Subject: A complicate problem for building a map
Posted by ftls1 on Wed, 15 Oct 2003 17:51:57 GMT
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I met a problem of map building as below,
I have two 2-D tables of RT(nw,nt), RW(nw,nt), nw and nt are
constants,
both RT and RW range from -1 to +1, the value of nw, even though it is
'integer',actually means wind speed from
-50 m/s to 50 m/s and the nt means temperature from 0 to 300 K.
Now I want to get a table with x and y axis of RT and RW respectively.
The purpose to build such a table is that if there is an arbitrary
pair
of RW and RT value, I can look it in the table and find the
appropriate
wind and temperature.
I've been thinking on this topic for a couple of weeks without any
idea, in C
language there is a concept of 'Group', but IDL does not.

Subject: Re: A complicate problem for building a map
Posted by condor on Thu, 16 Oct 2003 23:36:48 GMT
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ftls1@uaf.edu (ftls1@uaf.edu) wrote in message
news:<44042ede.0310150951.71dad28a@posting.google.com>...
> I met a problem of map building as below,
> I have two 2-D tables of RT(nw,nt), RW(nw,nt), nw and nt are
> constants,

i.e. not variables. OK.

Are RT and RW unique? I.e. can there be values in these tables that
appear more than once.

E.g. is it possible that RT[3,5] = RT[10,15]

> both RT and RW range from -1 to +1,

What is the meaning of these numbers? In particular: what is the
granularity? Are we talking three possible values (-1,0,1) or many
many values?

> the value of nw, even though it is
> 'integer',actually means wind speed from
> -50 m/s to 50 m/s and the nt means temperature from 0 to 300 K.

Speaking only for myself, at this point you're confusing me. Are they constant or are they variable? When you say "0 to 300K" then you seem to imply that there's more than one possibility

> Now I want to get a table with x and y axis of RT and RW respectively.
> The purpose to build such a table is that if there is an arbitrary
> pair of RW and RT value, I can look it in the table and find the
> appropriate wind and temperature.

But what would be the "appropriate" wind and temperature?

Obviously you can create an array where RT and RW are the (appropriately scaled) indices. Call it "A". Then you could do something like

A[(RT+1)/n,(RW+1)/n]

but from the given information it is not clear what should be written in this array at that location. If various different values of nw and nt can produce the same RT and/or RW values, which of them are the "appropriate" ones to store at that location?

> I've been thinking on this topic for a couple of weeks without any
> idea, in C language there is a concept of 'Group', but IDL does not.

Unfortunately my understanding of C is on the basic side, and I don't think I have ever heard of a "group" in C, so I don't know what functionality you are looking for. Can you describe what that is supposed to do and maybe someone could tell you how to emulate this in IDL.

Subject: Re: A complicate problem for building a map
Posted by ftls1 on Sun, 19 Oct 2003 06:23:47 GMT
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condor@biosys.net (Big Bird) wrote in message news:<df160b8f.0310161536.3cf83a8a@posting.google.com>...
> ftls1@uaf.edu (ftls1@uaf.edu) wrote in message news:<44042ede.0310150951.71dad28a@posting.google.com>...
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> i.e. not variables. OK.
>
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> appear more than once.

>
> E.g. is it possible that RT[3,5] = RT[10,15]

yes,some points have the same value in RT and RW respectively.

>
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>
> What is the meaning of these numbers? In particular: what is the
> granularity? Are we talking three possible values (-1,0,1) or many
> many values?

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>> 'integer',actually means wind speed from
>> -50 m/s to 50 m/s and the nt means temperature from 0 to 300 K.
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> Speaking only for myself, at this point you're confusing me. Are they
> constant or are they variable? When you say "0 to 300K" then you seem
> to imply that there's more than one possibility
>

e.g. RT[n,k]= #, where # is the value for RT, n and k are variables
for wind speed and temperature functions respectively.
in another word, the # is RT's value is under a secific wind speed
and temperatue condition.

>> Now I want to get a table with x and y axis of RT and RW respectively.
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>> pair of RW and RT value, I can look it in the table and find the
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> think I have ever heard of a "group" in C, so I don't know what
> functionality you are looking for. Can you describe what that is
> supposed to do and maybe someone could tell you how to emulate this in
> IDL.

sorry, made a typo. what I said is 'Record' in Pascal Language.

