Normal (Book) Problems

```
load Prob2.04.mat
disp('Prob 2.04 input')
bar
prb204 = bardef_main(bar)

load Prob2.05.mat
disp('Prob 2.05 input')
bar
prb205 = bardef_main(bar)

load Prob2.06.mat
disp('Prob 2.06 input')
bar
prb206 = bardef_main(bar)
```

```
Prob 2.04 input

bar =

  struct with fields:

      NElem: 4
      initT: 0
      Area1: [4.0000e-04 4.0000e-04 2.5000e-04 2.5000e-04]
      Area2: [4.0000e-04 4.0000e-04 2.5000e-04 2.5000e-04]
       Leng: [1.5000e-01 1.5000e-01 1.5000e-01 1.5000e-01]
      Modu1: [2.0000e+11 2.0000e+11 2.0000e+11 2.0000e+11]
      Modu2: [2.0000e+11 2.0000e+11 2.0000e+11 2.0000e+11]
       Alph: [1 1 1 1]
      DeltT: [0 0 0 0]
     EndGap: 0
    EndLoad: [0 600000 0 300000]
      Nistp: 20

****COMBINED MECHANICAL/THERMAL AXIAL LOADING ANALYSIS****
Using bar model provided in call
Analysis Complete

prb204 =

  struct with fields:

    IntLoad: [0 600000 600000 900000]
    UncMDef: [0 1.1250e-03 1.8000e-03 2.7000e-03]
    UncTDef: [0 0 0 0]
     React0: -5.7692e+05
     React1: -3.2308e+05
    TotLoad: [-5.7692e+05 2.3077e+04 2.3077e+04 3.2308e+05]
     MecDef: [-1.0817e-03 4.3269e-05 6.9231e-05 9.6923e-04]
     TotDef: [-1.0817e-03 4.3269e-05 6.9231e-05 9.6923e-04]
```

```
     Stress: [-1.4423e+09 5.7692e+07 9.2308e+07 1.2923e+09]

Prob 2.05 input

bar =

  struct with fields:

      NElem: 4
      initT: 0
      Area1: [4.0000e-04 4.0000e-04 2.5000e-04 2.5000e-04]
      Area2: [4.0000e-04 4.0000e-04 2.5000e-04 2.5000e-04]
       Leng: [1.5000e-01 1.5000e-01 1.5000e-01 1.5000e-01]
      Modu1: [2.0000e+11 2.0000e+11 2.0000e+11 2.0000e+11]
      Modu2: [2.0000e+11 2.0000e+11 2.0000e+11 2.0000e+11]
       Alph: [1 1 1 1]
      DeltT: [0 0 0 0]
     EndGap: 4.5000e-03
    EndLoad: [0 600000 0 300000]
      Nistp: 20

****COMBINED MECHANICAL/THERMAL AXIAL LOADING ANALYSIS****
Using bar model provided in call
Analysis Complete

prb205 =

  struct with fields:

    IntLoad: [0 600000 600000 900000]
    UncMDef: [0 1.1250e-03 1.8000e-03 2.7000e-03]
    UncTDef: [0 0 0 0]
     React0: -1.1538e+05
     React1: -7.8462e+05
    TotLoad: [-1.1538e+05 4.8462e+05 4.8462e+05 7.8462e+05]
     MecDef: [-2.1635e-04 9.0865e-04 1.4538e-03 2.3538e-03]
     TotDef: [-2.1635e-04 9.0865e-04 1.4538e-03 2.3538e-03]
     Stress: [-2.8846e+08 1.2115e+09 1.9385e+09 3.1385e+09]

Prob 2.06 input

bar =

  struct with fields:

      NElem: 2
      initT: 75
      Nistp: 20
      Area1: [1.2000e+00 6.0000e-01]
      Area2: [1.2000e+00 6.0000e-01]
       Leng: [12 12]
      Modu1: [29000000 29000000]
      Modu2: [29000000 29000000]
       Alph: [6.5000e-06 6.5000e-06]
```

```
      DeltT: [-50 -50]
     EndGap: 0
    EndLoad: [0 0]

****COMBINED MECHANICAL/THERMAL AXIAL LOADING ANALYSIS****
Using bar model provided in call
Analysis Complete

prb206 =

  struct with fields:

    IntLoad: [0 0]
    UncMDef: [0 0]
    UncTDef: [-9.7500e-03 -9.7500e-03]
     React0: 1.8850e+04
     React1: -1.8850e+04
    TotLoad: [1.8850e+04 1.8850e+04]
     MecDef: [6.5000e-03 1.3000e-02]
     TotDef: [-3.2500e-03 3.2500e-03]
     Stress: [1.5708e+04 3.1417e+04]
```

Unique (Mixed Mech/Thermal) Problems

```
load Mixed2.05.mat
disp('Mixed 2.05 input: thermal & mech')
bar
mix205 = bardef_main(bar)

Mixed 2.05 input: thermal & mech

bar =

  struct with fields:

      NElem: 4
      initT: 20
      Area1: [4.0000e-04 4.0000e-04 2.5000e-04 2.5000e-04]
      Area2: [4.0000e-04 4.0000e-04 2.5000e-04 2.5000e-04]
       Leng: [1.5000e-01 1.5000e-01 1.5000e-01 1.5000e-01]
      Modu1: [2.0000e+11 2.0000e+11 2.0000e+11 2.0000e+11]
      Modu2: [2.0000e+11 2.0000e+11 2.0000e+11 2.0000e+11]
       Alph: [1.1700e-05 1.1700e-05 1.1700e-05 1.1700e-05]
      DeltT: [200 200 200 200]
     EndGap: 4.5000e-03
    EndLoad: [0 600000 0 300000]
      Nistp: 20

****COMBINED MECHANICAL/THERMAL AXIAL LOADING ANALYSIS****
Using bar model provided in call
Analysis Complete
```

```
mix205 =

  struct with fields:

    IntLoad: [0 600000 600000 900000]
    UncMDef: [0 1.1250e-03 1.8000e-03 2.7000e-03]
    UncTDef: [3.1590e-04 3.1590e-04 3.1590e-04 3.1590e-04]
     React0: -2.4498e+05
     React1: -6.5502e+05
    TotLoad: [-2.4498e+05 3.5502e+05 3.5502e+05 6.5502e+05]
     MecDef: [-4.5935e-04 6.6565e-04 1.0650e-03 1.9650e-03]
     TotDef: [-1.4345e-04 9.8155e-04 1.3809e-03 2.2809e-03]
     Stress: [-6.1246e+08 8.8754e+08 1.4201e+09 2.6201e+09]
```

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