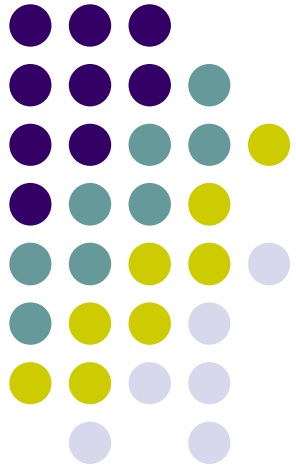
Formula Support Plugin Tutorial

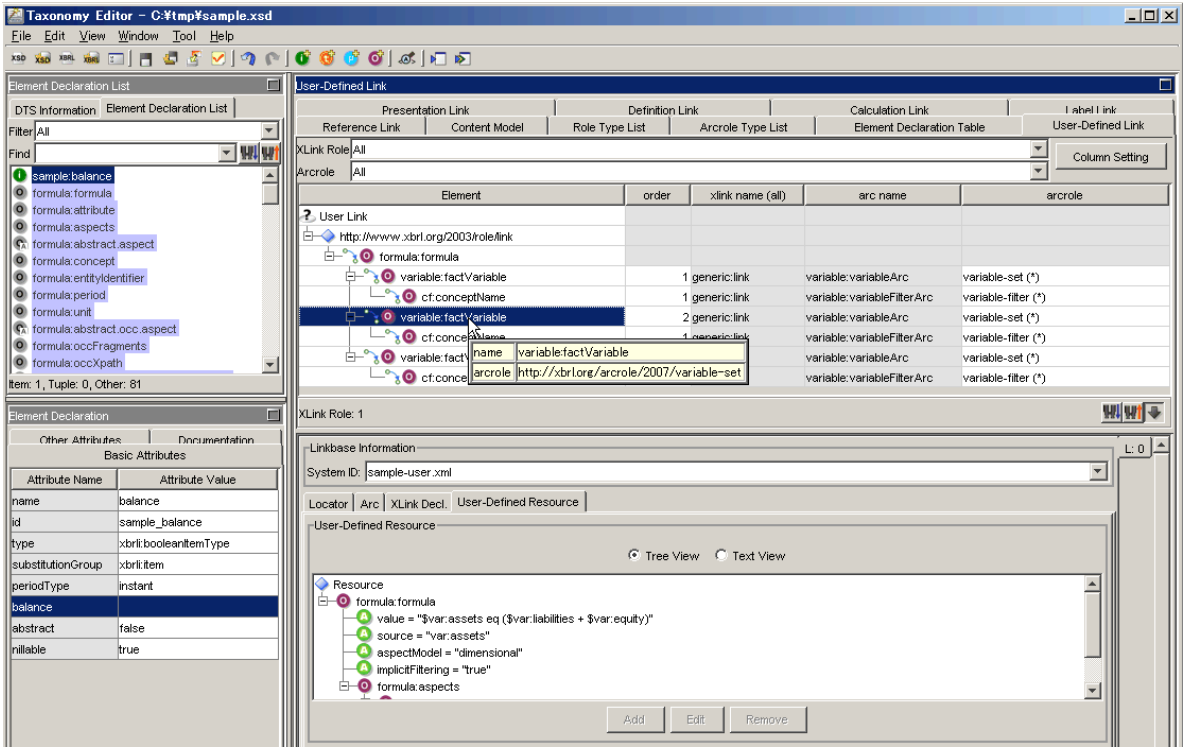
This is a tutorial for alpha version of Formula Support Plugin for Taxonomy Editor.

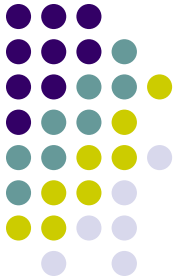


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Introduction

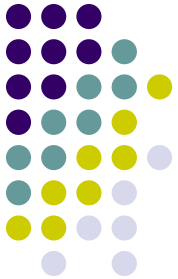
- Formula Support Plugin is a plugin for Taxonomy Editor.
- It helps users create and edit formula linkbases.





Installation

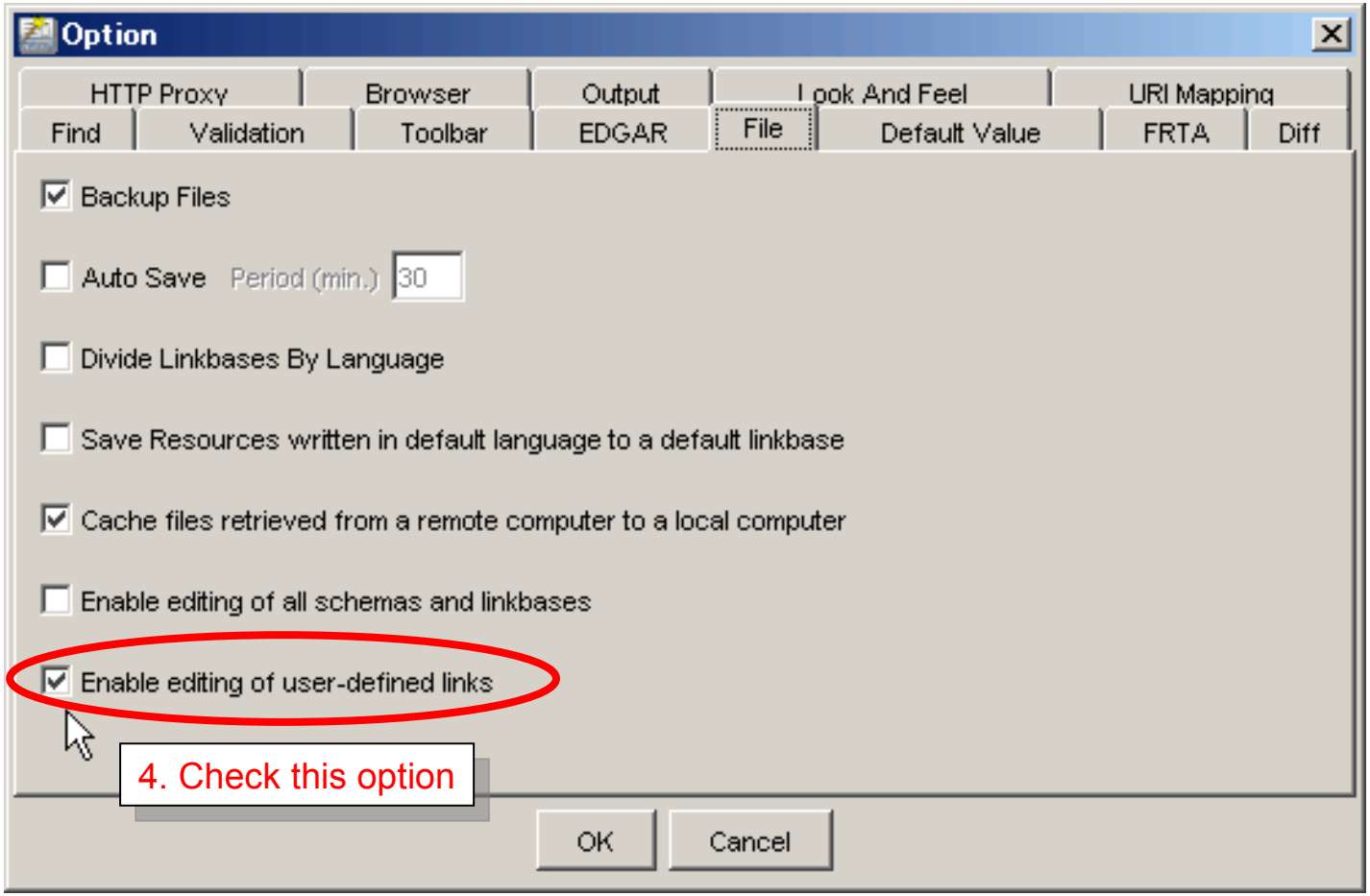
Installation (1/2)

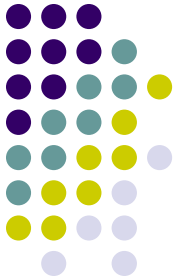


1. Double-click “run.bat”
2. Select “File>New Taxonomy”
3. Select “Tool>Option>File”
4. Check “Enable editing of User-Defined Links” (See the next page)
5. Push OK button

Note: Steps 3-5 are needed only at the first time after Formula Support Plugin is installed.

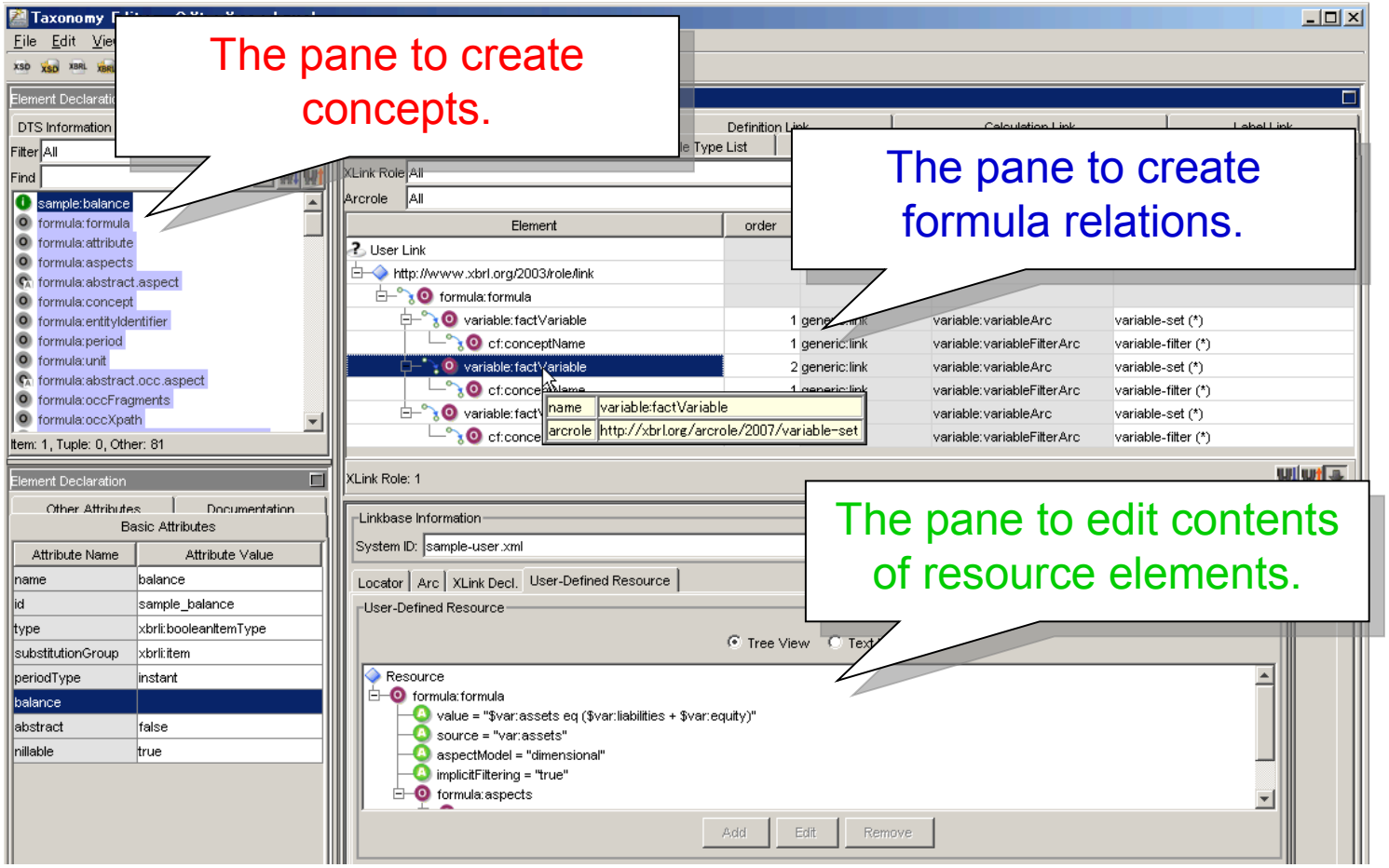
Installation (2/2)



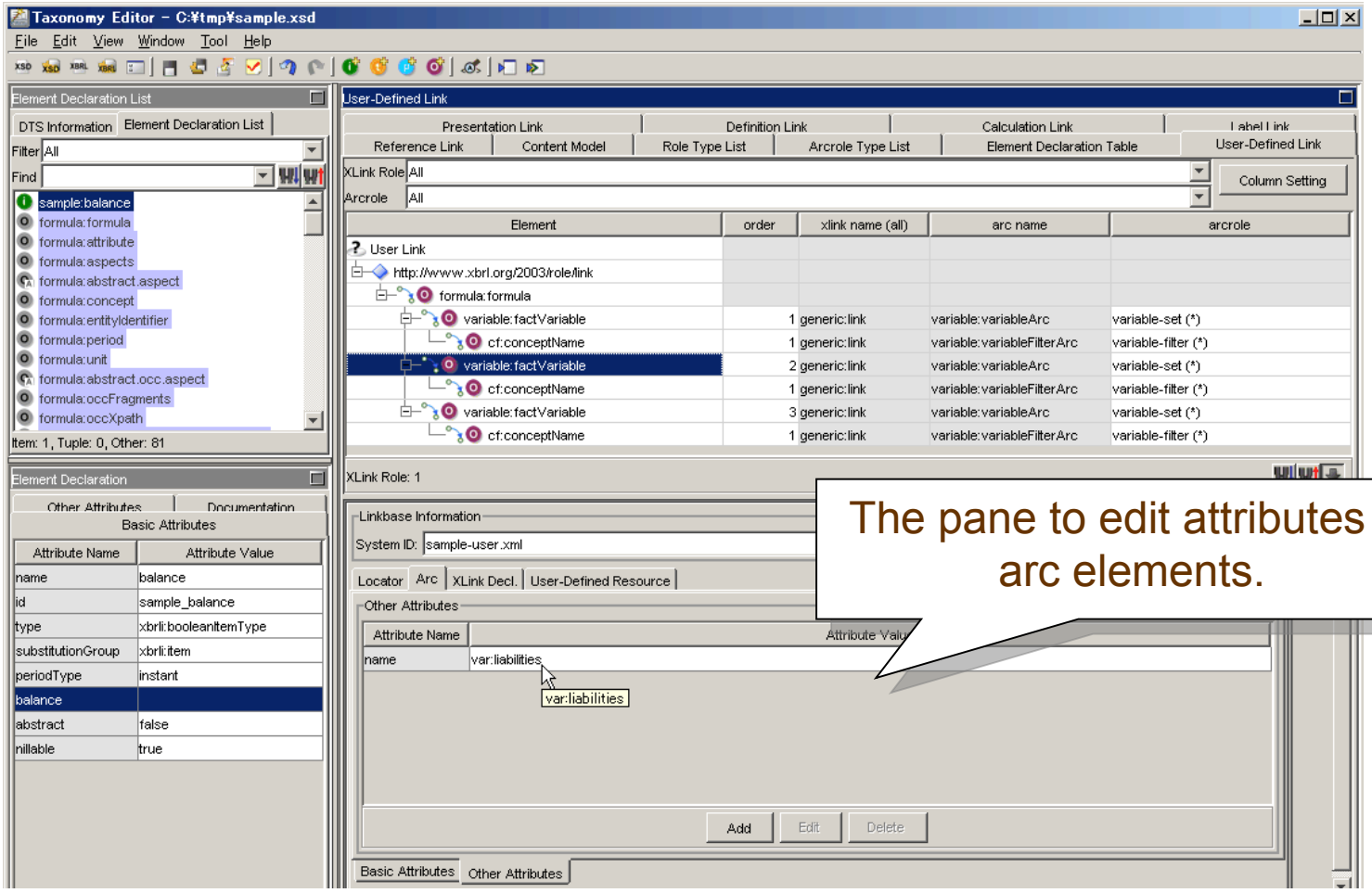


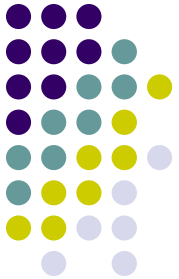
Screen

Screen (1/2)


The pane to create concepts.
The pane to create formula relations.
The pane to edit contents of resource elements.
Taxonomy
File Edit
Element Declaration
DTS Information
Filter All
Find
sample:balance
formula:formula
formula:attribute
formula:aspects
formula:abstract.aspect
formula:concept
formula:entityIdentifier
formula:period
formula:unit
formula:abstract.occ.aspect
formula:occFragments
formula:occXpath
Item: 1, Tuple: 0, Other: 81
Definition Link
Calculation Link
Label Link
Type List
XLink Role All
Arcrole All
Element
order
User Link
http://www.xbrl.org/2003/role/link
formula:formula
variable:factVariable
cf:conceptName
variable:factVariable
variable:variableArc
variable:variableFilterArc
generic:link
name variable:factVariable
arcrole http://xbrl.org/arcrole/2007/variable-set
variable-set (*)
variable-filter (*)
Element Declaration
Other Attributes
Documentation
Basic Attributes
Attribute Name
Attribute Value
name balance
id sample_balance
type xbrli:booleanItemType
substitutionGroup xbrli:item
periodType instant
balance
abstract false
nillable true
XLink Role: 1
Linkbase Information
System ID: sample-user.xml
Locator
Arc
XLink Decl.
User-Defined Resource
Tree View
Resource
formula:formula
value = "$var:assets eq ($var:liabilities + $var:equity)"
source = "var:assets"
aspectModel = "dimensional"
implicitFiltering = "true"
formula:aspects
Add
Edit
Remove

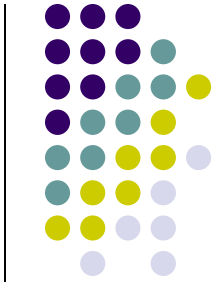
Screen (2/2)


Taxonomy Editor – C:¥tmp¥sample.xsd
File Edit View Window Tool Help
Element Declaration List
DTS Information
Element Declaration List
Filter All
Find
sample:balance
formula:formula
formula:attribute
formula:aspects
formula:abstract.aspect
formula:concept
formula:entityIdentifier
formula:period
formula:unit
formula:abstract.occ.aspect
formula:occFragments
formula:occXpath
Item: 1, Tuple: 0, Other: 81
Element Declaration
Other Attributes
Documentation
Basic Attributes
Attribute Name
Attribute Value
name
balance
id
sample_balance
type
xbrli:booleanItemType
substitutionGroup
xbrli:item
periodType
instant
balance
abstract
false
nillable
true
User-Defined Link
Presentation Link
Definition Link
Calculation Link
Label Link
Reference Link
Content Model
Role Type List
Arcrole Type List
Element Declaration Table
User-Defined Link
XLink Role All
Arcrole All
Column Setting
Element
order
xlink name (all)
arc name
arcrole
User Link
http://www.xbrl.org/2003/role/link
formula:formula
variable:factVariable 1 generic:link variable:variableArc variable-set (*)
cf:conceptName 1 generic:link variable:variableFilterArc variable-filter (*)
variable:factVariable 2 generic:link variable:variableArc variable-set (*)
cf:conceptName 1 generic:link variable:variableFilterArc variable-filter (*)
variable:factVariable 3 generic:link variable:variableArc variable-set (*)
cf:conceptName 1 generic:link variable:variableFilterArc variable-filter (*)
XLink Role: 1
Linkbase Information
System ID: sample-user.xml
Locator
Arc
XLink Decl.
User-Defined Resource
Other Attributes
Attribute Name
Attribute Value
name
var:liabilities
var:liabilities
Add
Edit
Delete
Basic Attributes
Other Attributes
The pane to edit attributes of arc elements.



