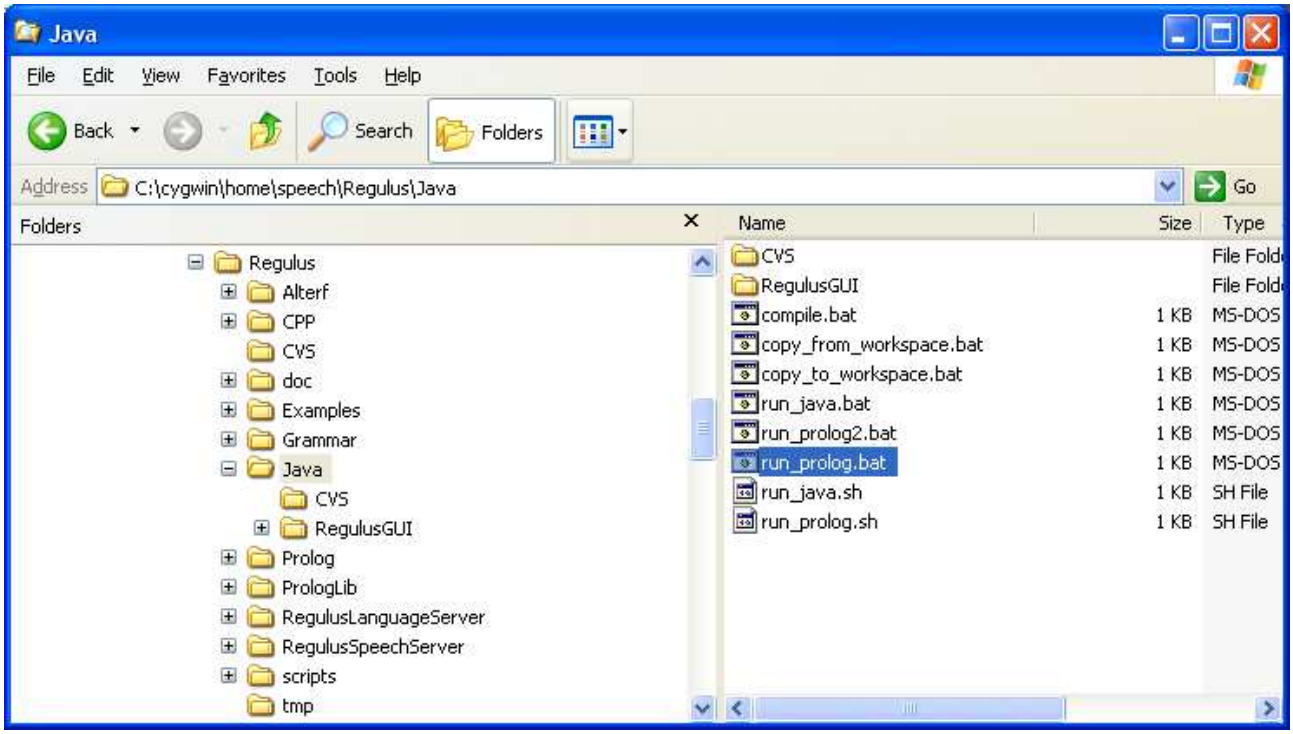
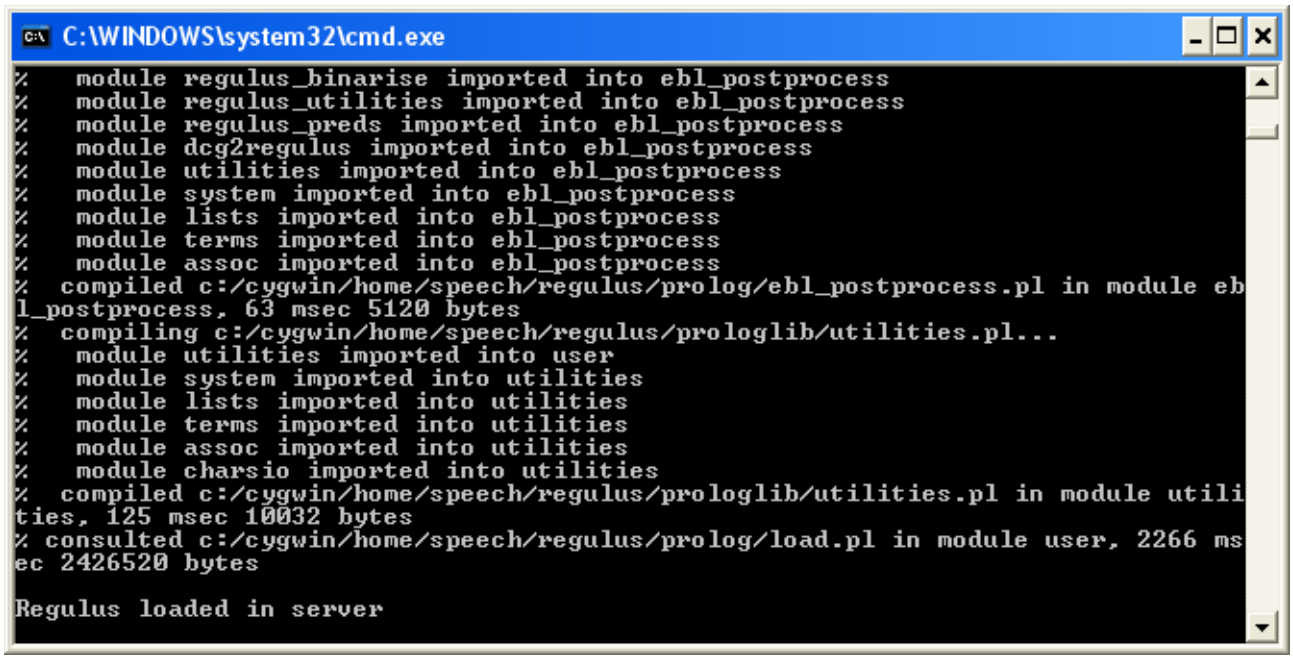
Using the Regulus GUI

