

# Compsci367 Assignment 2 Part 1:

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## 1. Family Problems

For the following assume we have the fact predicates *ChildOf*(*child*, *parent*), *Male*(*person*) and *Female*(*person*).

*MotherOf*(*mother*, *person*)

$\text{MotherOf}(\text{mother}, \text{person}) = \text{ChildOf}(\text{child}, \text{mother}) \text{ and } \text{Female}(\text{mother})$

*SisterOf*(*sister*, *person*)

$\text{SisterOf}(\text{sister}, \text{person}) = \text{Female}(\text{sister}) \text{ and } \text{MotherOf}(\text{sister}, \text{mother}) \text{ and } \text{MotherOf}(\text{person}, \text{mother})$

## 2. Tree Problems

For the following assume we have the fact predicate *ParentOf*(*parent*, *child*).

*InSameTree*(*node1*, *node2*)

$\text{AncestorOf}(\text{ancestor}, \text{descendent}) = \text{ParentOf}(\text{ancestor}, \text{descendent})$

$\text{AncestorOf}(\text{ancestor}, \text{descendent}) = \text{ParentOf}(\text{ancestor}, \text{child}) \text{ and } \text{AncestorOf}(\text{child}, \text{descendent})$

$\text{InSametree}(\text{node1}, \text{node2}) = \text{AncestorOf}(\text{ancestor}, \text{node1}) \text{ and } \text{AncestorOf}(\text{ancestor}, \text{node2})$