>> [A,B,C,D] = tf2ss([1 0 1], [1 3 3 1])

A =

 -3 -3 -1

 1 0 0

 0 1 0

B =

 1

 0

 0

C = 1 0 1

D = 0

>> [A,B,C,D] = tf2ss([1 0 0 1], [1 3 3 1])

A =

 -3 -3 -1

 1 0 0

 0 1 0

B =

 1

 0

 0

C = -3 -3 0

D = 1

>> A = [2 0;2 -1]

A =

 2 0

 2 -1

>> B = [1;1]

B =

 1

 1

>> C = [1 1]

C = 1 1

>> D = 1

D = 1

>> [NUM,DEN] = ss2tf(A,B,C,D)

NUM = 1.0000 1.0000 -1.0000

DEN = 1 -1 -2

>> lambda = eig(A)

lambda =

 -1

 2

>> T = [1 0;1 1]

T =

 1 0

 1 1

>> Tinv = inv(T)

Tinv =

 1 0

 -1 1

>> Identitas = T\*Tinv

Identitas =

 1 0

 0 1

>> Atopi = T\*A\*Tinv

Atopi =

 2 0

 5 -1

>> lambda\_topi = eig(Atopi)

lambda\_topi =

 -1

 2

>> Btopi = T\*B

Btopi =

 1

 2

>> Ctopi = C\*Tinv

Ctopi = 0 1

>> Dtopi = D

Dtopi =1

>> P = [Btopi Atopi\*Btopi]

P =

 1 2

 2 3

>> rankP = rank(P)

rankP =2

>> Q = [C' Atopi'\*C']

Q =

 1 7

 1 -1

>> rankQ = rank(Q)

rankQ =2

>> format long

>> lambda\_bar = [(-1+eps);(-1 -eps)]

lambda\_bar =

 -1.000000000000000

 -1.000000000000000

>> [K] = place(Atopi,Btopi, lambda\_bar)

K = 2.999999999999998 0.000000000000000

>> Abar = [Atopi - Btopi\*K]

Abar =

 -0.999999999999998 -0.000000000000000

 -0.999999999999996 -1.000000000000000

>> lambdaBAR = eig(Abar)

lambdaBAR =

 -0.999999999999998

 -1.000000000000000