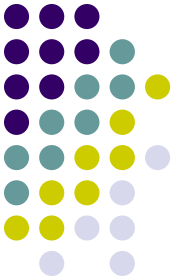
Tutorial

Tutorial



- This section explains how to create and edit formula linkbases using Formula Support Plugin.
- In this tutorial, we create the formula linkbase explained in the following pages.

Goal (1/3)



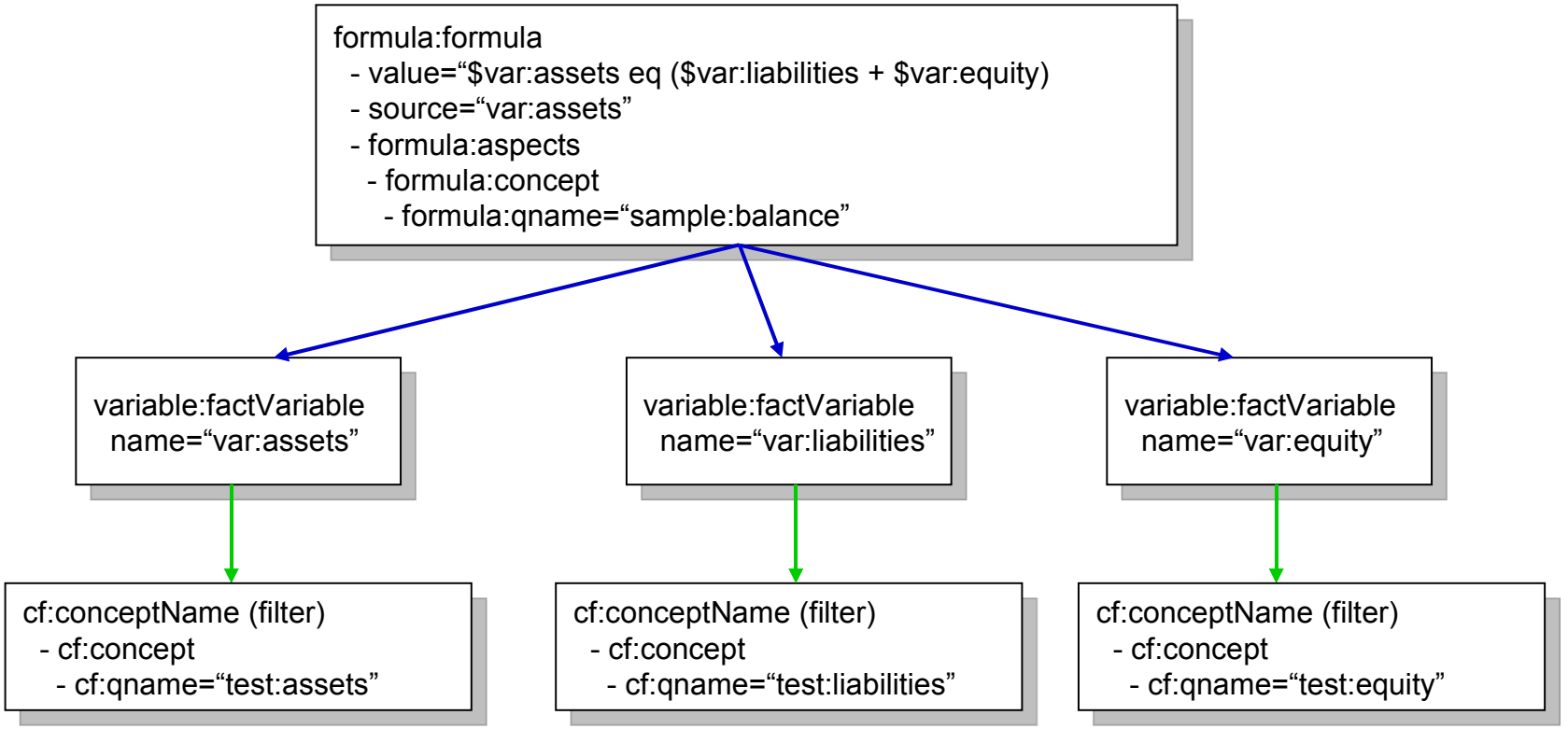
- Create a formula that evaluates

> “assets = liability + equity”.

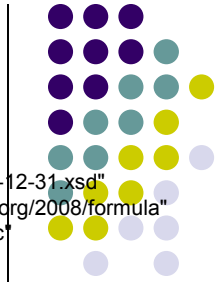
  - INPUT: values of “assets”, “liabilities”, and “equity”.
  - OUTPUT: true If the values satisfy the above equation, otherwise false. The resulting boolean value is stored to an item “balance”.

Goal (2/3)

- Formula Structure

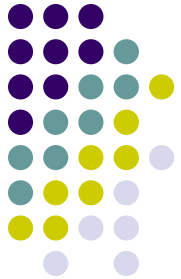


Goal (3/3)

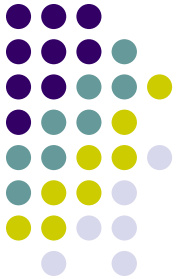


```
<?xml version="1.0" encoding="UTF-8"?>
<link:linkbase xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.xbrl.org/2003/linkbase http://www.xbrl.org/2003/xbrl-linkbase-2003-12-31.xsd"
xmlns:sample="http://www.fujitsu.com/xbrl/sample" xmlns:link="http://www.xbrl.org/2003/linkbase" xmlns:var="http://www.fujitsu.com/xbrl/variable" xmlns:formula="http://xbrl.org/2008/formula"
xmlns:cf="http://xbrl.org/2008/filter/concept" xmlns:variable="http://xbrl.org/2008/variable" xmlns:test="http://www.fujitsu.com/xbrl/test" xmlns:gen="http://xbrl.org/2008/generic"
xmlns:xbrli="http://www.xbrl.org/2003/instance" xmlns:xlink="http://www.w3.org/1999/xlink">
  <link:arcroleRef arcroleURI="http://xbrl.org/arcrole/2008/variable-filter" xlink:type="simple" xlink:href="http://www.xbrl.org/2008/variable.xsd#variable-filter"/>
  <link:arcroleRef arcroleURI="http://xbrl.org/arcrole/2008/variable-set" xlink:type="simple" xlink:href="http://www.xbrl.org/2008/variable.xsd#variable-set"/>
  <gen:link xlink:type="extended" xlink:role="http://www.xbrl.org/2003/role/link">
    <formula:formula xlink:type="resource" xlink:label="formula" xlink:title="formula" value="$var:assets eq ($var:liabilities + $var:equity)" source="var:assets" aspectModel="dimensional"
implicitFiltering="true">
      <formula:aspects>
        <formula:concept>
          <formula:qname>sample:balance</formula:qname>
        </formula:concept>
      </formula:aspects>
    </formula:formula>
    <variable:factVariable xlink:type="resource" xlink:label="factVariable" xlink:title="factVariable" bindEmpty="false" bindAsSequence="false"/>
    <variable:variableArc xlink:type="arc" xlink:arcrole="http://xbrl.org/arcrole/2008/variable-set" xlink:from="formula" xlink:to="factVariable" xlink:title="user-defined: formula to factVariable"
order="1.0" name="var:assets"/>
    <cf:conceptName xlink:type="resource" xlink:label="conceptName" xlink:title="conceptName">
      <cf:concept>
        <cf:qname>test:assets</cf:qname>
      </cf:concept>
    </cf:conceptName>
    <variable:variableFilterArc xlink:type="arc" xlink:arcrole="http://xbrl.org/arcrole/2008/variable-filter" xlink:from="factVariable" xlink:to="conceptName" xlink:title="user-defined: factVariable to
conceptName" order="1.0" complement="false" cover="true"/>
    <variable:factVariable xlink:type="resource" xlink:label="factVariable_2" xlink:title="factVariable" bindEmpty="false" bindAsSequence="false"/>
    <variable:variableArc xlink:type="arc" xlink:arcrole="http://xbrl.org/arcrole/2008/variable-set" xlink:from="formula" xlink:to="factVariable_2" xlink:title="user-defined: formula to factVariable"
order="2.0" name="var:liabilities"/>
    <cf:conceptName xlink:type="resource" xlink:label="conceptName_2" xlink:title="conceptName">
      <cf:concept>
        <cf:qname>test:liabilities</cf:qname>
      </cf:concept>
    </cf:conceptName>
    <variable:variableFilterArc xlink:type="arc" xlink:arcrole="http://xbrl.org/arcrole/2008/variable-filter" xlink:from="factVariable_2" xlink:to="conceptName_2" xlink:title="user-defined: factVariable to
conceptName" order="1.0" complement="false" cover="true"/>
    <variable:factVariable xlink:type="resource" xlink:label="factVariable_3" xlink:title="factVariable" bindEmpty="false" bindAsSequence="false"/>
    <variable:variableArc xlink:type="arc" xlink:arcrole="http://xbrl.org/arcrole/2008/variable-set" xlink:from="formula" xlink:to="factVariable_3" xlink:title="user-defined: formula to factVariable"
order="3.0" name="var:equity"/>
    <cf:conceptName xlink:type="resource" xlink:label="conceptName_3" xlink:title="conceptName">
      <cf:concept>
        <cf:qname>test:equity</cf:qname>
      </cf:concept>
    </cf:conceptName>
    <variable:variableFilterArc xlink:type="arc" xlink:arcrole="http://xbrl.org/arcrole/2008/variable-filter" xlink:from="factVariable_3" xlink:to="conceptName_3" xlink:title="user-defined: factVariable to
conceptName" order="1.0" complement="false" cover="true"/>
  </gen:link>
</link:linkbase>
```

Process

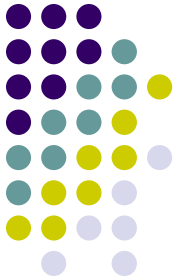


1. Preparation
2. Set Properties
3. Create Concepts (Optional)
4. Add Formula Links
5. Edit Contents Of Resource Elements
6. Edit Attributes Of Arc Elements
7. Validation



Preparation

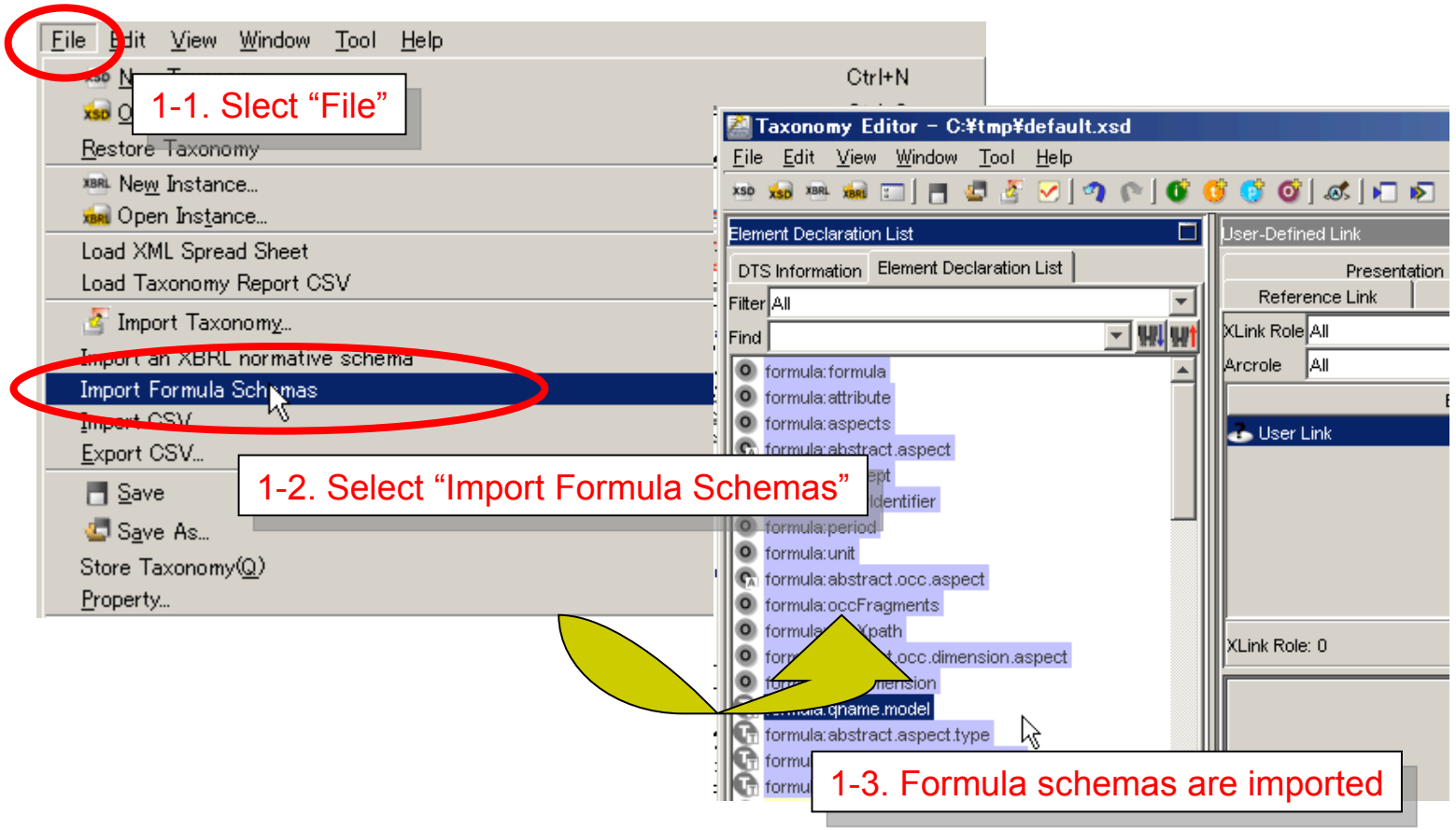
Launch Taxonomy Editor

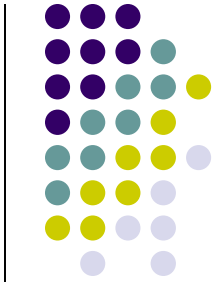


1. Double-click “run.bat”
2. Select “File>New Taxonomy”

Import Formula Schemas

1. Select “File>Import Formula Schemas”





Set Properties

Set Properties

1. Select “File>Property” and change the properties

Prefix:

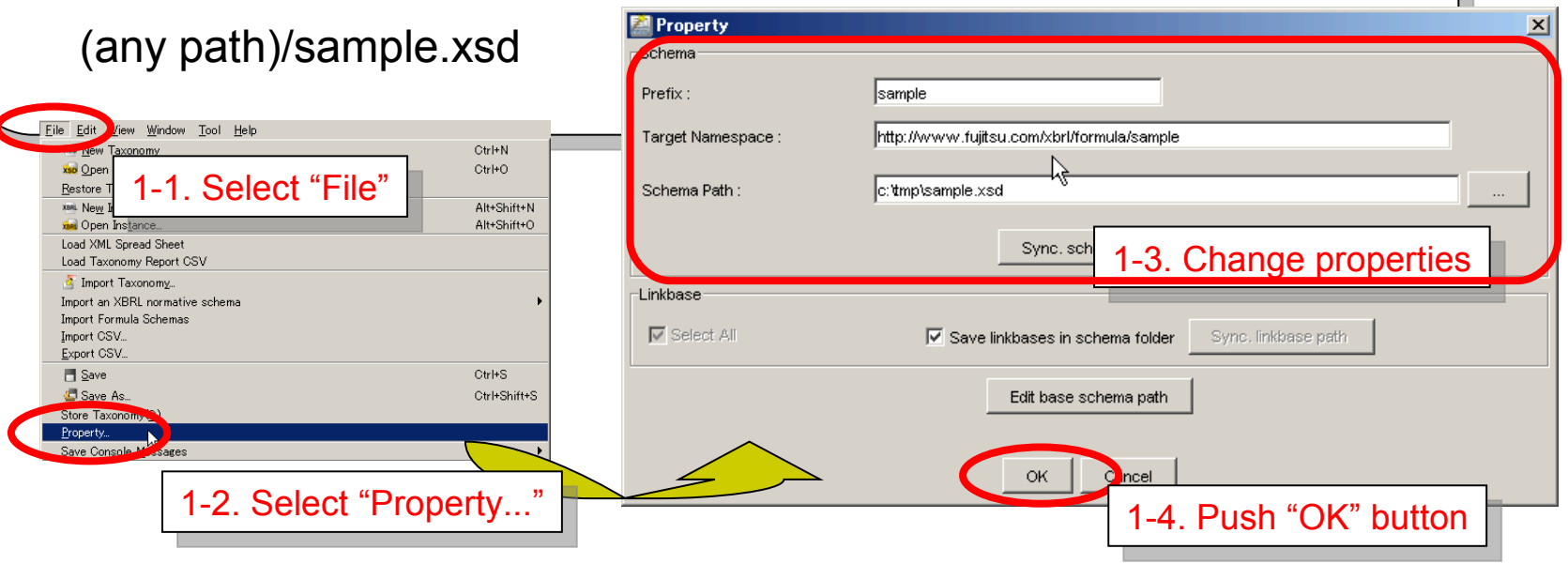
sample

Target Namespace:

http://www.fujitsu.com/xbrl/sample

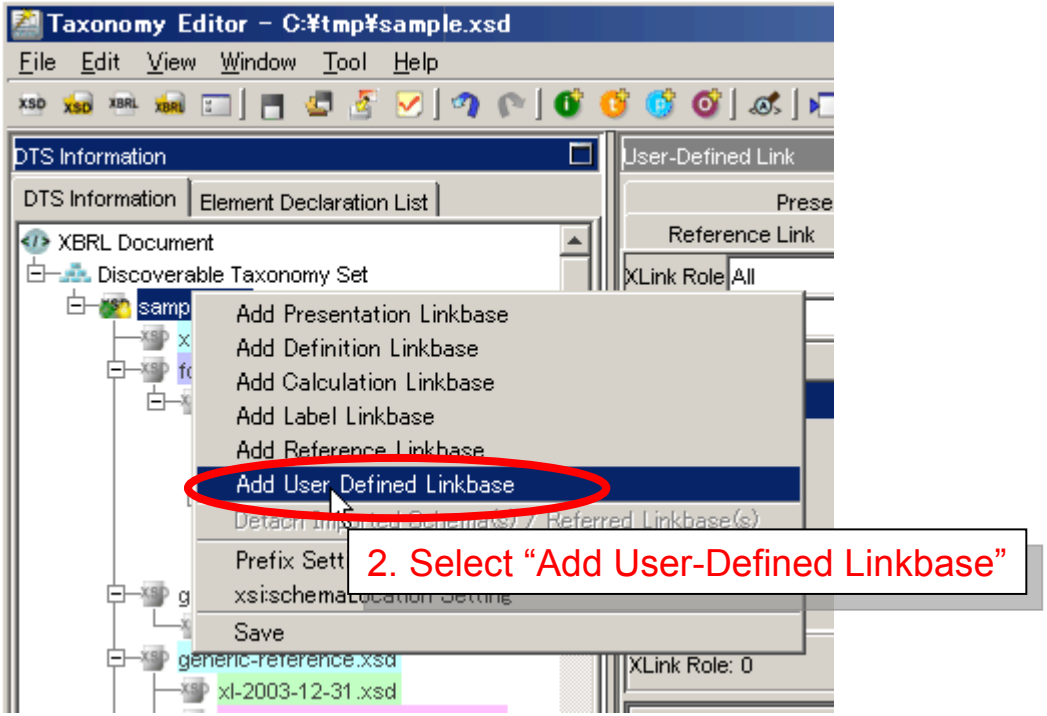
Schema Path:

(any path)/sample.xsd



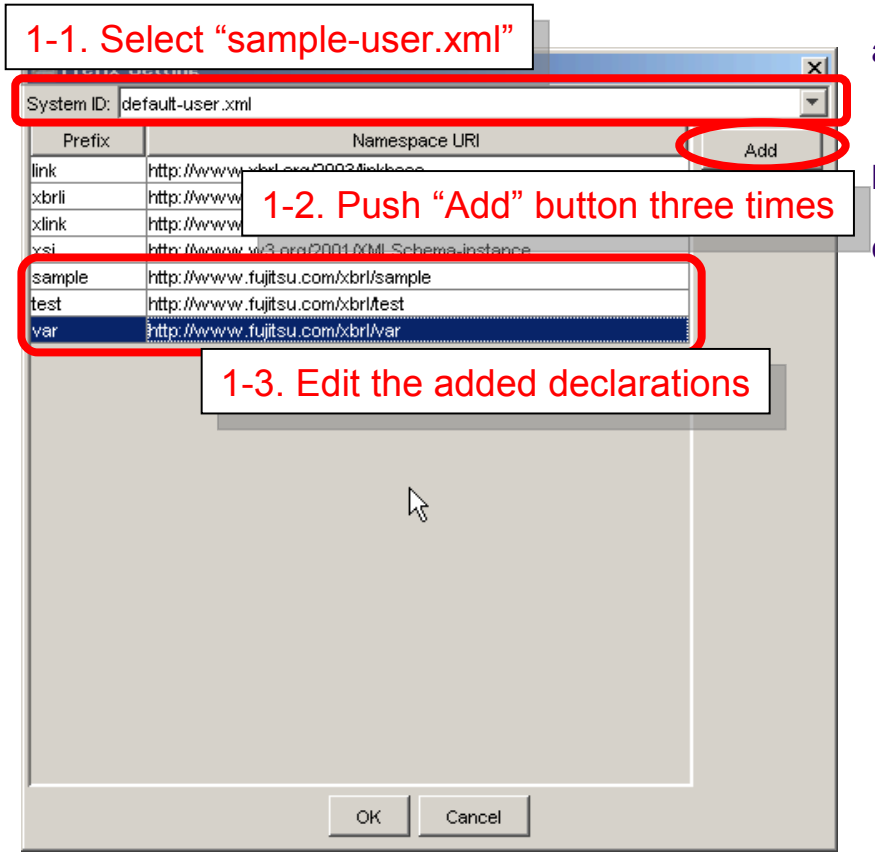
Add A User-Defined Linkbase

1. Select the “DTS Information” tab
2. Right-click on the “sample.xsd” node and select “Add User-Defined Linkbase”



Add Namespace Declarations

1. Select “Edit>Prefix Setting” and add the following namespace declarations



a. Select “sample-user.xml” as “System Id”

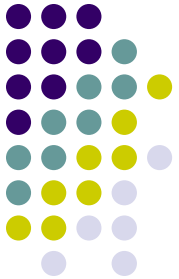
b. Push “Add” button three times

c. Edit the added declarations

prefix: p0 -> sample
URI : http://www.fujitsu.com/xbrl/sample

prefix: p1 -> test
URI : http://www.fujitsu.com/xbrl/test

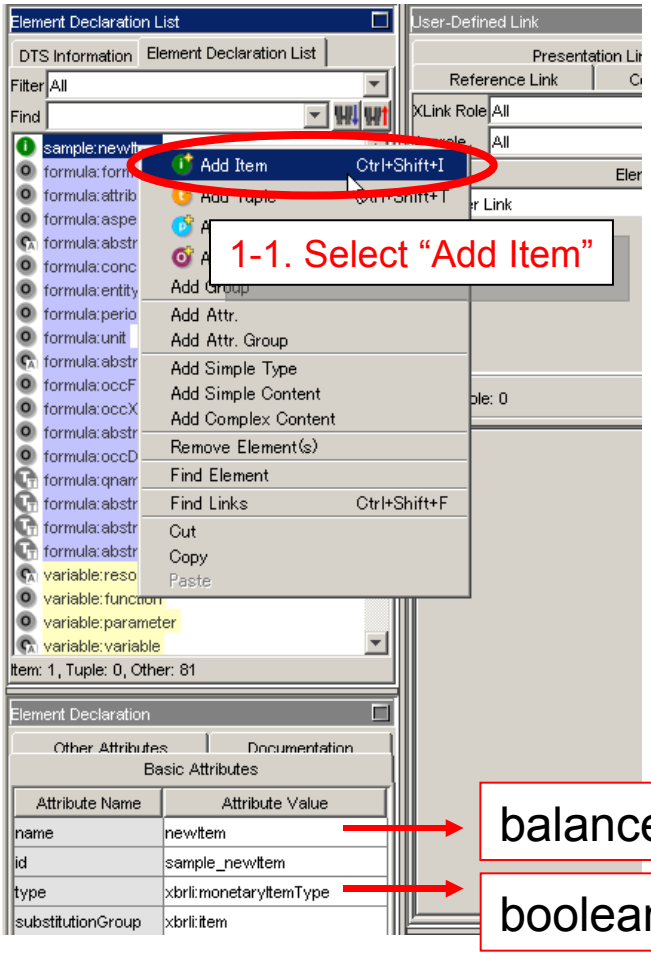
prefix: p2 -> var
URI : http://www.fujitsu.com/xbrl/variable



Create Concepts (Optional)

Create Concepts

1. Create an concept and edit its name and type



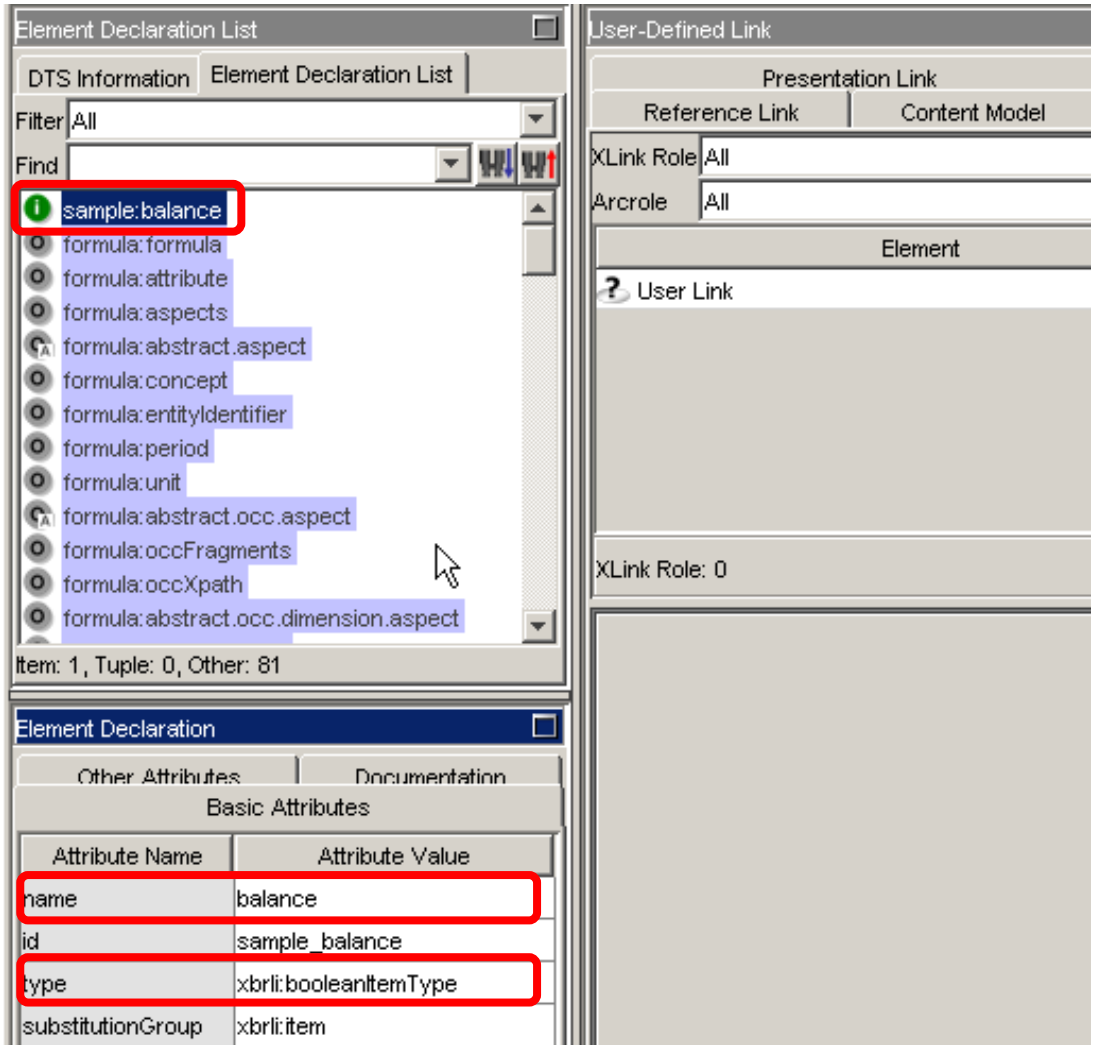
a. Right-click on the “Element Declaration List” pane

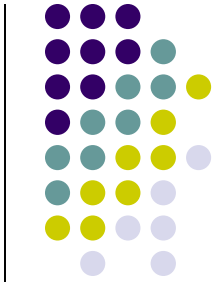
b. Select “Add Item”

c. Change the name from “newItem” to “balance”

d. Change the type from “monetaryItemType” to “booleanItemType”

Result (Create Concepts)

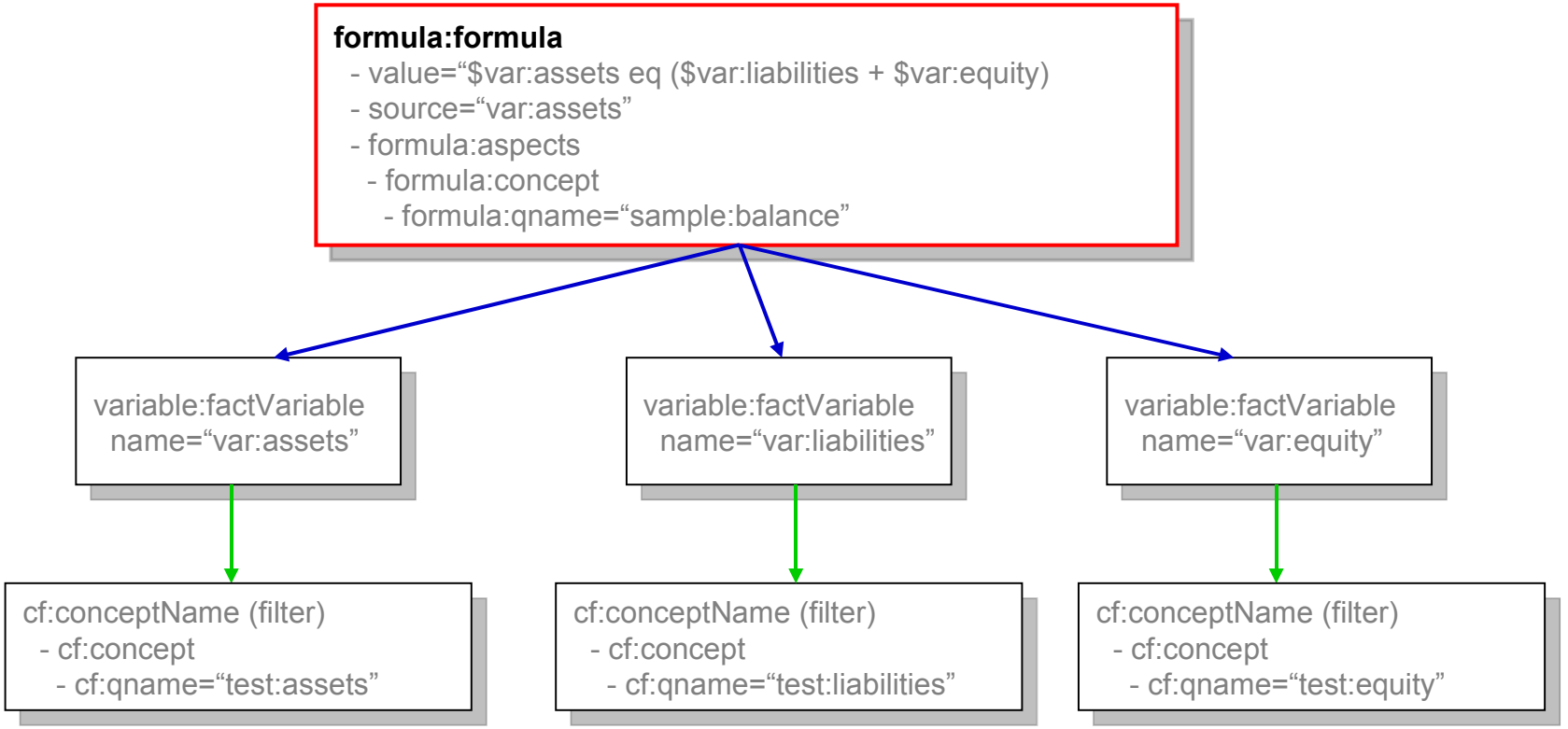




Add Formula Links

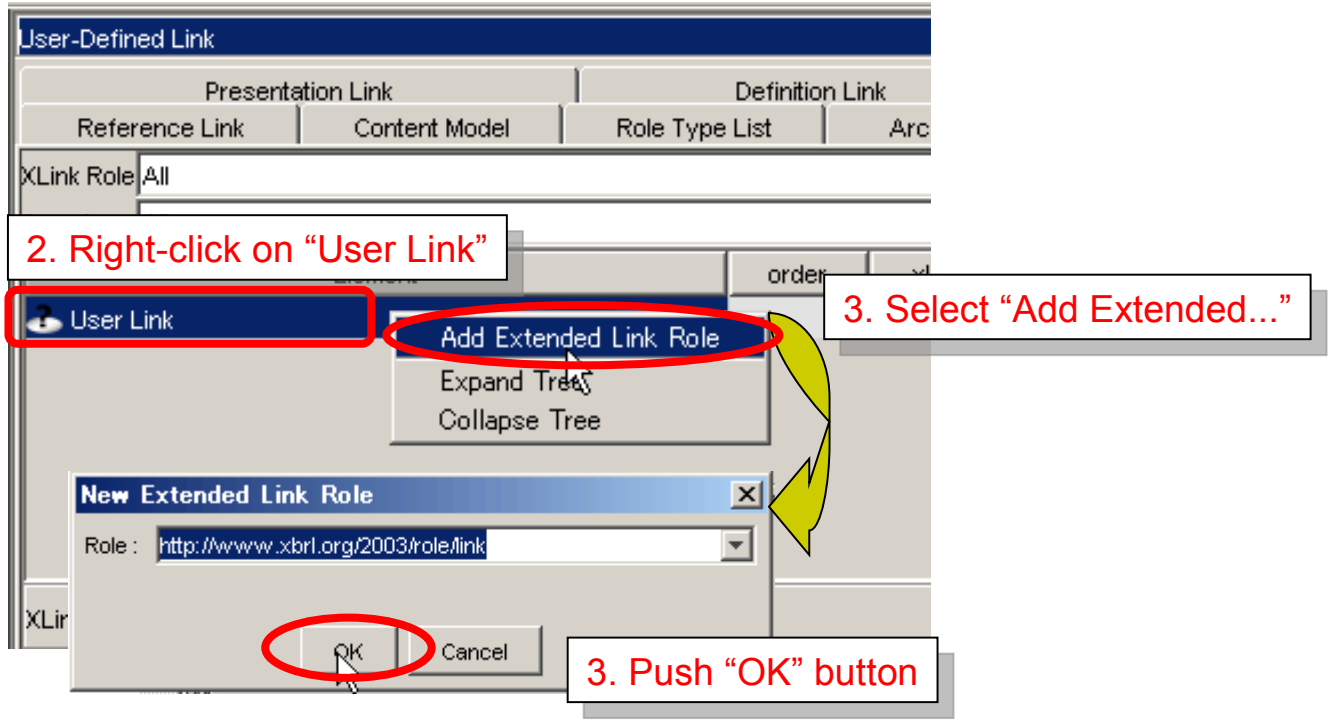
Add Formula Links

- Formula Structure



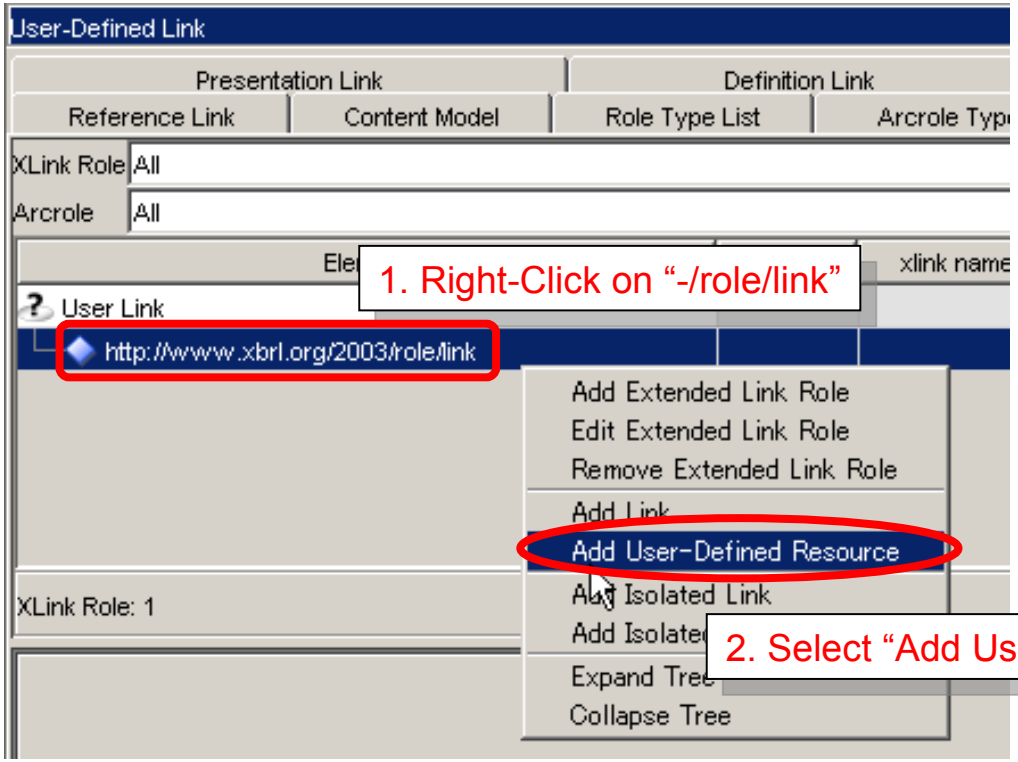
Add An Extended Link Role

1. Select “User-Defined Link” tab
2. Right-click on “User Link” on “User-Defined Link” pane
3. Select “Add Extended Link Role”
4. Push “OK” button on the dialog displayed