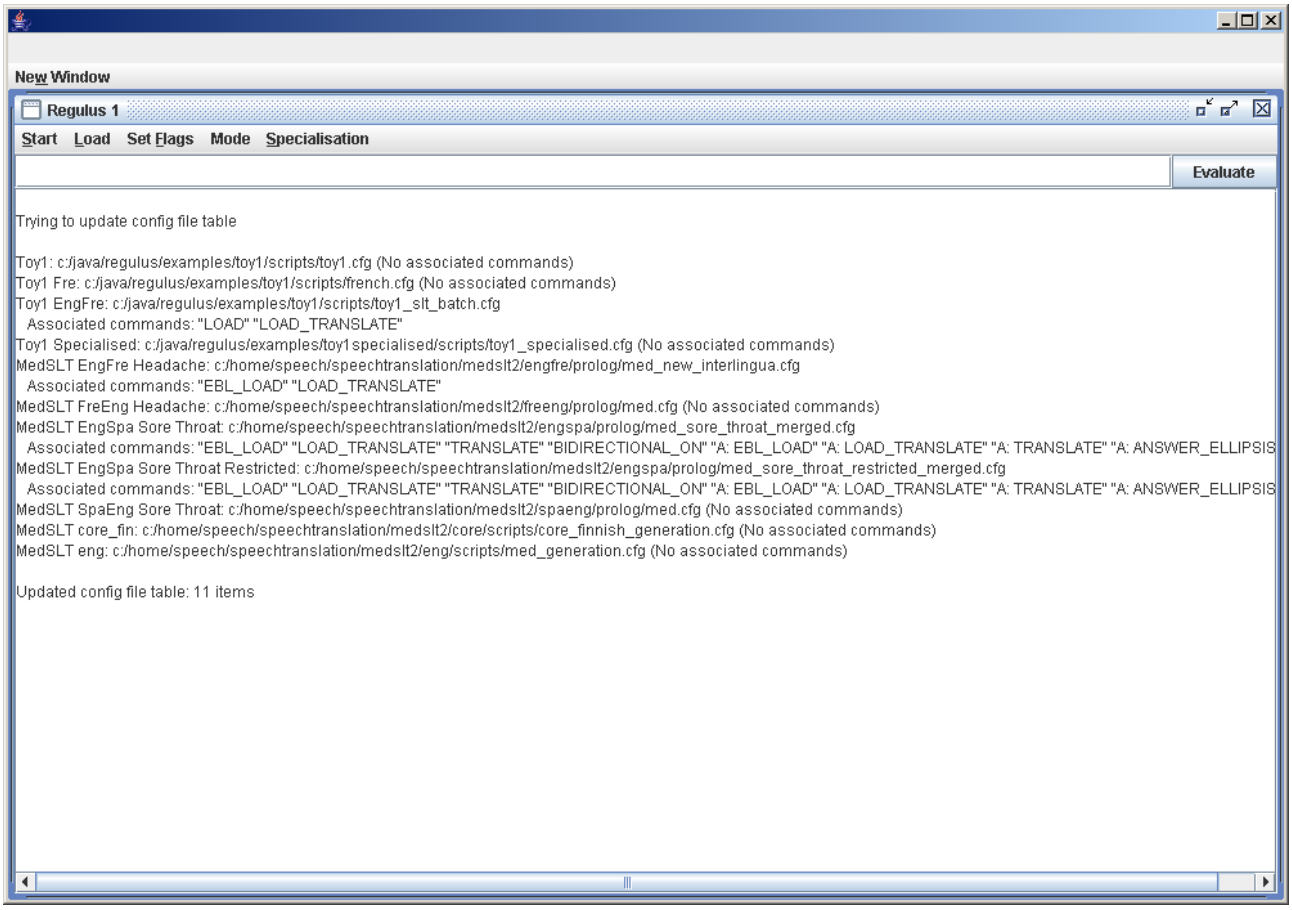
The Regulus GUI is a tool which gives developers a window and menu-based view of the Regulus development environment. To start the GUI on a Windows machine, open an Explorer window to the directory $REGULUS/Java, and double-click on run_prolog.bat:



