

oblig4

Lamo

March 2019

2 Entailment

2.1 **sim:Marge** **rdf:type** **foaf:Person**

1. **sim:Marge** **fam:hasSpouse** **sim:Homer** — P
2. **fam:hasSpouse** **rdfs:domain** **foaf:Person** — P
3. **sim:Marge** **rdf:type** **foaf:Person** — **rdfs2**, 1, 2

2.2 **fam:hasSister** **rdfs:subPropertyOf** **fam:isRelativeOf**

1. **fam:hasSister** **rdfs:subPropertyOf** **fam:isSibling** — P
2. **fam:hasSibling** **rdfs:subPropertyOf** **fam:isRelativeOf** — P
3. **fam:hasSister** **rdfs:subPropertyOf** **fam:isRelativeOf** — **rdfs5**, 1, 2

2.3 **sim:Marge** **rdf:type** **fam:Woman**

There is no way to prove that Marge is a woman. Spouse is gender neutral and Lisa does not have a hasMother relation.

2.4 **sim:Herb** **rdf:type** **fam:Man**

1. **fam:hasBrother** **rdfs:Domain** **fam:Man** — P
2. ?_ **fam:hasBrother** **sim:Herb** — P
3. **sim:Herb** **rdf:type** **fam:Man** — **rdfs2**, 1, 2

2.5 **sim:Lisa** **fam:isRelativeOf** **sim:Homer**

1. **fam:hasFather** **rdfs:subPropertyOf** **fam:hasParent** — P
2. **fam:hasParent** **rdfs:subPropertyOf** **fam:isRelativeOf** — P
3. **fam:hasFather** **rdfs:subPropertyOf** **fam:isRelativeOf** — **rdfs5**, 1, 2

4. `sim:Lisa fam:hasFather sim:Homer` — P
5. `sim:Lisa fam:isRelativeOf sim:Homer` — `rdfs7`, 3, 4

2.6 `sim:Lisa fam:hasMother sim:Marge`

We can not prove that Lisa has the mother Marge. Spouse is gender neutral therefore we cannot conclude that Marge is a woman.

2.7 `sim:Patty rdf:type foaf:Person`

1. `?_ fam:hasSister sim:Patty` — P
2. `fam:hasSister rdfs:subPropertyOf fam:hasSibling` — P
3. `fam:hasSibling rdfs:subPropertyOf fam:isRelativeOf` — P
4. `fam:hasSister rdfs:subPropertyOf fam:isRelativeOf` — `rdfs5`, 2, 3
5. `?_ fam:isRelativeOf sim:Patty` — `rdfs7`, 1, 4
6. `fam:isRelativeOf rdfs:domain foaf:Person` — P
7. `sim:Patty rdf:type foaf:Person` — `rdfs2`, 5, 6