1

Documentation:

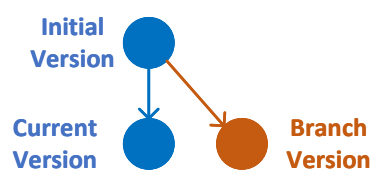What is being tested?
Expected behavior?

Schematic?

/** In this test, we are adding new elements to the EMF model during its evolution. The change operation is performed on the main branch, while a similar change is made by creating a new branch. Here is the scenario:
1. Main Branch: A new family member named Melania is added to the Trump family.
2. New Branch: A new family member named Ivana is added to the Trump family.
Expected: This results in two separate development lines for the model, each with its own modifications to the Trump family:
- The main branch now includes element fm2 as a new family member of the Trump family.
- The new branch has element fm3 as the newly added family member of the Trump family.
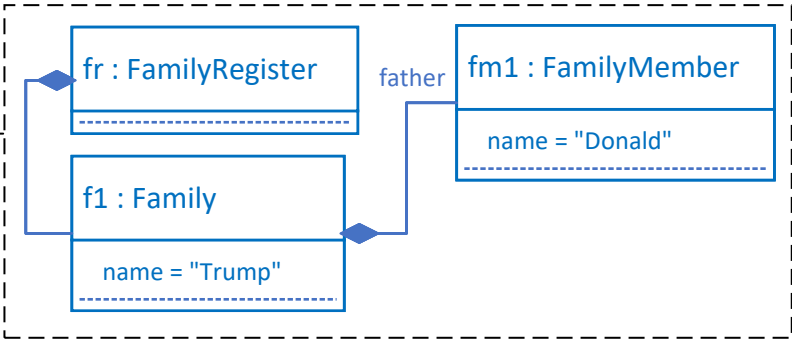*/

Initial Version → Current Version / Branch Version

"TestCase": [{ "id" : 1, "name": "AddNewElement", "line": "main"}]
/** by considering versioning aspect of the system. */

TEST CASE NAME/ID:

2 **Initial Version**

fr : FamilyRegister — father — fm1 : FamilyMember
name = "Donald"

f1 : Family
name = "Trump"

BWV

"changeOperation": [{ "operation": "ADD", "context": "element", "identifier": "fm2" }]
/** element fm2 is added to diagram. */

Operations **3**

FWV

4 **Current Version**

fr : FamilyRegister — father — fm1 : FamilyMember
name = "Donald"

f1 : Family
name = "Trump" — mother — fm2 : FamilyMember
name = "Melania"
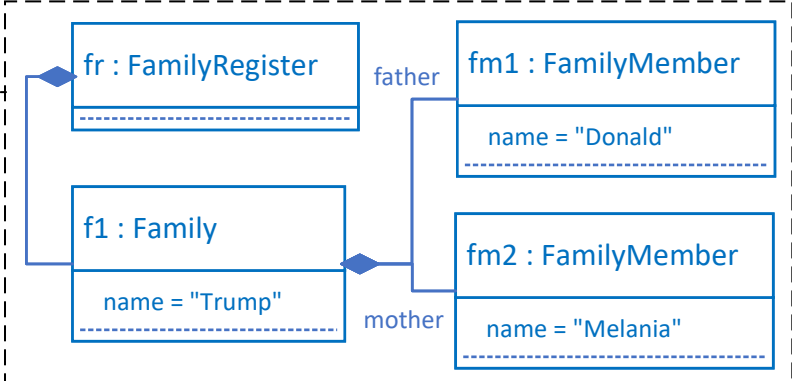
/** Initial Version + Operations → Current Version
performing change operations on initial version produce current version. */

Expected Result **5**

/** DifferenceOf(Initial Version, Current Version) → Operations
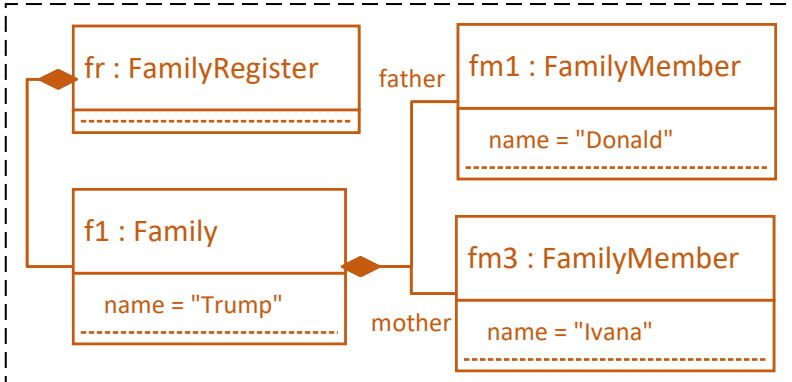comparing initial version with current version produces change operations. */

"TestCase": [{ "id" : 1.1, "name": "AddNewElementBranch", "line": "branch"}]
/** by considering branching aspect of the system.*/

TEST CASE NAME/ID:

6 **Branch Version**

fr : FamilyRegister — father — fm1 : FamilyMember
name = "Donald"

f1 : Family
name = "Trump" — mother — fm3 : FamilyMember
name = "Ivana"

"changeOperation": [{ "operation": "ADD", "context": "element", "identifier": "fm3" }]
/** element fm3 is added to diagram. */

Operations **7**

/** CreateBranch(Initial version) + Operations → Branch Version
the system is able to create a new branch from the main. Users are able to make changes on branch version. */

Expected Result **8**

/** DifferenceOf(Initial version, Branch Version) → Operations
comparing initial version with branch version produces branch change operations. */

