Consolidated Variant Generation with SERGe

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Consolidated Variant Generation with SERGe

old „variant generation“ renamed to
Solitary Variant Generator

new, additional variant generation:
Consolidated Variant Generator

Consolidated Variant Generation with SERGe

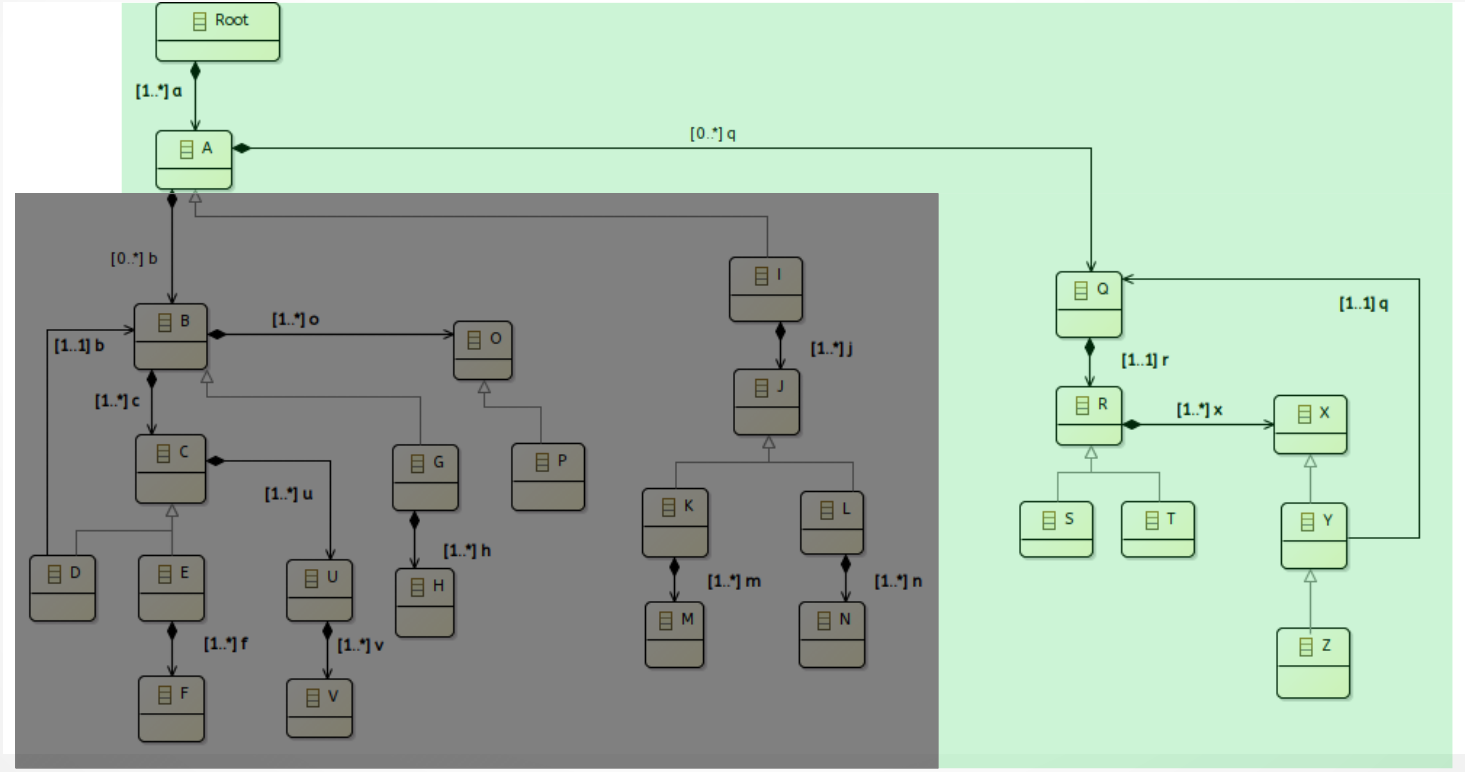
Default: disabled

To enable it:

