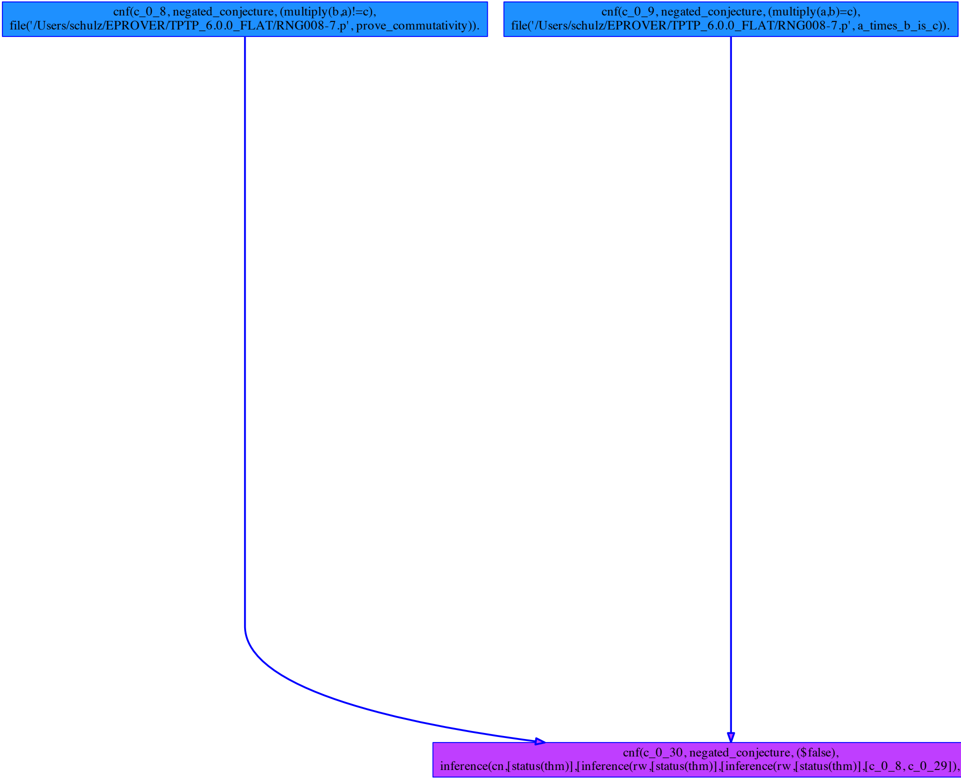
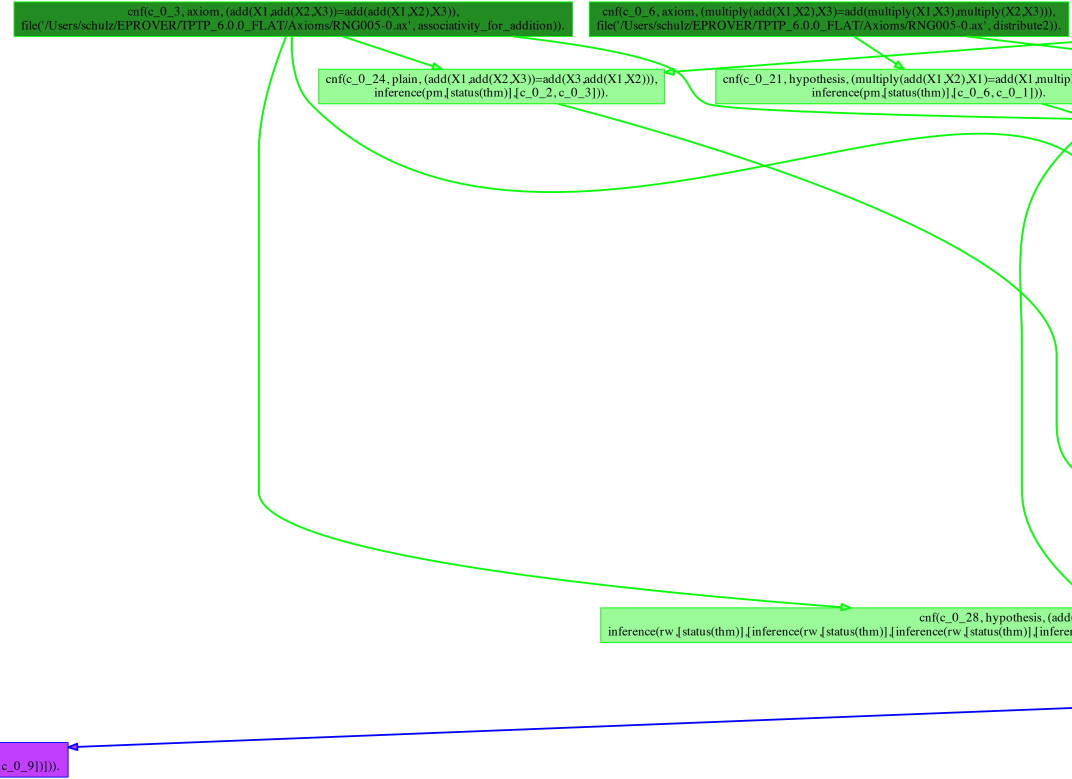
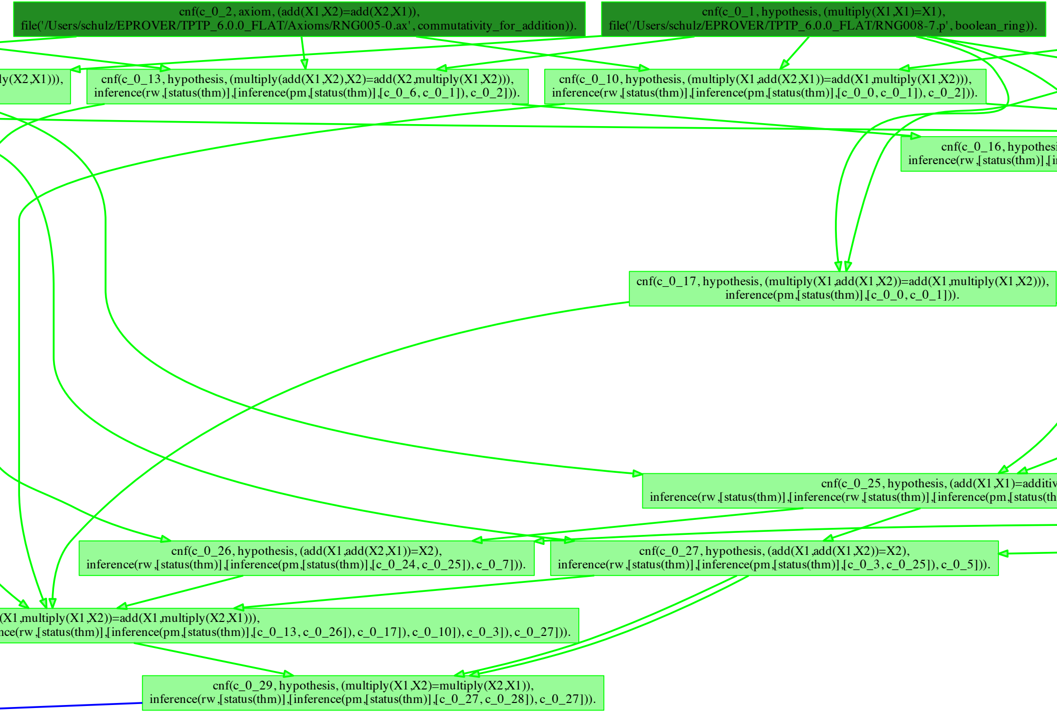


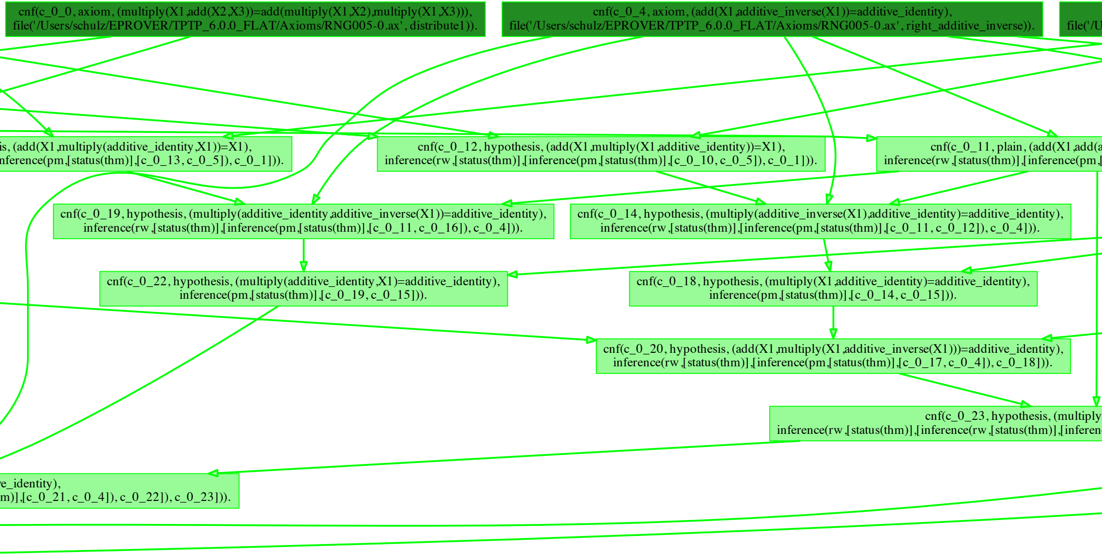
```
cnf(c_0_8, negated_conjecture, (multiply(b,a)!=c),
file('/Users/schulz/EPROVER/TPTP_6.0.0_FLAT/RNG008-7.p', prove_commutativity)).