A window like the following should come up:

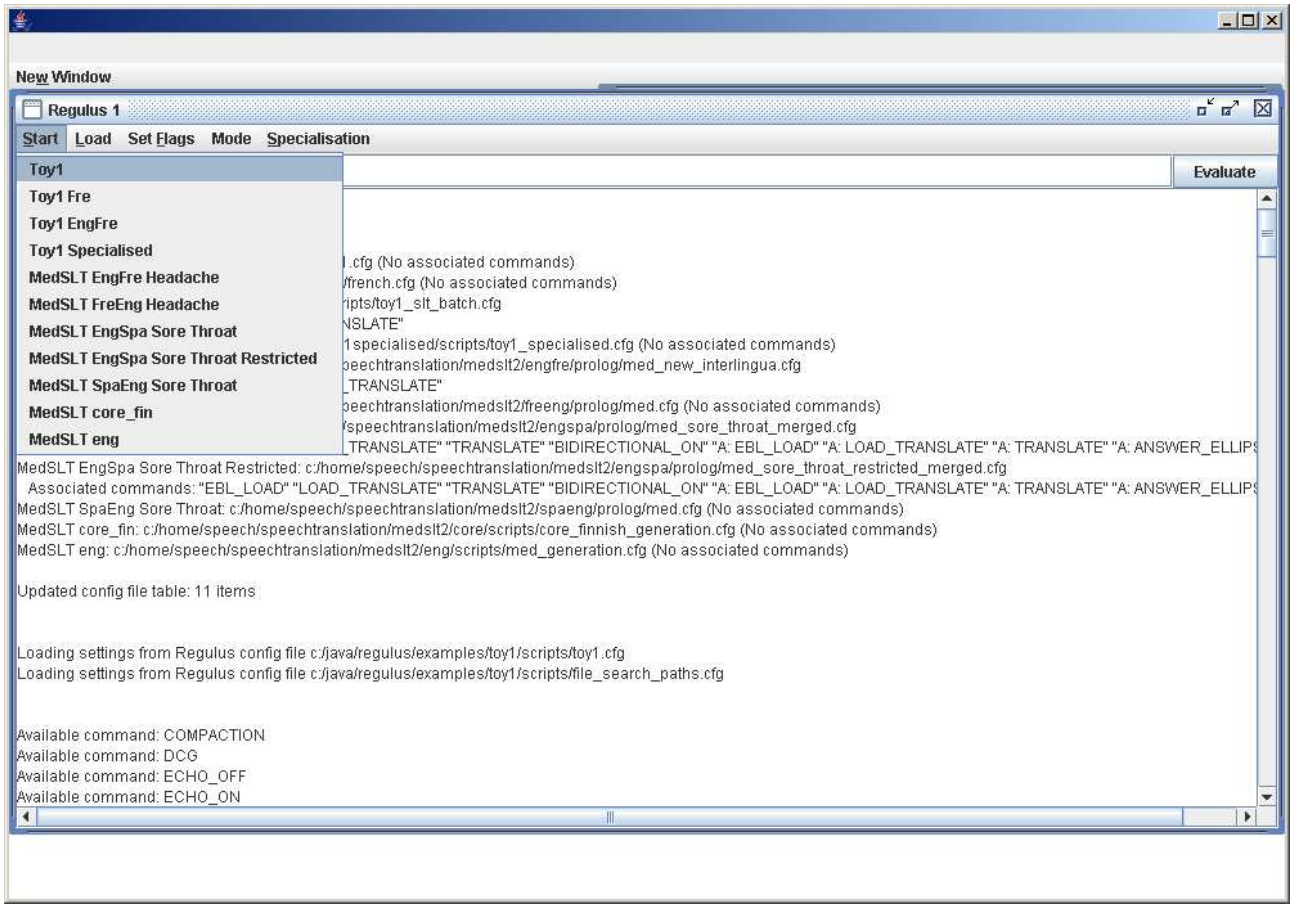


Next, click on run_java.bat in the same directory. This brings up the main RegulusGUI window, which should look something like this:



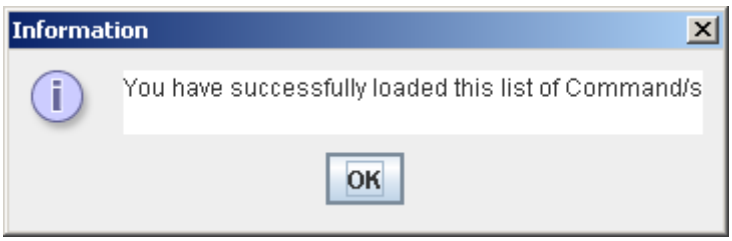
Loading a config file

In order to do any processing within the GUI, you first need to load a Configuration (config) file. Click on the Start menu and select the file you need, as follows:

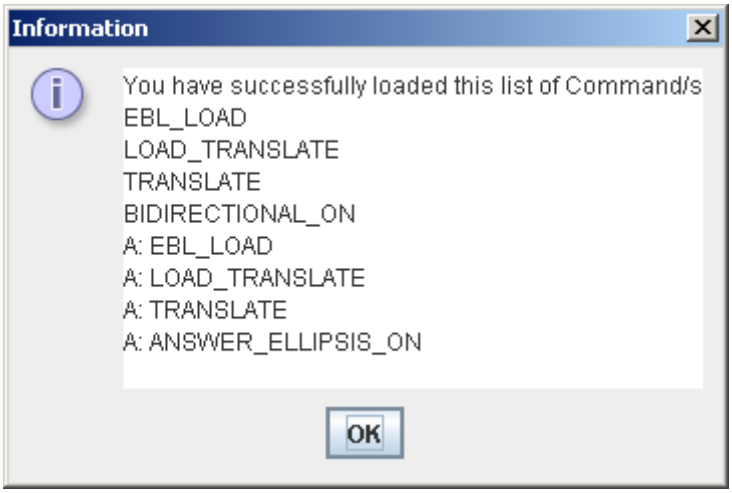


When the file has finished loading, it will give you an information message, telling you if the loading of the config file has succeeded or failed. It will also tell you if the commands which can be attached to the configuration file have been successfully loaded.

This configuration file has been successfully loaded, but had no load commands attached to it.



