FILE monkey.c

```
% File: monkey.c

:- macros maxtime -> 4.

:- include 'C'; 'monkey.p'.

:- sorts object; location.

:- variables
 O          :: object;
 L, L1, L2 :: location;
 A, A1      :: action.

:- constants
 monkey, box, banana   :: object;
 l1, l2, l3            :: location;
 at(object,location)   :: inertialTrueFluent;
 onBox, hasBanana      :: inertialFluent;
 walk(location)        :: action;
 pushBox(location)     :: action;
 climbBox, graspBanana :: action.

nonexecutable A && A1 if -(A=A1).

walk(L) causes at(monkey,L).
nonexecutable walk(L) if at(monkey,L).
nonexecutable walk(L) if onBox.

pushBox(L) causes at(monkey,L).
pushBox(L) causes at(box,L).
nonexecutable pushBox(L) if at(monkey,L).
nonexecutable pushBox(L) if onBox.
nonexecutable pushBox(L) if at(monkey,L1) && at(box,L2) && -(L1=L2).

climbBox causes onBox.
nonexecutable climbBox if onBox.
nonexecutable climbBox if at(monkey,L) && at(box,L1) && -(L=L1).

graspBanana causes hasBanana.
nonexecutable graspBanana if -onBox.
nonexecutable graspBanana if at(monkey,L) && at(banana,L1) && -(L=L1).

caused -at(O,L1) if at(O,L) && -(L=L1).
caused at(banana,L) if at(monkey,L) && hasBanana.

always at(monkey,L) && onBox ->> at(box,L).
```

FILE monkey.p

```
%File: monkey.p

:- plan
facts ::
 init at(monkey,l1),
 init at(banana,l2),
 init at(box,l3);
goal  ::
 last hasBanana.
```

A DIALOG WITH CCALC

```
| ?- loadf('monkey.c').
% loading file /v/hank/v43/vl/ccalc/monkey.c
% loading file /v/hank/v43/vl/ccalc/C
% loading file /v/hank/v43/vl/ccalc/monkey.p
% 95 atoms, 726 rules, 672 clauses, 1160 msec.
yes
| ?- plan 0.
calling rel_sat...

0.  at(banana,l2)  at(box,l3)  at(monkey,l1)

ACTIONS: walk(l3)

1.  at(banana,l2)  at(box,l3)  at(monkey,l3)

ACTIONS: pushBox(l2)

2.  at(banana,l2)  at(box,l2)  at(monkey,l2)

ACTIONS: climbBox

3.  onBox  at(banana,l2)  at(box,l2)  at(monkey,l2)

ACTIONS: graspBanana

4.  hasBanana  onBox  at(banana,l2)  at(box,l2)  at(monkey,l2)

Elapsed Time (cpu sec): 0

Verify plan? (y/n) y
verifying....
The plan is verified!
yes
| ?-
```