



$Distance_Back_Car(t) = Distance_Back_Car(t - dt) + (Chg_Dist_Back) * dt$
 INIT Distance_Back_Car = 0
 $Chg_Dist_Back = Velocity_Back_Car * 1.47$
 $Distance_Front_Car(t) = Distance_Front_Car(t - dt) + (Chg_Dist_Front) * dt$
 INIT Distance_Front_Car = Carlengths_Between * 16
 $Chg_Dist_Front = Velocity_Front_Car * 1.47$
 $Velocity_Back_Car(t) = Velocity_Back_Car(t - dt) + (- Decel_Back_Car) * dt$
 INIT Velocity_Back_Car = Initial_Velocity_Back

Decel_Back_Car = if time<(5+Rxn_Time_Back) then 0 else
Decel_Rate_Back*0.682
Velocity_Front_Car(t) = Velocity_Front_Car(t - dt) + (- Decel_Front_Car) * dt
INIT Velocity_Front_Car = Initial_Velocity_Front_mph
Decel_Front_Car = IF time<5 then 0 else Decel_rate_Front*.682
Carlengths_Between = 4
Collision = if Collision_Velocity>0 then PAUSE else 0
Collision_Velocity = if (Distance_Front_Car-Distance_Back_Car)>0 then 0
else Relative_Velocity
Decel_Rate_Back = 28
Decel_rate_Front = 28
Distance_Between = ABS(Distance_Front_Car-Distance_Back_Car)/16
Initial_Velocity_Back = 45
Initial_Velocity_Front_mph = 45
Relative_Velocity = DELAY(ABS(Velocity_Front_Car-
Velocity_Back_Car),DT)
Rxn_Time_Back = 0.45