Org.sidiff.editrule.generator.serge > Configuration > enable_consolidatedvariants = true;

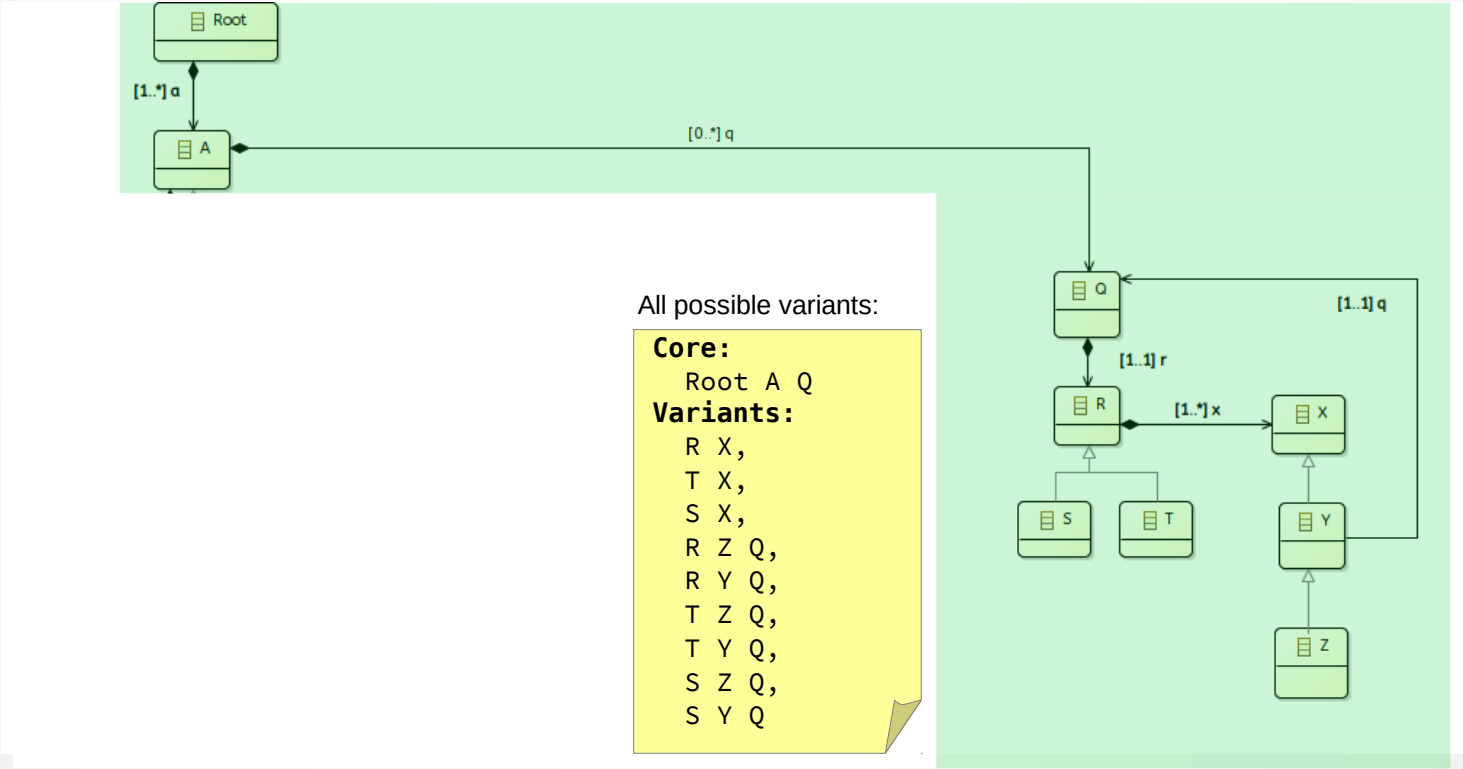
Consolidated Variant Generation with SERGe

Create_Q_In_A_(q)



Consolidated Variant Generation with SERGe

Create_Q_In_A_(q)



