Re: Coding of ordered pairs

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lwalke3@xxxxxxxxx wrote:

> It appears what HdB wants to define the ordered pair of
> two natural numbers without relying on ZFC or any other
> set theory at all. In other words, he wants to avoid
> sets and set notation and instead define the ordered
> pair only in the language of PA (with its primitives
> zero, successor, and "is a natural number") rather than
> the language of ZFC (with its primitive "is an element
> of"), in order to show how many results of mathematics]
> can be developed without set theory.

Quite close. My toy (bit mapped) set theory gives the following result
for the Kuratowski ordered pair:

{{a},{a,b}} = {2^a,2^a + 2^b} = 2^(2^a) + 2^(2^a + 2^b)
= 2^(2^a).(1 + 2^(2^b))

A very "sparse" result (as with the von Neumann ordinals in bit mapped
set theory). Clearly, much more "dense" representations are possible.

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