Subject: Convolution, IDL & Numerical Recipes
Posted by aceves on Thu, 31 Oct 2002 20:50:29 GMT
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Hello..

I am using IDL for some of my research and have a particular problem with convolution of two arrays. I have used IDL's CONVOL procedure and subroutine CONVLV given in NUMERICAL RECEIPES..both give different results. I hope some one can shed light on what the reason might be.

Thank you. Hector

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Problem:
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At the IDL prompt I entered and obtained:

```
IDL> a=[0,0,0,0,0,1,1,1,1,1,0,0,0,0,0,0]  ;  signal!
IDL> k=[1,0,0,0,0,0,0,0,0]  ; kernel!
IDL> z=convol(a,k)
IDL> print, z
      0       0       0       0       0       0       0       0
      0       1       1       1       0       0       0       0
```

With Numerical Receipes (Example Book in Fortran, Program XCONVLV, Chap.13)

The Signal file, or Data is (ibin,DATA)

```
 1  0.
 2  0.
 3  0.
 4  0.
 5  0.
 6  1.
 7  1.
 8  1.
 9  1.
 10  1.
 11  0.
 12  0.
 13  0.
 14  0.
```

15 0.
16 0.

The Kernel or Response Function is (jbin,RESPNS=KERNEL) ..an identity filter

1 1.
2 0.
3 0.
4 0.
5 0.
6 0.
7 0.
8 0.
9 0.

The Fortran program gives (ibin,Convolution,Expected value):

I	CONVLV	Expected
1	0.000000	0.000000
2	0.000000	0.000000
3	0.000000	0.000000
4	0.000000	0.000000
5	0.000000	0.000000
6	1.000000	1.000000
7	1.000000	1.000000
8	1.000000	1.000000
9	1.000000	1.000000
10	1.000000	1.000000
11	0.000000	0.000000
12	0.000000	0.000000
13	0.000000	0.000000
14	0.000000	0.000000
15	0.000000	0.000000
16	0.000000	0.000000

As shown, the results given by the numerical subroutine from NR
gives the expected results and differ from the one by IDL's CONVOL.