Advanced Programming (I00032)
Testing the FNWI Vending Machine Model

Assignment 8

Testing the FNWI Vending Machine Model

This assignment is an extension of the assignment 7 in which you created a specification of a vending machine. The assignment of this week is intended to determine the quality of that specification / model as presented in the lecture. Hence, the input for this exercise is the exact vending machine specification that you have created for the last assignment. The requirements are unchanged. The quality of the specification is important in the sense that the vending machine should be fair and sound. For instance, if the user inserts enough money and chooses an product which is in stock she should obtain the ordered product. As a preparation step, you can perform sub task 1 and install the graphviz tool to manually explore your specification. Please note that this is optional, but it is fun to see your specification at work! It can also be helpful in sub task 2 in which you need to specify domain specific properties that should hold for your specification.

1 Visualization of the model

To get inspired to specify domain specific properties you can use the esmViz tool which is an iTask application. Use this to visualize your model of the FNWI vending machine. In order to do this you need to install graphviz from `http://www.graphviz.org/`. On Blackboard you find two *zip* files:

ESMVizTool.zip: extract the contents of this *zip* file into:
`iTasks-SDK\Examples\ESMVizTool\`.
These files replace the current content (so not a new sub directory of `ESMVizTool`).

Server.zip: extract the contents of this *zip* file into:
`iTasks-SDK\Server\`.
This should add the files `GenParse_NG.(dcl/icl)` and `GenPrint_NG.(dcl/icl)` to the current content of `Server` (so not a new sub directory of `Server`).

After you have done this, you need to tell the esmViz tool where to find graphviz (in particular, the `dot.exe` of graphviz). Edit the path in the file `Graphviz.config` that you find in `iTasks-SDK\Examples\ESMVizTool\`. In the `ESMVizTool` folder you find two other examples of specifications that are visualized. Use them as inspiration and getting started with your specification.

2 Testing the Quality of the Specification

Test if the specification from the previous exercise is fair. That is: for all transitions the value of source state + input is equal to the value of the destination state + output.

Formulate at least two more domain specific properties about your specification that are not used in the lecture. Use G∀st to test if your specification satisfies these properties. Improve your model if necessary.

3 Deliverables

Hand in the following products:

1. The specification of the fnwi vending machine. This can be an updated version of the one in the previous exercise, or the same one.
2. An implementation of this vending machine that is used as SUT in the state based tests.
3. The test results of state based tests executed by G∀st.
4. The test report generated by G∀st for the logical properties you defined for the model.
5. **Optional**: a screen shot of esmViz visualizing the steps needed to buy a bag of "Harlekijntjes" (a special brand of liquorice) or other product that your implementation and model knows about.

Deadline

The deadline for this exercise is November 18, 23:59.