

Re: Problem with nested for-loops

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- *From:* un.student@xxxxxxxxxx
 - *Date:* 10 Mar 2007 10:53:05 -0800
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On Mar 10, 8:28 pm, Patricia Shanahan <p...@xxxxxxx> wrote:

un.stud...@xxxxxxxxxx wrote:

On Mar 10, 7:39 pm, Patricia Shanahan <p...@xxxxxxx> wrote:

un.stud...@xxxxxxxxxx wrote:

Now if arity of the tuple and i were given,
how would one find the
tuple? Would it be unique (in the non-trivial
sense)?

How about $i=30$? (30,1) or (15,2) or (10,3) or (6,5).

I would count these to the trivial cases. Suppose all a_i and i are
greater than two.

I'm not sure that is possible, and still have the general inverse
operation. What is the solution for $i=37$, arity 3?

Also, what is trivial about (10,3) and (6,5)? All tuple components are
greater than two.

The arity is 2 which reverts back to multiplication, $10*3 = 6*5$.

But this isn't the point I'm trying to make. I'm trying to understand
the inverse operations involved here (and trying to see the nature of
the hierarchy created).

Getting solid rules about what is and is not permitted is essential to

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that understanding. I'm trying to help that process by presenting cases for which I don't understand the rules, especially what is "trivial" and what is not.

Well, "trivial" is something like "high school algebra" and hence has now exact meaning. When arity rises the operation changes.

I came up this problem when looking old notes about primitive recursive functions. After thinking a while I thought it would be possible to create a sort of hierarchy on the operation. First level is addition by one, successor function, next addition, then multiplication, then exponentiation etc.

Now, giving n -tuple (a_1, \dots, a_n) and running the " i 'th" level operation a_i times would result to some number and I just thought if the inverse was possible.

I'm sorry to be so sort on these comments but I'm in quite a rush. I'll get back to the subject later.

I, however, think that the idea should be understable. If I give $(4,5,9,1,4,3,8)$ and calculate i , how would one find the tuple given 7 and the resulting i .

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