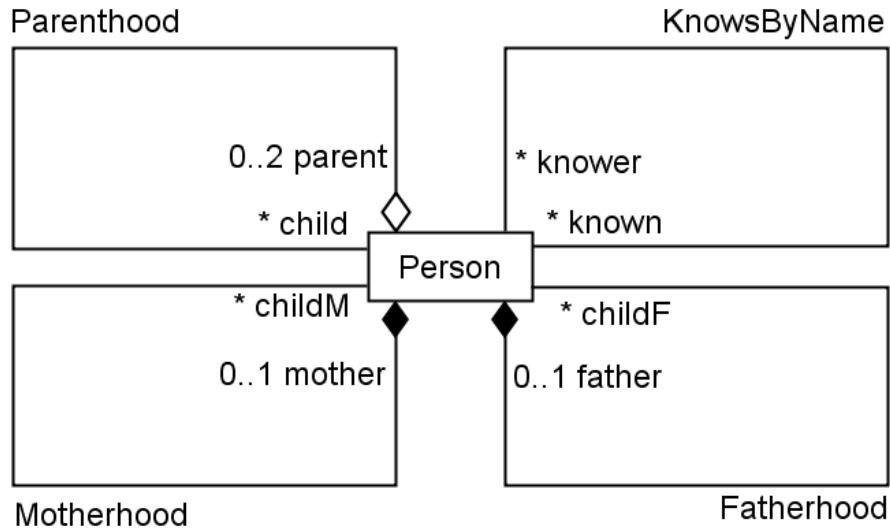


Once again on Association, Aggregation, and Composition
 martin gogolla
 2014-06-10