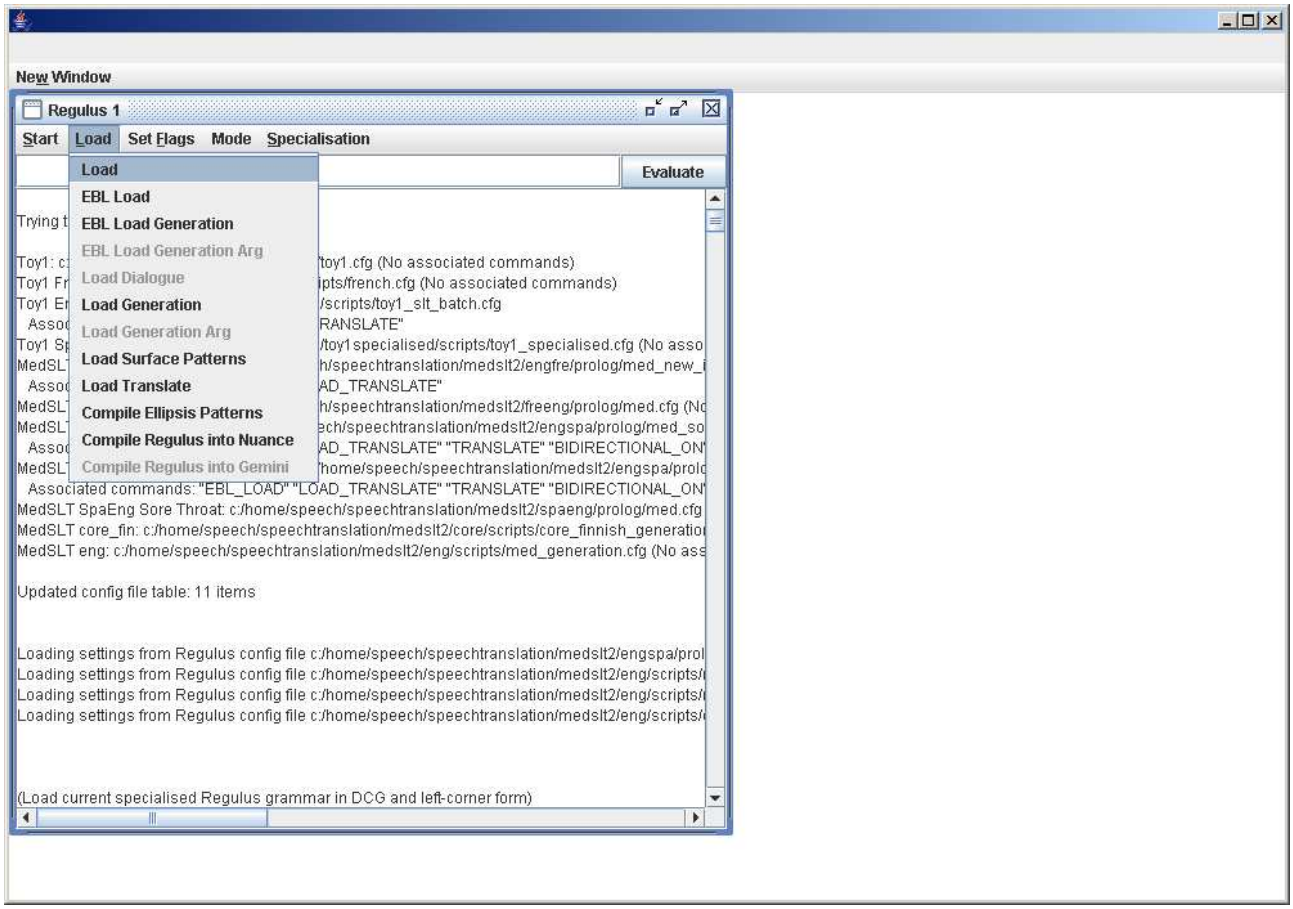
This is an example showing successful loading of a configuration file which has load commands attached.



Click on OK after you have read the message.