"TestCase": [{ "id" : 2, "name": "DeleteElement", "line": "main"}]
/** by considering versioning aspect of the system. */
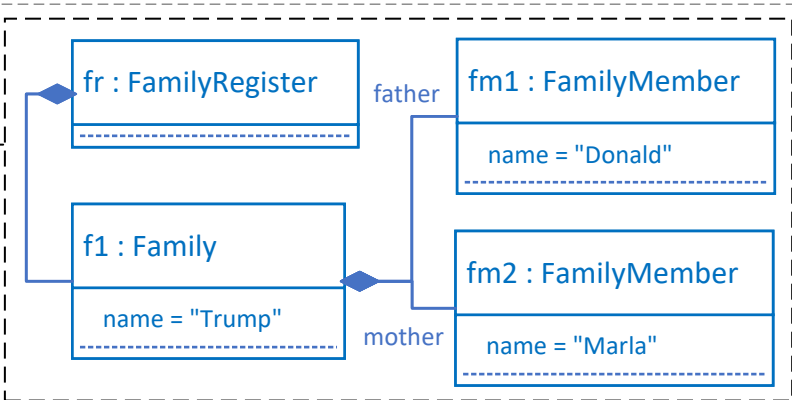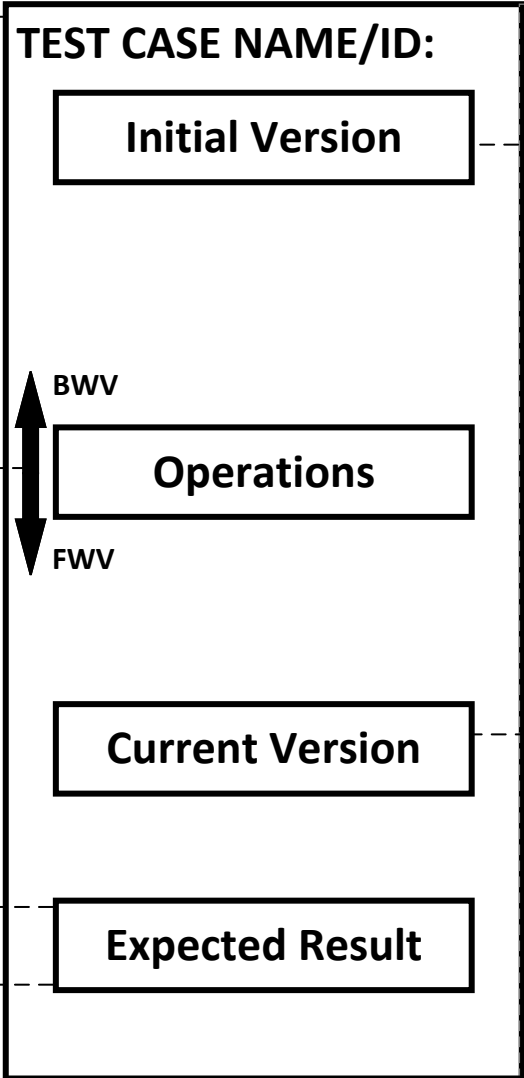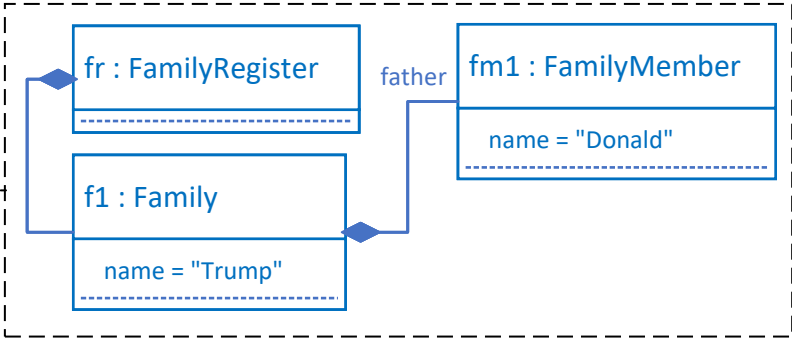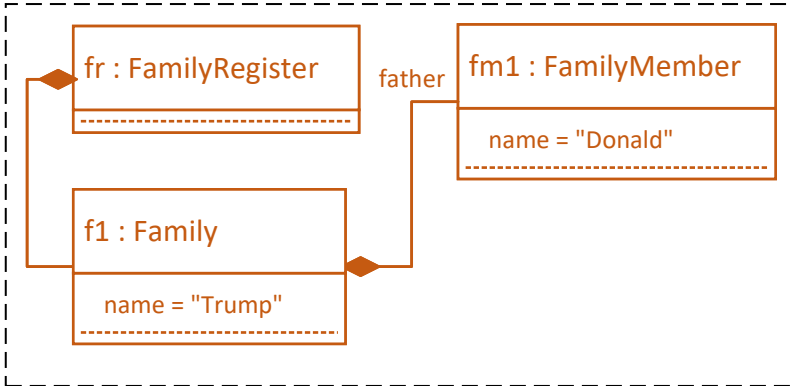
TEST CASE NAME/ID:

2 Initial Version

fr : FamilyRegister

father fm1 : FamilyMember
name = "Donald"

f1 : Family
name = "Trump"

mother fm2 : FamilyMember
name = "Marla"

BWV

"changeOperation": [{ "operation": "DELETE", "context": "element",
"identifier": "fm2" }]
/** element fm2 is added to diagram. */

Operations **3**

FWV

fr : FamilyRegister

father fm1 : FamilyMember
name = "Donald"

f1 : Family
name = "Trump"

4 **Current Version**
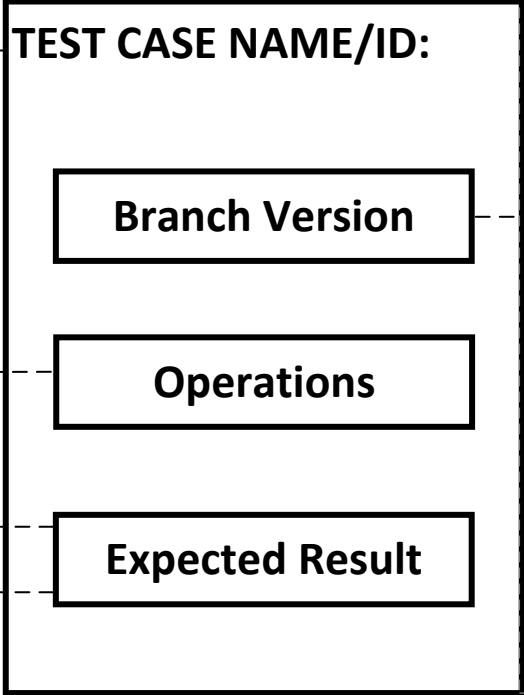
/** Initial Version + Operations → Current Version
performing change operations on initial version produce current version. */

Expected Result **5**

/** DifferenceOf(Initial Version, Current Version) → Operations
comparing initial version with current version produces change operations. */