Add Formula Links

1. Right-click on “-/role/link” on “User-Defined Link” pane
2. Select “Add User-Defined Resource”

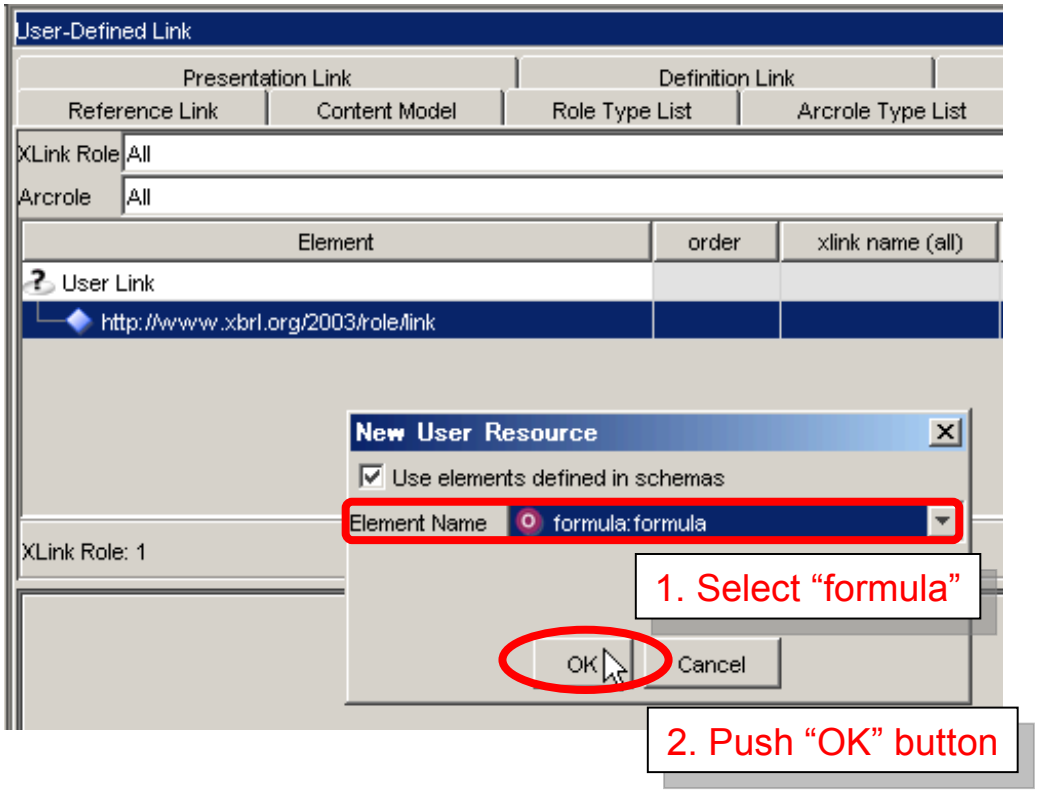


Next Page

Add Formula Links

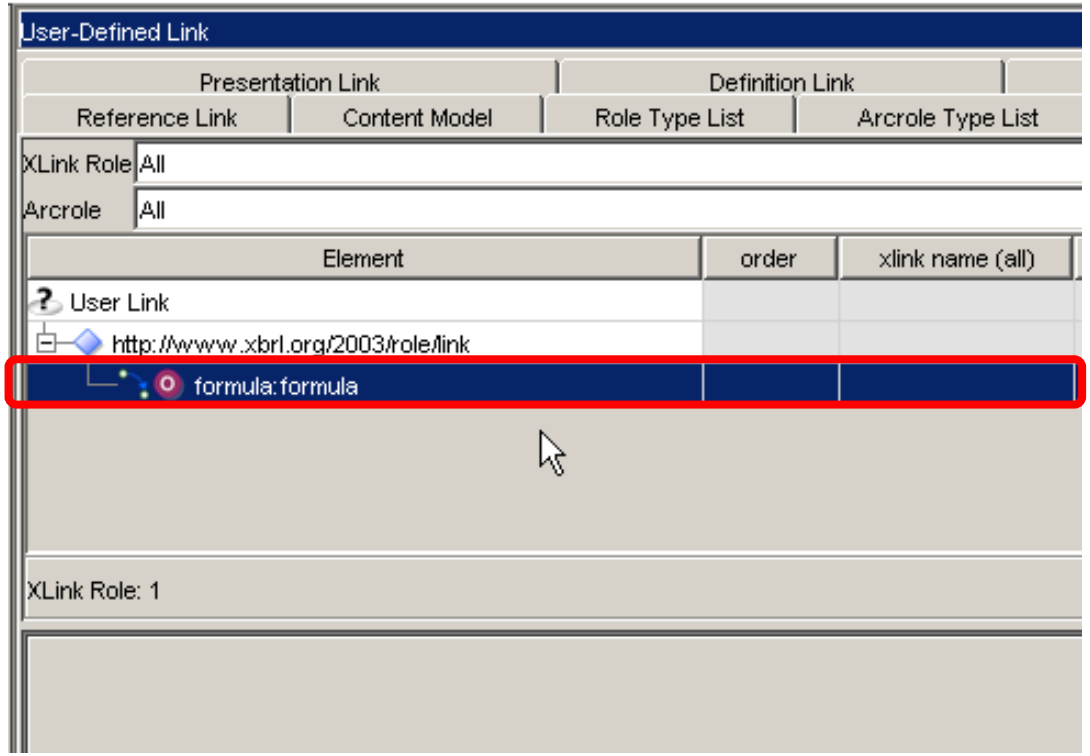
1. Select “formula” as “Element Name”
2. Push “OK” button

Prev. Page



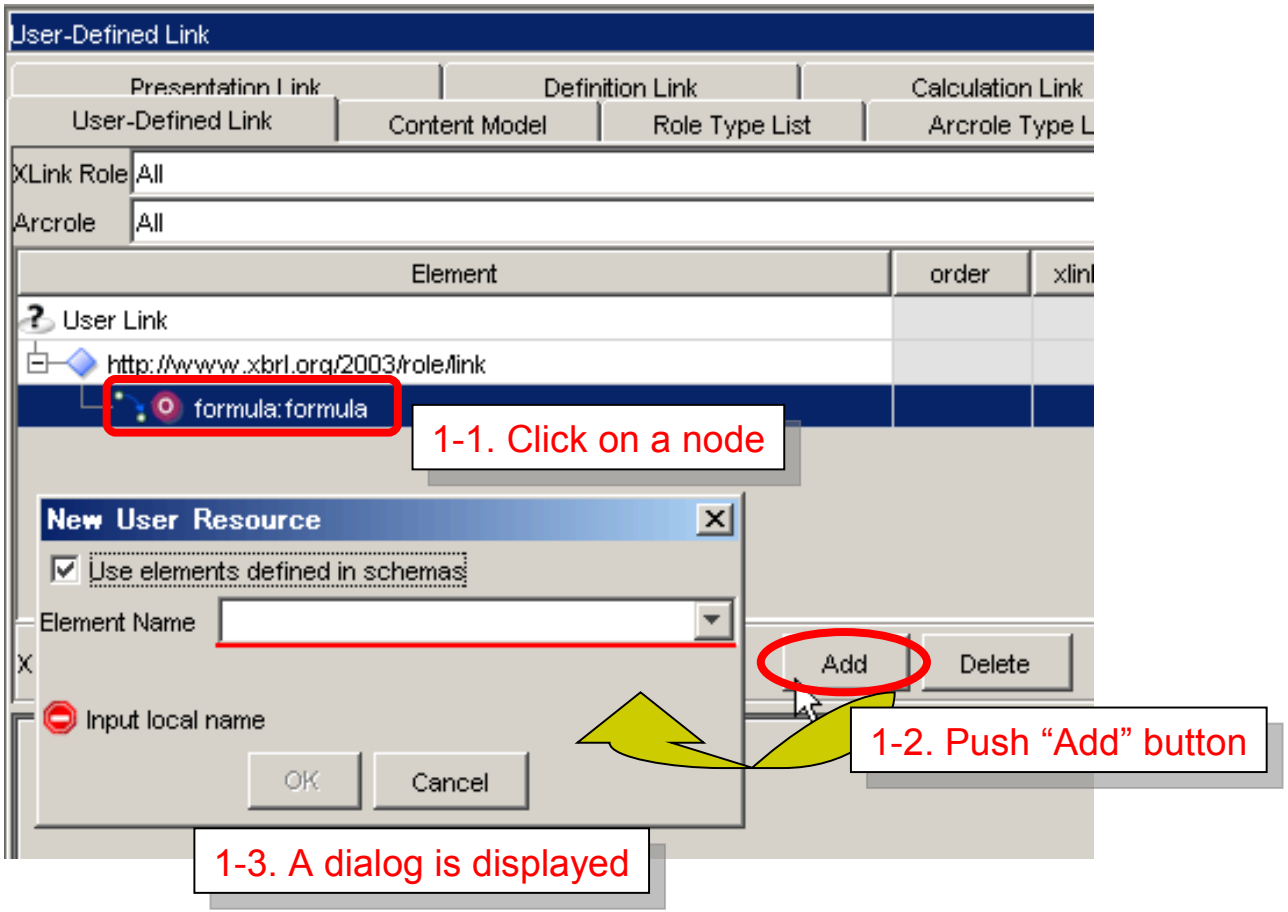
Add Formula Links

1. The link “formula” has been added



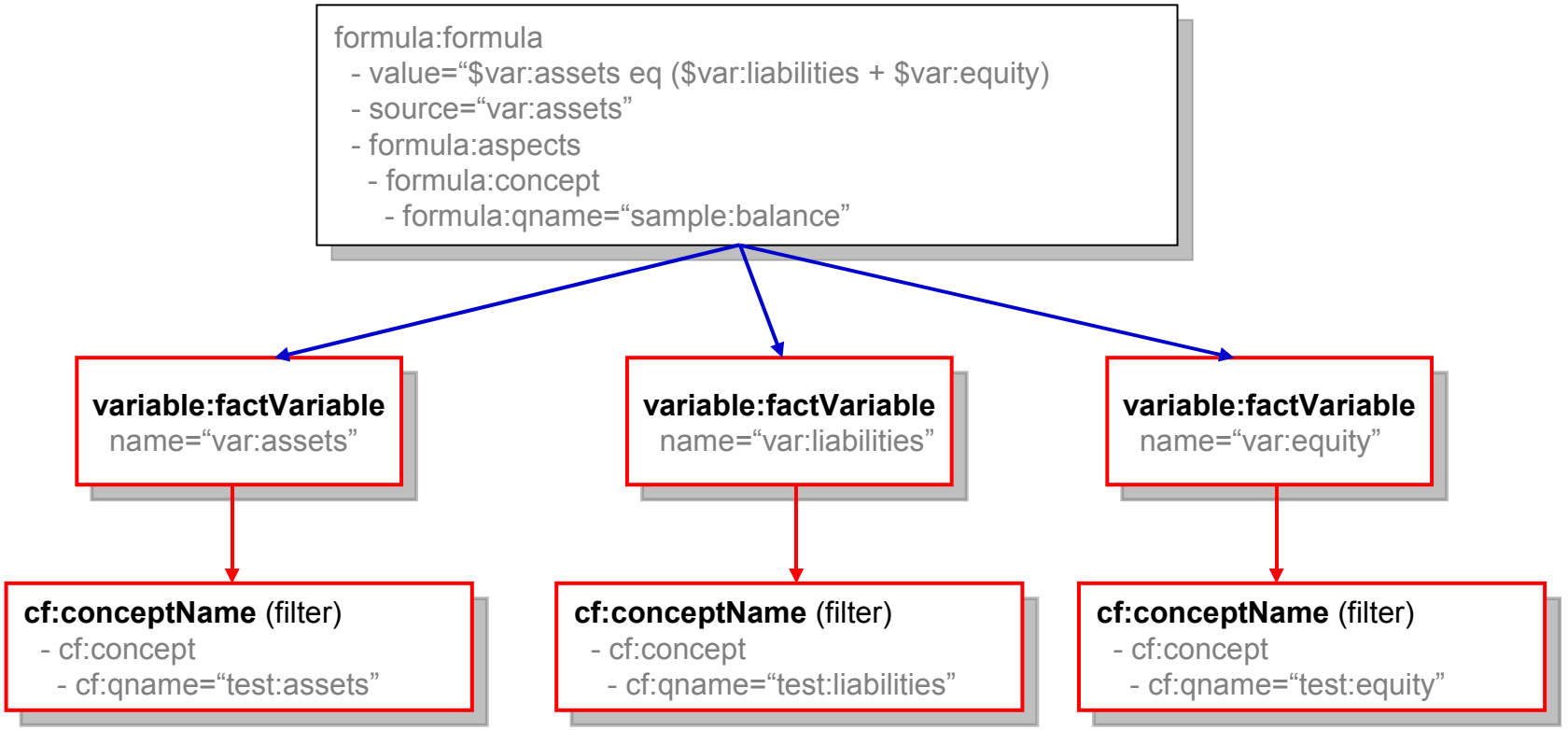
Note (Add Formula Links)

1. You can also add roles and links by using “Add” button below the pane



Add Formula Links

- Formula Structure



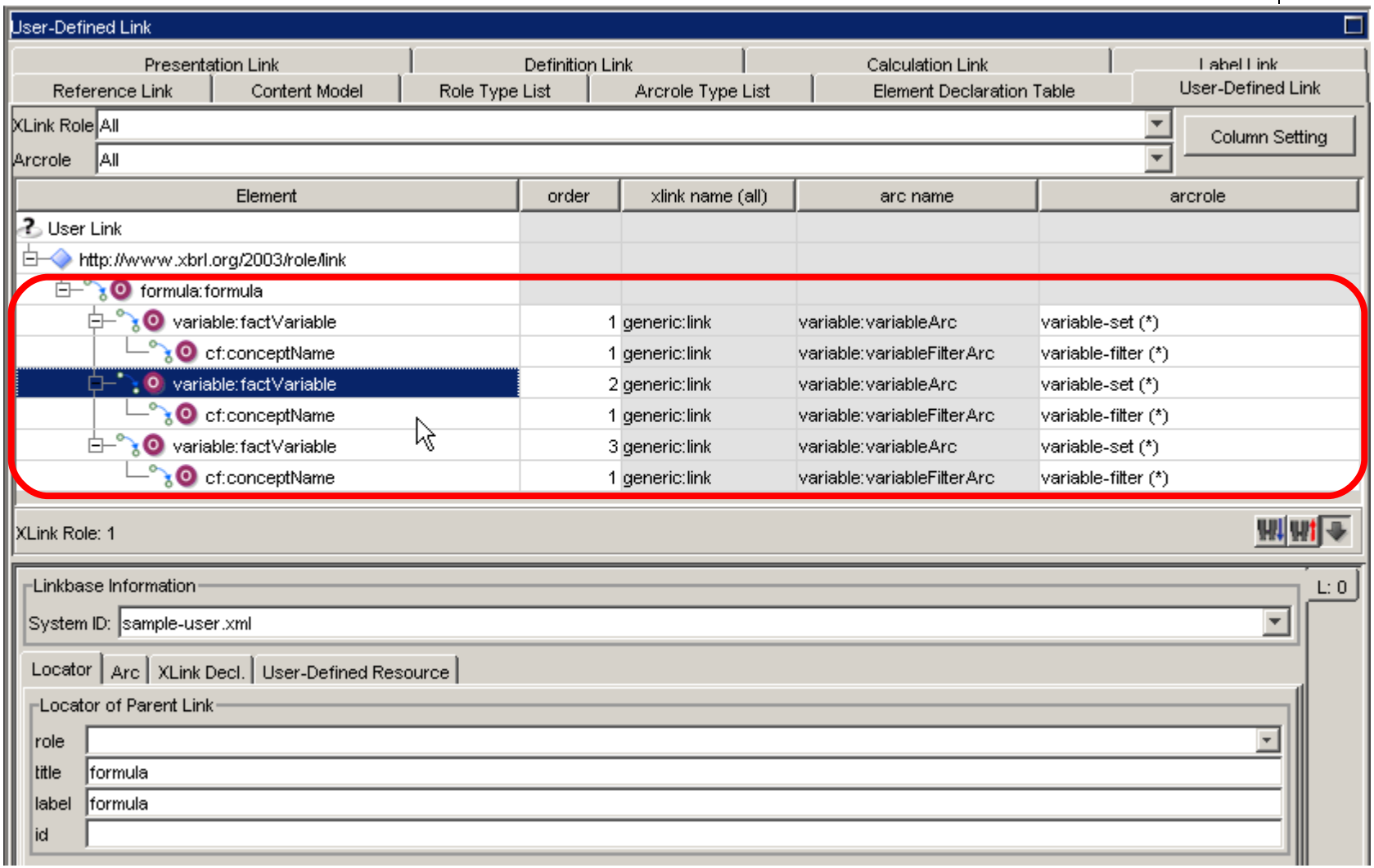
Add Formula Links

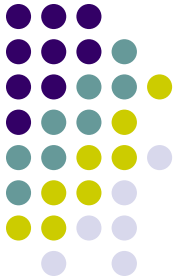
1. Also add other links as following

+ User Link
  + http://www.xbrl.org/2003/role/link
    + formula:formula
      + variable:factVariable
        - cf:conceptName
      + variable:factVariable
        - cf:conceptName
      + variable:factVariable
        - cf:conceptName

Note: Following values are automatically determined,
so you need not to change the values.
- Names of XLink declarations, arcs, resources, and locators
- arcrole values of the arcs

Result (Add Formula Links)

