Subject: Re: Starting a for loop within an if loop Posted by David Fanning on Thu, 20 Dec 2007 04:14:48 GMT View Forum Message <> Reply to Message

Mat Smith writes:

```
> I'm trying to write a program with some keywords, so that depending
> upon my mood I can alter what it does.
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> to include an option to do a for loop.
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- > ENDFOR
- > ENDIF

- > Thus the rest of the program runs normally with and without the for
- > loop (it just uses t).
- > However, IDL doesn't understand this it wants an ENDFOR before the
- > ENDIF.

- > Any thoughts on how I can get around this? It's entirely possible that
- > I'm missing something obvious.

It's possible. Have you taught yourself to program? Sometimes there can be gaps. :-)

Anyway, I think I would do something like this:

```
IF keyword_set(mc) THEN endloop = n ELSE endloop = 1
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ENDFOR
```

This way, if your keyword is set, you will do the loop n times, otherwise you will do the loop just once.

Cheers.

```
David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")
```

Subject: Re: Starting a for loop within an if loop Posted by Mat Smith on Thu, 20 Dec 2007 06:15:21 GMT View Forum Message <> Reply to Message

```
On Dec 20, 1:14 am, David Fanning <n...@dfanning.com> wrote:
> Mat Smith writes:
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Hi David,

I have indeed taught myself to program, and there are undoubtedly huge gaps!! I've never been one for learn the basics - I'm more of a dive in and solve problems as they come!

If I read your reply correctly, I don't think that it'll do what I want it to, but I can adapt it so that it will!

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That is if the keyword isn't set then it will have a particular values, but if it is set, then it will run the loop AND the values will always be different to when the keyword isn't set (i.e. loop of 1 isn't the not keyword).

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Does this make sense? It's very long-winded (there must be a quicker way!). I'm trying to be clever and I'm probably making my programs too generic. I'm also probably missing something simple (thanks to the learning it as I go!)

Thanks

>> ENDIF.

Mat

Subject: Re: Starting a for loop within an if loop Posted by Mat Smith on Thu, 20 Dec 2007 06:15:35 GMT View Forum Message <> Reply to Message

On Dec 20, 1:14 am, David Fanning <n...@dfanning.com> wrote: > Mat Smith writes: >> I'm trying to write a program with some keywords, so that depending >> upon my mood I can alter what it does. > >> What I want to do is most of the time just run the program, but I want >> to include an option to do a for loop. >> Basically, I need something like: >> IF keyword_set(mc) THEN BEGIN >> FOR i=0.n-1 DO BEGIN >> t=d[i] >> ENDIF >> and later in the program >> IF keyword_set(mc) THEN BEGIN >> ENDFOR >> ENDIF >> Thus the rest of the program runs normally with and without the for >> loop (it just uses t). >> However, IDL doesn't understand this - it wants an ENDFOR before the

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> Fanning Software Consulting, Inc.

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Subject: Re: Starting a for loop within an if loop Posted by Mat Smith on Thu, 20 Dec 2007 06:50:54 GMT View Forum Message <> Reply to Message

On Dec 20, 1:14 am, David Fanning <n...@dfanning.com> wrote:

> Mat Smith writes:

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Mat

Subject: Re: Starting a for loop within an if loop Posted by Allan Whiteford on Thu, 20 Dec 2007 09:31:40 GMT View Forum Message <> Reply to Message

Mat Smith wrote:

> On Dec 20, 1:14 am, David Fanning <n...@dfanning.com> wrote:

>

>> Mat Smith writes:

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>>
>>
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>>
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>> David Fanning, Ph.D.
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If I read your reply correctly, I don't think that it'll do what I
want it to, but I can adapt it so that it will!
The problem was that I wanted to have different structures depending
on if the keyword is set.
```

You might want to look at making your "... working on t" a subroutine in its own right, this would give you code like:

```
pro doit,t
... work on t
end

if keyword_set(mc) then begin
for i=0,k-1 do begin
doit,d[i]
end
endif else begin
doit,s
endelse
```

it will give you slightly more flexibility to put your core code inside different structures etc. If mc stands for Monte Carlo then you almost certainly want to separate your model from the controlling code.

I'd guess you'd also want to pass an answer back out of "doit" in which case you might want to make it a function or add more parameters.