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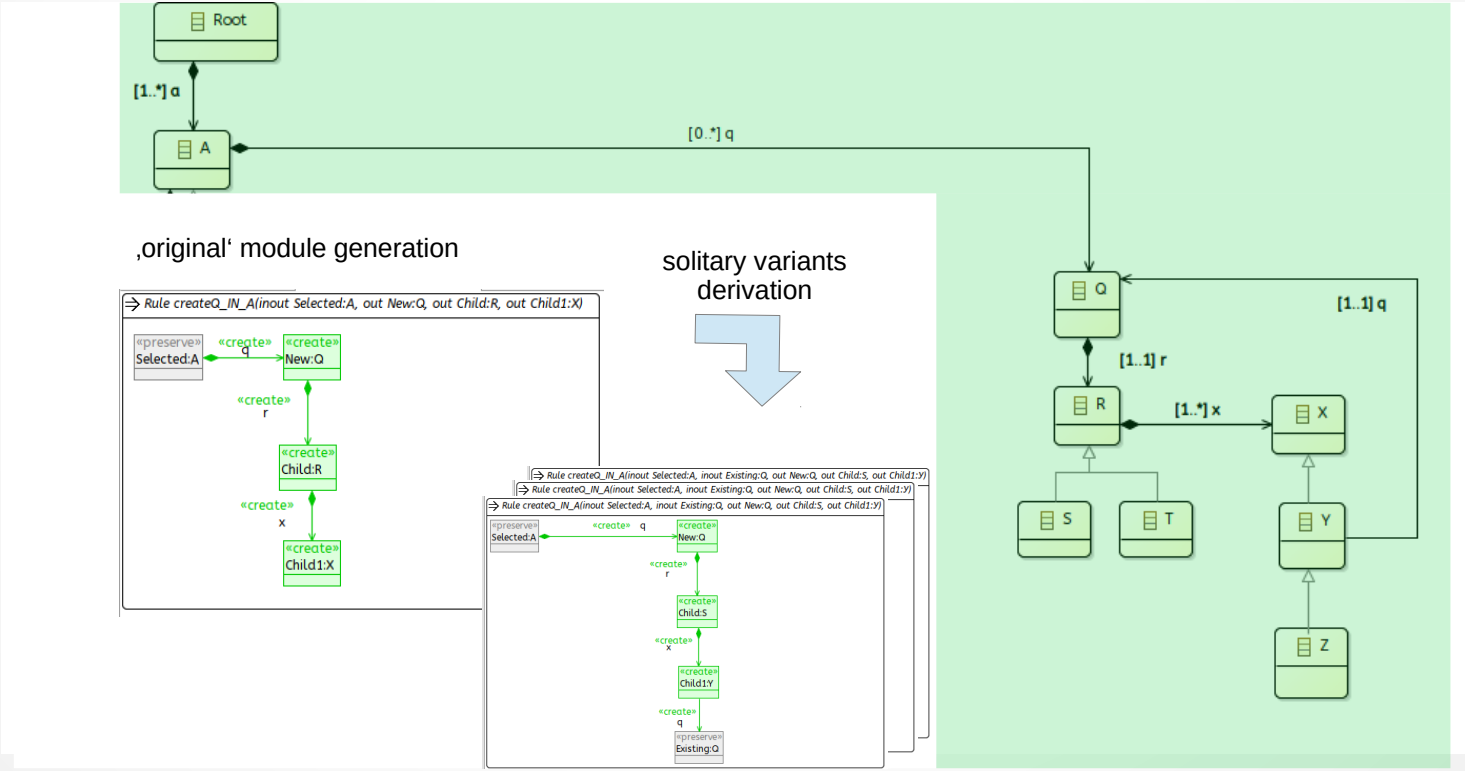
Create_Q_In_A_(q)