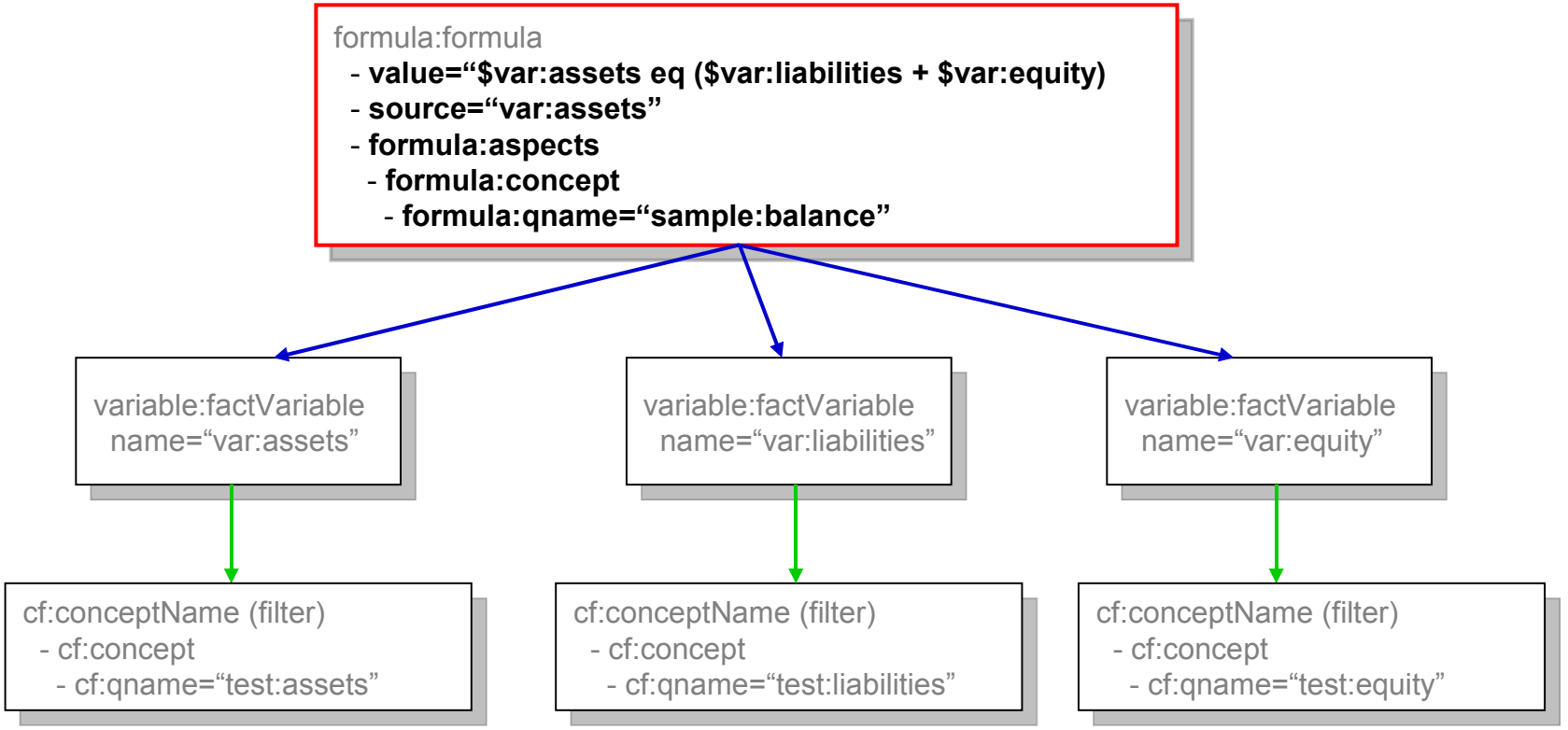




Edit Contents Of Resource Elements

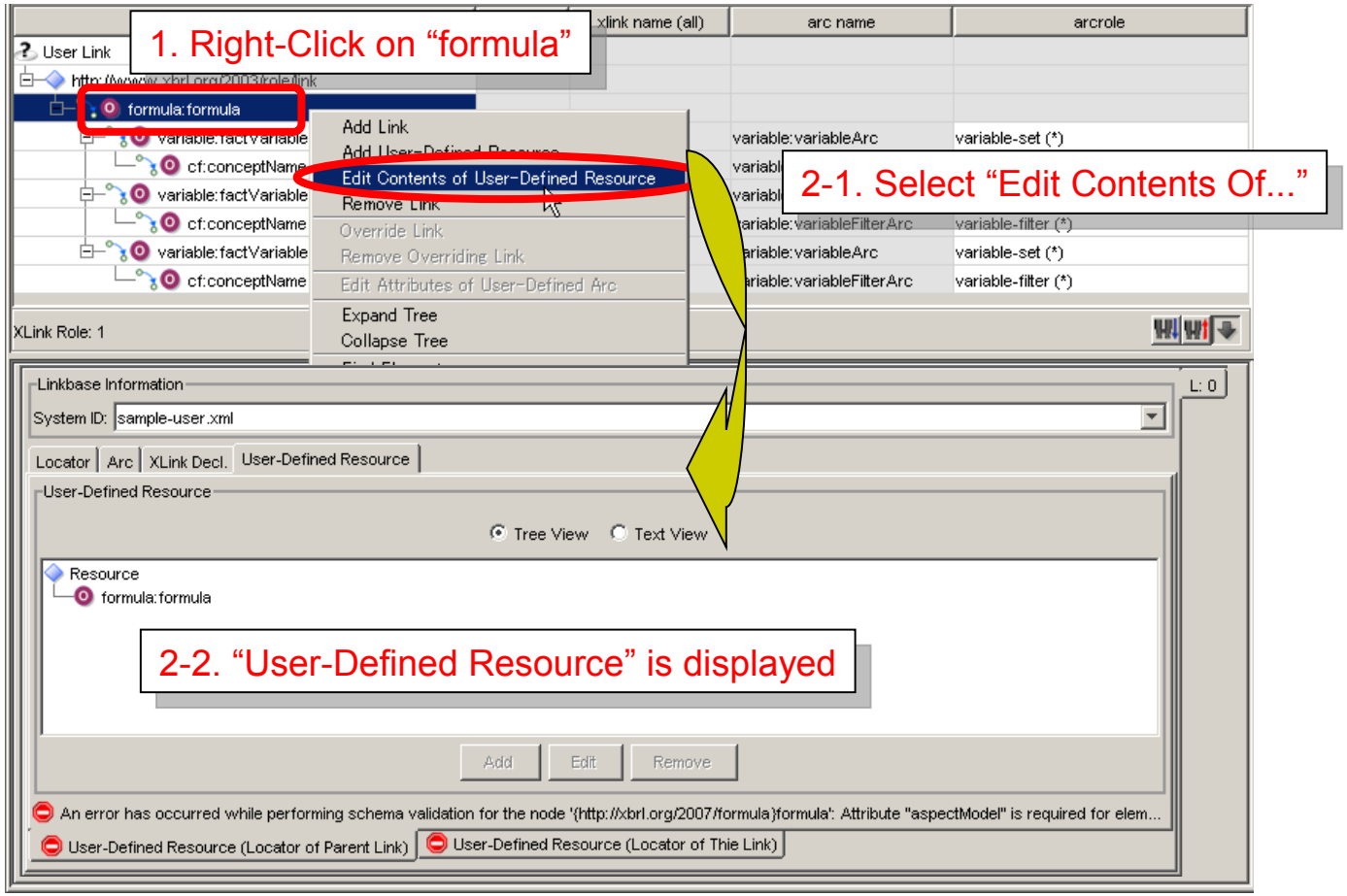
Edit Contents Of Resource Elements

- Formula Structure



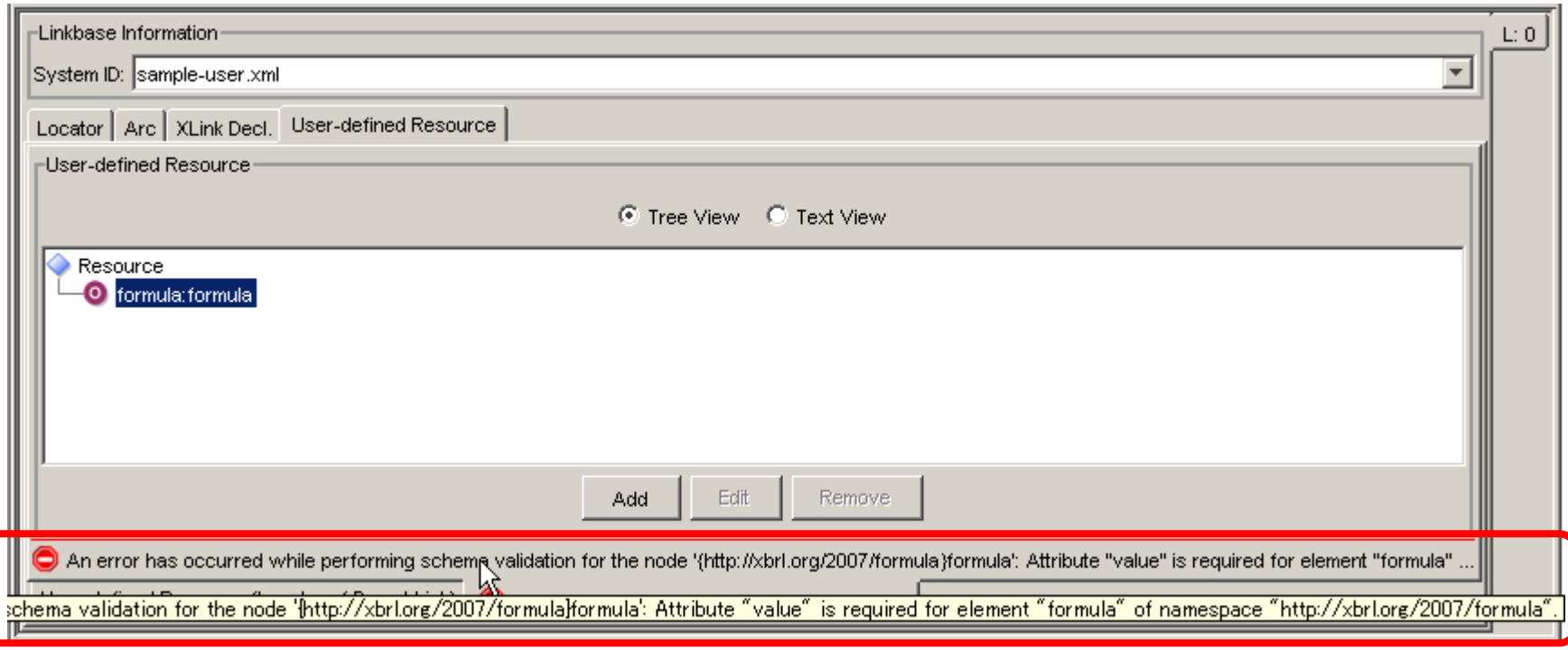
Edit Formula Elements

1. Right-click on “formula” on “User-Defined Link” pane
2. Select “Edit Contents of User-Defined Resource”



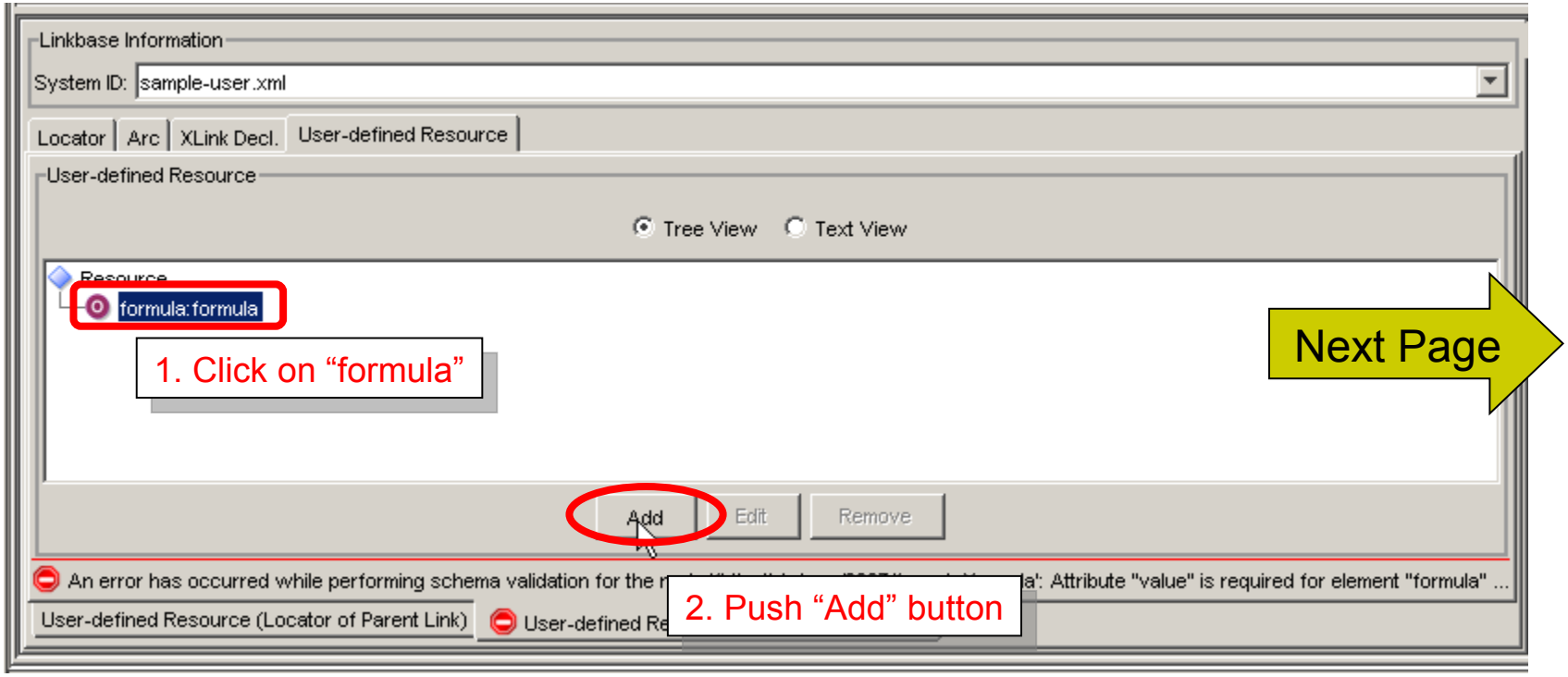
Edit Formula Elements

1. Check an error displayed at the bottom of “User-Defined Resource” tab. It says that some attributes are required for “formula”.
2. Correct the error by following later processes



Edit Formula Elements

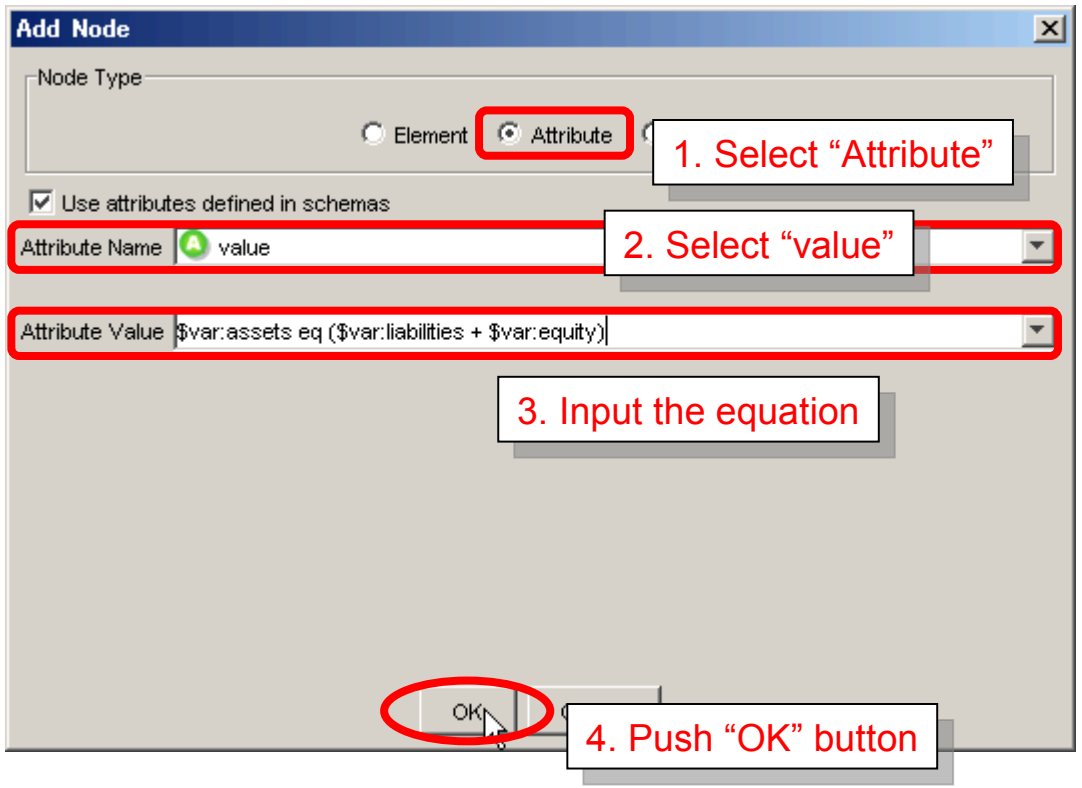
1. Click on “formula” on “User-Defined Resource”
2. Push “Add” button



Edit Formula Elements

1. Select “Attribute”
2. Select “value” as “Attribute Name”
3. Input “$var:assets eq ($var:liabilities + $var:equity)” as Attribute Value
4. Push “OK” button

