Subject: Re: Yet another bug??
Posted by thompson on Wed, 17 May 1995 07:00:00 GMT
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phil@peace.med.ohio-state.edu (Phil) writes:

- > Sorry to keep posting but I've just started developing some useful
- > tools in IDL and it seems I run across a new 'bug' every day. Could
- > someone tell me the sense behind the following:

```
> IDL> print, not 0
> -1
> IDL> print, not 1
> -2
```

- > Shouldn't (not 0) = 1 and (not 1) = 0 or am i just missing something?
- > Is there somehting in the manuals that describes this logic?
- > Just wondering.

What the NOT function really does is to reverse all the bits in a number. Thus the bit pattern representing 0, which not surprising is all 0s, turns into all 1s which is the bit pattern for the integer -1. Such behavior is really useful when one wants to get down to the bit level of a number, and I think that other languages behave this way as well. Apparently, any even integer is treated as false and any odd integer is treated as true. For example,

But the function KEYWORD_SET, which is also associated with boolean values, seems to behave differently. It only treats the value 0 as false, and anything else as true.

IDL> for i = -5,5 do if keyword_set(i) then print,i
-5
-4
-3
-2
-1
1

```
3
4
5
IDL> print, keyword_set(not 1)
```

I consider that a bug.

Also, floating point numbers work differently then integer numbers, and match the behavior of KEYWORD SET.

Basically, it's a mess. I'm not too upset about the difference between floating point and integer behavior, but KEYWORD_SET really worries me now. If I use a statement like

```
MYPROG, TEST_KEY=(NOT A)
```

and I'm using KEYWORD_SET inside the routine to test whether or TEST_KEY was set, I'll get the wrong answer.

Bill Thompson

5

```
Subject: Re: Yet another bug??
Posted by Imudge on Fri, 19 May 1995 07:00:00 GMT
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```

In article 95May17132737@peace.med.ohio-state.edu, phil@peace.med.ohio-state.edu (Phil) writes:

```
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> Just wondering.
>
>
> Phil Williams
> Postdoctoral Researcher
                                       "One man gathers what
> MRI Facility
                                    another man spills..."
> The Ohio State University
                                           -The Grateful Dead
> email: phil@peace.med.ohio-state.edu
> URL: http://justice.med.ohio-state.edu:1525
One must thing in binary terms to understand what is happening here.
Integer variables in IDL uses twos complement binary arithmetic thus the
binary representation of 0 is 00000000000001. When we perform a not on this
we get 111111111111110 which is the twos complement representation for -1.
Try doing this:
not float(1)
and
not float(2)
and see what you get.
Regards,
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```

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