1 Exercise 2 - Dans la peau d'Apollon

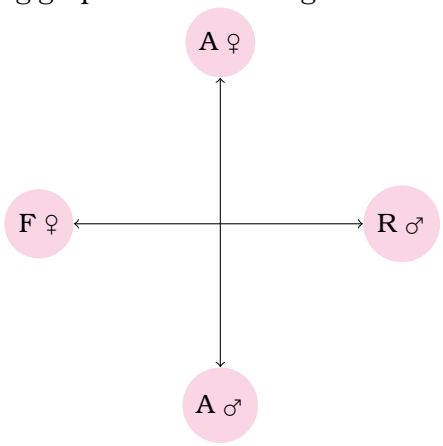
We will have to use the following logical predicates:

- `man(person)` - returns TRUE if given person is male, else returns FALSE
- `woman(person)` - returns TRUE if given person is female, else returns FALSE
- `love(person1, person2)` - returns TRUE if person1 loves person2, else returns FALSE. (person1, person2) is an ordered pair, i.e. it may be the case that A loves B and B doesn't love A.
- `couple(person1,person2)` - returns TRUE if person1 is in a relationship with person2, else returns FALSE. (person1, person2) is an unordered pair, i.e. saying that A and B are in a couple is the same thing as saying that B and A are in a couple.

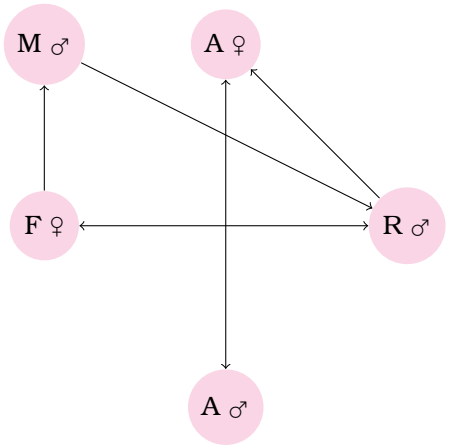
The logical formulae for the given expressions are:

- $couple(Alex, Alexandrine) \land couple(Robin, Floriane)$
- $\exists a, b, x, y, m, n : man(a) \land woman(x) \land couple(a, b) \land couple(x, y) \land love(a, b) \land love(x, y) \land love(a, m) \land (x, n)$
- $\exists a, b, x, y, \forall m \neq b, y : man(a) \land woman(x) \land couple(a, b) \land couple(x, y) \land love(a, b) \land love(x, y) \land \neg love(a, m) \land \neg love(x, m)$
- $\exists a, b : love(Miguel, a) \land love(a, b) \land love(b, Alexandrine)$
- $\forall x, y : woman(x) \land love(x, y) \implies man(y)$
- $\exists x, y : love(Robin, x) \land love(x, y) \land love(y, Robin)$
- $\forall x : \neg love(x, x)$

The following graphs satisfies the given constraints:



Couple graph



Love graph