```

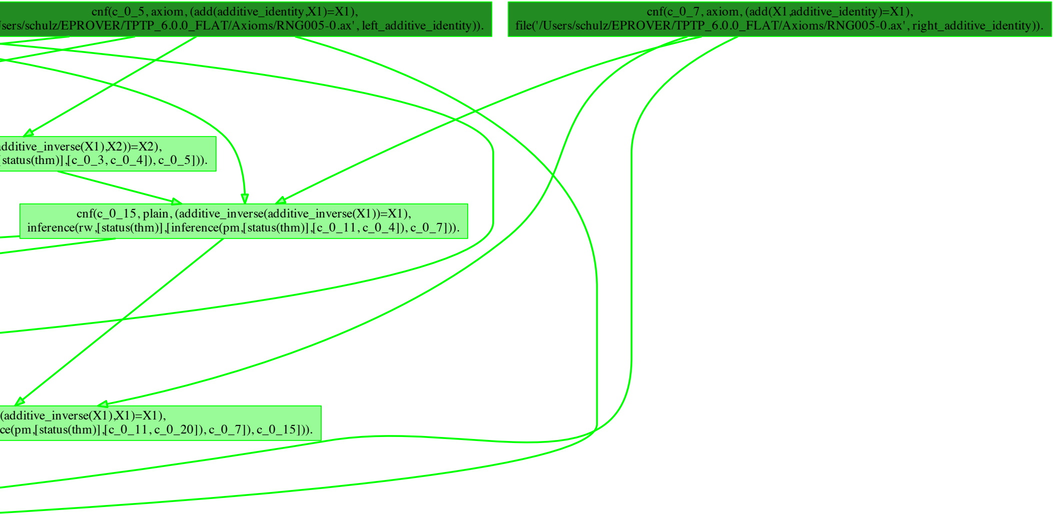
```
cnf(c_0_9, negated_conjecture, (multiply(a,b)=c),
file('/Users/schulz/EPROVER/TPTP_6.0.0_FLAT/RNG008-7.p', a_times_b_is_c)).
```

```
cnf(c_0_30, negated_conjecture, ($false),
inference(cn,[status(thm)],[inference(rw,[status(thm)],[inference(rw,[status(thm)],[c_0_8, c_0_29]),
```


cnf(c_0_3, axiom, (add(X1,add(X2,X3))=add(add(X1,X2),X3)),
file('/Users/schulz/EPROVER/TPTP_6.0.0_FLAT/Axioms/RNG005-0.ax', associativity_for_addition)).
cnf(c_0_6, axiom, (multiply(add(X1,X2),X3)=add(multiply(X1,X3),multiply(X2,X3))),
file('/Users/schulz/EPROVER/TPTP_6.0.0_FLAT/Axioms/RNG005-0.ax', distribute2)).
cnf(c_0_24, plain, (add(X1,add(X2,X3))=add(X3,add(X1,X2))),
inference(pm,[status(thm)],[c_0_2, c_0_3])).
cnf(c_0_21, hypothesis, (multiply(add(X1,X2),X1)=add(X1,multip
inference(pm,[status(thm)],[c_0_6, c_0_1])).
cnf(c_0_28, hypothesis, (add
inference(rw,[status(thm)],[inference(rw,[status(thm)],[inference(rw,[status(thm)],[inferen
c_0_9])])).


cnf(c_0_2, axiom, (add(X1,X2)=add(X2,X1)), file('/Users/schulz/EPROVER/TPTP_6.0.0_FLAT/Axioms/RNG005-0.ax', commutativity_for_addition)).
cnf(c_0_1, hypothesis, (multiply(X1,X1)=X1), file('/Users/schulz/EPROVER/TPTP_6.0.0_FLAT/RNG008-7.p', boolean_ring)).
ly(X2,X1))),
cnf(c_0_13, hypothesis, (multiply(add(X1,X2),X2)=add(X2,multiply(X1,X2))), inference(rw,[status(thm)],[inference(pm,[status(thm)],[c_0_6, c_0_1]), c_0_2])).
