Re: Skolem's Paradox and why is math the way it is?

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From: J.E. (*tim.bouma_at_gmail.com*)
Date: 10/27/04

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"Ross A. Finlayson" <raf@tiki−lounge.com> wrote in message
news:<417EAC25.277A8AD8@tiki−lounge.com>...
> "J.E." wrote:
>
> > raf@tiki−lounge.com (Ross A Finlayson) wrote in message
news:<200410190133.i9J1X0o08046@proapp.mathforum.org>...

> J.E., you came to sci.math and requested a foundational theory that can handle your notion of physics, which is probably
> quite accurate. What do your physics need from mathematics?

We have to know what it is that we are dealing with. We have to know
that if two physicists are using the same model and get different
results, then that the physical model is wrong, not that something
weird happened in math land. And we need a system robust enough
(descriptively) to have the means necessary to describe and predict
nature. I'm coming around to the idea that the universe is not
countable. I think that ZF is vague to have non−categorical models,
but I also understand that it could be FOL to blame, and I'm fine with
using a different logic, but while I started out thinking IF logic
fared better than FOL, I starting to have doubts about that too.

> J.E., I'm relatively well−known on this forum as promoting that infinite sets are equivalent, that there is one mathematical
> theory and that it has no axioms, that all sets are ordinals and ordinals are ubiquitous, that there are bijective functions
> between the naturals and the unit interval of reals provided, and that that is all in total concordence with all mathematics
> that not directly nullified, because it is consistent, complete, and concrete.

Even I, a sci.math newbie, have figured out as much. I still don't
understand *why* you think your theory is consistent (let alone
complete or concrete, the last more than anything), but maybe you know
the thread number of a thread that already explains that, or maybe it
is a work in progress on your part, I'm not sure.

> I want a better understanding of why the gluon as spring is the force of gravity, or the primary component. Why is that
> so? You addressed some reasons why gravity is attraction and not repulsion, it is yet in a way both, and leads to
> consideration of immovable objects, and thus unstoppable forces, and the teleportation from point A to point B.

Gravity is the universal attraction of energy to itself. Gluons and relativisitic quarks make up a lot of energy in baryonic matter. Why you ask is that? I don't know what you were expecting. The nucleus is very very small, it'd be hard to imagine it being any other way, given that. There simply has to be tremendous energy keeping them all in that same vicinity. One of the reasons is that all the kinetic energy in the hot earlier universe (quark gluon plasma) had to go somewhere. Some of it went to the increased (less strongly negative) gravitational potential energy, and others of it went into the centers of atoms. If you had a bunch of electrons, then gluons wouldn't be the primary source of energy, it would be faraday fields and energy−momentum of leptons instead. I don't recall mentioning either immovable objects or unstoppable forces. And I fail to see any connection with so−called teleportation. Could you be confusing my posts with that of someone else?

> Teleportation, there's another one of those things that used to be considered quite impossible, now the problem is that
> while IBM can zap a few molecules from point to point in their lab, it is destructive or rather not creative because of "no
> new information."

The destructive aspect is because of the "no quantum cloning" theorem. The "no new information" means that BEFORE the teleportation is "complete", you have to send a telegram with all the (random) information generated (i.e. you have two random blobs in two freezers and you put the thing to be teleported into one freezer and do a complex operation that destroys the original thing AND the random blob in that freezer and instead creates a new random blob which you turn into a telegram message to send to your friend, who opens his feezer and sees a random blob that when combined with the random data you sent him tells him how to turn the blob into the original thing you put in your box. That's hardly teleportation IMO.

> What do you think about "quantum encryption"? If it's based upon perception, how firmly do you have to think you observe to
> disrupt all quantum communications? Is not quantum encryption a shared secret, the entangled photon, that is. Has Gravity
> Probe B yet failed to physically verify the large part of GR?

Observation isn't an act of will, you have to physically interact with a subsystem to observe it. If you entangle two particles but then keep them isolated, then to the degree that you keep them isolated,

then how could you disrupt the quantum part of the message. Of course entanglement doesn't send information, so there'd still be another part of the message, so just disrupt that. I don't know what you expect from Gravity Probe B. One either makes observations about things you already know and believe well, to test GR, or you assume GR and make observations to tell you about other parts of the universe that previously weren't well known. You can do a little of both by testing consistency, but most people do either one or the other. So when people usually test GR, the point isn't to check again, but to check a phenomena that wasn't observed before.

> Do you see mathematical foundational roadblocks to physics? List them.

As I said earlier, if two physicists use the same theory and come up with different predictions, that's a problem. But whether that comes from a vague nonrigorous physical theory, bad approximations to difficult equations from a rigorous mathematical theory, or from a non categorical mathamatical theory at base, they are all equally bad. So we would want categorical theories if they also made rigorous physical theories with equations that were easy to solve. Maybe the better approach is to assume that instead of digital calculators we use analog quantum calculators, and make theories with rigorous descriptions of quantum manipulation of quantum calculators with easier to solve equations (operations) and abandon a physical theory based on math to instead just use little parts of the universe to explain (predict) other larger parts of the universe. That's what inductive science is all about anyway, so maybe that's the better approach.