dik Winter's post of Feb 12, 2004, in
> the thread "Re: Resolution to Decker Quadratic Issue".
*> This is all *closely* related to what we are discussing now.*
>
> Incidentally, is it true, as Dik Winter implies, that you
> have deleted your posts to sci.math on that topic during that
> period?
>
> Nora B.
>

I left in a lot of the chatter of "Nora Baron" so that readers can see what I face.

Supposedly the poster was going to deal with my paper and the logical argument in it, but suddenly you now have claims relating to other stuff.

This poster has played these games before.

But then again, think about the pressure. Lying to you all is easier than telling the truth!!!

Also notice how long the reply was despite my truncating a bit from the top.

The tactics of "Nora Baron" are to just keep talking, ignore refutations, ignore the mathematics, and then just claim stuff.

Later I hear sci.math'ers chortling about how right "she" is, and it tells me what I already knew, most of you are not really mathematicians.

James Harris