Subject: Re: indexing
Posted by Jeremy Bailin on Thu, 02 Apr 2009 01:17:23 GMT
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On Apr 1, 9:12 pm, Jeremy Bailin <astroco...@gmail.com> wrote:
> I swear I've seen this come up within the past few months, but I can't
> find it, so here goes:
>
> Let's say I have a 3D array - think of it as x,y,z if you want. I have
> a list of x,y pairs and I want to perform on operation on a given
> range in z (say z1:z2) and each x,y pair. For a simple example, let's
> say I just want them all up. So, if the following were my x,y pairs:
> 3 4
> 2 1
> 3 7
> and my z range was 1:3 then I want
> array[3,4,1]+array[3,4,2]+array[3,4,3]
> +array[2,1,1]+array[2,1,2]+array[2,1,3]
> +array[3,7,1]+array[3,7,2]+array[3,7,3]
>
> Is there a simple representation for this? My standard solution, if
> pair is an npair x 2 array containing the x,y pairs, looks something
> like this:
> nz=z2-z1+1
> zindices=rebin(reform(z1+lindgen(nz),1,nz), npair,nz)
> xindices=rebin(pair[*,0],npair,nz)
> yindices=rebin(pair[*,1],npair,nz)
> answer = total(array[xindices,yindices,zindices])
>
> ...but if nz and npair are large, generating all of those 2D index
> arrays is really wasteful. The following also works:
>
> answer = total(array[pair[*,0],pair[*,1],z1:z2] * rebin(identity
> (npair,npair,nz)))
>
> but again generates 2 intermediate npair x npair x nz arrays that are
> wasteful if npair is large.
>
> Any takers?
>
> -Jeremy.

...that last line should read:

answer = total(array[pair[*,0],pair[*,1],z1:z2] * rebin(identity
(npair),npair,npair,nz))

-Jeremy.