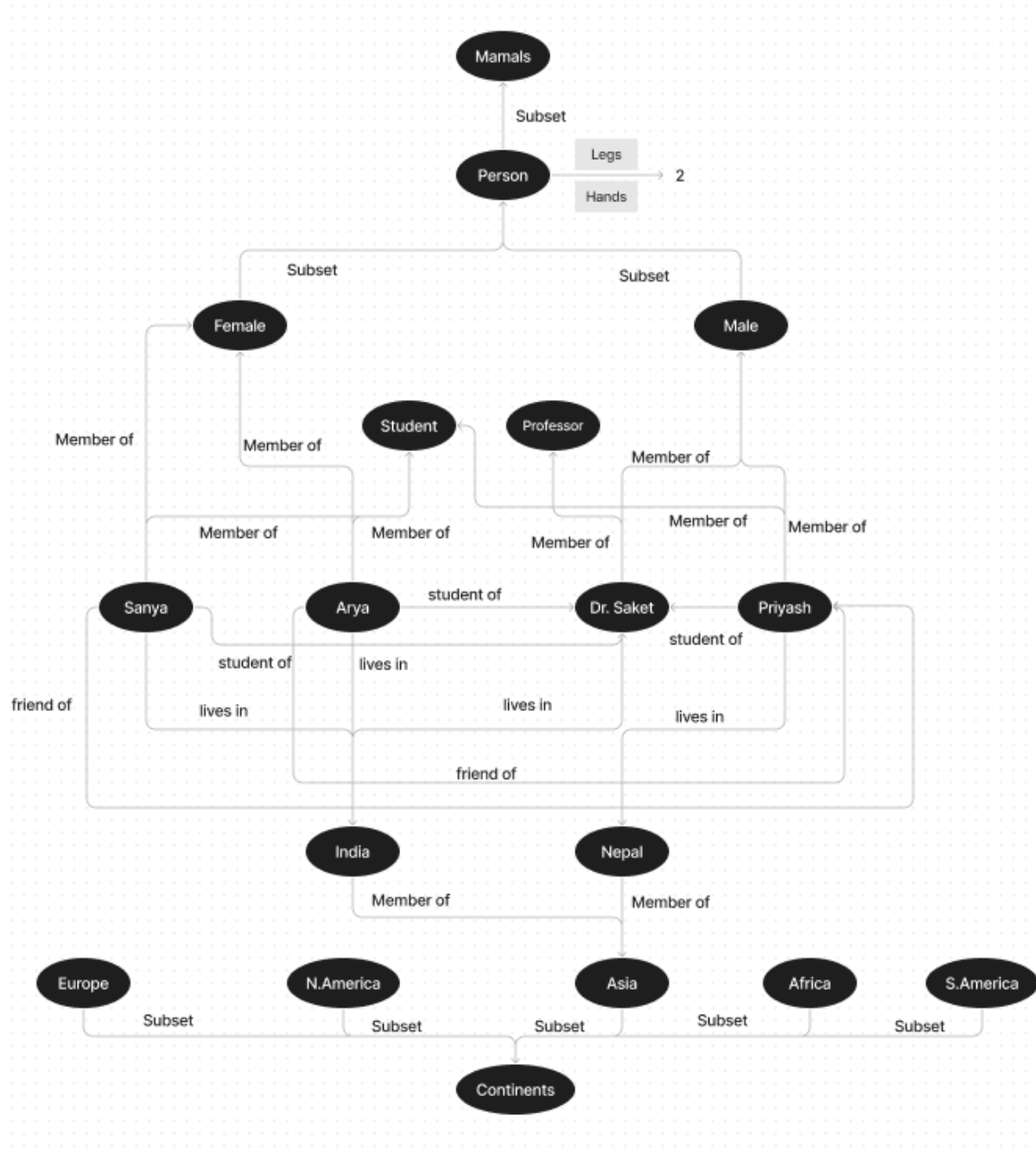


2.



a. Inheritance:

Inheritance means object inheriting property from parent category or class. Let us take the example of Sanya in the semantic network. She is a member of the Female category where Female is a subset of Person category. Here a person has 2 legs and 2 hands. Therefore, Sanya inherits this property and she also has 2 legs and hands. Here Sanya inherited property from Person class.

b. Multiple Inheritance:

“Inheritance becomes complicated when an object can belong to more than one category or when a category can be a subset of more than one other category; this is called multiple inheritance.” This definition was taken from reference book provided in google classroom [Artificial Intelligence - A Modern Approach](#)

In the above semantic network Sanya is a member of two categories Female and Student. Similarly, Dr. Saket is a member of Male and Professor categories. Here an object belongs to more than one category thus it is multiple inheritance.

References:

1. Proof of soundness provided in lecture slide 2 in google classroom.
2. Proof of completeness can be found in [Artificial Intelligence - A Modern Approach](#) edition 4 page 451.