Re: Array Declaration Problem ??

Source:
http://www.tech−archive.net/Archive/Excel/microsoft.public.excel.programming/2008−06/msg04540.html

- *From*: monir <monir@xxxxxxxxxxxxxxxxxxxxxxxx>
- *Date*: Mon, 30 Jun 2008 09:21:02 −0700

Hi Dana;

Sorry to bother you again, but problem solved at last!!
Here's a summary:

1) On the w/s:
cell B8::3
cell B9:: myTrue
cells B11:B14:: numerical values
cells C11:C14:: numerical values
cells I11:I13:: array formula {=Zroots2(B11:B14,C11:C14,B8,B9)}

```
Option Base 1
Option Explicit
Function Zroots2 (ar As Range, ai As Range, m As Integer, polish As String)
As String()
Dim EPS As Double
Dim i As Integer, jj As Integer
Dim b As String, c As String
Dim j As Integer, its As Integer
Dim x As String
ReDim Roots(m) As String
ReDim a(m+1) As String, ad(m+1) As String
'.....................................my code1
Zroots2 = Roots()
End Function
```

3) In Function Zroots2(), array Roots() is calculated correctly, say, [1+i],
[2+2i], [3+3i].
But the array function returned a single value [1+i] to the full range
I11:I13, instead of returning the array 3 results to the 3 vertical cells.

4) In Function Zroots2(), replacing the statement:
Zroots2 = Roots()
with
Zroots2 = WorksheetFunction.Transpose(Roots())
doesn't produce compile error but returns #VALUE! to cells I11:I13

5) Having instead the Transpose function in the array formula on the w/s:
cells I11:I13:: array formula {=Transpose(Zroots2(B11:B14,C11:C14,B8,B9))}
and leaving the Function Zroots2() statement unchanged:
Zroots2 = Roots()
S O L V E S the problem.

I've successfully tested the VBA procedure for 1D polys up to degree 20,
with real and complex coefficients.
If there's interest, I'd be glad to post a demo w/b with the VBA procedure.

Kind regards.

"monir" wrote:

> Hi;
>
> For clarification, the 3rd para. of my latest reply should read:
> "The only remaining difficulty is as follows. The array results are
> calculated correctly in the array Function Zroots2(), but only the 1st value
> of the 1D array Roots results is returned to the col range of cells (instead
> of returning the array of results)."
>
> Regards.
>
> "Dana DeLouis" wrote:
>
> > The only remaining difficulty is as follows. The results are
> > calculated
> > correctly in the array Function Zroots2(), but only the 1st
> > element of the
> > array is returned to the range of cells (instead of returning the
> > array of
> > results).
> >
> > Just guessing, but if the results to the worksheet are a vertical array, then just
> > transpose them.
> > For this simple demo, select 3 vertical cells, and Ctrl+shift+Enter the
> > following:
> > { =Demo() }
> >
> > You should see all 3 results.
> >
> > Function Demo()
> > Dim V
> > 'Your Array of values
> > V = Array(2, 4, 6)

Demo = WorksheetFunction.Transpose(V)
End Function

I can't get the entire code from Numerical Recipes.
I'd love to get a copy, and check out your code. I'm curious on the theory behind that code.

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HTH :>)
Dana DeLouis

"monir" <monir@xxxxxxxxxxxxxxxxxxxxxxxxx> wrote in message
news:FCC55C3E−6F2A−42AD−BF91−FEB83CD35AB8@xxxxxxxxxxxxxxx

> Hi Dana;
>
> Thank you again and I would be glad to send you a copy of
> the w/b.
>
> I've ironed out almost ALL the problems with the procedure,
> and I'm getting
> very encouraging results (the expected results).
> In addition to using the VBA atpvbaen.xls library to handle
> Complex
> variables by making w/s Complex functions available in vba
> (your brilliant
> idea!), I've changed the input array argument in the array
> Function Zroots2()
> from a 2D array to two 1D arrays.
>
> The only remaining difficulty is as follows. The results are
> calculated
> correctly in the array Function Zroots2(), but only the 1st
> element of the
> array is returned to the range of cells (instead of returning the
> array of
> results).
>
> Here's how the relevant sections of the array Function
> Zroots2() looks now.
> Notice that the function is declared as String and the array
> variable Roots()
> is also declared as String. I tried to declare the function
> Zroots2 and
> variable Roots as Variant, but realized that a Variant can't
> include String
> data type.
>
> Option Base 1
> Option Explicit

```
Function Zroots2(ar As Range, ai As Range, m As Integer,
polish As String)
As String()

Dim EPS As Double
Dim i As Integer, jj As Integer
Dim b As String, c As String
Dim j As Integer, its As Integer
Dim x As String
Dim Roots(100) As String
Dim a(101) As String, ad(101) As String

EPS = 0.000001

For j = 1 To m + 1
a(j) = complex(ar(j), ai(j))
ad(j) = a(j)
Next j

For j = m To 1 Step −1
x = complex(0, 0)
Call Laguer2(ad, j, x, its)
'.....my code1
Next j
For j = 1 To m
Call Laguer2(a, m, Roots(j), its)
Next j
'.....my code2
For j = 2 To m
x = Roots(j)
For i = j − 1 To 1 Step −1
'.....my code3
Roots(i + 1) = Roots(i)
Next i
'.....my code4
Next j

Zroots2 = Roots()
End Function
```

Any suggestions ?? Thanks again.

"Dana DeLouis" wrote:

> Feel free to send my your workbook.
> I'd be glad to take a look at it.
> − −
> Dana DeLouis

1) The FORTRAN code of Zroots() and Laguer() comes from "Numerical

Recipes"

by Press et al, pages 366 & 367, as I correctly referenced in my earlier posts.
The Fortran version works perfectly and as desired in all situations,

and I

have hade no problems with it whatsoever!

2) I posted the entire Fortran code of Zroots() and Laguer() here

earlier

(total ~ 60 lines), hoping some experts in VBA would help in its

conversion

to vba. I subsequently decided to convert the code myself to VBA and

have

since posted one of my latest attempts (not sure which one!), which

returns

#VALUE!

<snip>

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