"TestCase": [{ "id" : 2.1, "name": "DeleteElementBranch", "line": "branch"}]
/** by considering branching aspect of the system.*/

TEST CASE NAME/ID:

6 **Branch Version**

fr : FamilyRegister

father fm1 : FamilyMember
name = "Donald"

f1 : Family
name = "Trump"

"changeOperation": [{ "operation": "DELETE", "context": "element",
"identifier": "fm2" }]
/** element fm2 is deleted from the diagram. */

Operations **7**

/** CreateBranch(Initial version) + Operations → Branch Version
the system is able to create a new branch from the main. Users are able to make changes on branch version. */

Expected Result **8**

/** DifferenceOf(Initial version, Branch Version) → Operations
comparing initial version with branch version produces branch change operations. */

1

Documentation:
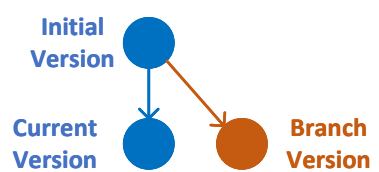
What is being tested?
Expected behavior?

Schematic?

/** In this test, we are adding new value to a property of an element during evolution. The change operation is performed on the main branch, while a similar change is made by creating a new branch. Here is the scenario:
1. Main Branch: "Malenia" is added to the name property of element fm2 in the Trump family.
2. New Branch: "Ivana" is added to the name property of element fm2 in the Trump family.
Expected: This results in two separate development lines for the model, each with its own modifications to the Trump family:
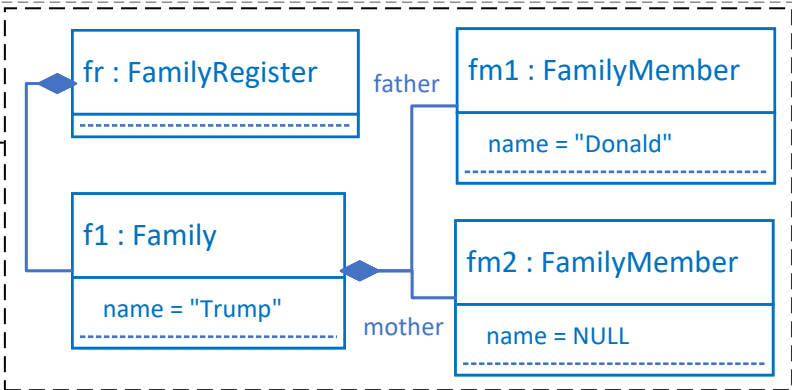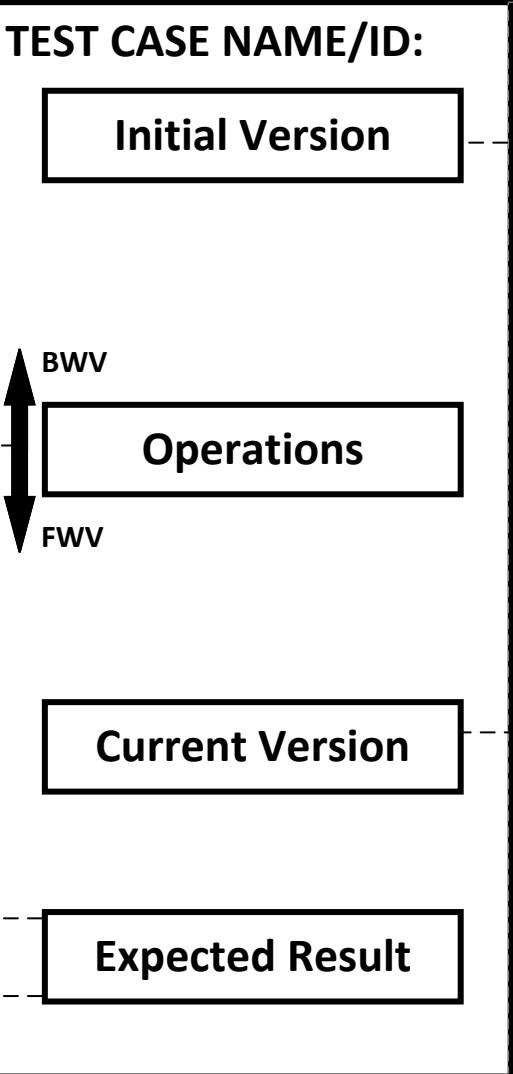- The main branch now includes element fm2 with property name (value = Malenia) in the Trump family.
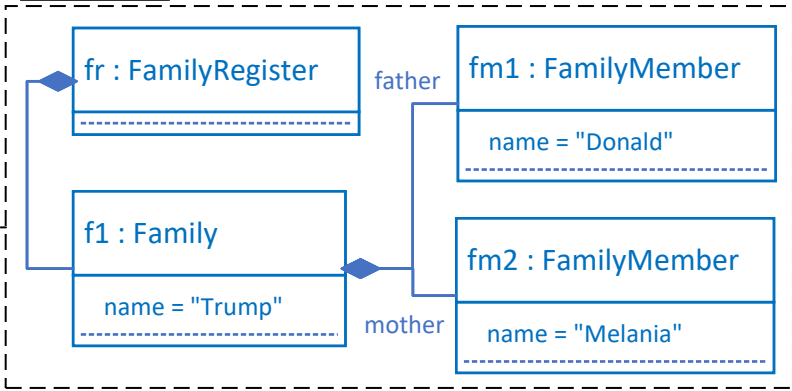- The new branch has element fm2 with property name (value = Ivana) in the Trump family.
*/

Initial Version

Current Version → Branch Version

"TestCase": [{ "id" : 3, "name": "AddProperty", "line": "main"}]
/** by considering versioning aspect of the system. */

TEST CASE NAME/ID:

