
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 something 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,

```
IDL> for i = -5,5 do if i then print,i
```

```
-5
```

```
-3
```

```
-1
```

```
1
```

```
3
```

```
5
```

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
```

```
2
```

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

I consider that a bug.

Also, floating point numbers work differently than integer numbers, and match the behavior of `KEYWORD_SET`.

```
IDL> print, not 0.
1.00000
IDL> print, not 1.
0.00000
```

and

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

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
