A close up of text on a whiteboard

Description automatically generated

Start with the goal canFlyForFree(Chicago, Honolulu, dave). Based on the rule canFlyForFree(From, To, Who) :- canFly(From,To,Miles), isHub(From), frequentFlierMiles(Who, Credits), Credits >= Miles , we must try to prove canFly(Chicago, Honolulu, Miles), isHub(Chicago), frequentFlierMiles(dave, Credits), Credits >= Miles.

To prove canFly(Chicago, Honolulu, Miles), have to use the rule canFly(X, Y, Miles) :- flight(X,Z,Miles1), canFly(Z,Y,Miles2), Miles is Miles1 + Miles2 because canFly(X,Y,Miles) :- flight(X,Y,Miles) fails. To prove flight(X,Z,Miles1), find connecting flight from Chicago to Z; flight(Chicago, losAngeles, 1750) is a given fact. To prove recursive call canFly(Z,Y,Miles2), find connecting flight from losAngeles to Honolulu; flight(losAngeles, Honolulu, 2553) is a given fact. Miles = 1750 + 2553 = 4303.

isHub(Chicago) is a given fact.

frequencyFlierMiles(dave, 5200) is a given fact and Credit = 5200.

Credits >= Miles -> 5200 >= 4303.

Since we proved all the rules that make up the goal: canFlyForFree(Chicago, Honolulu, dave), the input returns true.