2 Initial Version

fr : FamilyRegister

fm1 : FamilyMember
name = "Donald"

f1 : Family
name = "Trump"

fm2 : FamilyMember
name = NULL

father

mother

BWV
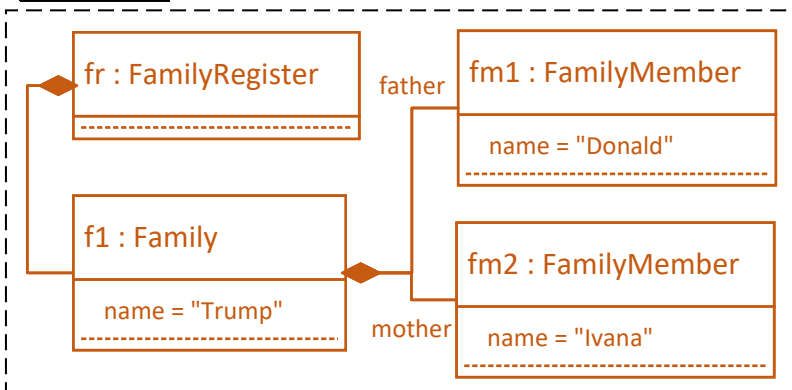
"changeOperation": [{ "operation": "ADD", "context": "property", "identifier": "fm2", "propertyName": "name" }]
/** property name is added in the element fm2. */

Operations **3**

FWV

fr : FamilyRegister

fm1 : FamilyMember
name = "Donald"

f1 : Family
name = "Trump"

fm2 : FamilyMember
name = "Melania"

father

mother

4 Current Version

/** Initial Version + Operations → Current Version
 performing change operations on initial version produce current version. */

Expected Result **5**

/** DifferenceOf(Initial Version, Current Version) → Operations
comparing initial version with current version produces change operations. */

"TestCase": [{ "id" : 3.1, "name": "AddPropertyBranch", "line": "branch"}]
/** by considering branching aspect of the system.*/

TEST CASE NAME/ID:

6 Branch Version

fr : FamilyRegister

fm1 : FamilyMember
name = "Donald"

f1 : Family
name = "Trump"

fm2 : FamilyMember
name = "Ivana"

father

mother

"changeOperation": [{ "operation": "ADD", "context": "property", "identifier": "fm2", "propertyName": "name" }]
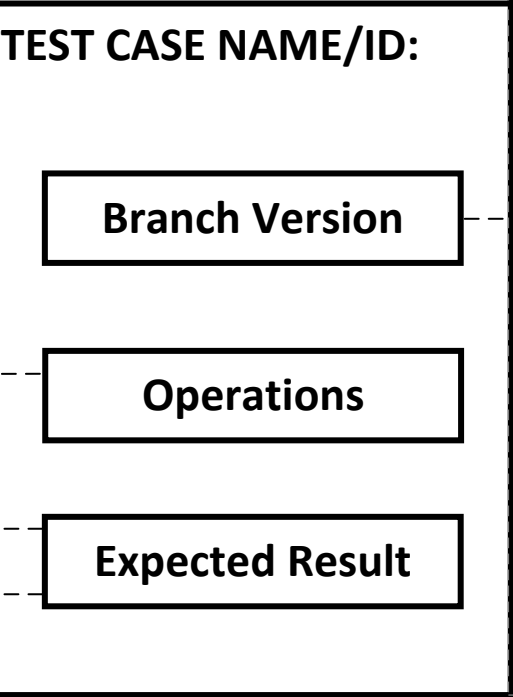/** property name is added in the element fm2. */

Operations **7**

/** CreateBranch(Initial version) + Operations → Branch Version
the system is able to create a new branch from the main. Users are able to make changes on branch version. */

Expected Result **8**

/** DifferenceOf(Initial version, Branch Version) → Operations
comparing initial version with branch version produces branch change operations. */

Initial Version
Current Version
Branch Version

/** In this test, we are deleting the value of a property of an element during evolution. The change operation is performed on the main branch, while a similar change is made by creating a new branch. Here is the scenario:
1. Main Branch: "Marla" is deleted from the name property of element fm2 in the Trump family.
2. New Branch: "Marla" is deleted from the name property of element fm2 in the Trump family.
Expected: This results in two separate development lines for the model, each with its own modifications to the Trump family:
- The main branch now includes element fm2 with property name (value = NULL) in the Trump family.
- The new branch has element fm2 with property name (value = NULL) in the Trump family.
*/

Initial Version
Current Version
Branch Version

"TestCase": [{ "id" : 4, "name": "DeleteProperty", "line": "main"}]
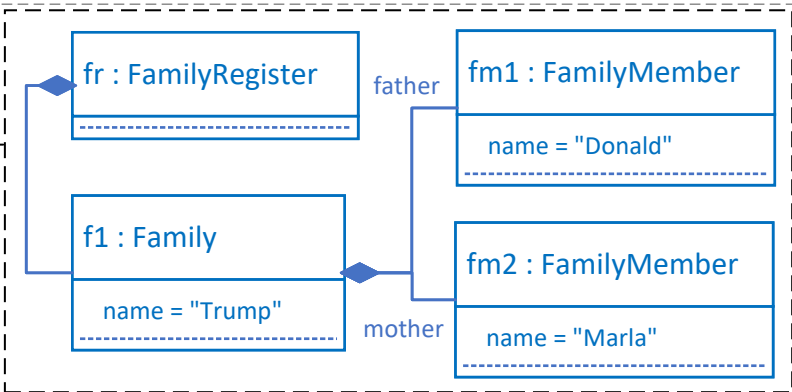/** by considering versioning aspect of the system. */
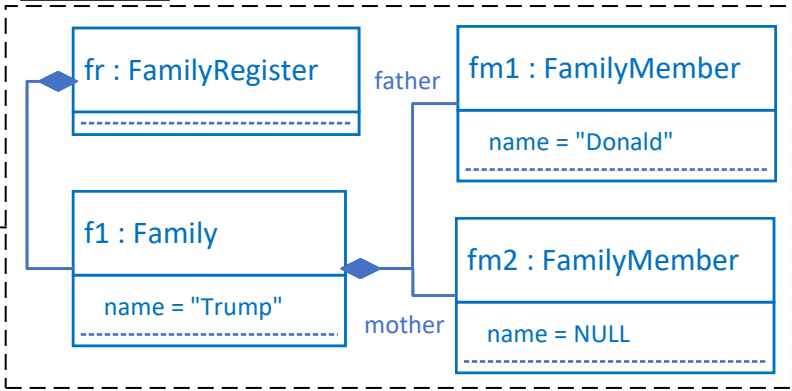
TEST CASE NAME/ID:

2 **Initial Version**

fr : FamilyRegister

fm1 : FamilyMember
name = "Donald"

f1 : Family
name = "Trump"

fm2 : FamilyMember
name = "Marla"

father
mother

BWV

"changeOperation": [{ "operation": "DELETE", "context": "property",
"identifier": "fm2", "propertyName": "name" }]
/** a property of element fm2 is deleted. */

