We would like to create a knowledge-based system that will answer queries about a group of family members.

The first step is to design the knowledge base. We will try to represent knowledge by first-order sentences of the signature that consists of

- object constants $S, W, A, M$,
- unary predicate constants $Male, Female$, and
- binary predicate constants $Parent, Brother$.

We expect that our knowledge base $KB$ will consist of two parts: general, describing the relationships between the predicates $Male, Female, Parent, Brother$, and specific—facts about the individuals $S, W, A, M$.

The intended interpretation $I$ of this signature is defined as follows:

$$|I| = \{S, W, A, M\},$$
$$S^I = S, \quad W^I = W, \quad A^I = A, \quad M^I = M,$$
$$Male^I = \{A, M\},$$
$$Female^I = \{S, W\},$$
$$Parent^I = \{(S, W), (S, A), (W, M)\},$$
$$Brother^I = \{(A, W)\}.$$

We would like $KB$ to be correct in the sense that $I$ should be a model of $KB$.

We would like $KB$ to be complete on the level of ground atoms: for every ground atom (that is, atomic formula without variables) $F$, $KB$ should entail either $F$ or $\neg F$. 