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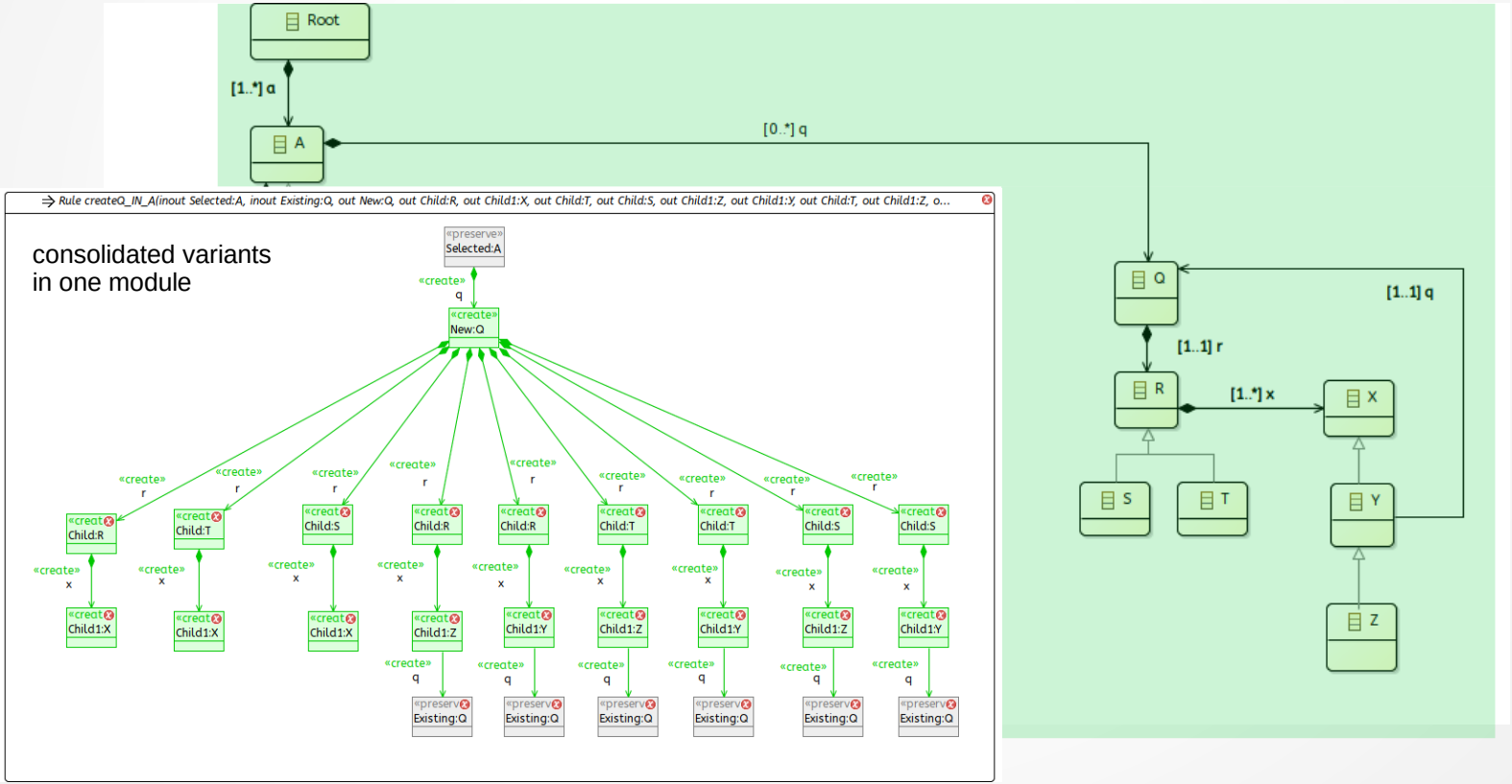