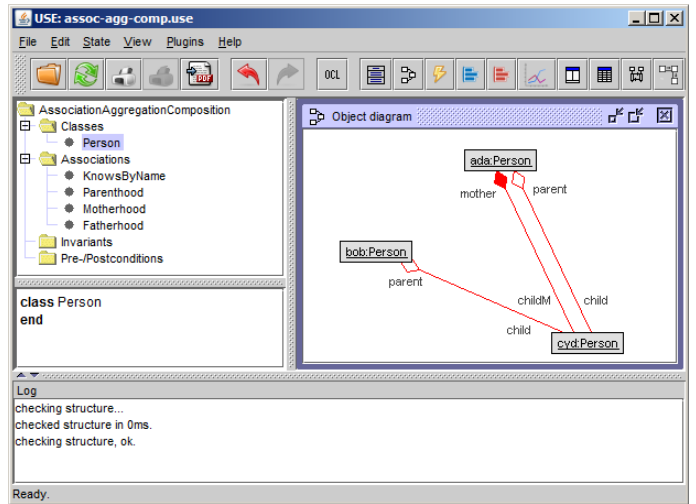
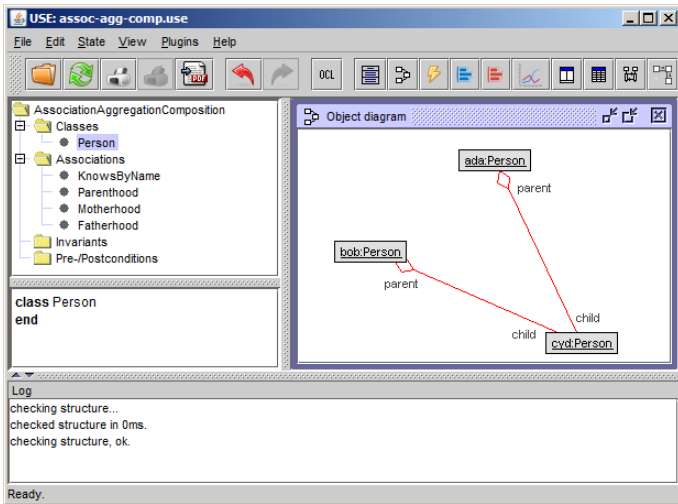
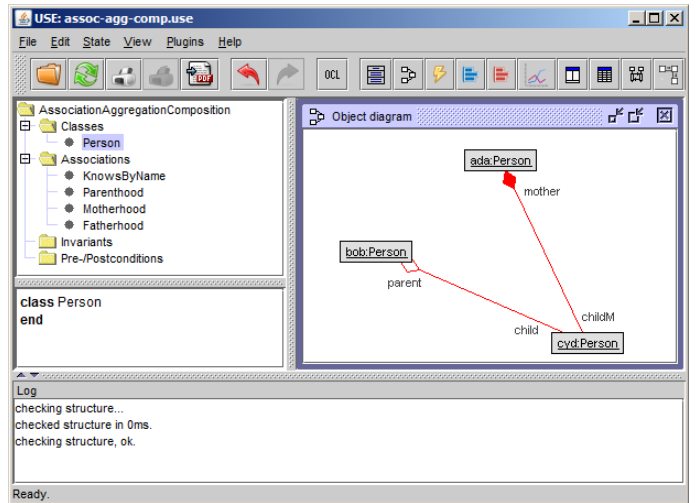
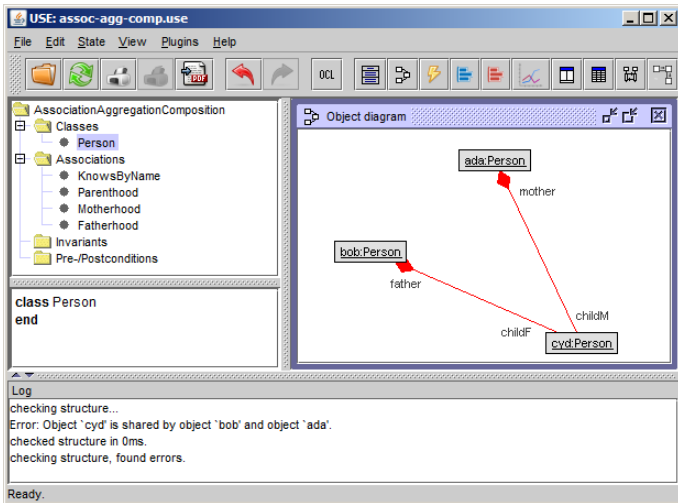
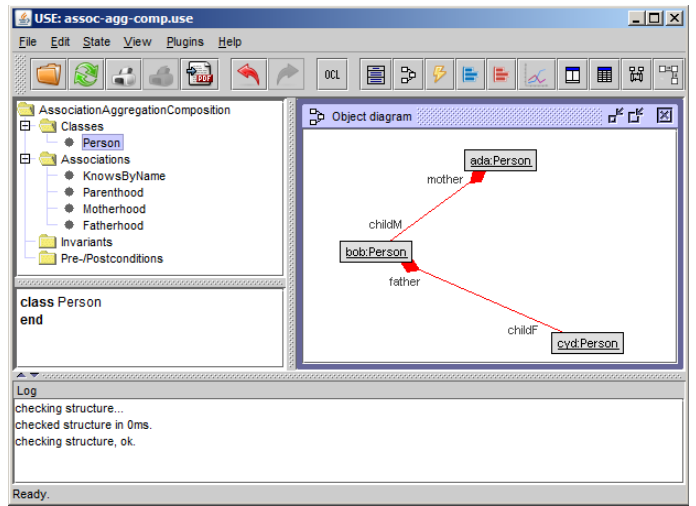
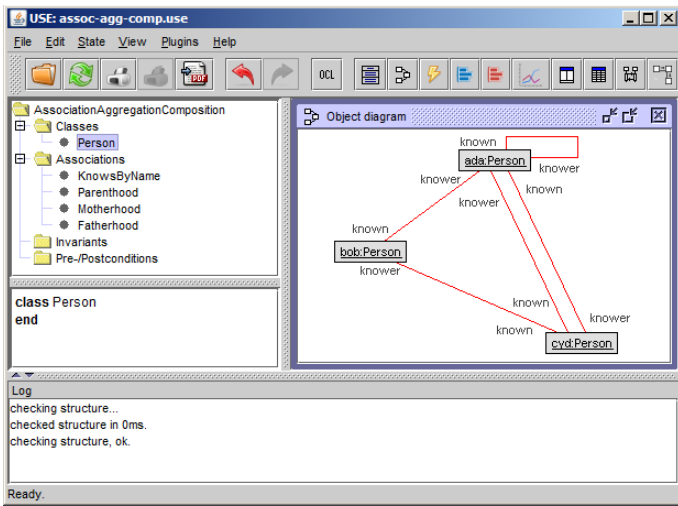


```
context Person inv acyclicAggregationComposition:
  self.child->union(self.childM)->union(self.childF)->
    closure(p|p.child->union(p.childM)->union(p.childF))->excludes(self)
```

```
Implication: context Person inv acyclicParenthood:
  self.child->closure(p|p.child)->excludes(self)
context Person inv acyclicMotherhood:
  self.childM->closure(p|p.childM)->excludes(self)
context Person inv acyclicFatherhood:
  self.childF->closure(p|p.childF)->excludes(self)
```

```
context Person inv forbiddingSharingForComposition:
  self.mother->notEmpty() and self.father->notEmpty()
```

