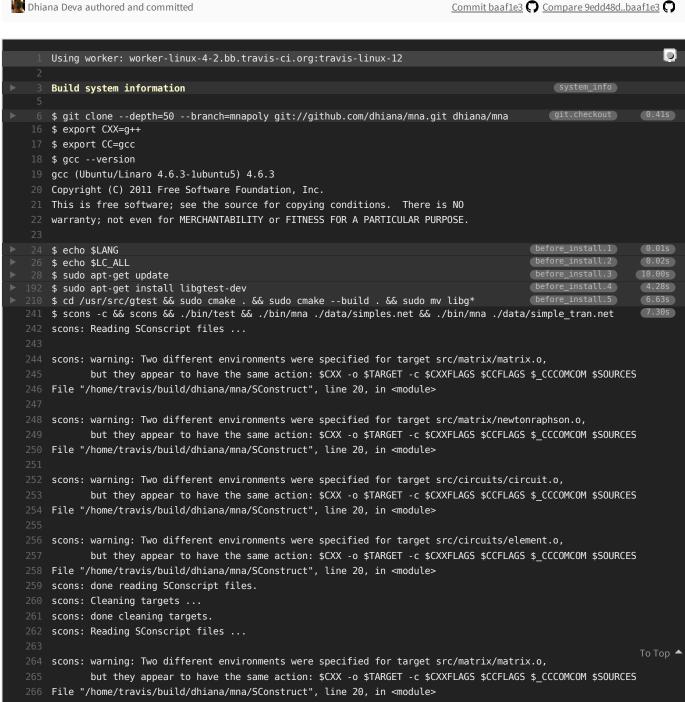






Modified Nodal Analysis





```
268 scons: warning: Two different environments were specified for target src/matrix/newtonraphson.o,
           but they appear to have the same action: $CXX -o $TARGET -c $CXXFLAGS $CCFLAGS $ CCCOMCOM $SOURCES
    File "/home/travis/build/dhiana/mna/SConstruct", line 20, in <module>
272 scons: warning: Two different environments were specified for target src/circuits/circuit.o,
           but they appear to have the same action: $CXX -o $TARGET -c $CXXFLAGS $CCFLAGS $_CCCOMCOM $SOURCES
274 File "/home/travis/build/dhiana/mna/SConstruct", line 20, in <module>
276 scons: warning: Two different environments were specified for target src/circuits/element.o,
           but they appear to have the same action: $CXX -o $TARGET -c $CXXFLAGS $CCFLAGS $_CCCOMCOM $SOURCES
278 File "/home/travis/build/dhiana/mna/SConstruct", line 20, in <module>
279 scons: done reading SConscript files.
280 scons: Building targets ...
281 g++ -o src/main.o -c -Iinclude src/main.cpp
282 g++ -o src/matrix/matrix.o -c -Iinclude src/matrix/matrix.cpp
283 g++ -o src/matrix/newtonraphson.o -c -Iinclude src/matrix/newtonraphson.cpp
    g++ -o src/circuits/circuit.o -c -Iinclude src/circuits/circuit.cpp
285 g++ -o src/circuits/element.o -c -Iinclude src/circuits/element.cpp
286 g++ -o bin/mna src/main.o src/matrix/matrix.o src/matrix/newtonraphson.o src/circuits/circuit.o
   src/circuits/element.o -lncurses
287 g++ -o tests/matrix test.o -c -Iinclude tests/matrix test.cpp
288 g++ -o tests/newtonraphson_test.o -c -Iinclude tests/newtonraphson_test.cpp
289 g++ -o tests/stamps_test.o -c -Iinclude tests/stamps_test.cpp
290 g++ -o bin/test tests/matrix_test.o tests/newtonraphson_test.o tests/stamps_test.o src/matrix/matrix.o
   src/matrix/newtonraphson.o src/circuits/circuit.o src/circuits/element.o -lgtest -lgtest_main -lpthread
291 scons: done building targets.
292 Running main() from gtest main.cc
293 [=====] Running 23 tests from 4 test cases.
294 [----- Global test environment set-up.