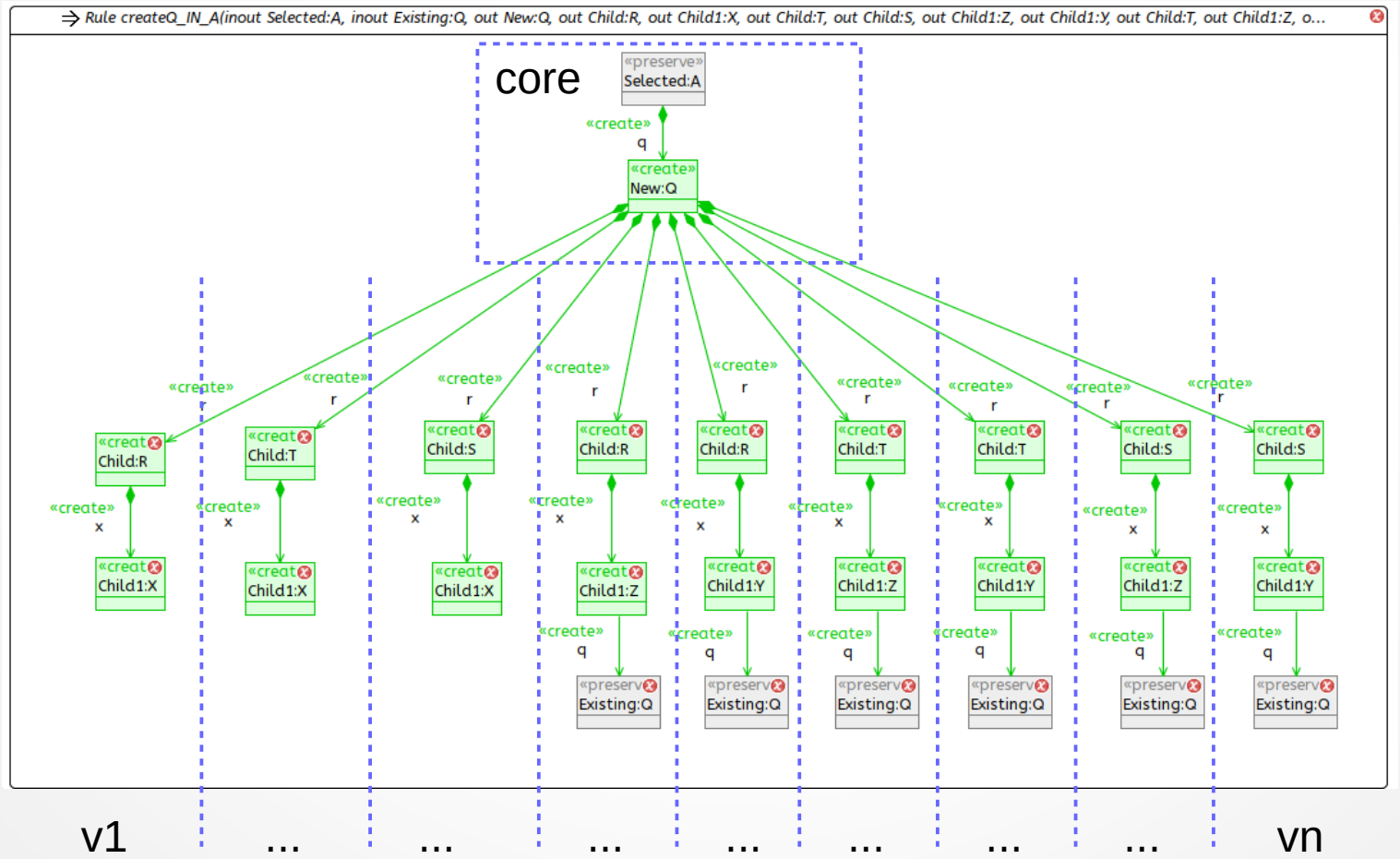
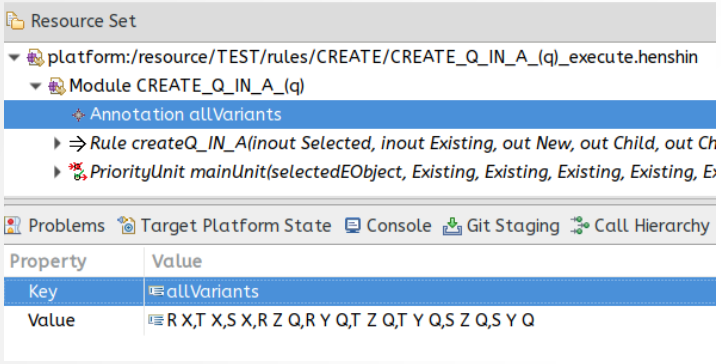
Create_Q_In_A_(q)