	Acyclicity	Forbidding sharing
Motherhood	+	+
Fatherhood	+	+
Parenthood	+	-
KnowsByName	-	-



USE: assoc-agg-comp.use

File Edit State View Plugins Help

AssociationAggregationComposition

- Classes
 - Person
- Associations
 - KnowsByName
 - Parenthood
 - Motherhood
 - Fatherhood
- Invariants
- Pre-/Postconditions

```

class Person
end

```

```

graph TD
  ada[ada:Person] -- parent --> bob[bob:Person]
  bob -- parent --> cvd[cvd:Person]
  cvd -- child --> ada

```

Log

checking structure...

Error: There is a cycle in the part-whole hierarchy. Object 'bob' is a direct or indirect part of 'cvd'.

checked structure in 0ms.

checking structure, found errors.

Ready.

USE: assoc-agg-comp.use

File Edit State View Plugins Help

AssociationAggregationComposition

- Classes
 - Person
- Associations
 - KnowsByName
 - Parenthood
 - Motherhood
 - Fatherhood
- Invariants
- Pre-/Postconditions

```

class Person
end

```

```

graph TD
  ada[ada:Person] -- mother --> bob[bob:Person]
  bob -- parent --> cvd[cvd:Person]
  cvd -- child --> ada

```

Log

checking structure...

Error: There is a cycle in the part-whole hierarchy. Object 'bob' is a direct or indirect part of 'cvd'.

checked structure in 0ms.

checking structure, found errors.

Ready.

USE: assoc-agg-comp.use

File Edit State View Plugins Help

AssociationAggregationComposition

- Classes
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 - Fatherhood
- Invariants
- Pre-/Postconditions

```

class Person
end

```

```

graph TD
  bob[bob:Person] -- child --> ada[ada:Person]
  ada -- mother --> cvd[cvd:Person]
  cvd -- father --> bob

```

Log

checking structure...

Error: There is a cycle in the part-whole hierarchy. Object 'bob' is a direct or indirect part of 'cvd'.

checked structure in 0ms.

checking structure, found errors.

Ready.

USE: assoc-agg-comp.use

File Edit State View Plugins Help

AssociationAggregationComposition

- Classes
 - Person
- Associations
 - KnowsByName
 - Parenthood
 - Motherhood
 - Fatherhood
- Invariants
- Pre-/Postconditions

```

class Person
end

```

```

graph TD
  bob[bob:Person] -- father --> cvd[cvd:Person]
  cvd -- child --> ada[ada:Person]
  ada -- mother --> bob

```

Log

checking structure...

Error: There is a cycle in the part-whole hierarchy. Object 'bob' is a direct or indirect part of 'cvd'.

checked structure in 0ms.

checking structure, found errors.

Ready.