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Subject: BYTSCL and NAN keyword

Posted by [K. Bowman](#) on Tue, 02 Mar 2004 16:54:38 GMT

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Has anyone else noticed this problem with BYTSCL and the NAN keyword?

The BYTSCL function scales integers and floats into bytes between 0 and 255 (or the value set by the TOP keyword). If the NAN keyword is set, NANs in the input array are set to 0 in the output array. But 0 falls into the valid range for good values (0 to TOP)!

Because it is not possible to set NANs to a value outside the valid range (greater than TOP), it is not possible to distinguish missing from valid data.

As best I can tell, the only solution is to not use the NAN keyword and scale the valid data only by using WHERE to find all the valid values. Am I missing something obvious? (Quite possible, I admit.)

Ken Bowman

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Subject: Re: BYTSCL and NAN keyword

Posted by [David Fanning](#) on Wed, 03 Mar 2004 02:15:44 GMT

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Kenneth P. Bowman writes:

> You can have the last word.

Here is the proof of Turing's theorem all over again.  
If I respond, the theorem is true, if I don't the  
theorem is false. But we can't decide the truth within  
the system of our own newsgroup! :-)

Cheers,

David

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David Fanning, Ph.D.

Fanning Software Consulting

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

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Subject: Re: BYTSCL and NAN keyword

Posted by [David Fanning](#) on Wed, 03 Mar 2004 02:18:36 GMT

David Fanning writes:

- > Here is the proof of Turing's theorem all over again.
- > If I respond, the theorem is true, if I don't the
- > theorem is false. But we can't decide the truth within
- > the system of our own newsgroup! :-)

Let's just say when Craig responds to tell me how  
hopelessly I botched Turing's Theorem, I'm going to let  
\*him\* have the last word!

Cheers,

David

--

David Fanning, Ph.D.  
Fanning Software Consulting  
Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

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Subject: Re: BYTSCL and NAN keyword  
Posted by [Craig Markwardt](#) on Wed, 03 Mar 2004 08:10:03 GMT  
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David Fanning <david@dfanning.com> writes:

- >
- > Let's just say when Craig responds to tell me how
- > hopelessly I botched Turing's Theorem, I'm going to let
- > \*him\* have the last word!

Nope, I am currently away on travel and a robot post messages in my  
place. All of the messages the robot posts are false.

Craig

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Craig B. Markwardt, Ph.D.    EMAIL: [craigmnet@REMOVEcow.physics.wisc.edu](mailto:craigmnet@REMOVEcow.physics.wisc.edu)  
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response  
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Subject: Re: BYTSCL and NAN keyword  
Posted by [Craig Markwardt](#) on Wed, 03 Mar 2004 16:41:47 GMT  
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Kenneth Bowman <k-bowman@null.tamu.edu> writes:

```
> In article <ond67vf8sb.fsf@cow.physics.wisc.edu>,
> Craig Markwardt <craigmnet@REMOVEcow.physics.wisc.edu> wrote:
>
>> How about this non-WHERE approach?
>> bb = bytscl(x, ...) + (finite(x) EQ 0)*255b
>
> Clever idea (JD also)! The logical not operator (~) will work as well
>
> bb = BYTSCL(x, ..., /NAN) + BYTE(255*(~FINITE(co)))
>
> While not mandatory, the BYTE function ensures that the result bb is
> type BYTE (since FINITE returns a LONG).
```

No I disagree. FINITE should (and does) return a BYTE, just like all the other conditional expressions in IDL.

Logical negation ("~" operator) also keeps the byte-ness of the operand.

I think where you are going askew is the multiplication by 255. You really need the "B" after 255b in order to force it to be a byte.

Craig

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Craig B. Markwardt, Ph.D. EMAIL: [craigmnet@REMOVEcow.physics.wisc.edu](mailto:craigmnet@REMOVEcow.physics.wisc.edu)  
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response  
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Subject: Re: BYTSCL and NAN keyword  
Posted by [K. Bowman](#) on Wed, 03 Mar 2004 21:35:00 GMT  
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In article <onfzcpublg.fsf@cow.physics.wisc.edu>,  
Craig Markwardt <craigmnet@REMOVEcow.physics.wisc.edu> wrote:

```
> No I disagree. FINITE should (and does) return a BYTE, just like all
> the other conditional expressions in IDL.
```

My mistake.

Ken

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