SET08118 - Knowledge Engineering

Following the seven points from the lecture notes, produce axioms for the following situations. You can add restrictions to each modelled domain if you choose to. If there is just one kind of object in a domain, then you do not need to encode a predicate for that kind of object. For example, if the only objects possible are points, you do not need a predicate P that determines whether or not an object is a point.

1. Domain of **connected graphs**. A connected graph is one where every node is connected to every other node.
2. Domain of **binary trees**. Binary trees are directed graphs (the edges are not symmetrical), where nodes have either exactly two children or exactly zero children. Every node, except the root, has exactly one parent.
3. Domain of **chains**. A chain is a special kind of graph where the nodes form a circular shape. There are at least three nodes, and every node is connected to exactly two other nodes. Rule out the case where there are two chains next to each other.
4. Domain of **points and lines**. Every point lies on a line, every line has at least one point lying on it. Two lines can either intersect at a point, not intersect at all (be parallel), or be the same line.