Re: A simple question about integers

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Am 15.09.04 09:33 schrieb Angus Rodgers:

>
>
> *That's not necessarily a problem, because there is no problem*
> *with the concept of a formal power series − considered simply*
> *as the sequence of ``detached coefficients'' of the powers of*
> *a notional ``indeterminate'' (say \theta).*
Yes; I tried to express this fact with the notion of "fixed index",
which can be translated into the assigning of a theta^n, where
n is the index−number.

>
> *(This may be nonsense, of course − I stopped trying to*
> *follow it through, when I realised you couldn't always*
> *carry 1 when all but finitely many digits are = r − 1,*
> *and you couldn't restrict yourself to sequences without*
> *this property, as is shown by the example above.)*
again yes. That alone is likely to spoil the whole idea.

>
> *I don't think this is obvious. One could at least *try**
> *to define a structure of ``infinite nonnegative integers'',*
> *considered as infinite decimal expansions (or expansions*
> *to another base); define a < b if and only if there exists*
> *c such that a + c = b; and then try to prove things about*
> *this relation (such as totality, i.e. either a < b, a = b,*
> *or a > b) − with the hope of then being able to embed this*
> *``big N'' structure into a ``big Z'' structure, in much the*
> *same way as Z can be constructed from N.*
This construct behaves exactly like the rational numbers between
0 and −1, at least the periodic constructs, and periodic
constructs with a finite additive part behave like such
rationals with the same additive part.

I don't know what that means in respect of irrational numbers
of that range, where −at best− a more or less complex rule to
compute digits can be given.

Consider such a string with reversed sequence of digits from
that of frac(sqrt(2)) (base decimal). Can it be called "greater"
or "smaller" than such derived from frac(sqrt(7))?
With each finite "approximation" ;−) this relation changes arbi−
trarily.(one should better say "diversion" instead "approximation")

I note, there is a "valuation" concept referring to such
strings, but I never read deeper into it.

>
> *But none of this is any good if you have a ``number'', n,*
> *for which you cannot even define n + 1 − so it all looks*
> *pretty abortive, to me at least.*
Yes, I agree.
>
> *(Pity − it almost looked like fun for a while.)*
>
Yes; when in (i think) 1996 I stumbled into this NG first time,
there was such a discussion going on, and this incidently met
some fiddlings that I had undergone just that time. I didn't
find any use for it after a certain time and left it. It was a
nice game for that period and at least it was useful to get in
touch with some properties and conditions of basic number theory.

Gottfried Helms