Operations **3**

FWV

4 **Current Version**

fr : FamilyRegister

fm1 : FamilyMember
name = "Donald"

f1 : Family
name = "Trump"

fm2 : FamilyMember
name = NULL

father
mother

/** Initial Version + Operations → Current Version
performing change operations on initial version produce current version. */

Expected Result **5**

/** DifferenceOf(Initial Version, Current Version) → Operations
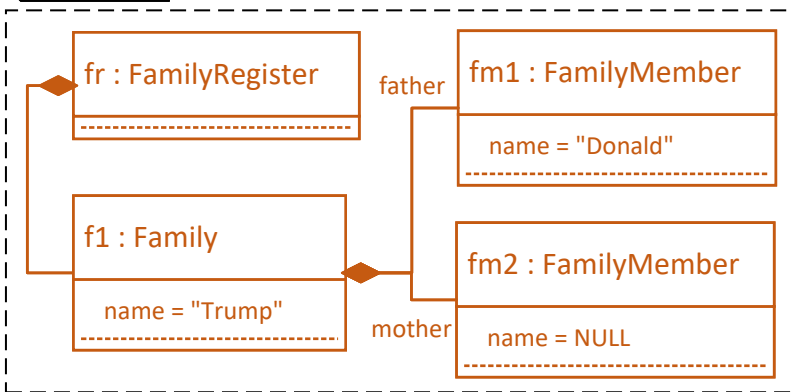comparing initial version with current version produces change operations. */

"TestCase": [{ "id" : 4.1, "name": "DeletePropertyBranch", "line": "branch"}]
/** by considering branching aspect of the system.*/

TEST CASE NAME/ID:

6 **Branch Version**

fr : FamilyRegister

fm1 : FamilyMember
name = "Donald"

f1 : Family
name = "Trump"

fm2 : FamilyMember
name = NULL

father
mother

"changeOperation": [{ "operation": "DELETE", "context": "property",
"identifier": "fm2", "propertyName": "name" }]
/** a property of element fm2 is deleted from the diagram. */

Operations **7**

/** CreateBranch(Initial version) + Operations → Branch Version
the system is able to create a new branch from the main. Users are able to make changes on branch version. */

Expected Result **8**

/** DifferenceOf(Initial version, Branch Version) → Operations
comparing initial version with branch version produces branch change operations. */

1

Documentation:

What is being tested?
Expected behavior?

Schematic?

/** In this test, we are adding an element and the value of a property of an element during evolution. The change operation is performed on the main branch, while a similar change is made by creating a new branch. Here is the scenario:
1. Main Branch: "Donald" is added to the name property of element fm1 in the Trump family. A new family member is added to this family.
2. New Branch: "Donald" is added to the name property of element fm1 in the Trump family. A new family member is added to this family.
Expected: This results in two separate development lines for the model, each with its own modifications to the Trump family:
- The main branch now includes elements fm1 and fm2 in the Trump family.
- The new branch has elements fm1 and fm3 in the Trump family.
*/

Initial Version → Current Version, Branch Version
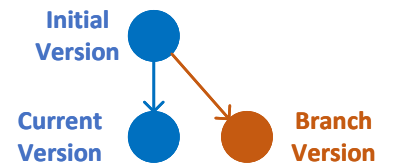
"TestCase": [{ "id" : 5, "name": "AddEl_AddPro", "line": "main"}]
/** by considering versioning aspect of the system. */

TEST CASE NAME/ID:

2 Initial Version

fr : FamilyRegister — father — fm1 : FamilyMember
  name = NULL

f1 : Family
  name = "Trump"

BWV

3 Operations

"changeOperation": [{ "operation": "ADD", "context": "element", "identifier": "fm2" }, { "operation": "ADD", "context": "property", "identifier": "fm1", "propertyName": "name" }]
/** a property of element fm2 is deleted. */

FWV

fr : FamilyRegister — father — fm1 : FamilyMember
  name = "Donald"

f1 : Family
  name = "Trump" — mother — fm2 : FamilyMember
  name = NULL

4 Current Version

/** Initial Version + Operations → Current Version
performing change operations on initial version produce current version. */

5 Expected Result

/** DifferenceOf(Initial Version, Current Version) → Operations
comparing initial version with current version produces change operations. */

"TestCase": [{ "id" : 5.1, "name": "AddEl_AddProBranch", "line": "branch"}]
/** by considering branching aspect of the system.*/

TEST CASE NAME/ID:

fr : FamilyRegister — father — fm1 : FamilyMember
  name = "Donald"

f1 : Family
  name = "Trump" — mother — fm3 : FamilyMember
  name = NULL

6 Branch Version

"changeOperation": [{ "operation": "ADD", "context": "element", "identifier": "fm3" }, { "operation": "ADD", "context": "property", "identifier": "fm1", "propertyName": "name" }]
/** a property of element fm2 is deleted from the diagram. */

7 Operations

/** CreateBranch(Initial version) + Operations → Branch Version
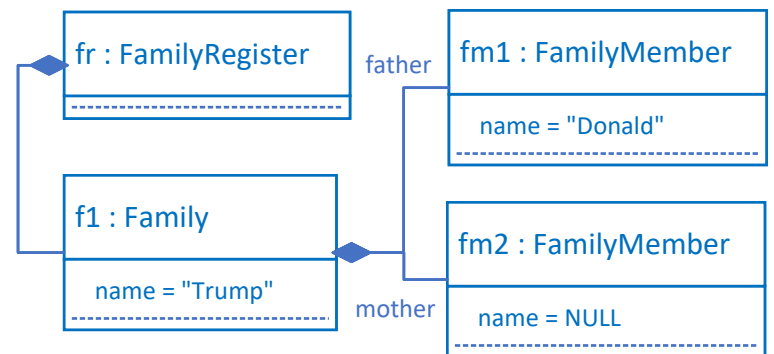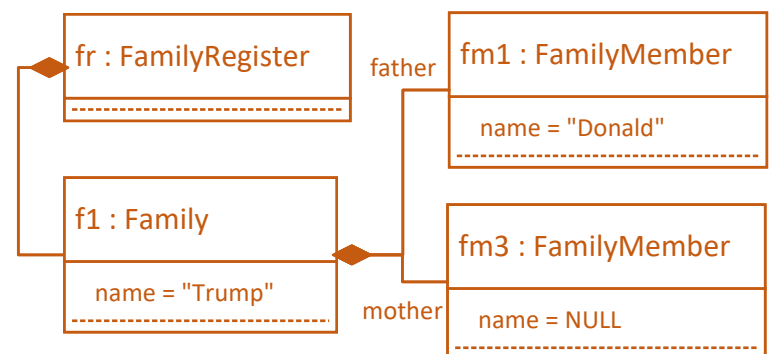the system is able to create a new branch from the main. Users are able to make changes on branch version. */

