HW 9

1. FLIGHT(Los Angeles, New York)

FLIGHT(New York, Atlanta)

FLIGHT(Atlanta, Frankfurt)

FLIGHT(Frankfurt, Atlanta)

FLIGHT(Frankfurt, Singapore)

FLIGHT(Singapore, Sydney)

REACHABLE(Los Angeles, New York)

REACHABLE(New York, Atlanta)

REACHABLE(Atlanta, Frankfurt)

REACHABLE(Frankfurt, Atlanta)

REACHABLE(Singapore, Sydney)

REACHABLE(Los Angeles, Atlanta)

REACHABLE(Los Angeles, Singapore)

REACHABLE(Los Angeles, Sydney)

REACHABLE(New York, Frankfurt)

REACHABLE(New York, Singapore)

REACHABLE(New York, Sydney)

REACHABLE(Atlanta, Singapore)

REACHABLE(Atlanta, Sydney)

REACHABLE(Frankfurt, Sydney)

1. The Atlanta/Frankfurt relationship is cyclic, while the others are not.

Known Facts:

1. FLIGHT(Los Angeles, New York) is true

FLIGHT(New York, Atlanta) is true

FLIGHT(Atlanta, Frankfurt) is true

FLIGHT(Frankfurt, Atlanta) is true

FLIGHT(Frankfurt, Singapore) is true

FLIGHT(Singapore, Sydney) is true

FLIGHT(X, Y) is not true for all (X, Y) combinations

Derived Facts:

REACHABLE(Los Angeles, New York) is true

REACHABLE(Los Angeles, Atlanta) is true

REACHABLE(Los Angeles, Frankfurt) is true

REACHABLE(Los Angeles, Singapore) is true

REACHABLE(Los Angeles, Sydney) is true

REACHABLE(New York, Atlanta) is true

REACHABLE(New York, Frankfurt) is true

REACHABLE(Atlanta, Frankfurt) is true

REACHABLE(Atlanta, Singapore) is true

REACHABLE(New York, Singapore) is true

REACHABLE(New York, Sydney) is true

REACHABLE(Atlanta, Sydney) is true

REACHABLE(Frankfurt, Atlanta) is true

REACHABLE(Frankfurt, Singapore) is true

REACHABLE(X, Y) is not true for all other (X, Y) combinations

1. REACHABLE(Atlanta, Frankfurt)

REACHABLE(Atlanta, Singapore)

REACHABLE(Frankfurt, Singapore)

REACHABLE(Singapore, Sydney)

e.



f. REACHABLE\_TIME(X, Y):- REACHABLE(X, Y), DURATION(X, Y, Z), Z < 12

g. TWO\_FLIGHT\_1M (X, Y): OR (FLIGHT(X, Y), (FLIGHT (X, Z), FLIGHT (Z, Y)))

POP (Y, P), P > 1,000,000, NOT (X = Y)