Subject: Re: A complicate problem for building a map
Posted by Olaf Stetzer on Mon, 20 Oct 2003 11:42:25 GMT
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ftls1@uaf.edu schrieb:
> I met a problem of map building as below,
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> both RT and RW range from -1 to +1, the value of nw, even though it is
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> appropriate
> wind and temperature.
> I've been thinking on this topic for a couple of weeks without any
> idea, in C
> language there is a concept of 'Group', but IDL does not.

I am not sure if I understood you correctly but maybe you can use
the where() function to find your information. You want the "cordinates"
where:
wind = 50 m/s and T= 250 K ?

wind_temp_indices=where(RT eq 250 and RW eq 50) ; or use the "coded"
; values for 250 K and 50 m/s instead

Subject: Re: A complicate problem for building a map
Posted by ftls1 on Mon, 20 Oct 2003 21:52:18 GMT
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yes, I used 'where' function and intersected the two sets to find
temperature and wind.

the problem is whether this retrieval method was converging? is the
point the nearst one with least RMS?

Olaf Stetzer <olaf.stetzer@imk.fzk.de> wrote in message
news:<bn0hn1fnt1@news.rz.uni-karlsruhe.de>...
> ftls1@uaf.edu schrieb:
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> wind = 50 m/s and T= 250 K ?
>
> wind_temp_indices=where(RT eq 250 and RW eq 50) ; or use the "coded"
> ; values for 250 K and 50 m/s instead

Subject: Re: A complicate problem for building a map
Posted by condor on Mon, 20 Oct 2003 22:49:11 GMT

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ftls1@uaf.edu (ftls1@uaf.edu) wrote in message
news:<44042ede.0310182223.d736129@posting.google.com>...

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>>> idea, in C language there is a concept of 'Group', but IDL does not.
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>> Unfortunately my understanding of C is on the basic side, and I don't
>> think I have ever heard of a "group" in C, so I don't know what
>> functionality you are looking for. Can you describe what that is
>> supposed to do and maybe someone could tell you how to emulate this in
>> IDL.

>
> sorry, made a typo. what I said is 'Record' in Pascal Language.

Well, it's been a couple years for me since I last looked at Pascal,
but IDL certainly has a record mechanism (I think they're called
"struct"). Here's a couple trivial examples:

;; create a template:

```
IDL> record = {name: "" , age: 0}
IDL> help,record,/struct
** Structure <81bfda4>, 2 tags, length=16, data length=14, refs=1:
   NAME            STRING    ''
   AGE             INT             0
```

;; create an array that holds a hundred of those:

```
IDL> a = replicate(record,100)
IDL> a[0].name ='fred'
IDL> a[1].name ='bob'
```

;; they can also be used in the usual array ways:

```
IDL> a[0:1].age = [35,36]

IDL> print,a[0]
{ fred      35}
IDL> print,a[1]
{ bob       36}
```

The tags in a struct can also be arrays, if desired, which are indexed
in the obvious way. I.e.

a[0].array[5] is the fifth element of the tag with the
            name "array" in the zeroth record, while
a[5].array[0] is the zeroth element of that array in the fifth record.

Subject: Re: A complicate problem for building a map
Posted by Olaf Stetzer on Tue, 21 Oct 2003 07:33:45 GMT
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ftls1@uaf.edu schrieb:
> yes, I used 'where' function and intersected the two sets to find
> temperature and wind.
>
> the problem is whether this retrieval method was converging? is the

> point the nearst one with least RMS?

The where function does only logical comparisons, which means you only
get a result if the data contains exactly the values you are looking
for. If you are looking for nearest values you have to calcualte them on
your own, something like:

```
RT_dev=abs(RT-250) ; nearest values to 250 K
RW_dev=abs(RW-50) ; nearest values to 50 m/s
RTW_dev=RT_dev*RW_dev ; or use smth. like sqrt(RT_dev^2 + RW_dev^2)
                      ; depending on your needs. Then:
wind_temp_indices= where (RTW_dev eq min(RTW_dev))
```

Olaf

Subject: Re: A complicate problem for building a map
Posted by ftls1 on Tue, 21 Oct 2003 22:02:27 GMT

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yeah, actually I used the same method as urs, but there was some other
more complicate problems to be sovled. I think it is time to conclude
this discussion here.
  Thank you all so much for ideas and what you all have posted!

ftls1@uaf.edu (ftls1@uaf.edu) wrote in message
news:<44042ede.0310201352.2e27a979@posting.google.com>...
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