Consolidated Variant Generation with SERGe

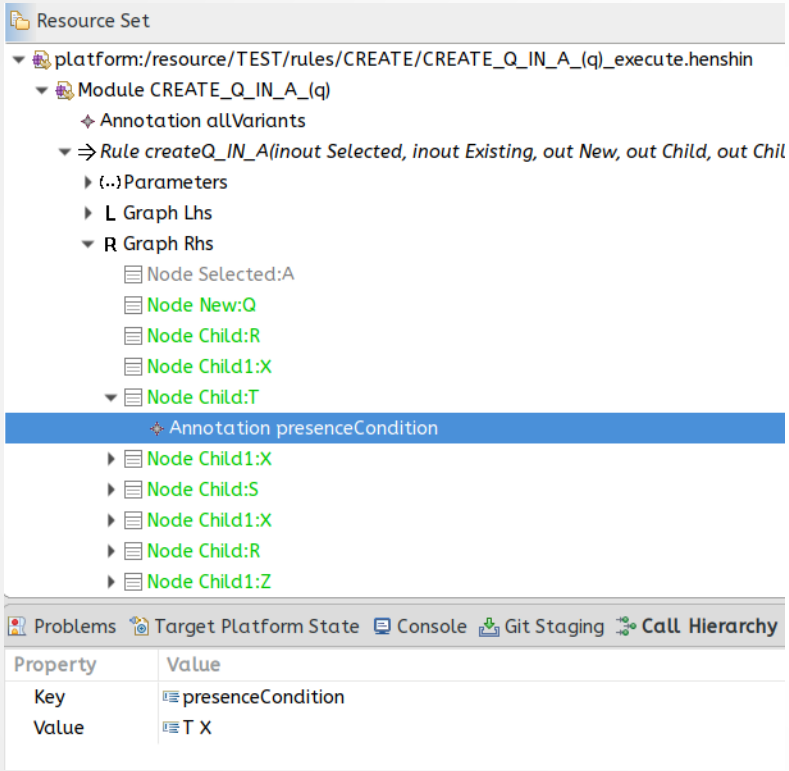


Consolidated Variant Generation with SERGe




```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <henshin:Module xmi:version="2.0" xmlns:xmi="http://www.omg.org/XMI" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:ec
3   <annotations xmi:id="_EeHiwdhbEeiyg9a0YuhJZw" key="allVariants" value="R X,T X,S X,R Z Q,R Y Q,T Z Q,T Y Q,S Z Q,S Y Q"/>
4   <imports href="http://www.sidiff.org/editrulegenerator/test/variantmodel#/"/>
5   <units xsi:type="henshin:Rule" xmi:id="_EeHiwthbEeiyg9a0YuhJZw" name="createQ_IN_A" description="creates one Q in the context: A"
6     <parameters xmi:id="_EeHiw9hbEeiyg9a0YuhJZw" name="Selected" kind="INOUT">
```

Consolidated Variant Generation with SERGe




```
<nodes xmi:id="_EeHi4dhbEeiyg9a0YuhJZw" name="Child" incoming="_EeHjCthbEeiyg9a0YuhJZw" outgoing="_EeHjC9hbEeiyg9a0YuhJZw">
  <annotations xmi:id="_EeHi4thbEeiyg9a0YuhJZw" key="presenceCondition" value="T X"/>
  <type href="http://www.sidiff.org/editrulegenerator/test/variantmodel#//T"/>
</nodes>
```

Consolidated Variant Generation with SERGe

Restrictions:

- Only CREATE rules are considered
- rules containing abstract <<create>> elements not dimissed yet
- no element type exclusion implemented (as with everything on the xml configuration)

Consolidated Variant Generation with SERGe

How it works?

