Re: A qn on primitive recursive functions

Source: http://sci.tech−archive.net/Archive/sci.math/2004−09/0088.html

---

From: peter_douglass (*baisly_at_gis.net*)
Date: 08/31/04

```
Date: Tue, 31 Aug 2004 13:17:30 GMT
```

"peter_douglass" <baisly@gis.net> wrote in message
news:1L_Yc.99200$mD.71079@attbi_s02...
> "Peter Smith" <ps218@cam.ac.uk> wrote in message
> news:ps218−5624F5.09593031082004@pegasus.csx.cam.ac.uk...
>
> > The following is true:
>
> > There is no effective way of deciding, of some arbitrary primitive
> > recursive function f(x), whether there are values x such that
> > f(x) = 0.
>
> > You can prove that readily if you already know about Turing machines and
> > halting problems, or already know that the total recursive functions are
> > not effectively enumerable [for if we can effectively tell which p.r.
> > functions are regular, we could effectively enumerate the total
> > recursive function, because we could tell which recipes for functions
> > involved regular minization].

> > But how about a more direct proof that doesn't go via results about
> > Turing machines or recursive functions?

Addendum: If you aren't interested in machines per se, but just
primative recursive functions, replace "machine" everywhere in the
proof by "partial function". i.e. M is a set of partial functions,
m is an element of that set etc.

−−PeterD