    [-----] 3 tests from MatrixSolveTest
              MatrixSolveTest.Dummy
           OK ] MatrixSolveTest.Dummy (0 ms)
              MatrixSolveTest.AlmostDummy
           OK ] MatrixSolveTest.AlmostDummy (0 ms)
               MatrixSolveTest.SimpleCircuit
           OK ] MatrixSolveTest.SimpleCircuit (0 ms)
             --] 3 tests from MatrixSolveTest (0 ms total)
304 [-----] 1 test from NewtonRaphsonTest
              NewtonRaphsonTest.SimpleCircuit
           OK ] NewtonRaphsonTest.SimpleCircuit (0 ms)
307 [-----] 1 test from NewtonRaphsonTest (0 ms total)
    [-----] 18 tests from ElementStampsTest
310 [ RUN ] ElementStampsTest.CapacitorBias
311 +0.0 -0.0 ...
312 -0.0 +0.0 ...
           OK ] ElementStampsTest.CapacitorBias (0 ms)
               | ElementStampsTest.CapacitorTransient
316 +10000.0 -10000.0 +40000.0
317 -10000.0 +10000.0 -40000.0
           OK ] ElementStampsTest.CapacitorTransient (1 ms)
320 [ RUN ] ElementStampsTest.InductorBias
    ... ... +1.0 ...
     ... ... -1.0 ...
323 -1.0 +1.0 +0.0 ...
           OK ] ElementStampsTest.InductorBias (0 ms)
326 [ RUN ] ElementStampsTest.InductorTransient
327 ... +1.0 ...
328 ... ... -1.0 ...
```

```
329 -1.0 +1.0 +10000.0 +40000.0
          OK ] ElementStampsTest.InductorTransient (0 ms)
          ] ElementStampsTest.Resistor
333 +0.1 -0.1 ...
334 -0.1 +0.1 ...
          OK ] ElementStampsTest.Resistor (0 ms)
            ] ElementStampsTest.TwoParametersPolinomialResistor
338 +20.0 -20.0 -10.0
339 -20.0 +20.0 +10.0
          OK ] ElementStampsTest.TwoParametersPolinomialResistor (0 ms)
342 [ RUN ] ElementStampsTest.EightParametersPolinomialResistor
343 +0.2 -0.2 +1.5
344 -0.2 +0.2 -1.5
          OK ] ElementStampsTest.EightParametersPolinomialResistor (0 ms)
347 [ RUN ] ElementStampsTest.VCCS
348 ... +10.0 -10.0 ...
349 ... -10.0 +10.0 ...
          OK ] ElementStampsTest.VCCS (0 ms)
354 [ RUN ] ElementStampsTest.EightParametersPolinomialTranscondutance
355 ... +0.2 -0.2 +1.5
356 ... ... -0.2 +0.2 -1.5
          OK ] ElementStampsTest.EightParametersPolinomialTranscondutance (0 ms)
361 [ RUN ] ElementStampsTest.CurrentSource
362 ... -10.0
363 ... +10.0
          OK ] ElementStampsTest.CurrentSource (0 ms)
             ] ElementStampsTest.VoltageSource
   ... +1.0 ...
368 ... -1.0 ...
369 -1.0 +1.0 ... -10.0
          OK ] ElementStampsTest.VoltageSource (0 ms)
           | ElementStampsTest.VCVS
    ... ... ... +1.0 ...
   ... ... ... -1.0 ...
377 -1.0 +1.0 +10.0 -10.0 ... ...
          OK ] ElementStampsTest.VCVS (0 ms)
            | ElementStampsTest.EightParametersPolinomialVoltageAmplifier
381 ... ... ... +1.0 ...
382 ... ... ... -1.0 ...
385 -1.0 +1.0 +0.2 -0.2 ... +1.5
          OK ] ElementStampsTest.EightParametersPolinomialVoltageAmplifier (0 ms)
388 [ RUN ] ElementStampsTest.CCCS
389 ... ... ... +10.0 ...
390 ... ... ... -10.0 ...
391 ... ... ... +1.0 ...
    ... ... ... -1.0 ...