Prev. Page



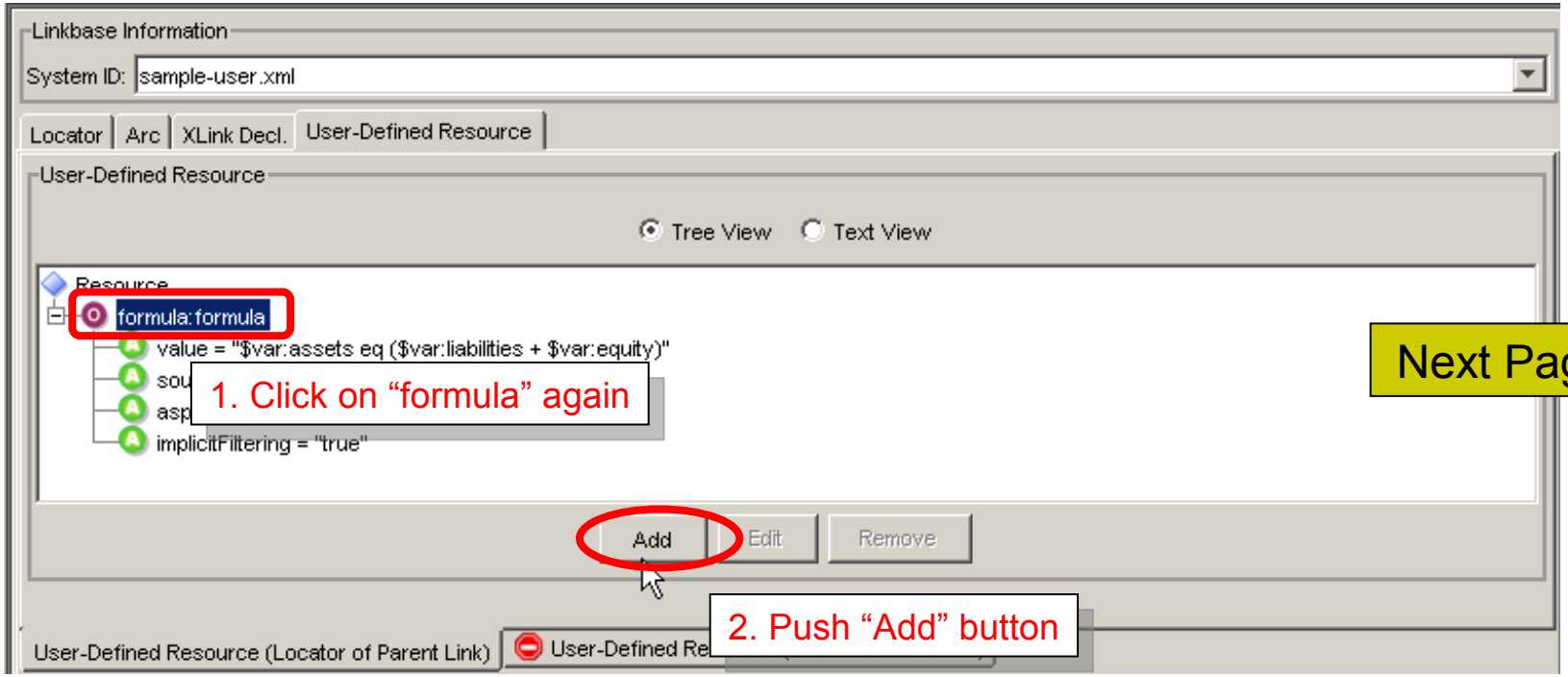
Edit Formula Elements

1. Also add other attributes as following

+ formula:formula
  - value="$var:assets eq ($var:liabilities + $var:equity)"
  - source="var:assets"
  - aspectModel="dimensional"
  - implicitFiltering="true"

Edit Formula Elements

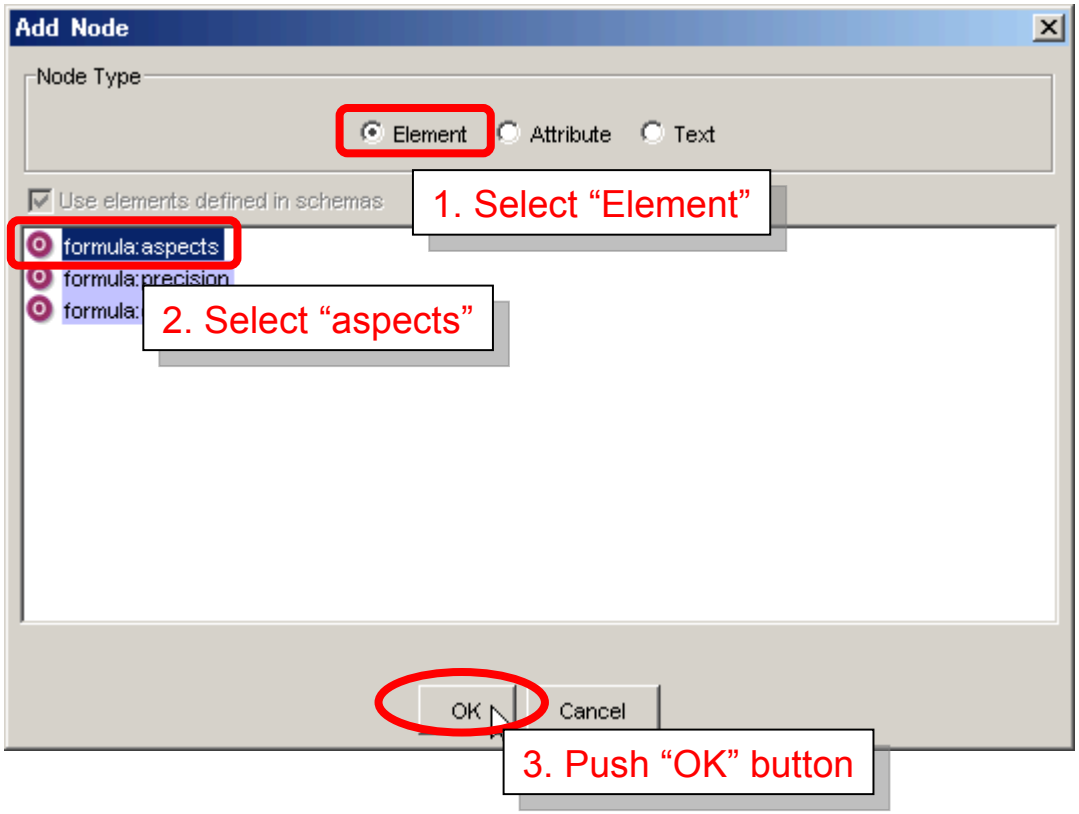
1. Click on “formula” on “User-Defined Resource” again
2. Push “Add” button



Note: The previous error disappears at this time,
because the required attribute “value” is set now.

Edit Formula Elements

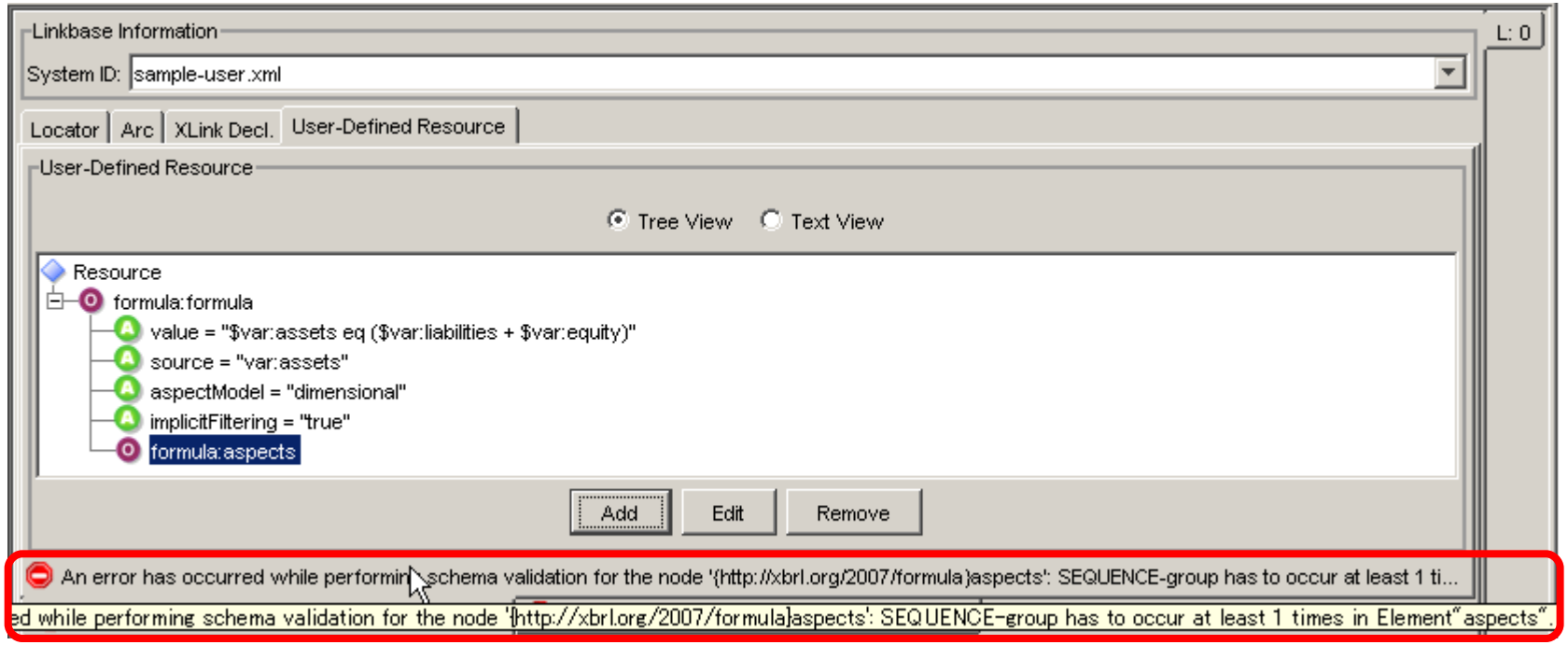
1. Select “Element”
2. Select “aspects”
3. Push “OK” button (or double-click “aspects”)



Next Page

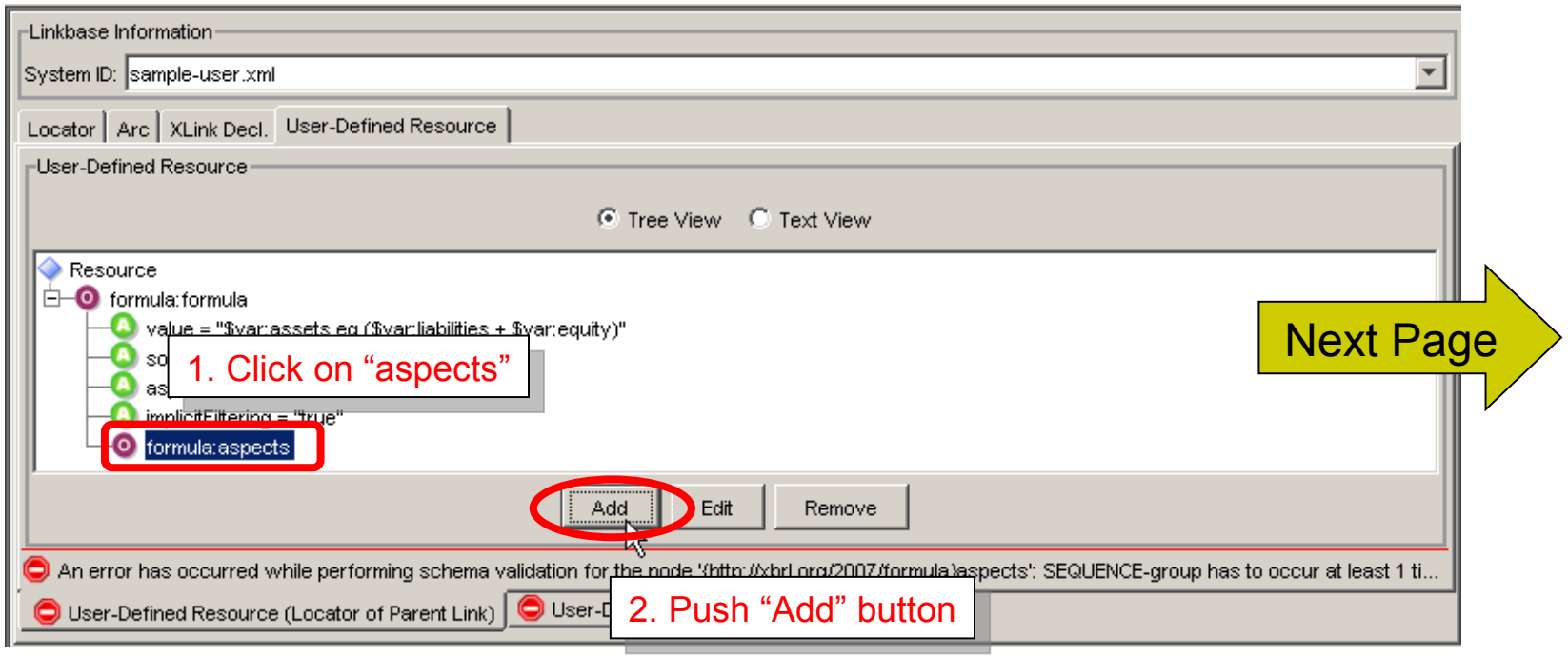
Edit Formula Elements

1. Check an error displayed at the bottom of “User-Defined Resource” tab again. It says that some child elements are required for “aspects”.
2. Correct the error by following later processes



Edit Formula Elements

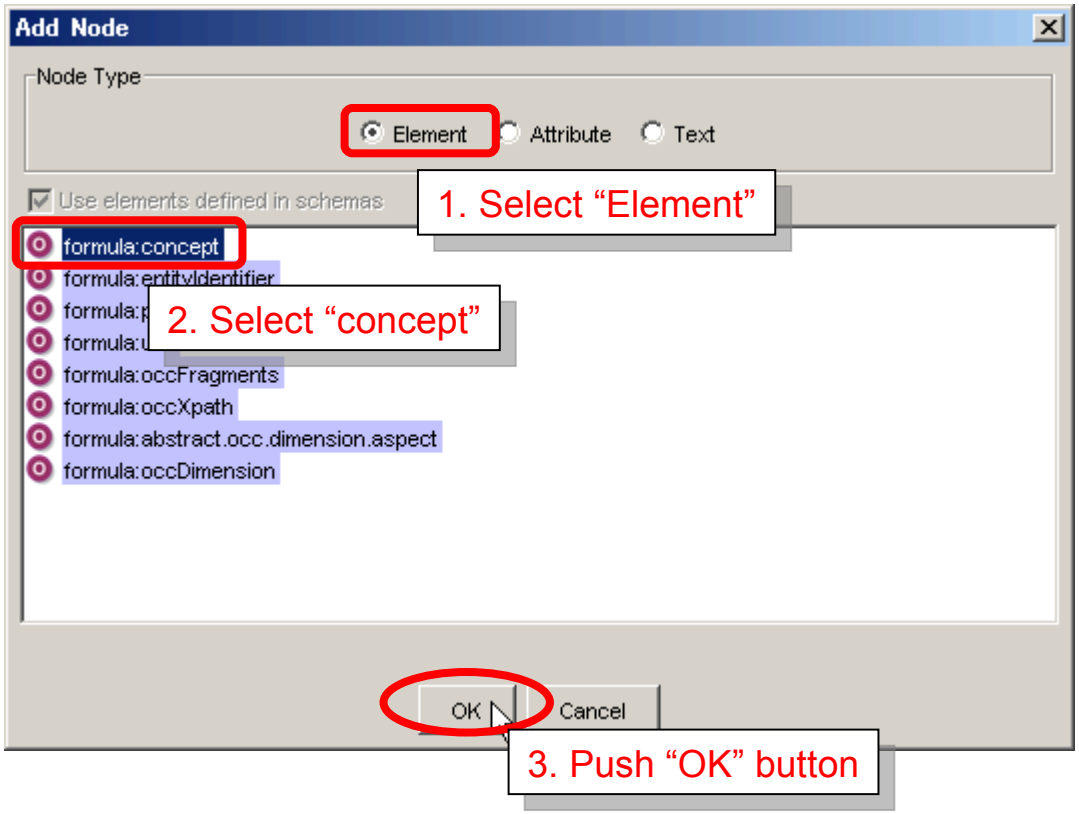
1. Click on “aspects” on “User-Defined Resource”
2. Push “Add” button



Edit Formula Elements

1. Select “Element”
2. Select “concept”
3. Push “OK” button (or double-click “concept”)

Next Page



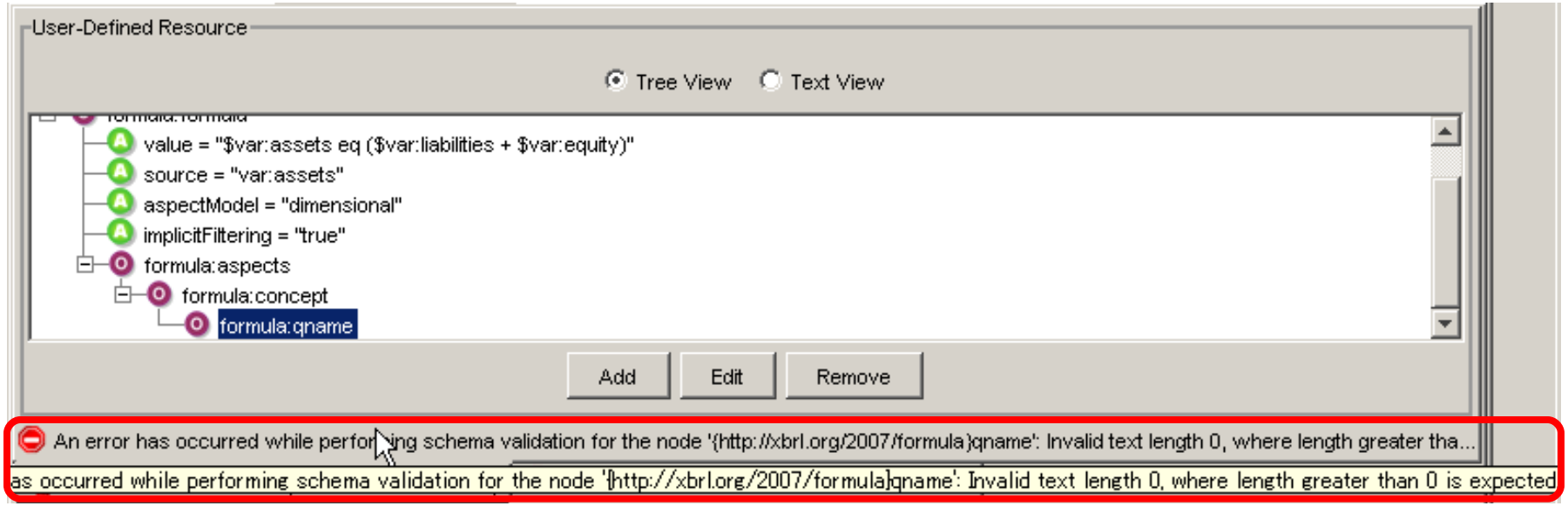
Edit Formula Elements

1. Also add a “qname” element as following

+ formula:formula
  + formula:aspects
    + formula:concept
      - formula:qname

