Merge tool – Impossible to resolve conflict on a state machine so that local (left) change is accepted as final

Keywords: git, compare and merge, merge-tool, state machine

SW version info:

- BridgePoint 4.1.0.
- Egit 2.3.1.201302201838-r

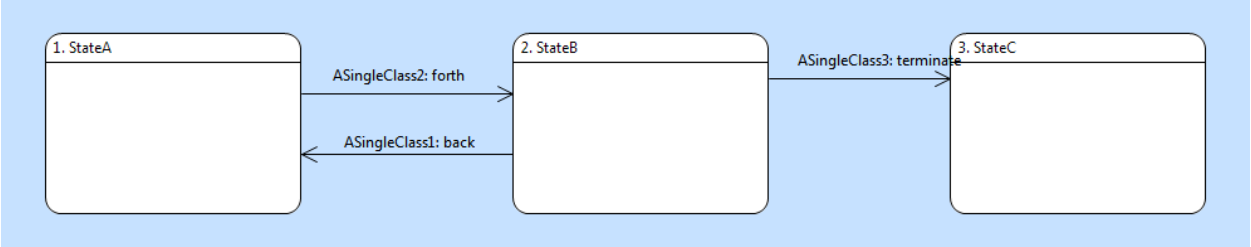
Description

When a merge with conflicts is performed on a state machine, it is practically impossible to keep (or choose) the local (left) change and to continue to have consistent and uncorrupted model.

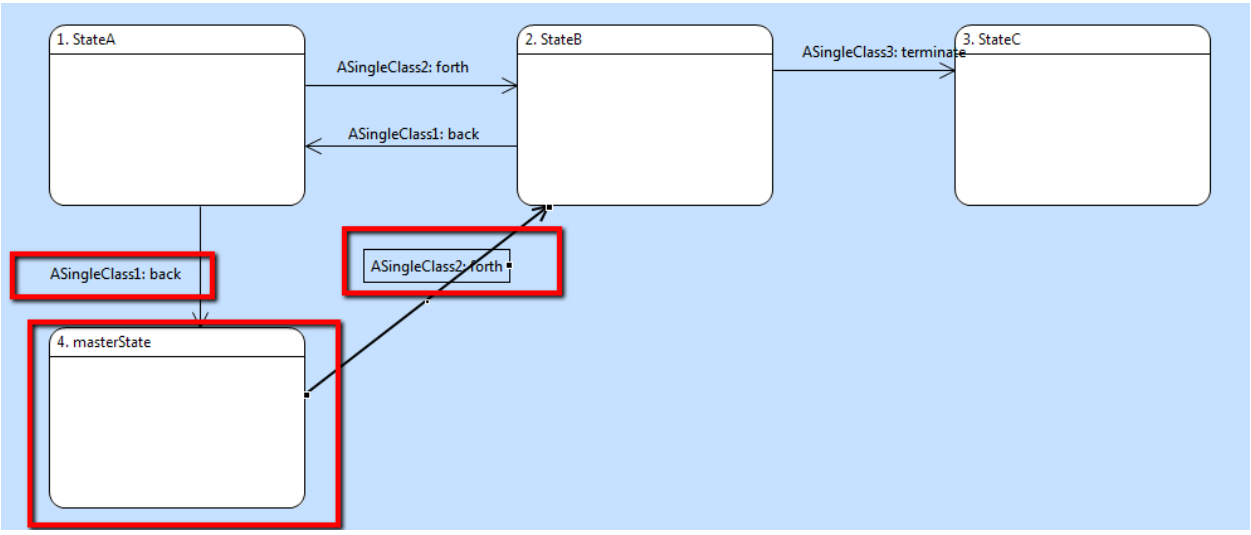
In the scenario we merge two branches in which new state is added to each, and transition from the existing state towards new states with the same event (event named "Back"). Clearly, this creates conflict, which cannot be successfully resolved in favour of a local branch (to one that other is being merged into). We have tried all scenarios for conflict resolution and it is only possible to resolve conflict in favour of a remote branch (copy change from right to left). In addition, in one scenario a model becomes corrupt – some graphical elements are shown, while there seems to be no corresponding semantic elements.