/** DifferenceOf(Initial version, Branch Version) → Operations
comparing initial version with branch version produces branch change operations. */
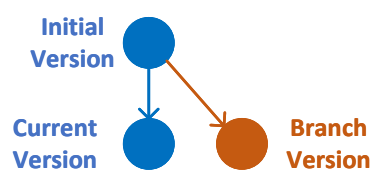
8 Expected Result
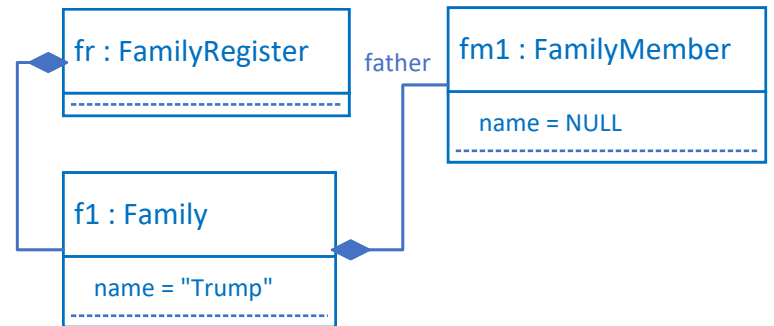
/** In this test, we are adding an element and deleting the value of a property of an element during evolution. The change operation is performed on the main branch, while a similar change is made by creating a new branch. Here is the scenario:
1. Main Branch: "Donald Trump" is deleted from the name property of element fm1 and new family member is added to this family.
2. New Branch: "Donald Trump" is deleted from the name property of element fm1 and new family member is added to this family.
Expected: This results in two separate development lines for the model, each with its own modifications to the Trump family:
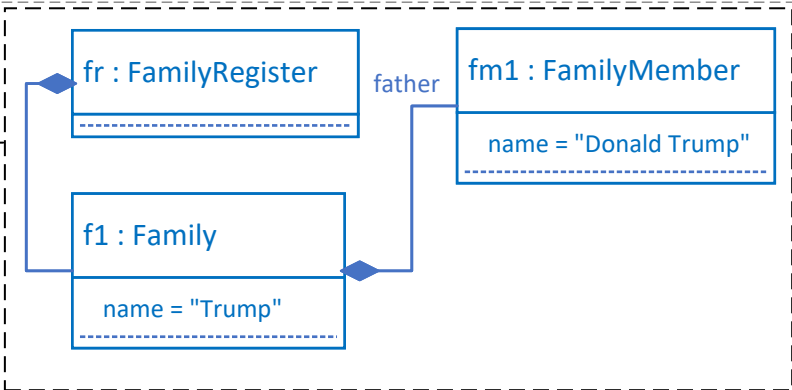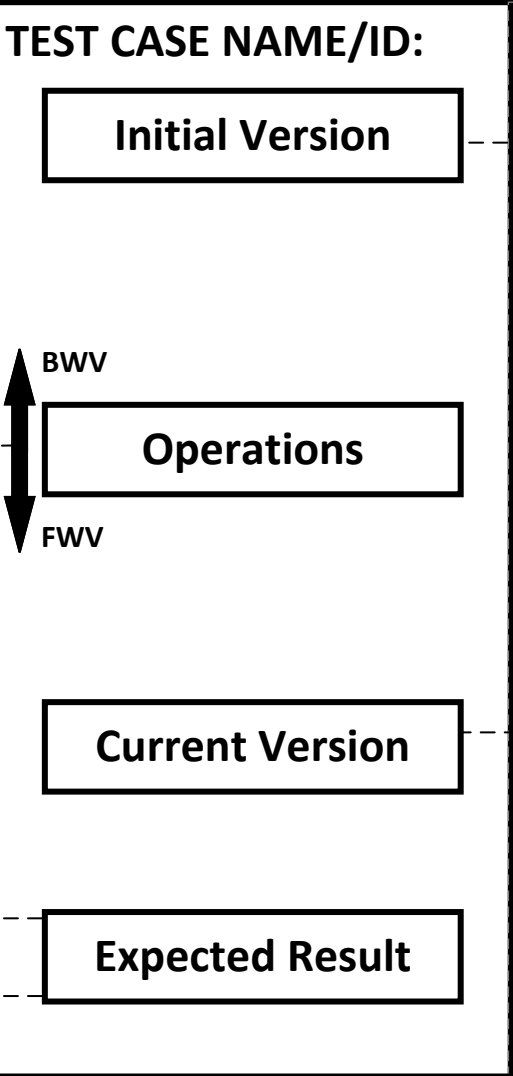- The main branch now includes elements fm1 and fm2 in the Trump family.
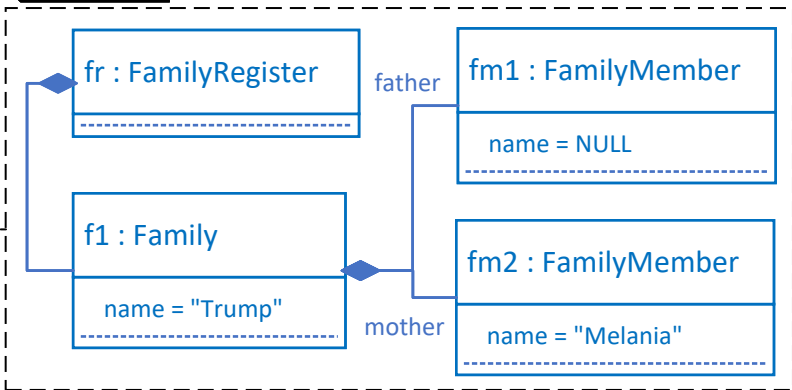- The new branch has elements fm1 and fm3 in the Trump family.
*/