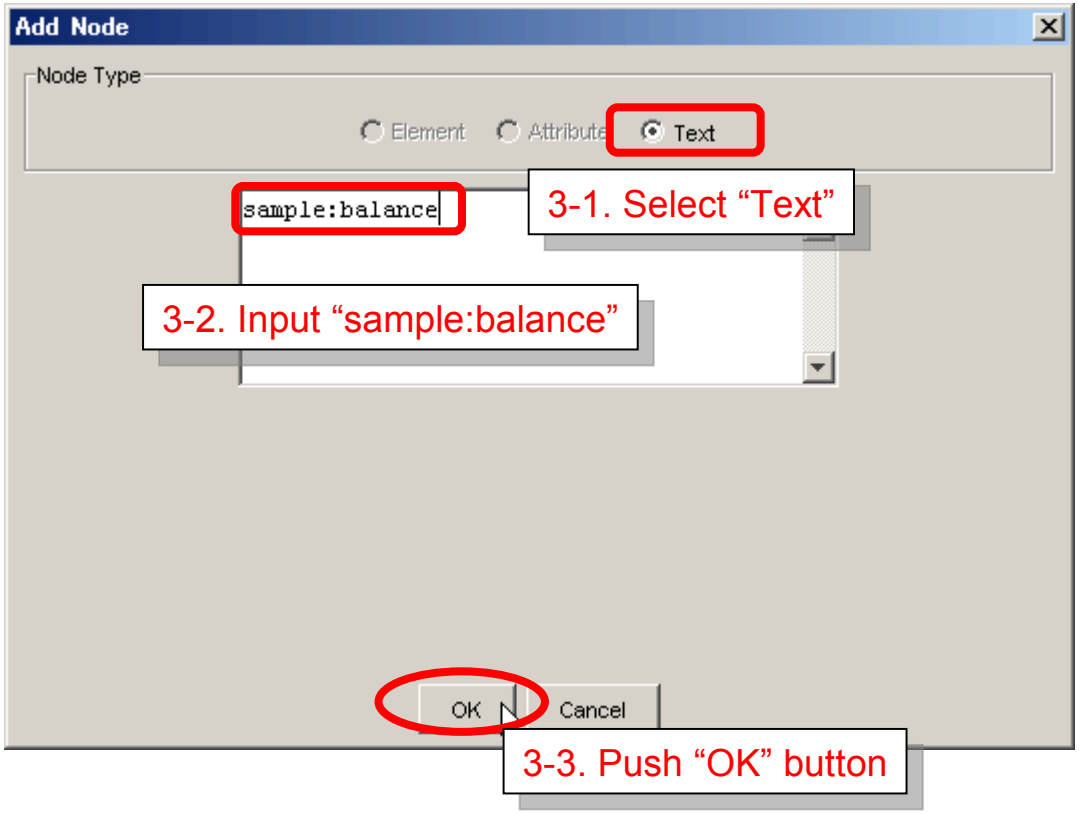
Edit Formula Elements

1. Check an error displayed at the bottom of “User-Defined Resource” tab again. It says that a child text node is required for “qname”.
2. Correct the error by following later processes



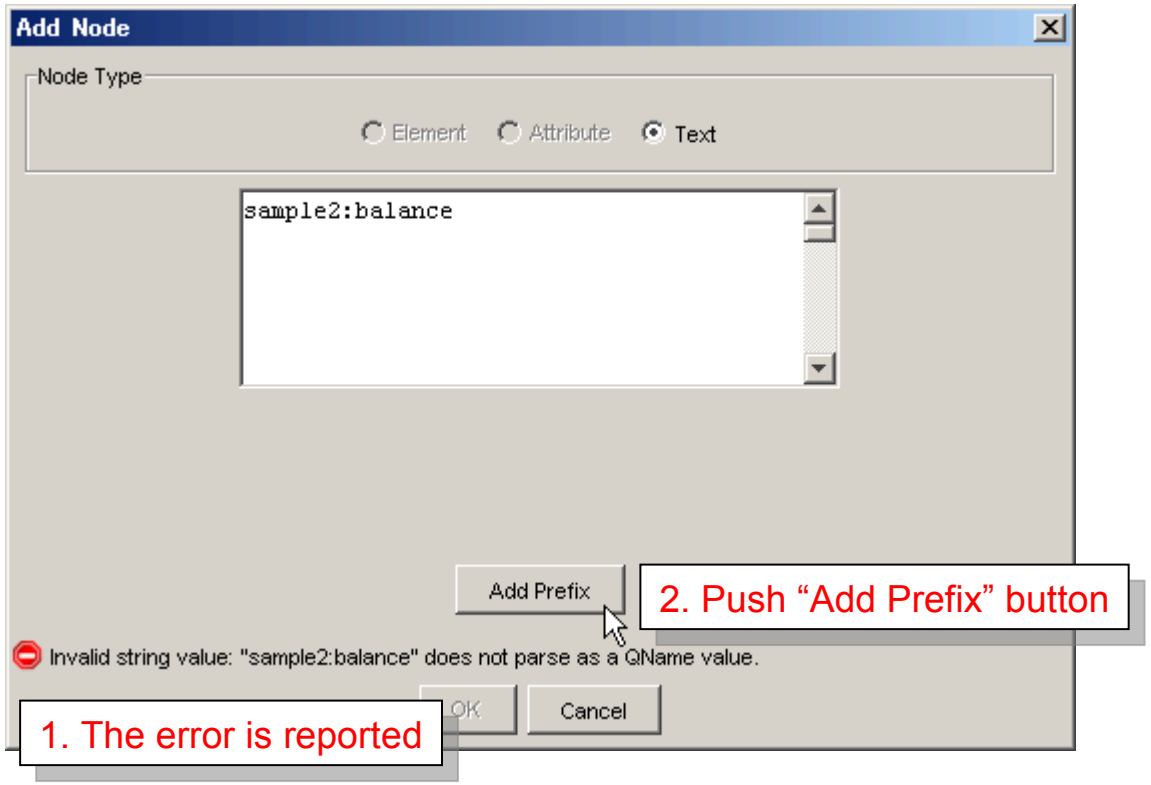
Edit Formula Elements

1. Click on “qname” on “User-Defined Resource”
2. Push “Add” button
3. Select “Text”, input “sample:balance”, and push “OK”



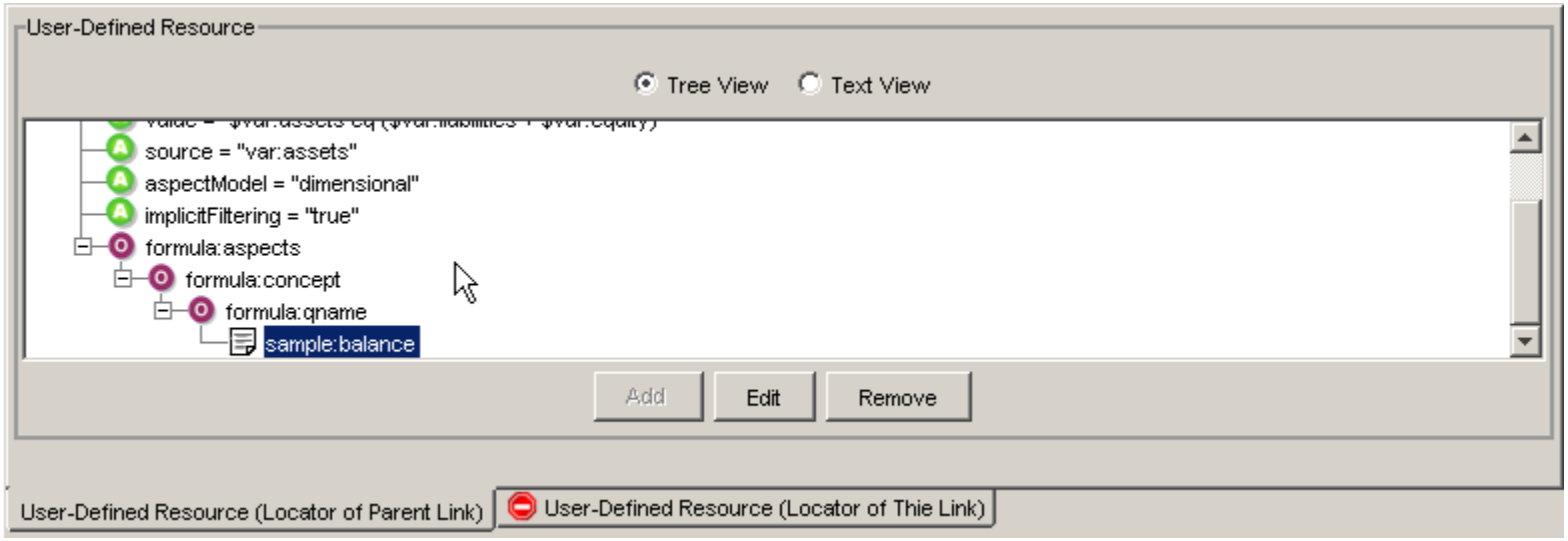
Note (Edit Contents...)

1. If a prefix used as a part of a QName value is not declared, the error “invalid string value...” is reported
2. Push “Add Prefix” button to add the declaration



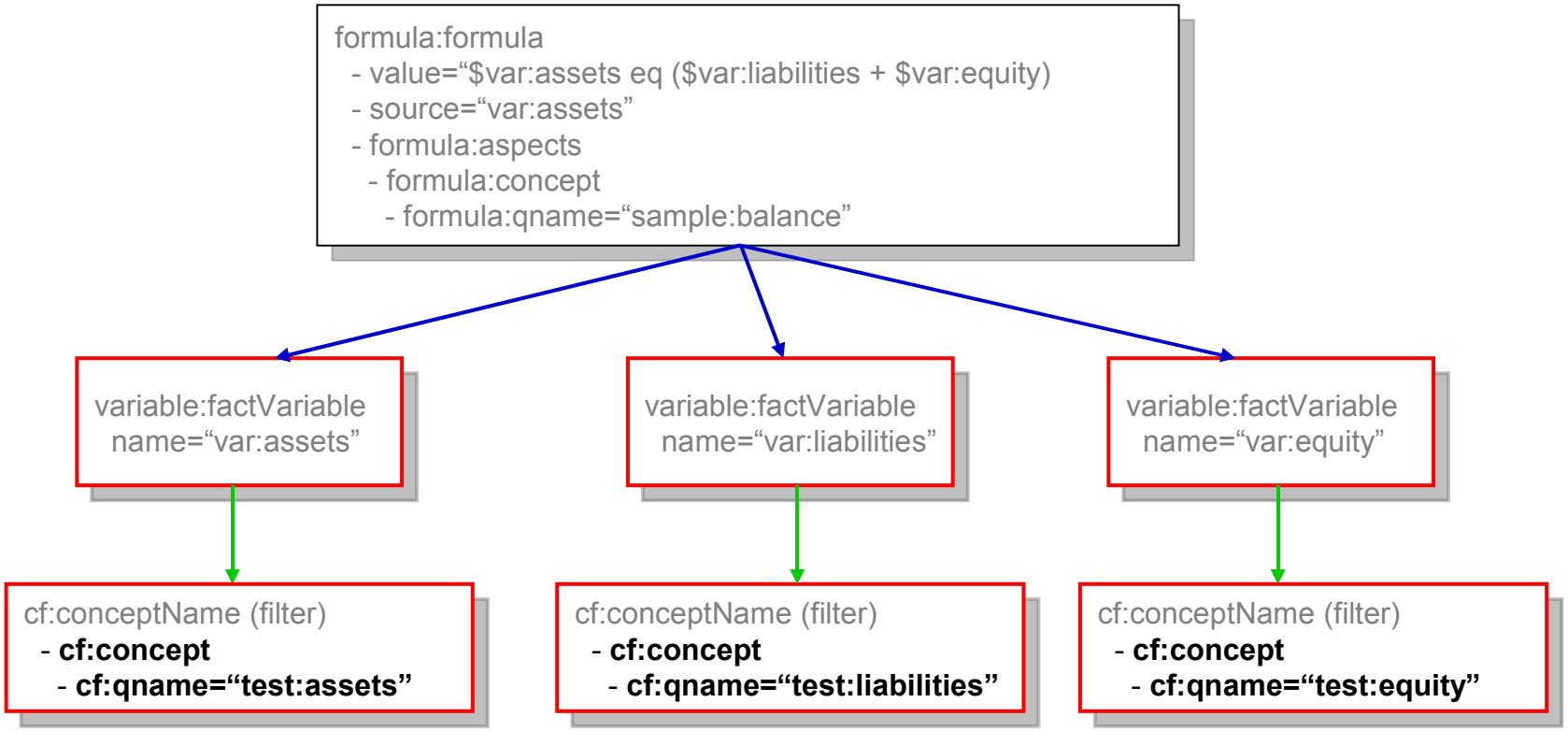
Edit Formula Elements

- All errors related to “formula” have been corrected now



Edit Contents Of Resource Elements

- Formula Structure

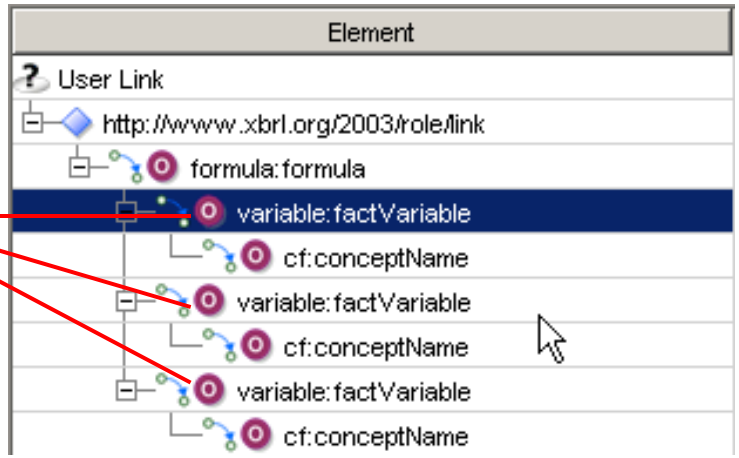


Edit FactVariable Elements

1. Also edit other resource elements as following

"factVariable"

+ cf:conceptName (element)
  - bindEmpty="false" (attribute)
  - bindAsSequence="false" (attribute)

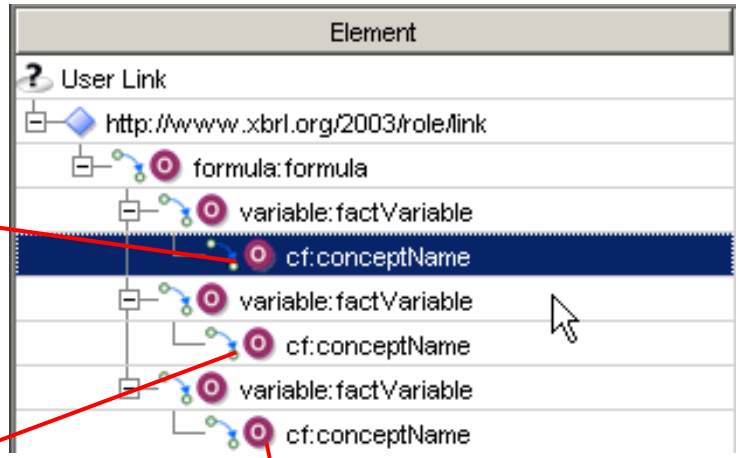


Edit ConceptName Elements

1. Also edit other resource elements as following

First “conceptName”

+ cf:conceptName	(element)
+ cf:concept	(element)
+ cf:qname	(element)
- test:assets	(text)



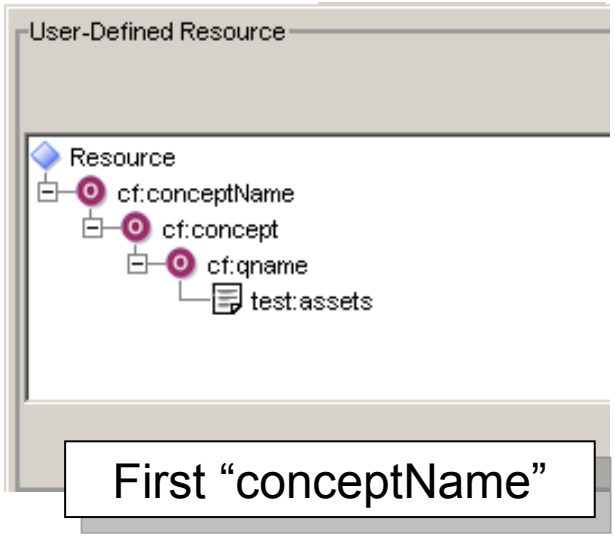
Second “conceptName”

+ cf:conceptName	(element)
+ cf:concept	(element)
+ cf:qname	(element)
- test:liabilities	(text)

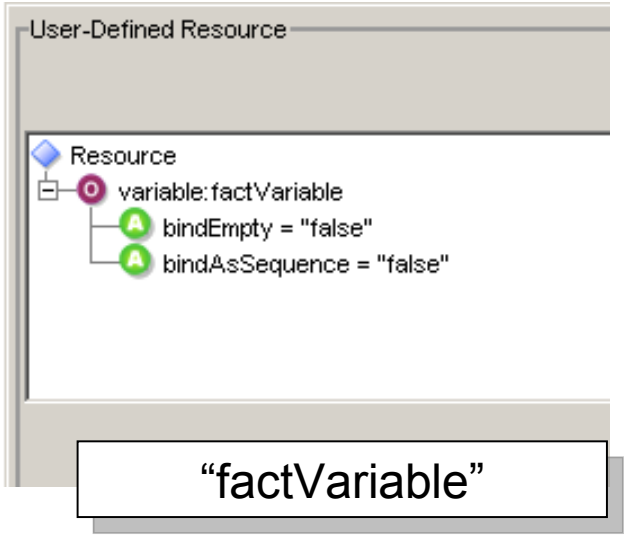
Third “conceptName”

+ cf:conceptName	(element)
+ cf:concept	(element)
+ cf:qname	(element)
- test:equity	(text)

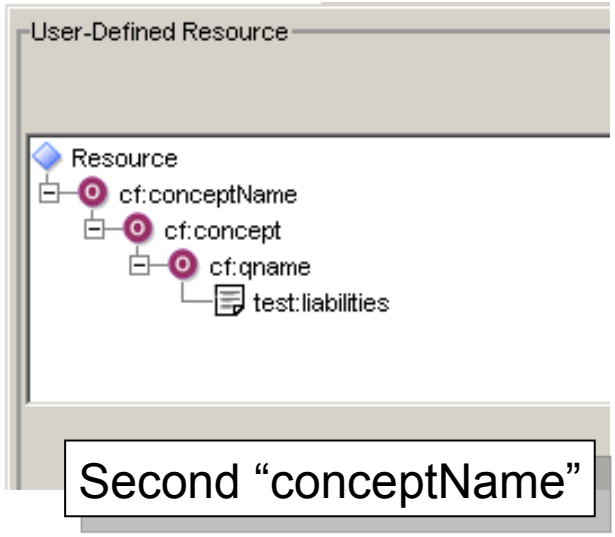
Result (Edit Contents...)



