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Subject: Re: Strange problem

Posted by [Bhautik Joshi](#) on Mon, 26 Nov 2001 01:38:05 GMT

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> Anybody know what's going on?

My spin on it:

Well, I think it may be a problem that goes right down to the core, and is not just restricted to FOR loops.

Example:

```
MOO>a=replicate(0.1,100)
MOO>print, total(a)
10.0000
MOO>print, total(a) - 0.1*100
1.90735e-06
```

argh! where I think the problem may lie is with the binary representation of floating point numbers. Now, its been a loooooooooooooooooooooooooong while since I did computer architecture (yes, it is a real subject at uni) but as far as I remember, in floating point binary, there is no 'exact' representation for 0.1.

However, lets take 0.5 - which is a quarter of 2; something nice and (pardon the expression) base-twoish.

```
MOO>a=replicate(0.5,100)
MOO>print, total(a) - 0.5*100
0.00000
```

Lets change the game slightly again:

```
MOO>a=replicate(0.51,100)
MOO>print, total(a) - 0.51*100
-4.95911e-05
```

should i be worried?

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```

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