

## Reference models

Solution **1.1** (Linguistic and analogical mental representations).

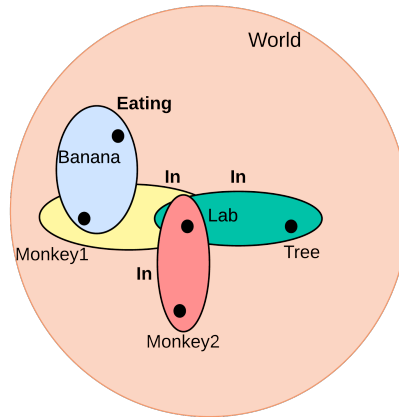


Fig. 0.1: Monkey and banana

Solution **1.2** (Linguistic and analogical mental representations). We can create an analogical representation using knowledge graphs in this way:

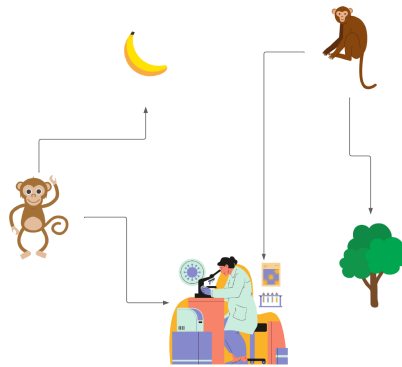


Fig. 0.2: Monkey and banana

Solution **1.3** (Linguistic and analogical mental representations). This time we use a labeled knowledge graph:

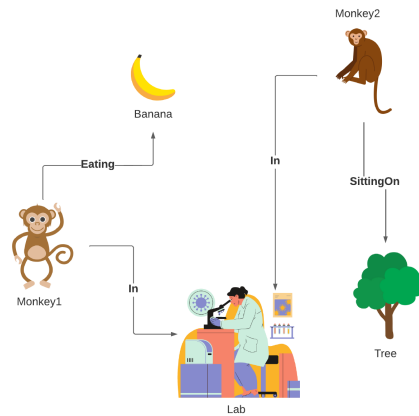
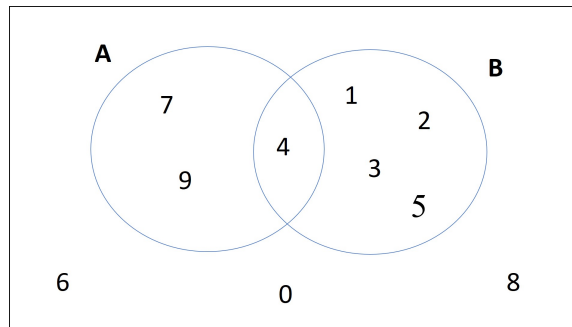


Fig. 0.3: Monkey and banana

Solution **1.4** Answer:



Solution **1.5** ANSWER: b, d, e.

Solution **1.6** ANSWER: (a) brother of, colleague of, roommate of;  
ANSWER: (b) parent of, mother of, manager of.

Solution **1.7** (Complete and Correct?). The model is **incorrect** respect to the theory.

Solution **1.8** (Complete and Correct?). The model is **correct** respect to the theory.

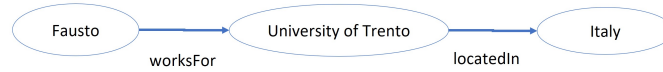
Solution **1.9** (Complete and Correct?). The model is **incomplete** respect to the theory.

Solution **1.10** (Complete and Correct?). The model is **complete** respect to the theory.

Solution **1.11** (**Complete and Correct?**). The model is **correct and complete** respect to the theory.

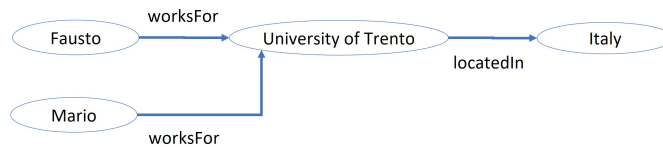
Solution **1.12** ANSWER: it is a directed labelled graph. Notice that it can be eventually cyclic, according to the phenomenon to be modelled.

Solution **1.13**



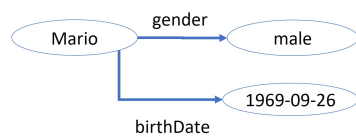
<Fausto> <worksFor> <University of Trento>  
<University of Trento> <locatedIn> <Italy>

Solution **1.14**



<Fausto> <worksFor> <University of Trento>  
<Mario> <worksFor> <University of Trento>  
<University of Trento> <locatedIn> <Italy>

Solution **1.15**



<Mario> <gender> <male>  
<Mario> <birthDate> <1969-09-26>

Solution **1.16**

- ANSWER: YES, BECAUSE THERE IS AN EXACT CORRESPONDENCE.

- ANSWER: NO, BECAUSE WE DID NOT SPECIFY IN THE GRAPH THE “WORKS FOR” RELATION.
- ANSWER: YES, IT IS CONSISTENT DESPITE NOT COMPLETE.

Solution **1.17** By now you should be able to do it without help.

Solution **1.18** By now you should be able to do it without help.

Solution **1.19** By now you should be able to do it without help.

Solution **1.20** By now you should be able to do it without help.