cnf(c_0_10, hypothesis, (multiply(X1,add(X2,X1))=add(X1,multiply(X1,X2))), inference(rw,[status(thm)],[inference(pm,[status(thm)],[c_0_0, c_0_1]), c_0_2])).
cnf(c_0_16, hypothesi inference(rw,[status(thm)],[i
cnf(c_0_17, hypothesis, (multiply(X1,add(X1,X2))=add(X1,multiply(X1,X2))), inference(pm,[status(thm)],[c_0_0, c_0_1])).
cnf(c_0_25, hypothesis, (add(X1,X1)=additiv inference(rw,[status(thm)],[inference(rw,[status(thm)],[inference(pm,[status(th
cnf(c_0_26, hypothesis, (add(X1,add(X2,X1))=X2), inference(rw,[status(thm)],[inference(pm,[status(thm)],[c_0_24, c_0_25]), c_0_7])).
cnf(c_0_27, hypothesis, (add(X1,add(X1,X2))=X2), inference(rw,[status(thm)],[inference(pm,[status(thm)],[c_0_3, c_0_25]), c_0_5])).
(X1,multiply(X1,X2))=add(X1,multiply(X2,X1))), nce(rw,[status(thm)],[inference(pm,[status(thm)],[c_0_13, c_0_26]), c_0_17]), c_0_10]), c_0_3]), c_0_27])).
cnf(c_0_29, hypothesis, (multiply(X1,X2)=multiply(X2,X1)), inference(rw,[status(thm)],[inference(pm,[status(thm)],[c_0_27, c_0_28]), c_0_27])).


cnf(c_0_0, axiom, (multiply(X1,add(X2,X3))=add(multiply(X1,X2),multiply(X1,X3))),
file('/Users/schulz/EPROVER/TPTP_6.0.0_FLAT/Axioms/RNG005-0.ax', distribute1)).
cnf(c_0_4, axiom, (add(X1,additive_inverse(X1))=additive_identity),
file('/Users/schulz/EPROVER/TPTP_6.0.0_FLAT/Axioms/RNG005-0.ax', right_additive_inverse)).
file('/U
is, (add(X1,multiply(additive_identity,X1))=X1),
nference(pm,[status(thm)],[c_0_13, c_0_5]), c_0_1])).
cnf(c_0_12, hypothesis, (add(X1,multiply(X1,additive_identity))=X1),
inference(rw,[status(thm)],[inference(pm,[status(thm)],[c_0_10, c_0_5]), c_0_1])).
cnf(c_0_11, plain, (add(X1,add(a
inference(rw,[status(thm)],[inference(pm,[
cnf(c_0_19, hypothesis, (multiply(additive_identity,additive_inverse(X1))=additive_identity),
inference(rw,[status(thm)],[inference(pm,[status(thm)],[c_0_11, c_0_16]), c_0_4])).
cnf(c_0_14, hypothesis, (multiply(additive_inverse(X1),additive_identity)=additive_identity),
inference(rw,[status(thm)],[inference(pm,[status(thm)],[c_0_11, c_0_12]), c_0_4])).
cnf(c_0_22, hypothesis, (multiply(additive_identity,X1)=additive_identity),
inference(pm,[status(thm)],[c_0_19, c_0_15])).
cnf(c_0_18, hypothesis, (multiply(X1,additive_identity)=additive_identity),
inference(pm,[status(thm)],[c_0_14, c_0_15])).
cnf(c_0_20, hypothesis, (add(X1,multiply(X1,additive_inverse(X1)))=additive_identity),
inference(rw,[status(thm)],[inference(pm,[status(thm)],[c_0_17, c_0_4]), c_0_18])).
cnf(c_0_23, hypothesis, (multiply
inference(rw,[status(thm)],[inference(rw,[status(thm)],[inferen
ve_identity),
m)],[c_0_21, c_0_4]), c_0_22]), c_0_23])).


cnf(c_0_5, axiom, (add(additive_identity,X1)=X1),
sers/schulz/EPROVER/TPTP_6.0.0_FLAT/Axioms/RNG005-0.ax', left_additive_identity)).
cnf(c_0_7, axiom, (add(X1,additive_identity)=X1),
file('/Users/schulz/EPROVER/TPTP_6.0.0_FLAT/Axioms/RNG005-0.ax', right_additive_identity)).
dditive_inverse(X1),X2))=X2),
status(thm)],[c_0_3, c_0_4]), c_0_5])).
cnf(c_0_15, plain, (additive_inverse(additive_inverse(X1))=X1),
inference(rw,[status(thm)],[inference(pm,[status(thm)],[c_0_11, c_0_4]), c_0_7])).
(additive_inverse(X1),X1)=X1),
ce(pm,[status(thm)],[c_0_11, c_0_20]), c_0_7]), c_0_15])).