Initial Version

Current Version

Branch Version

"TestCase": [{ "id" : 6, "name": "AddEl_DelPro", "line": "main"}]
/** by considering versioning aspect of the system. */
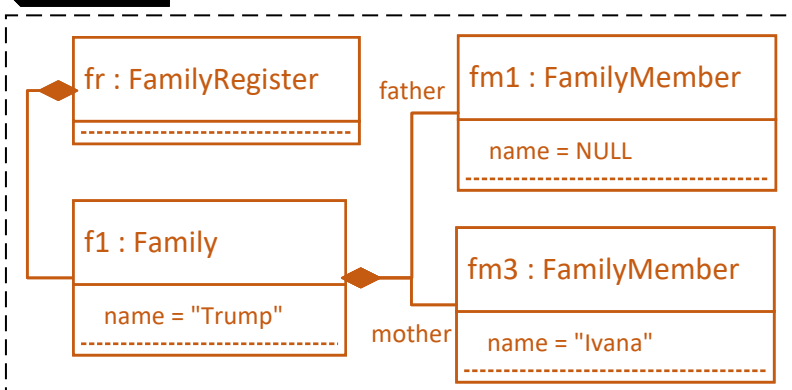
TEST CASE NAME/ID:

2 Initial Version

fr : FamilyRegister — father — fm1 : FamilyMember
name = "Donald Trump"

f1 : Family
name = "Trump"

BWV

"changeOperation": [{ "operation": "ADD", "context": "element", "identifier": "fm2" }, { "operation": "DELETE", "context": "property", "identifier": "fm1", "propertyName": "name" }] /** the property of element fm1 is deleted and element fm2 is added. */

3 Operations

FWV

4 Current Version

fr : FamilyRegister — father — fm1 : FamilyMember
name = NULL

f1 : Family
name = "Trump" — mother — fm2 : FamilyMember
name = "Melania"

/** Initial Version + Operations → Current Version
performing change operations on initial version produce current version. */

5 Expected Result

/** DifferenceOf(Initial Version, Current Version) → Operations
comparing initial version with current version produces change operations. */

"TestCase": [{ "id" : 6.1, "name": "AddEl_DelProBranch", "line": "branch"}]
/** by considering branching aspect of the system.*/

TEST CASE NAME/ID:

6 Branch Version

fr : FamilyRegister — father — fm1 : FamilyMember
name = NULL

f1 : Family
name = "Trump" — mother — fm3 : FamilyMember
name = "Ivana"

"changeOperation": [{ "operation": "ADD", "context": "element", "identifier": "fm3" }, { "operation": "DELETE", "context": "property", "identifier": "fm1", "propertyName": "name" }] /** the property of element fm1 is deleted and element fm3 is added. */

7 Operations

/** CreateBranch(Initial version) + Operations → Branch Version
the system is able to create a new branch from the main. Users are able to make changes on branch version. */

8 Expected Result

/** DifferenceOf(Initial version, Branch Version) → Operations
comparing initial version with branch version produces branch change operations. */

"TestCase": [{ "id" : 7, "name": "DelEl_AddPro", "line": "main"}]
/** by considering versioning aspect of the system. */

TEST CASE NAME/ID:

2 **Initial Version**

fr : FamilyRegister
father
fm1 : FamilyMember
name = NULL

f1 : Family
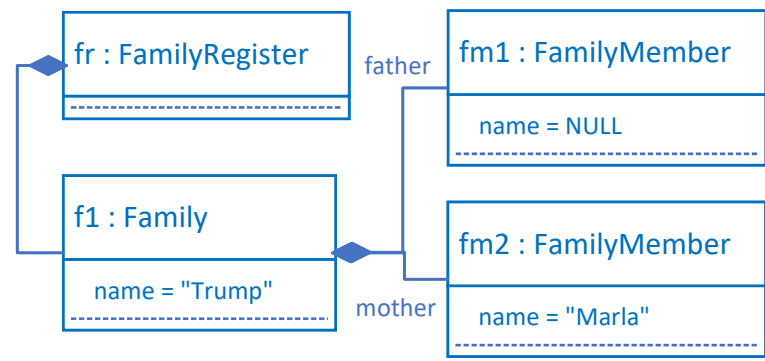name = "Trump"
mother
fm2 : FamilyMember
name = "Marla"

BWV

"changeOperation": [{ "operation": "DELETE", "context": "element", "identifier": "fm2" }, { "operation": "ADD", "context": "property", "identifier": "fm1", "propertyName": "name" }] /** an element fm2 is deleted and the value of the name property of fm1 is added. */

Operations **3**

FWV

fr : FamilyRegister
father
fm1 : FamilyMember
name = "Donald"

f1 : Family
name = "Trump"

4 **Current Version**

/** Initial Version + Operations → Current Version
performing change operations on initial version produce current version. */

Expected Result **5**

/** DifferenceOf(Initial Version, Current Version) → Operations comparing initial version with current version produces change operations. */

"TestCase": [{ "id" : 7.1, "name": "DelEl_AddProBranch", "line": "branch"}]
/** by considering branching aspect of the system.*/

TEST CASE NAME/ID:

fr : FamilyRegister
father
fm1 : FamilyMember
name = "Donald"

f1 : Family
name = "Trump"

6 **Branch Version**

"changeOperation": [{ "operation": "DELETE", "context": "element", "identifier": "fm2" }, { "operation": "ADD", "context": "property", "identifier": "fm1", "propertyName": "name" }] /** an element fm2 is deleted and the value of the name property of fm1 is added. */

Operations **7**

/** CreateBranch(Initial version) + Operations → Branch Version
the system is able to create a new branch from the main. Users are able to make changes on branch version. */

Expected Result **8**
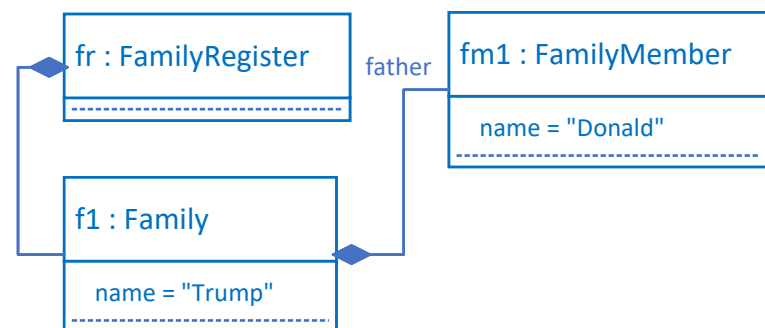
/** DifferenceOf(Initial version, Branch Version) → Operations comparing initial version with branch version produces branch change operations. */

