

### **1. Offerings are Unique**

context Offering

inv UniqueOffering:

```
Offering.allInstances()->forall(o1, o2 |  
    o1 <> o2 implies  
    (o1.schedule <> o2.schedule or o1.location <> o2.location)  
)
```

### **2. Underage Client Must Have a Guardian**

context Client

inv UnderageWithGuardian:

```
self.isUnderage implies self.guardian <> null
```

### **3. Offering's Location Matches Instructor Availability**

context Offering

inv InstructorAvailability:

```
self.instructor.cities->includes(self.location.city)
```

### **4. No Multiple Bookings for the Same Day and Time Slot**

context Client

inv NoMultipleBookings:

```
self.bookings->forall(b1, b2 |  
    b1 <> b2 implies b1.schedule <> b2.schedule  
)
```

### **5. Offering Becomes Unavailable After Booking**

context Offering

inv OfferingBecomesUnavailable:

```
self.bookings->size() > 0 implies not self.isAvailable
```

## **6. Canceling an Offering with Bookings is Not Allowed**

context Offering

inv CannotCancelWithBookings:

self.bookings->isEmpty() or not self.isAvailable

## **7. A Room Cannot Host Multiple Offerings in the Same Time Slot**

context Room

inv RoomSingleOffering:

self.offerings->forAll(o1, o2 |

o1 <> o2 implies o1.schedule <> o2.schedule

)

## **8. A Client Cannot Book the Same Offering Twice**

context Client

inv NoDuplicateBookings:

self.bookings->forAll(b1, b2 |

b1 <> b2 implies b1.offering <> b2.offering

)