

1. "Offerings are unique. In other words, multiple offerings on the same day and time slot must be offered at a different location."

context Schedule

inv: self.timeSlot  $\rightarrow$  forAll( t1, t2 : TimeSlot | t1.dayOfWeek = t2.dayOfWeek  
implies t1.endTime <= t2.startTime or t1.startTime >=  
t2.endTime)

2. "Any client who is underage must necessarily be accompanied by an adult who acts as their guardian."

context Client

inv: self.age < 18 implies self.guarded-by <> null  
and self.guarded-by.age >= 18

3. "The city associated with an offering must be one the city's that the instructor has indicated in their availabilities."

context Offering

inv: self.instructor.city  $\rightarrow$  includes(self.location.city)

4. "A client does not have multiple bookings on the same day and time slot."

context Client

inv: self.booking  $\rightarrow$  forAll( b1,b2 : Booking |  
b1.offering.timeslot <> b2.offering.timeslot)