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Excercise-7.1

Function: A function in the predicate logic is somet that contains a variable and becomes a proposition as soon as we replace the variable with some value. It differs from proposition in the sense that is does not has a fix value of variable and produces various propositions from various valus of the variable.
Ex: X is a man . This sentence in itself has no value i.e : true/false , but when you substitute X with something like **aristotle** it has a truth value to it.

Relations: In predicate logic relations come in place when the functions have n place predicate rather than simple single variable predicate.
Ex:
Ram loves dogs.
Mohan loves horses.

These statements can be represented as the function loves(Ram, dogs) and loves(Mohan, horses). In such representations the order of placing of variables plays a role in the interpretation of these statements and thus affects their value based on interpretation. So we take the help of orderedd pairs where the sequence in which the variables appear matters. Thus relations in predicate can also be represented as ordered tuples.

Properties: When there are relations such as loves in the above example, it is not assured that loves(a, b) implies reverse i.e. whether loves(b, a) is true. But in some other relation spouse(a, b) gaurantees spouse(b, a) in general. So in order to capture the semantic differences between the types of relations there is a concept of properties like **reflexive, symmetric, transitive, convers, etc.** These properties tell us about the additional lexical meanings arising form these relations.