

Re: A quiet query from a visitor

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- *From:* galathaea <galathaea@xxxxxxxxxx>
 - *Date:* Tue, 21 Aug 2007 12:38:46 -0700
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On Aug 21, 6:51 am, Angus Rodgers <twir...@xxxxxxxxxxxxx> wrote:

On Tue, 21 Aug 2007 14:21:34 +0200, Han de Bruijn

<Han.deBru...@xxxxxxxxxxxxxxxxx> wrote:

Angus Rodgers wrote:

Hey, leave me out of this! I admit to discomfort with the usual presentation of ZFC as a foundation for mathematics.

Alas. That alone makes you already kind of a "dissident", in my highly personal and biased classification. Please, read the disclaimer below.

Disclaimer. The above lists are only an approximation of the reality in 'sci.math' and highly reflect the author's opinion and experience.

I think the main thing wrong with this "approximation" (questions of individual membership or non-membership of this or that "school" apart) is that sci.math does not have more than one "school" of mathematics. Maths, insofar as it gets done here at all, gets done within one "school". And then there are people like me who sit in school, but sometimes stare out of the window, and forget to pay attention to the lesson; and there are people outside the school (some of whom want to burn the school down); and perhaps somewhere there is a Galois or Ramanujan, who can't get into the school, but is doing mathematics anyway (while perhaps, in the case of Galois, also wanting to burn the school down).

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However, I haven't seen any evidence of the latter. What we have is a variety of opinions as to how the school is run, and whether all its rules make sense; but there is no other school.

Nor do I think there should be another school. Mathematics isn't /about/ its foundations. The existence of different opinions about how mathematics is justified doesn't lead to the creation of different mathematics. I know this has to be argued for (especially in view of the claims of Intuitionism, in particular); I suppose I'm just saying that whatever the problems with the current orthodoxy in mathematics, the dragon (or is it angels with flaming swords?) guards a real treasure; and I for one would like to be admitted into Cantor's paradise (without necessarily assuming that it is the whole world of mathematics).

there most certainly are multiple schools of thought on mathematics

at its heart
mathematical systems are shared processes of symbology
but no language is universal

this is where the kantian viewpoint fails

we do not have a universal language of mathematics
we have never had a universal language of mathematics
and i strongly believe that setting that as a goal is _dangerous_

monovalence promotes dogmatism

if there is one truth and only one truth
and you think you know it
you can justify almost any atrocity

if we view mathematical process as physical
ie. as something we can study with evidentiary discussion
then it is clear we have had numerous different mathematics throughout
history

some are very specific domain languages
some attempt at some kind of universal encompassing
but questions of what it means for rules to be repeatable
and how the symbolic interpretations in the physical realm are to be
manipulated
require reliance on faculties that we must admit fallibility in
and every formalism must remain suspect to the end of time

this is the same with science

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and they end up being the same thing in some interpretations

Perhaps the house of mathematics has other mansions too,
but I'd rather see some ... er ... constructive effort
to build those than see Cantor's house being torn down.

that is the problem

there should be no need to tear down edifices of language
attempting to banish them completely

every individual has the right to explore the usefulness of any system
and so languages should naturally be reborn many times over

that is real "peer-review"
that systems can die for lack of use
and again be reborn upon new epiphanies

I'm sorry about all the mixed metaphors, and I know I
haven't written this at all clearly. I am interested in
problems in the foundations of mathematics, especially
to do with whether everything in mathematics is a set
(which I must say does seem a rather barmy idea), and
how you apply mathematics to the "real world" (especially
how set theory accounts for such applications). But it is
a really tragic mistake to allow one's worries about the
/form/ in which mathematics is presented to deprive one
of contact with its /substance/.

I am not aware of any language other than that of set
theory in which mathematics can be presented. (I am
certainly not against efforts to do so, even if such
efforts must be experimental and toy-like in the early
stages; but I haven't even seen any early constructive
efforts in sci.math. Here I mean "constructive" in the
everyday English sense.)

sci.math has talked quite a bit about other approaches

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for instance

regularly mention topos-theoretical foundations like those of lawvere
and their extensions to computer science ontologies

others have looked at algebraifications
like universal algebra and lattice foundations
which are closely related

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you will find a natural ebb and flow on sci.math
because sometimes long threads and their heated discussions
can become a mental abrasion
a sandpaper irritation that requires rest and escape afterwards

Apropos of that word that I just used in another sense,
I have a vague question, which perhaps someone here can
answer. Do schools of constructivism differ in respect
of whether they regard non-constructive mathematics as
meaningless or worthless? Do some constructivists want
to tear down the non-constructive edifice, while others
see their work as taking place within the same edifice
as other mathematicians, but limiting attention to the
"constructive" part of it?

yes

most constructivists associate some type of meaninglessness
to nonconstructive mathematics
but there are some important _uses_ that many constructivists
recognise

boolean-valued models provide test valuations
on which to understand what is possibly provable in constructivism
and which help establish forcings to prove independence theorems

this has much to do with realist/phenomenalist distinctions
and there seem to be some very important connections
to the distinction of a theory and its metatheory

many constructivists work only in metatheory
descriptions of proof theory
formalisations of computer learning
...
independent of the philosophical underpinnings of the theory

it can be perfectly acceptable to some constructivists
to work with a platonic theory
describing its metatheory in constructive terms

though there is usually the caution that semantically
ie. metatheoretical analysis of interpretations of the theory
will only provide meaning to the constructive fragment...

galathaea: prankster, fablist, magician, liar

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