

Re: they mention various metaphors and ramble about various concerns (Re: Kuratowski Ordered Pair)

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- *From:* Marshall <marshall.spight@xxxxxxxxxx>
 - *Date:* Fri, 21 Dec 2007 14:55:21 -0800 (PST)
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On Dec 21, 1:22 pm, galathaea <galath...@xxxxxxxxxx> wrote:

On Dec 20, 5:56 pm, MoeBlee <jazzm...@xxxxxxxxxxxxxx> wrote:

it is regularly pointed out in the foundations of math
that the concept of 2 cannot be defined
without some presumption that the parser already has some bivalence

whether in two neighboring symbols
or two different symbols
or some other embedding of the concept innately

pairs

this is not true of higher naturals

This is just syntax again. This is not "the foundations" of math; this is the syntax of math. We could as well "write" expression in trees, assembling them via something like tinker toys, where we have spokes and edges. Or any of a variety of other ways. Linear strings of symbols are convenient; don't mistake convenience for semantics.

If we want to think of anything other than singleton items, we need some kind of collection. To build collections, we need some minimal collection construct. We could use ordered pairs as our collection primitive. We could call them ordered pairs or cons cells or whatever. We can spell "right" as "cdr" if we want. We can use bags, or lists. We can use relations. We can use simple binary trees. We can use ridiculously over-complicated under-featured trees inflicted on us by the W3C, if we are masochists and/or don't know any better.

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Or we can use sets.

Whichever one we pick we're probably going to be able to get to the same places. It's just a question of how hard it's going to be to get there. If we use lists, then union is neither commutative nor idempotent. If we use bags then union is commutative. If we use sets then it's both commutative and idempotent. Sets give you more desirable algebraic properties; for these and other reasons, it is common to use sets as the foundation. But you can use something else if you want.

what i was trying to state
was that i do not see why it is so difficult to understand
the various positions on ordered pairs mention by a few of the
posters

It's not hard to understand; it's just *wrong* is all.

If they have some aesthetic preference for another formal system, nobody's holding them back. However when they start to "ramble about various concerns" etc. about a formal system, then they are obligated to either substantiate their concerns formally or else shut up.

Their aesthetic preference for a system in which ordered pairs are primitive *has no bearing* on the behavior of any set theory in which ordered pairs are not primitive. Their sensibilities are not formal objections; they're just preferences.

i see ordered pairs as being the primitive notion
and unordered pairs as being a construction from ordered pairs
by taking classes of the equivalency quotient $(a,b) \sim (b,a)$

Fine fine fine. Nothing wrong with that. Just be clear that it doesn't tell us *anything* about how bags behave, or what the nature of a list is, or whether Kuratowski pairs are sufficient for defining maps.

mitch mentions this possibility as superposition

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i see the ordered pair as intuitive
which appears to be backed by child psychology and neurobiology
action schemas
parsers
and other foundational mechanics for symbology

i don't see the unordered pair as intuitive
and definitely not primitive

it seems a specialised construction to me

You are of course completely free to have your own
aesthetic response to various formal systems. For myself,
I prefer to go a step higher and take relations as the
primitive, a la Codd, and skip "simple" sets entirely.
(Which eliminates tuples and ordered pairs as well.)
I don't confuse my attraction to this idea with some kind
of flaw in other ideas however.

Meanwhile, I see no need for set theory to emulate your personal
opinions in metaphysics. I don't take set theory to even be about such
metaphysical concerns.

then you are a firmly in the camp that foundations are meaningless

i have never understood that position
i've always felt foundations were there
to describe the physical process called mathematics
and like other scientific descriptions
requires evidentiary metrics over models

If you want a physical, "evidentiary" metaphor for an
unordered collection, take a big opaque jar and drop
two marbles into it at the same time. Shake them up.
Now reach in, (go ahead and look if you want) and take out
only the first of the two marbles.

You cannot do it, because there is no way to decide
which one is the first. That's because this is an unordered
collection.

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and it still assumes the ordering for parsing
but claims an unordered semantics?

I don't know what you mean by 'unordered semantics'.

me neither!

well

i understand my point on the semantics

i just don't understand the meaning in the semantics itself

but that might just confuse you more

If you, an otherwise intelligent person, really **cannot** comprehend the idea of an unordered collection (which I don't believe) then it must be considered a learning disability, a flaw in your intellect, the same way a colorblind person's inability to distinguish colors must be regarded as a disability. If you then go on to insist that **we** can't imagine it either, you would be in the same position as a colorblind person insisting that color does not exist.

Marshall

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