6.825 Resolution & Paramodulation Exercises

Exercises

October 9, 2001

1 Problem 1

Formalize each group of sentences (using the given function and predicate symbols), then prove the last from the others using resolution and paramodulation.

1. ($L(x)$ = the lover of x; $D(x) = x$ drives a red car)
   - Jane's lover drives a red car
   - Fred is the only person who drives a red car
   - Therefore, Fred is Jane's lover
2. ($T(x)$ = the teacher of x; $G(x) = x$ is a good student)
   - Mrs. Abbot only teaches good students
   - John and Mary have the same teacher
   - Mrs. Abbot is Mary's teacher
   - Therefore, John is a good student

2 Problem 2

($M(x)$ = the manufacturer of part x; $W(x, y)$ = part x is stored in the warehouse of company y; $T(x)$ = part x is made of titanium; $F(x)$ = part x is fragile; use a constant for "the part I need")

- Every part is either made by FooCorp or BarCorp
- All fragile parts are stored in the warehouse of their manufacturer
- BarCorp can't manufacture titanium parts
- The part I need is fragile and made of titanium
- Therefore, the part I need is the FooCorp's warehouse