Subject: Re: for loops for total newbies
Posted by Conor on Fri, 13 Jul 2007 18:45:23 GMT
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I'm afraid a lot of this you might just have to come up with yourself. It's hard (for me anyway) to vectorize everything for you because I'm just not that familiar with your code. I don't know the dimensions of everything, and I don't really know what you're trying to accomplish. However, I think I can provide some hints that should help.

First of all, why do you have a wait inside a for loop??? Even if it doesn't cost you that much time, it still has no purpose that I can see.

Second, remember that if an operation doesn't have to be in the for loop, don't put it in the for loop! So in your inner-most loop you have these two lines:

```
k2=(k+1+ max_cor_shift) mod max_cor_shift
k1=(k-1+ max_cor_shift) mod max_cor_shift
```

However the loop itself is looping over f, and the loop above it is looping over i, neither of which appear in either of these lines. It seems to me that these two variables should be constants inside the loop, so you should move them out of the loop entirely. That probably won't make a huge difference, but it will help.

Now the important part. It might be very difficult to get rid of both for loops, but it should be pretty easy to get rid of the innermost one. The first trick you will have to do is use the dimensions keyword to max(). You'll want to get rid of the for loop over f, and instead try something like this:

```
crtot= fltarr(sz-1,(size(cor_array))[2],(size(cor_array))[3])
crtot(0:sz-3,*,*)= cor_array(0:sz-3,*,*)

meanarr = fltarr((size(cor_array))[2])
j= findgen(1000*max_cor_shift)/1000.0
avgz= fltarr(sz-2)
fit = fltarr(sz-2, max_cor_shift*1000)

k2=(k+1+max_cor_shift) mod max_cor_shift
k1=(k-1+ max_cor_shift) mod max_cor_shift

for i = 0, (size(cor_array))[2]-1 do begin
      print, i
```

```
 maxcrs = max(crtot,ks,dimension=1)
 a = crtot(*,i,k2)/2 + crtot(*,i,k1)/2 - maxcrs
 b = crtot(*,i,k2)/2 - crtot(*,i,k1)/2 - maxcrs
 c = maxcrs

 fit = a*(j-k)^2 + b*(j-k) + c
 kaas = max(fit, s, dimension=1)
 avgz = s/(float(sz)) - 10

      meanarr(i)=mean(avgz)
endfor
```

Now I really doubt the above code will work, but that's essentially what you want to do. By saying: maxcrs = max(crtot,ks,dimension=1) you are returning not just the maximum of a row, but the maximum of every row. Then, you calculate 'a' for every row, 'b' for every row, 'c' for every row, and 'fit' for every row. I'm not sure if I quite did it right though, because I'm not very sure what the dimensions of fit are, and whether or not everything matches up. You'll probably have to adjust the code accordingly. Same with the calculation of kaas and avgz. Hopefully though, this will give you an idea of what needs to be done.

Actually, considering that very little is done in the outer loop, you might be able to get rid of it as well and do the whole thing loop-less. I'm not really sure though, you might have to play around with that yourself.