Basically:

1) Sequences of all variants are calculated for one module
2) Nodes/Edges are replicated and extended and recurved for every sequence

Consolidated Variant Generation with SERGe

sequence generation algorithm

- STEP 1 :: Init sequence:
  R X // the core (Root A Q) is further on omitted

- STEP 2 ::
  2.1 Consider first „top most, lefthand side“ supertype replacement option
  [R] X

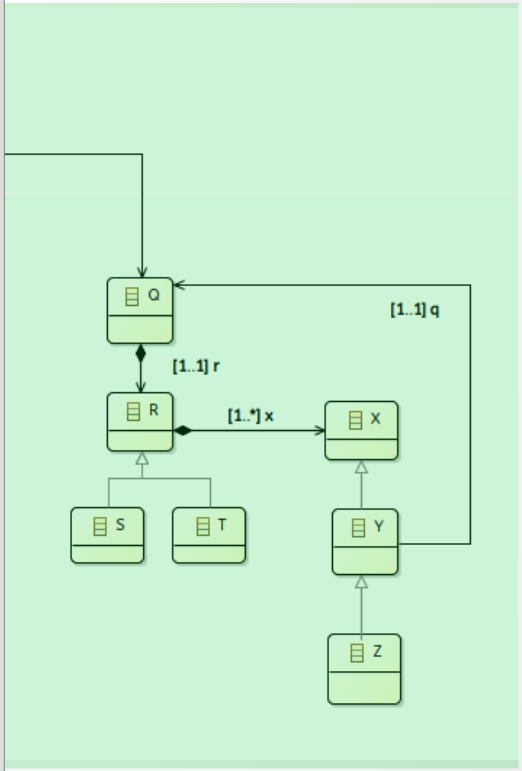
  2.2 Create additional sequences for all possible sub types by copy
  => R X
  S X
  T X

- STEP 3 ::
  3.1 Consider next, „top most, lefthand side“ super type replacement option:
  R [X]

  3.2 Create additional sequences for all possible sub types by copy
  => R X
  S X
  T X
  R Y {Q} //further sub sequences added also; i.e. {Q}
  R Z {Q} //further sub sequences added also; i.e. {Q}

  3.3 Create additional sequences for all possible sub types in former sequences
  => R X
  S X
  T X
  R Y {Q}
  R Z {Q}
  S Y {Q}
  S Z {Q}
  T Y {Q}
  T Z {Q}

- STEP 4 :: Consider next unvisited sequence in the previous list, go back to step 2 until no sub type replacement option is left



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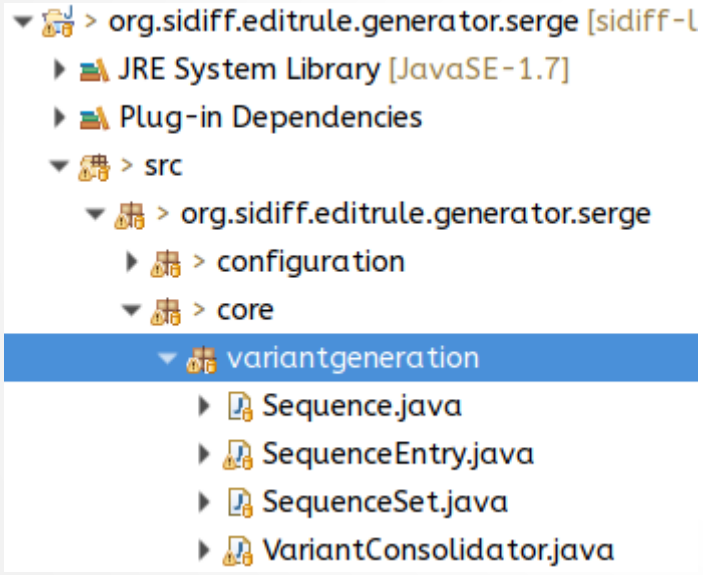
Allgorithmic part can be found in:



Consolidated Variant Generation with SERGe

Default: consolidated variant generation is disabled

To enable it:
Org.sidiff.editrule.generator.serge > Configuration > set enable_consolidatedvariants = true;

Everything is merged into master branch by now