Details:

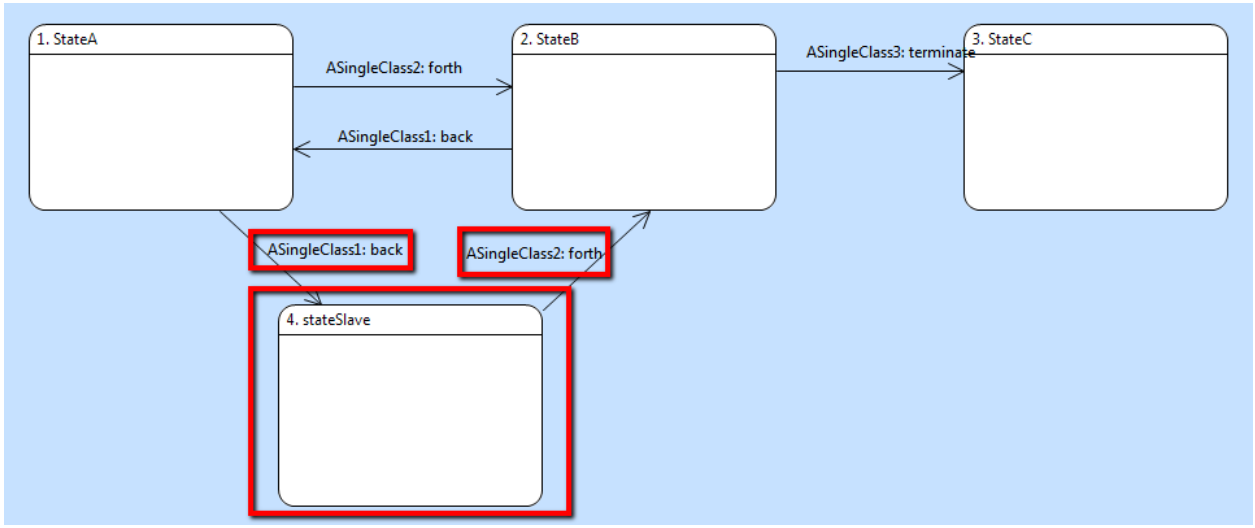
This is the initial state machine;



Changes done in the master branch:

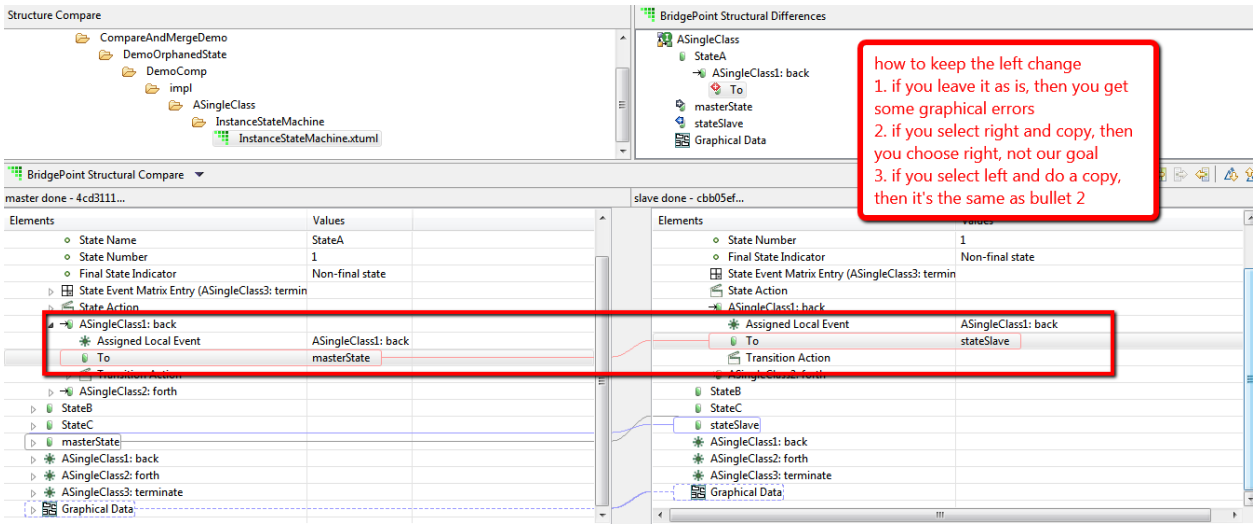


Changes done in the slave branch



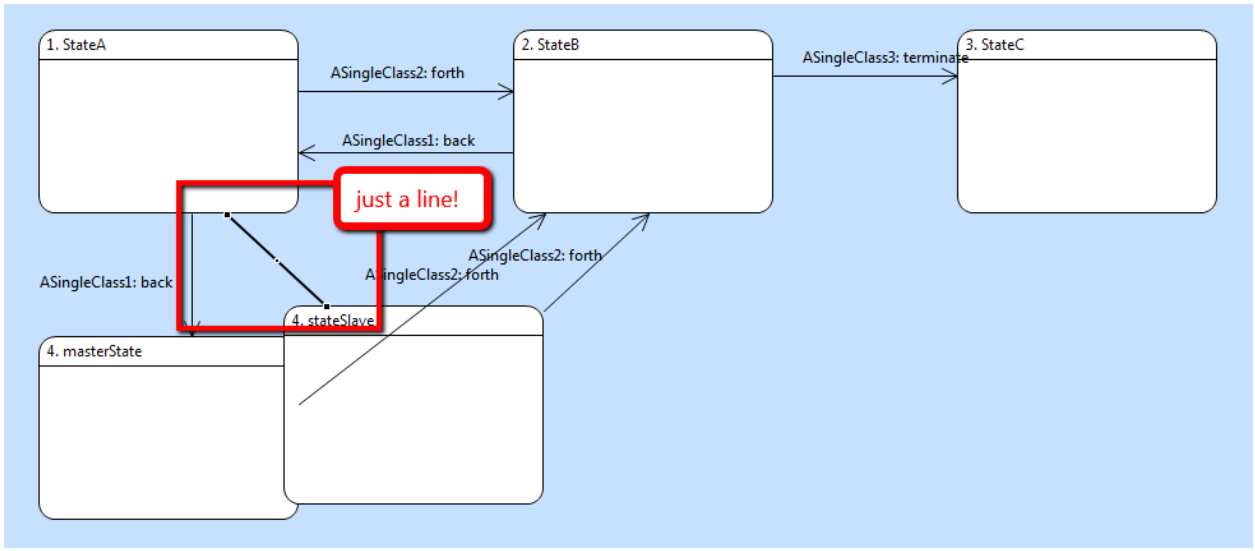
Hence, when we try to merge these two branches, we can expect to have conflict regarding the transition from StateA towards masterState and StateSlave with the same event.

Now we perform merge slave into master:

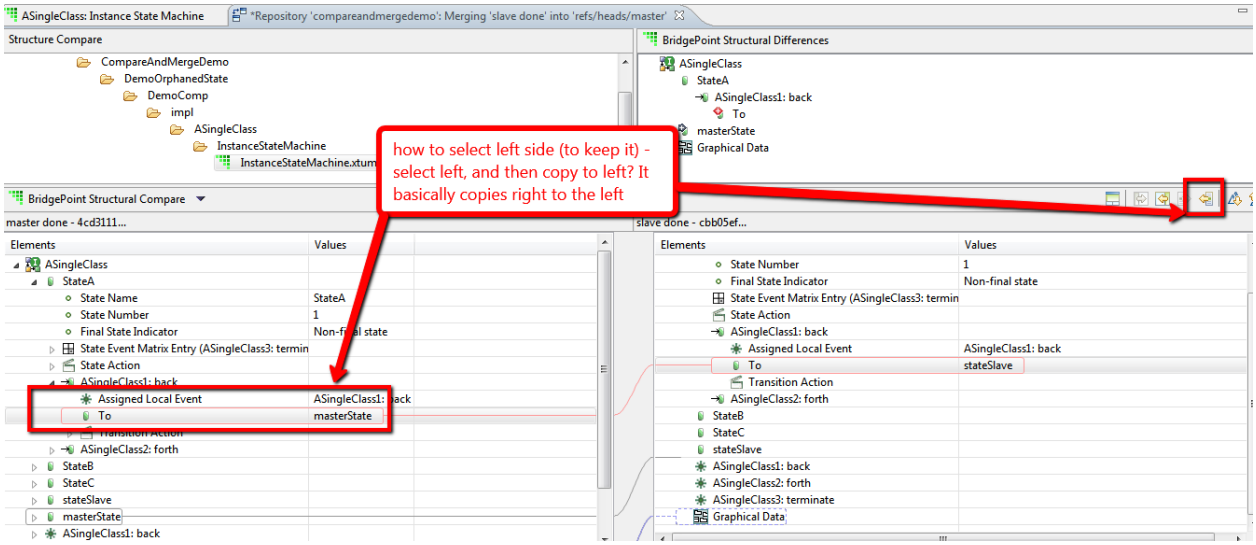


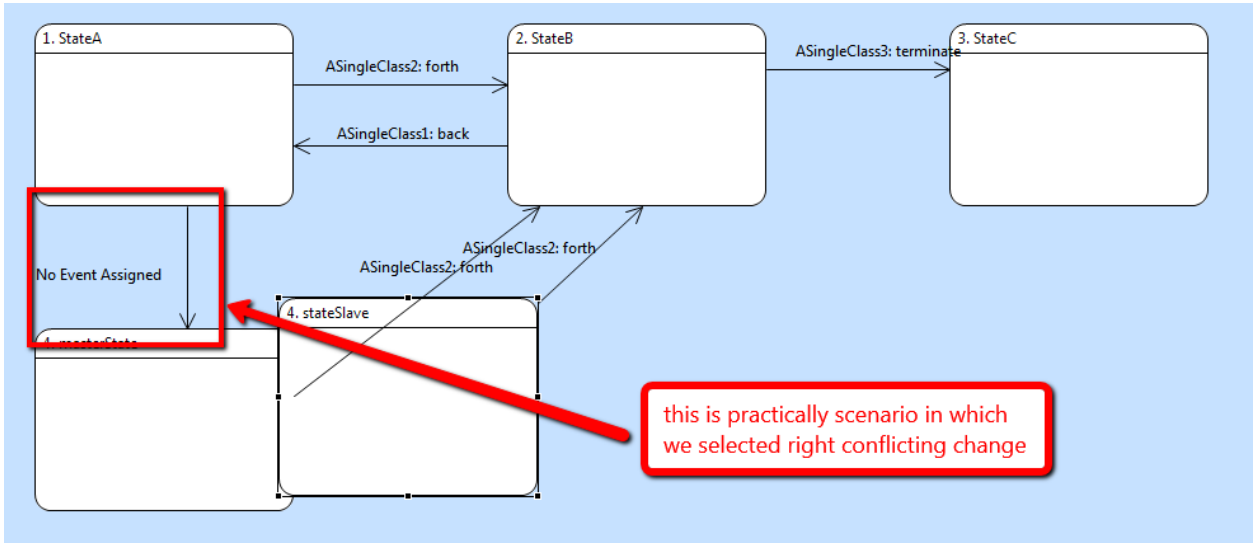
No matter what we do from this point on, we can't select to keep left change (event going to class Master).

If we try scenario 1 – we leave it as is (conflicting change), copy the StateSlave and finally copy all non conflicting changes from right, we get something like this:



If we try scenario 3, it becomes as scenario 2





Thus, it is impossible to select the left as a desired change and to have model that is not corrupted.

Attachment:

Git repository with the state prior to merge slave into master. State machine diagram is in the following path:

CompareAndMergeDemo:DemoOrphanedState::DemoComp::impl::ASingleClass