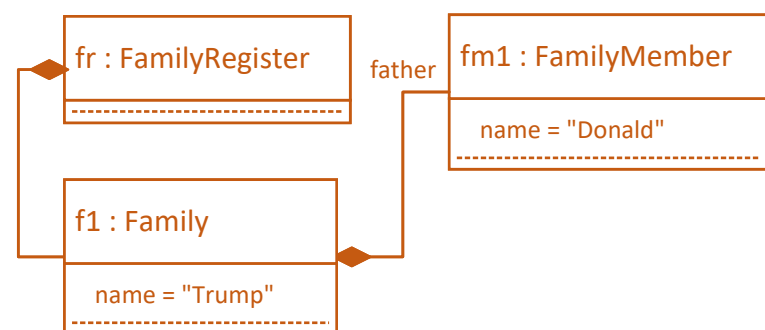"TestCase": [{ "id" : 8, "name": "DelEl_DelPro", "line": "main"}]
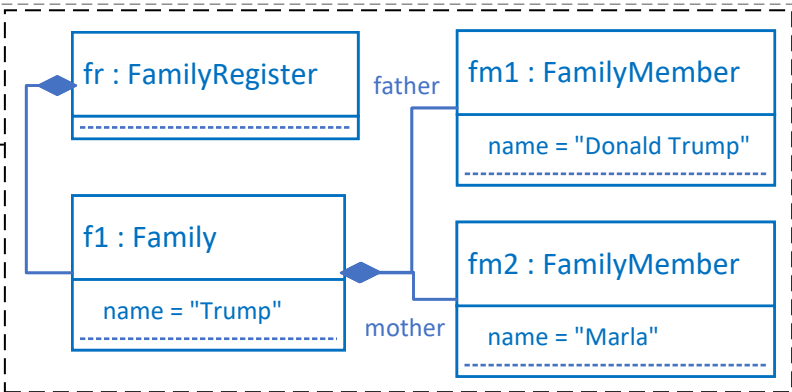/** by considering versioning aspect of the system. */

TEST CASE NAME/ID:

2 → **Initial Version**

fr : FamilyRegister   father   fm1 : FamilyMember
name = "Donald Trump"

f1 : Family
name = "Trump"   mother   fm2 : FamilyMember
name = "Marla"

BWV
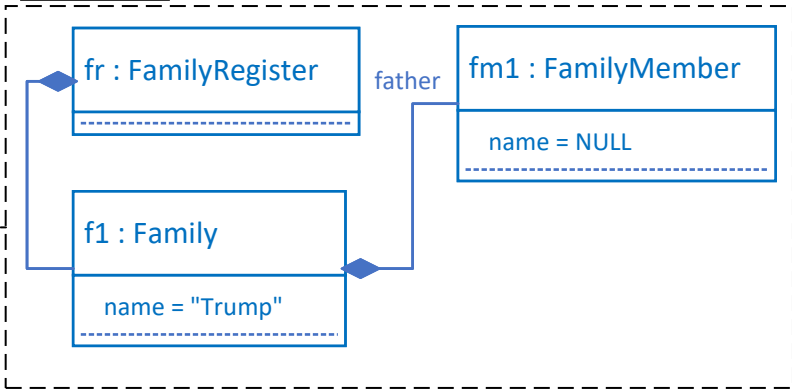
"changeOperation": [{ "operation": "DELETE", "context": "element", "identifier": "fm2" }, { "operation": "DELETE", "context": "property", "identifier": "fm1", "propertyName": "name" }] /** an element fm2 is deleted and the value of the name property of fm1 is added. */

Operations   **3**

FWV

fr : FamilyRegister   father   fm1 : FamilyMember
name = NULL

4 → **Current Version**

f1 : Family
name = "Trump"

/** Initial Version + Operations → Current Version
performing change operations on initial version produce current version. */

Expected Result   **5**

/** DifferenceOf(Initial Version, Current Version) → Operations
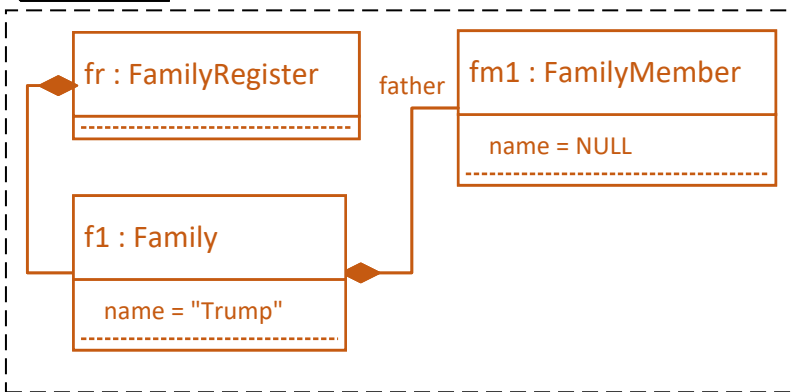comparing initial version with current version produces change operations. */

"TestCase": [{ "id" : 8.1, "name": "DelEl_DelProBranch", "line": "branch"}]
/** by considering branching aspect of the system.*/

TEST CASE NAME/ID:

fr : FamilyRegister   father   fm1 : FamilyMember
name = NULL

6 → **Branch Version**

f1 : Family
name = "Trump"

"changeOperation": [{ "operation": "DELETE", "context": "element", "identifier": "fm2" }, { "operation": "DELETE", "context": "property", "identifier": "fm1", "propertyName": "name" }] /** an element fm2 is deleted and the value of the name property of fm1 is added. */

Operations   **7**

/** CreateBranch(Initial version) + Operations → Branch Version
the system is able to create a new branch from the main. Users are able to make changes on branch version. */

Expected Result   **8**

/** DifferenceOf(Initial version, Branch Version) → Operations
comparing initial version with branch version produces branch change operations. */