```
>> A=randn(5,5);
>> H=hessen(A,true)

A =

    0.6474    1.0635   -0.7578   -0.4093    0.0780
   -0.4256    1.1569   -0.5640   -0.1609    1.3244
    1.0486    0.0530    0.5551    0.4093   -0.2132
    0.6607   -1.2884   -0.5568   -0.9526   -0.1345
    2.5088   -0.3712   -0.8951    0.3173   -1.1714


S =

    0.6474    1.0635   -0.7578   -0.4093    0.0780
    2.8304   -0.7841   -0.6329    0.2347   -1.3478
         0    0.6781    0.5773    0.2819    0.6474
         0   -0.8945   -0.5428   -1.0329    0.4078
         0    1.1244   -0.8420    0.0125    0.8875


S =

    0.6474   -0.4671   -0.2649   -0.0988    1.2573
    2.8304   -1.2564   -0.4808    0.3306   -0.9839
         0    0.7515    0.5537    0.2670    0.5908
         0    0.0537   -0.8482   -1.2253   -0.3229
         0    0.3086   -0.5793    0.1780    1.5161


S =

    0.6474   -0.4671   -0.2649   -0.0988    1.2573
    2.8304   -1.2564   -0.4808    0.3306   -0.9839
         0   -0.8142   -0.2355   -0.2331   -1.0986
         0         0   -0.8752   -1.2425   -0.3808
         0         0   -0.7348    0.0795    1.1831


S =

    0.6474   -0.4671   -0.2255   -0.0974    1.2651
    2.8304   -1.2564    0.7949    0.3743   -0.7325
         0   -0.8142    0.6492   -0.2027   -0.9242
         0         0    1.0342   -1.1770   -0.0045
         0         0    0.2246    0.1124    1.3722


S =

    0.6474   -0.4671   -0.2255   -0.0974    1.2651
    2.8304   -1.2564    0.7949    0.3743   -0.7325
         0   -0.8142    0.6492   -0.2027   -0.9242
         0         0   -1.0583    1.1263   -0.2868
         0         0         0    0.3596    1.3419


S =

    0.6474   -0.4671   -0.2255   -0.1733    1.2569
    2.8304   -1.2564    0.7949   -0.2103   -0.7952
         0   -0.8142    0.6492    0.3943   -0.8602
         0         0   -1.0583   -1.0398   -0.5193
```

```
         0         0         0   -0.6362    1.2350


H =

    0.6474   -0.4671   -0.2255   -0.1733    1.2569
    2.8304   -1.2564    0.7949   -0.2103   -0.7952
         0   -0.8142    0.6492    0.3943   -0.8602
         0         0   -1.0583   -1.0398   -0.5193
         0         0         0   -0.6362    1.2350

>> l=sort(eig(A));
>> lH=sort(eig(H));
>> norm(l-lH)

ans =

   3.9134e-15

>> S=A+A';
>> T=hessen(S,false)

T =

    1.2948   -2.6919         0         0         0
   -2.6919   -1.8936   -1.9652         0         0
         0   -1.9652    2.1369    1.0490         0
         0         0    1.0490   -2.2046   -0.5388
         0         0         0   -0.5388    1.1375

>> isbanded(T,1,1)

ans =

  logical

   1

>> ishermitian(T)

ans =

  logical

   0

>> norm(T-T')

ans =

   1.2660e-15

>> ls=sort(eig(S));
>> lt=sort(eig(T));
>> norm(ls-lt)

ans =

   4.4186e-15

>>
```