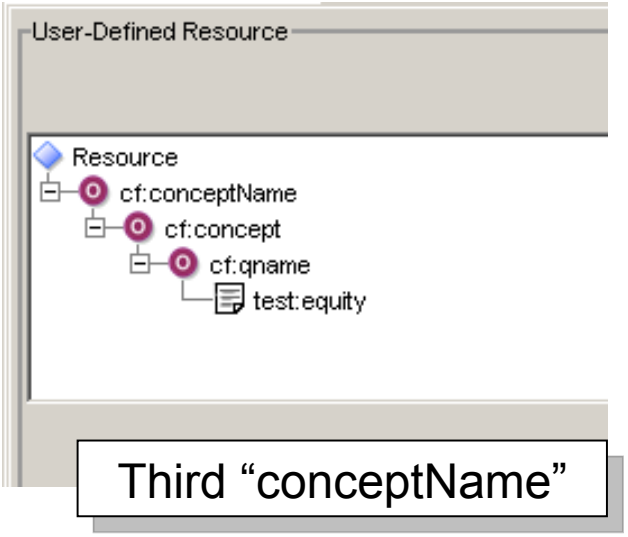
First “conceptName”



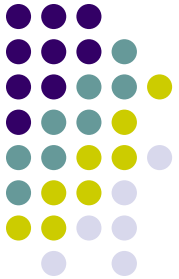
“factVariable”



Second “conceptName”



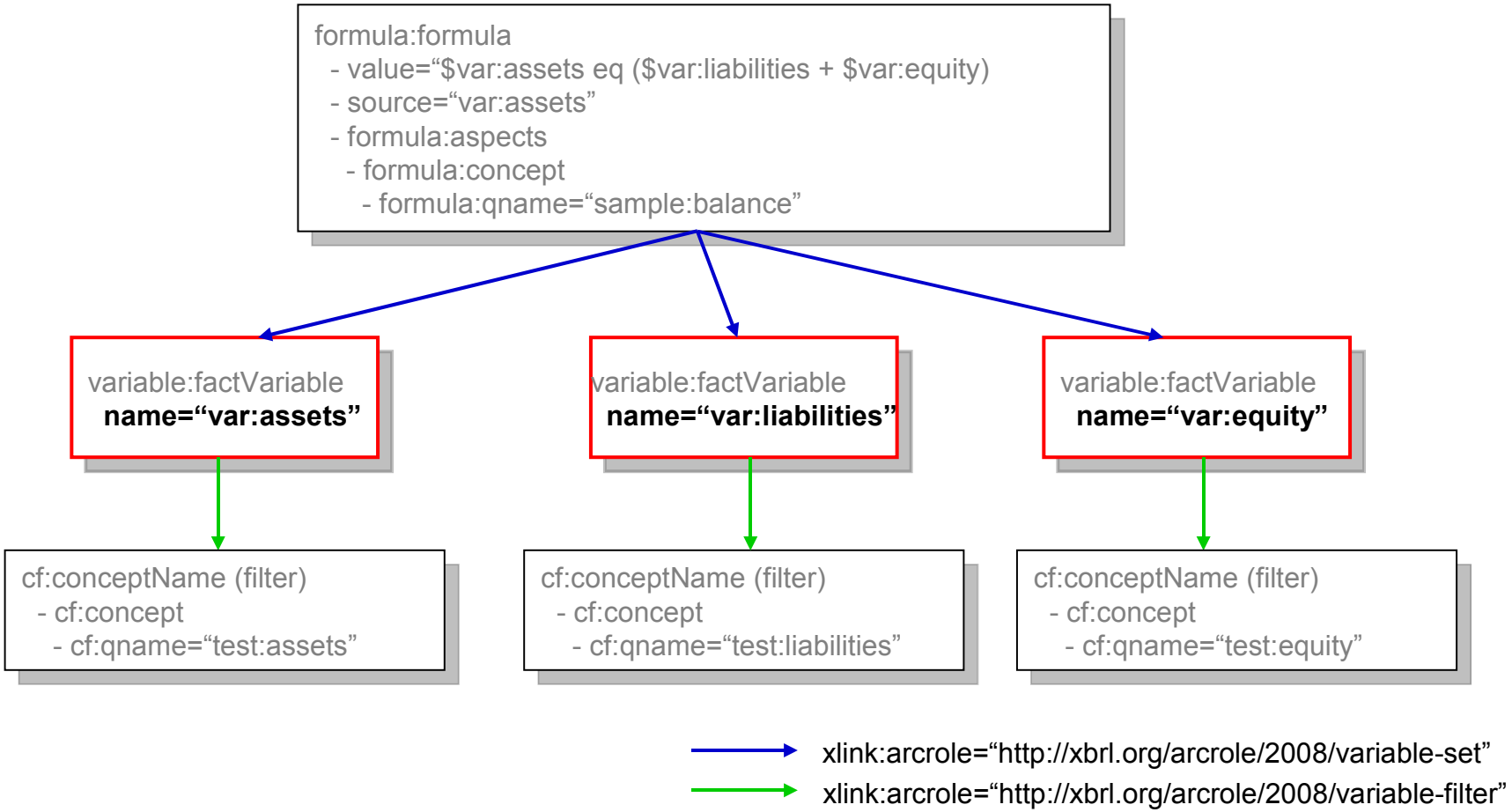
Third “conceptName”



Edit Attributes Of Arc Elements

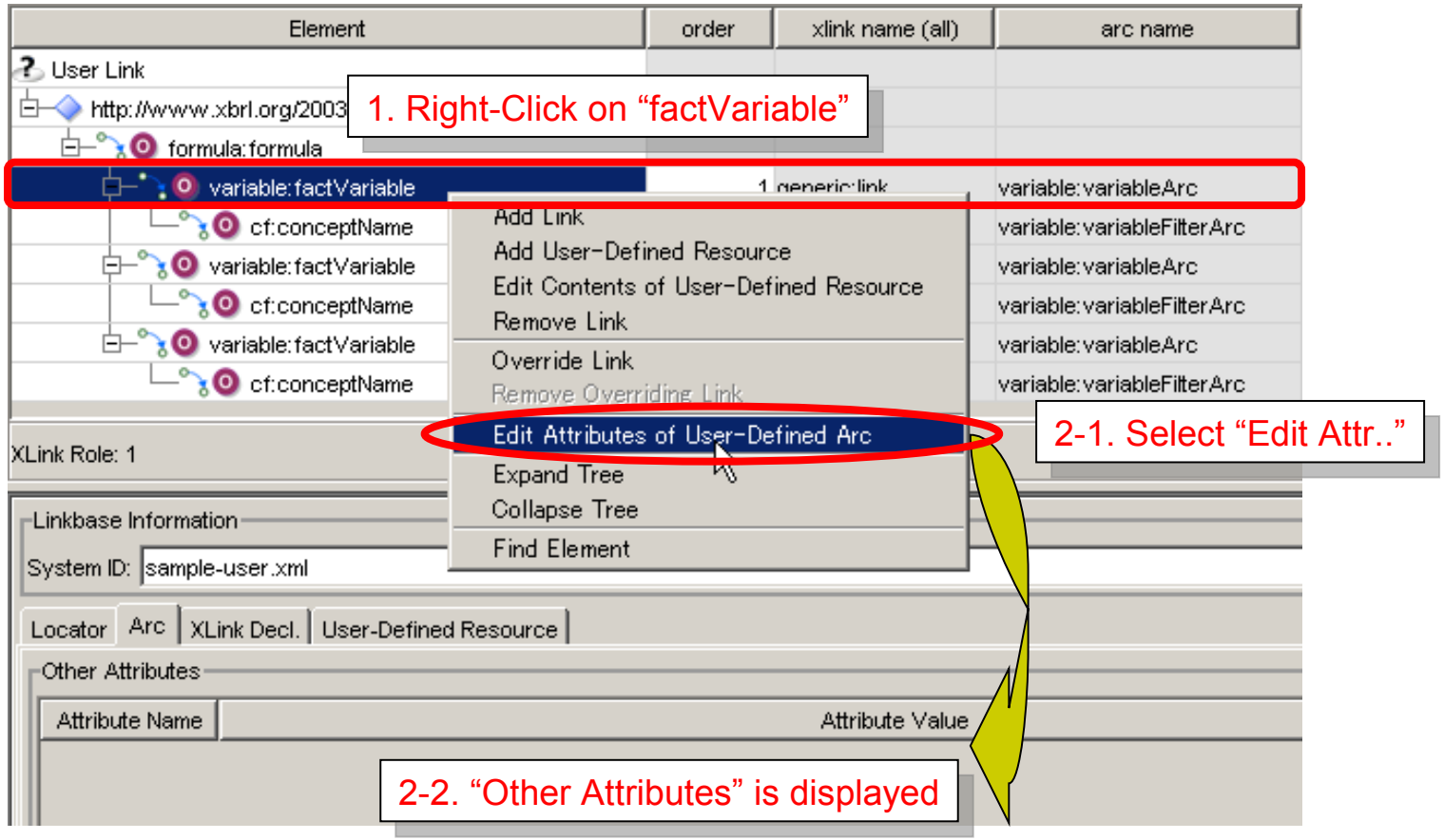
Edit Attributes Of Arc Elements

- Formula Structure



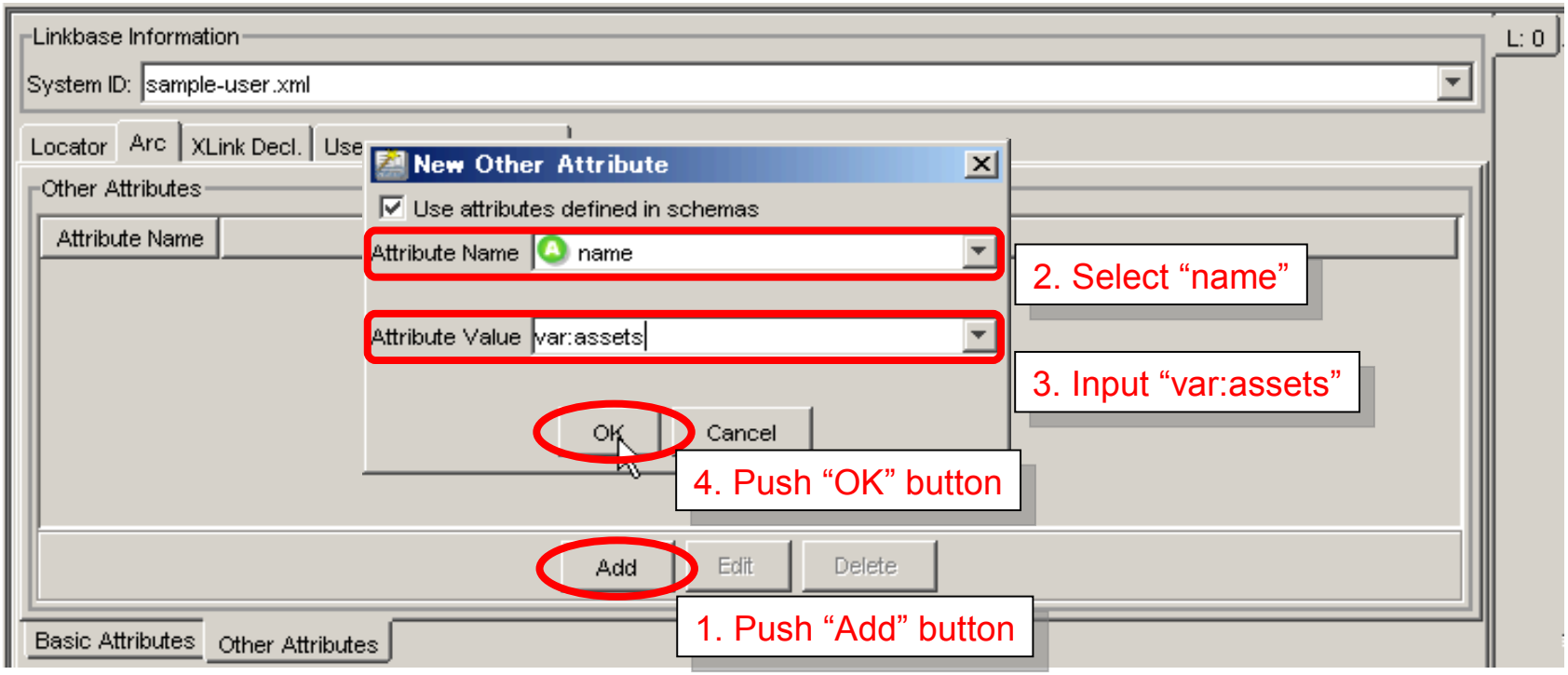
Edit Attributes Of VariableArc Elements

1. Right-click on first “factVariable” on the pane
2. Select “Edit Attributes of User-Defined Arc”



Edit Attributes Of VariableArc Elements

1. Push “Add” button, then a dialog is displayed
2. Select “name” as “Attribute Name”
3. Input “var:assets” as “Attribute Value”
4. Push “OK” button

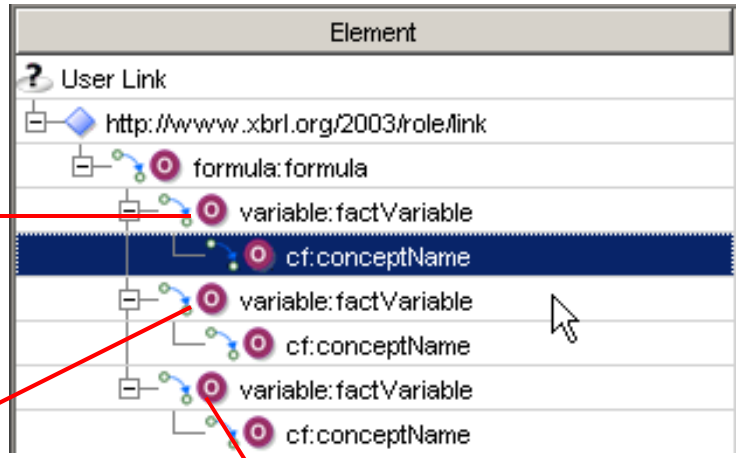


Edit Attributes Of VariableArc Elements

1. Also add attributes of other “variableArc” as following

First “variableArc”

+ variable:variableArc (element)
  - name=“var:assets” (attribute)



Second “variableArc”

+ variable:variableArc (element)
  - name=“var:liabilities” (attribute)

Third “variableArc”

+ variable:variableArc (element)
  - name=“var:equity” (attribute)

Result (Edit Attributes...)



First “variableArc”

Attribute Name	Attribute Value
name	var:assets

Second “variableArc”

Attribute Name	Attribute Value
name	var:liabilities

Third “variableArc”

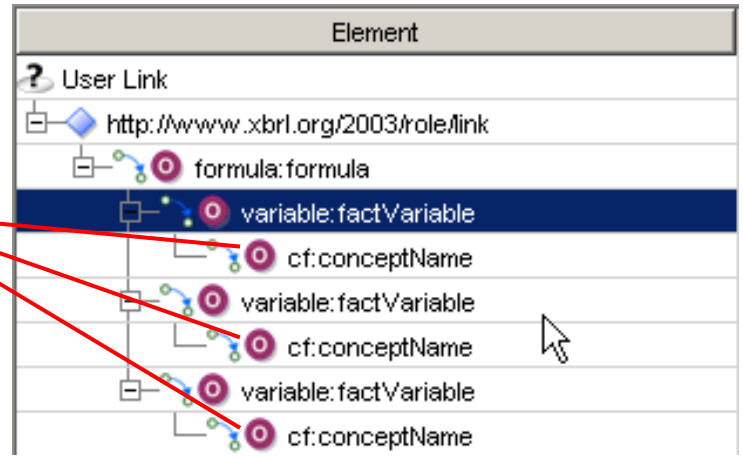
Attribute Name	Attribute Value
name	equity

Edit Attributes Of VariableFilterArc Elements

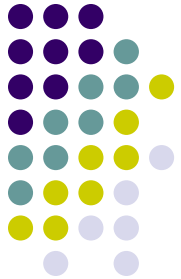
1. Also add attributes of “variableFilterArc” as following

“variableFilterArc”

+ cf:conceptName (element)
  - complement="false" (attribute)
  - cover="true" (attribute)

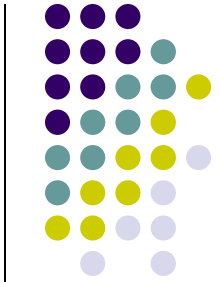


Result (Edit Attributes...)



“variableFilterArc”

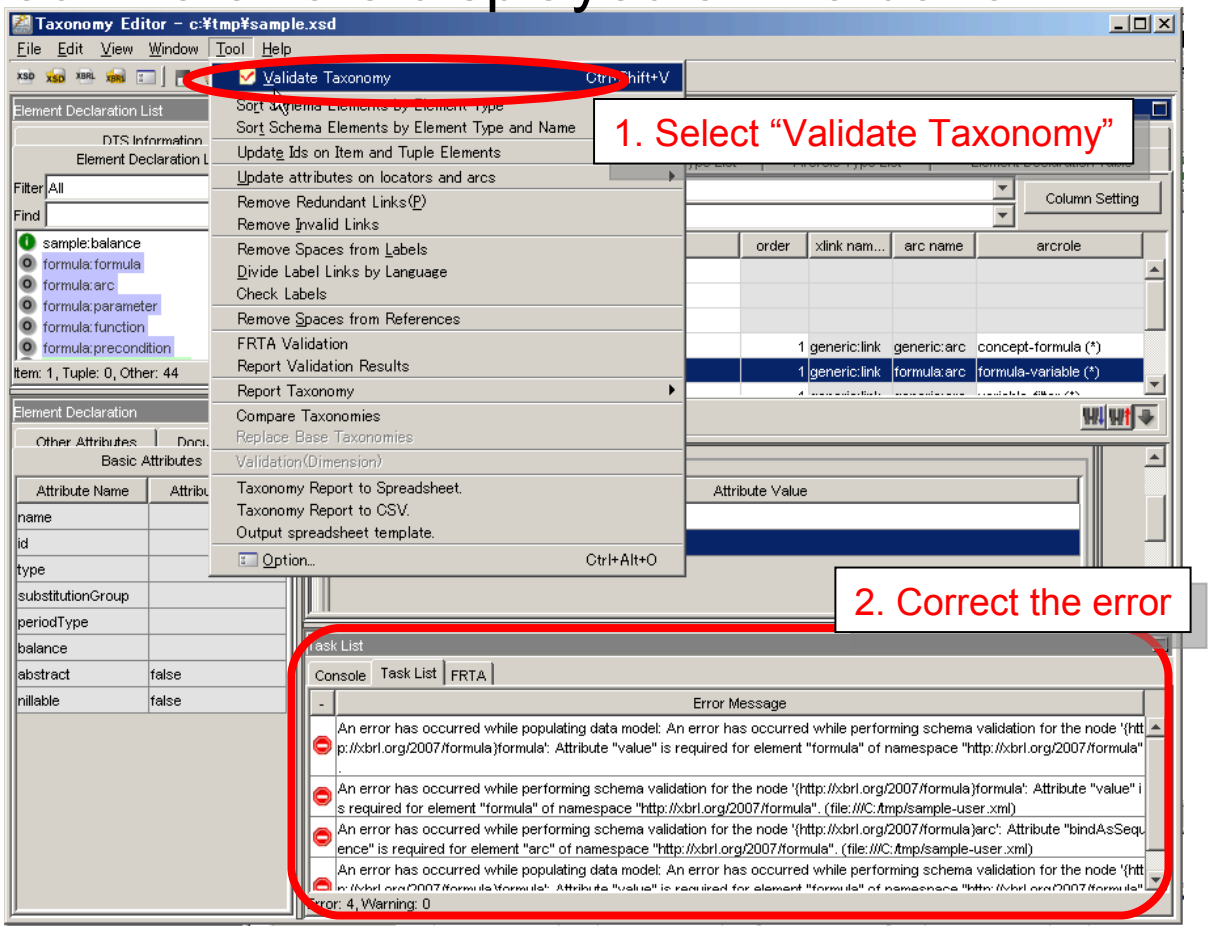
Attribute Name	Attribute Value
complement	false
cover	true



Validation

Validation

1. Select “Tool>Validate Taxonomy”
2. Correct the errors displayed at the bottom



NOTE: The following option must be enabled to validate taxonomies.

Tool>Option>Validation>Process XML Schema Validation