

Re: A Definition of an Algorithm

Source: <http://sci.tech-archive.net/Archive/sci.math.research/2006-02/msg00153.html>

- *From:* Aatu Koskensisilta <aatu.koskensisilta@xxxxxxxx>
 - *Date:* Sun, 26 Feb 2006 16:00:15 +0000 (UTC)
-

george wrote:

noston@xxxxxxxxxxxxxxxxxxxxxxxx wrote:

Abstract: We define an algorithm to be the set of programs that implement or express that algorithm.

This is ALWAYS a BAD idea.

You're being silly again. It's a perfectly natural and reasonable idea.

The set of all programs is partitioned into equivalence classes. Two programs are equivalent if they are "essentially" the same program.

I'm going to guess that means they "perform" the same mapping of input to output.

No, in the paper it is quite clearly stated that two programs are "essentially" the same if they can be transformed into each other by certain operations that intuitively don't change "how the programs achieve" whatever they're doing. Extensional equivalence is certainly not what is meant as for that we already have the perfectly good notion of computing the same function.

In order to explore these ideas, the set of primitive recursive functions is considered. Each primitive recursive function can be described by many labeled binary trees that show how the function is built up.

Re: A Definition of an Algorithm

And in a great many other ways as well.
JEEzus! If THIS is all you are going to do, then
can't you see that ALL you are doing is just
INVENTING ANOTHER PROGRAMMING language?!?

If algorithms are to be sets of programs a programming language is obviously presupposed. It is an interesting question whether and to what extent the resulting definition of "algorithm" depends on the (kind of) programming language chosen.

As to your irrelevant comments about trees versus programs as linear text, well, they're irrelevant. It would make no difference if the paper used instead of trees some more familiar syntax for describing primitive recursive definitions, although the specific transformations would perhaps look more convoluted and less natural.

—

Aatu Koskensisilta (aatu.koskensisilta@xxxxxxxxxx)

"Wovon man nicht sprechen kann, darüber muss man schweigen"
– Ludwig Wittgenstein, Tractatus Logico-Philosophicus

.