```
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t=s
ENDIF ELSE BEGIN
FOR i=0,k-1 DO BEGIN
t=d[i]
```

> ENDELSE > ... working on t > ENDFOR - which obviously didn't work It's not a completely unreasonable thing to want - it's just that IDL won't let you do it. > But I can adapt your suggestion to make it work - i.e. in the for loop > call another if loop! e.g. > > IF keyword set(mc) THEN endloop = n ELSE endloop = 1 > FOR j=0,endloop-1 DO BEGIN > IF NOT keyword_set(mc) THEN BEGIN > t=s[i] > ENDIF ELSE BEGIN > t=d[i] > ENDELSE > ...woking on t > ENDFOR > Does this make sense? It's very long-winded (there must be a guicker > way!). I'm trying to be clever and I'm probably making my programs too > generic. I'm also probably missing something simple (thanks to the > learning it as I go!) In this context, you'd be better with something like: if keyword set(mc) then begin endloop=n t=d; d can be an array endif else begin endloop=1 t=s; s can be a scalar endelse for j=0,endloop-1 do begin

end
this will save doing an "if" inside of your "for". IDL will not optimise this away for you like some other compilers might claim to.

Thanks,

; now work on t[i]

Allan

Subject: Re: Starting a for loop within an if loop Posted by Wox on Thu, 20 Dec 2007 10:08:34 GMT

View Forum Message <> Reply to Message

On Wed, 19 Dec 2007 19:57:50 -0800 (PST), Mat Smith <mat.smith@port.ac.uk> wrote:

- > IF keyword_set(mc) THEN BEGIN
- > FOR i=0,n-1 DO BEGIN
- > t=d[i]
- > ENDIF

>

> and later in the program

>

- > IF keyword_set(mc) THEN BEGIN
- > ENDFOR
- > ENDIF

You're thinking of preprocessor directives like in e.g. C++

```
#ifdef <token>
/* code */
#endif
```

So at compile time it looks whether <token> is defined or not and includes or excludes code in compilation. Even if IDL would be compiled and have a preprocessor, you only know whether <token> is defined ("keyword is set" if you will) at runtime.

Btw, it's an "if statement" not an "if loop". I don't want to offend you, but I was glad someone told me that ones. Time to return the favour;-).

Subject: Re: Starting a for loop within an if loop Posted by Carsten Lechte on Thu, 20 Dec 2007 11:19:26 GMT View Forum Message <> Reply to Message

Mat Smith wrote:

- > Basically, I need something like:
- >
- > IF keyword_set(mc) THEN BEGIN
- > FOR i=0,n-1 DO BEGIN
- > t=d[i]
- > ENDIF

>

> and later in the program

>

- > IF keyword_set(mc) THEN BEGIN
- > ENDFOR
- > ENDIF

Others have pointed out some solutions for your problem, so I will comment on why your approach must fail.

The reason is: Computers do not understand programming languages.

Source code in IDL, C, perl etc. must be translated into bit patterns (the "machine code") that the CPU of the computer can use directly. The abstract concept of a FOR loop is translated into a certain set of machine instructions and then executed. Fro this to work, the loop has to be present in the source code in its entirety.

In the source code, i.e. the stuff that the human writes, the FOR loop is often represented by several units/lines of code: The "FOR ...", the code that is to be looped over, and the termination statement "ENDFOR". In most programming languages, these are all obligatory components that have to be present at the time that the code is translated into machine code (i.e. during the compilation phase.)

What you tried was to make conditional statements that can only be evaluated during run-time, i.e. after the compilation phase -- but the compiler does not get that far. Your only hope is to use the FOR loop as a complete unit inside your conditional statements. That way, the compiler can translate the whole loop, and during run-time, the program can decide if the loop should be run or not.

I find it hard to express these concepts (other than saying "compilers do not work like that.")

Note that in C, you actually can use the preprocessor to do something like that, but this works because the conditionals are decided before compilation, and the actual compiler either sees the complete FOR loop, or none at all (or a loop with one half missing, if you messed up the #ifdef's...)

chl

Subject: Re: Starting a for loop within an if loop Posted by David Fanning on Thu, 20 Dec 2007 13:43:52 GMT View Forum Message <> Reply to Message

Carsten Lechte writes:

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- > will comment on why your approach must fail.

>

> The reason is: Computers do not understand programming languages.

Hi Carsten,

I've submitted your name for Honorable Mention at the next IEPA convention. I've put it in the category Quirky Humor, Followed By Great Information. Nice post! :-)

Cheers.

David

--

David Fanning, Ph.D.
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Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: Starting a for loop within an if loop Posted by edward.s.meinel@aero. on Thu, 20 Dec 2007 15:01:54 GMT View Forum Message <> Reply to Message

On Dec 19, 10:57 pm, Mat Smith <mat.sm...@port.ac.uk> wrote:

- > Any thoughts on how I can get around this? It's entirely possible that
- > I'm missing something obvious.
- > Thanks
- > Mat

Thanks a lot, Mat. Now I have a headache.

My take on this is that you are treating IDL like C, C++, FORTRAN (pre-F90), ... You managed to suck me (and apparently everyone else) into the same thought pattern with that convoluted little piece of code. Now that I've cleared my mind, why can't you just do:

CASE mc OF 1: t = d ELSE: t = s ENDCASE Ed

Subject: Re: Starting a for loop within an if loop Posted by Carsten Lechte on Fri, 21 Dec 2007 10:12:23 GMT

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David Fanning wrote:

> Nice post! :-)

Why, thank you <blush>

chl