```

```
... ... -1.0 +1.0 ... ...
         OK ] ElementStampsTest.CCCS (0 ms)

    ElementStampsTest.EightParametersPolinomialCurrentAmplifier

    ... ... ... +0.2 +1.5
    ... ... ... ... -0.2 -1.5
399 ... ... ... +1.0 ...
400 ... ... ... -1.0 ...
   ... ... -1.0 +1.0 ... ...
         OK ] ElementStampsTest.EightParametersPolinomialCurrentAmplifier (0 ms)
            ] ElementStampsTest.CCVS
    ... ... ... ... +1.0 ...
406 ... ... ... ... -1.0 ...
   ... ... ... +1.0 ...
    ... ... ... -1.0 ...
    ... ... -1.0 +1.0 ... ...
410 -1.0 +1.0 ... +10.0 ... ...
         OK ] ElementStampsTest.CCVS (0 ms)
413 [ RUN ] ElementStampsTest.EightParametersPolinomialTransresistance
414 ... +1.0 ...
    ... ... ... ... -1.0 ...
    ... ... ... +1.0 ... ...
    ... ... ... -1.0 ... ...
    ... ... -1.0 +1.0 ... ...
419 -1.0 +1.0 ... +0.2 ... +1.5
         OK ] ElementStampsTest.EightParametersPolinomialTransresistance (0 ms)
            | ElementStampsTest.OpAmp
    ... ... ... +1.0 ...
    ... ... ... ... -1.0 ...
427 ... +1.0 -1.0 ... ...
         OK ] ElementStampsTest.OpAmp (1 ms)
    [-----] 18 tests from ElementStampsTest (2 ms total)
432 [-----] 1 test from CircuitStampsTest
433 [ RUN ] CircuitStampsTest.SimpleCircuit
434 +2.0 -1.0 -1.0 ... ... ... ... ... ...
435 -1.0 +2.0 ... -1.0 ... ... +1.0
436 -1.0 ... +2.0 -1.0 ... +1.0 ... ...
    ... -1.0 +2.0 ... ... ...
    ... -1.0 ... +2.0 -1.0 ... ...
    ... ... ... -1.0 +1.0 ... +1.0 ...
440 +1.0 ... ... ... ... ... ...
441 ... ... -1.0 +1.0 ... ... ...
   ... -1.0 ... ... ... ... ... -1.0
         OK ] CircuitStampsTest.SimpleCircuit (0 ms)
445 [-----] 1 test from CircuitStampsTest (0 ms total)
447 [-----] Global test environment tear-down
448 [=====] 23 tests from 4 test cases ran. (2 ms total)
449 [ PASSED ] 23 tests.
451 Modified Nodal Analysis
452 Originally by Antonio Carlos M. de Queiroz (acmq@coe.ufrj.br)
453 Modified by Dhiana Deva, Felipe de Leo and Silvino Vieira
```

```
.0.....
 Reading netlist:
 R0102 1 2 1
 R0301 3 1 1
 R0403 4 3 1
 R0004 0 4 1
 R0502 5 2 1
478 R0605 6 5 1
479 00300 3 0 1 0
 00600 6 0 5 4
 V0200 2 0 DC 1 0 0 0 0 0 0 0
 Created: _mnapoly.tab
 Modified Nodal Analysis
 Originally by Antonio Carlos M. de Queiroz (acmq@coe.ufrj.br)
 Modified by Dhiana Deva, Felipe de Leo and Silvino Vieira
 ...........
 .....0.....
Reading netlist:
 R0102 1 2 1
509 R0301 3 1 1
510 R0403 4 3 1
511 R0004 0 4 1
 R0502 5 2 1
513 R0605 6 5 1
 00300 3 0 1 0
 00600 6 0 5 4
 V0200 2 0 DC 1 0 0 0 0 0 0 0
 Created: _mnapoly.tab
```

```
521 The command "scons -c && scons && ./bin/test && ./bin/mna ./data/simples.net && ./bin/mna ./data/simple_tran.net" exited with θ.
522
523 Done. Your build exited with θ.
```

This test series was run on a worker box sponsored by Blue Box