Loading resources

Depending on have many, if any, load commands were associated with the configuration file you have loaded, you may or may not want to do more Loads. For example, if you are going to use the Translation tool within the GUI, you will need to load Translation resources.
In our example above, after we have selected the Toy1 configuration file we need to do a load the grammar in order to be able to use the Stepper. We do this as follows, using the Load (load grammar) command:

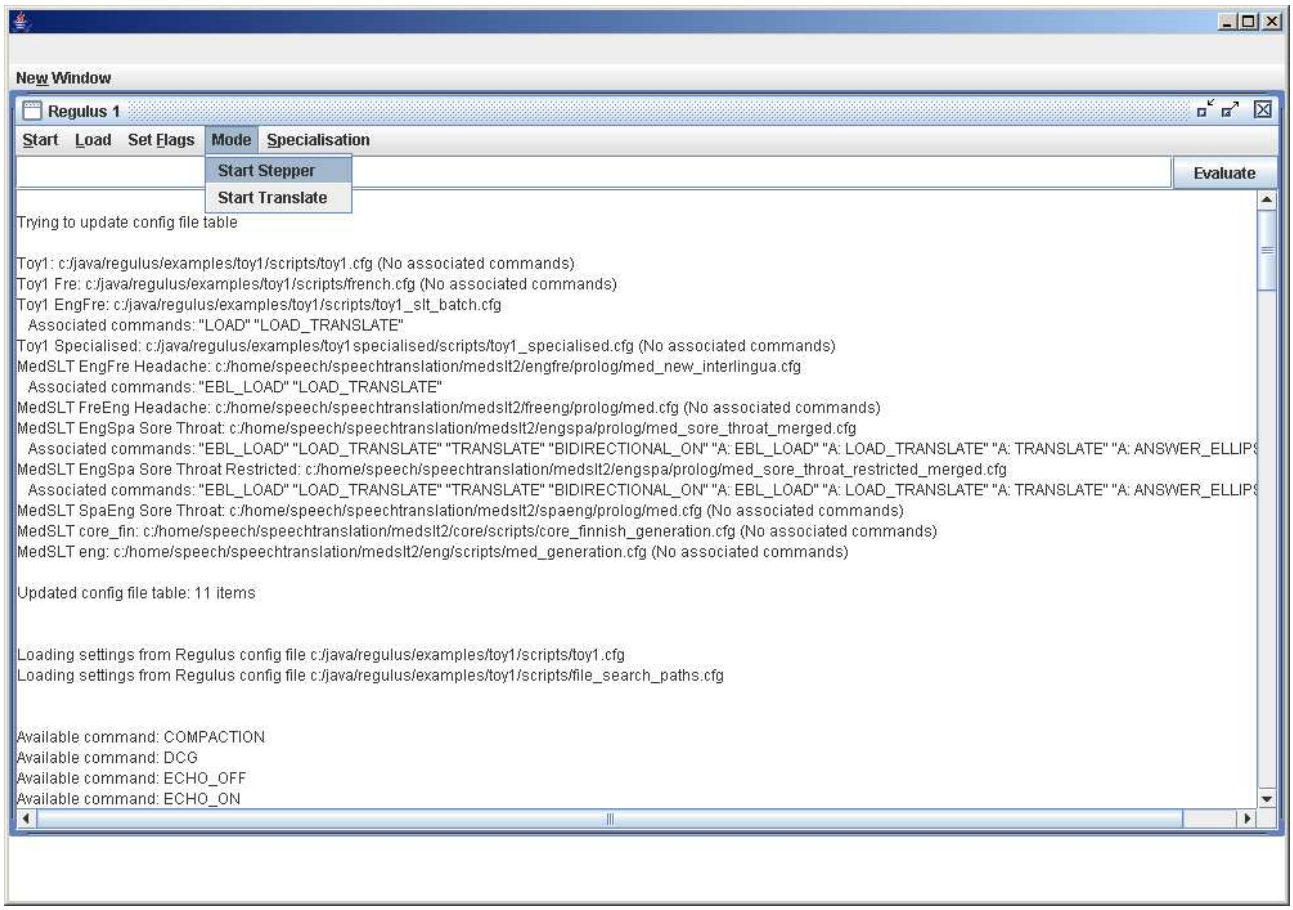


You will get a message telling you if the loading of the grammar has been successful or not.

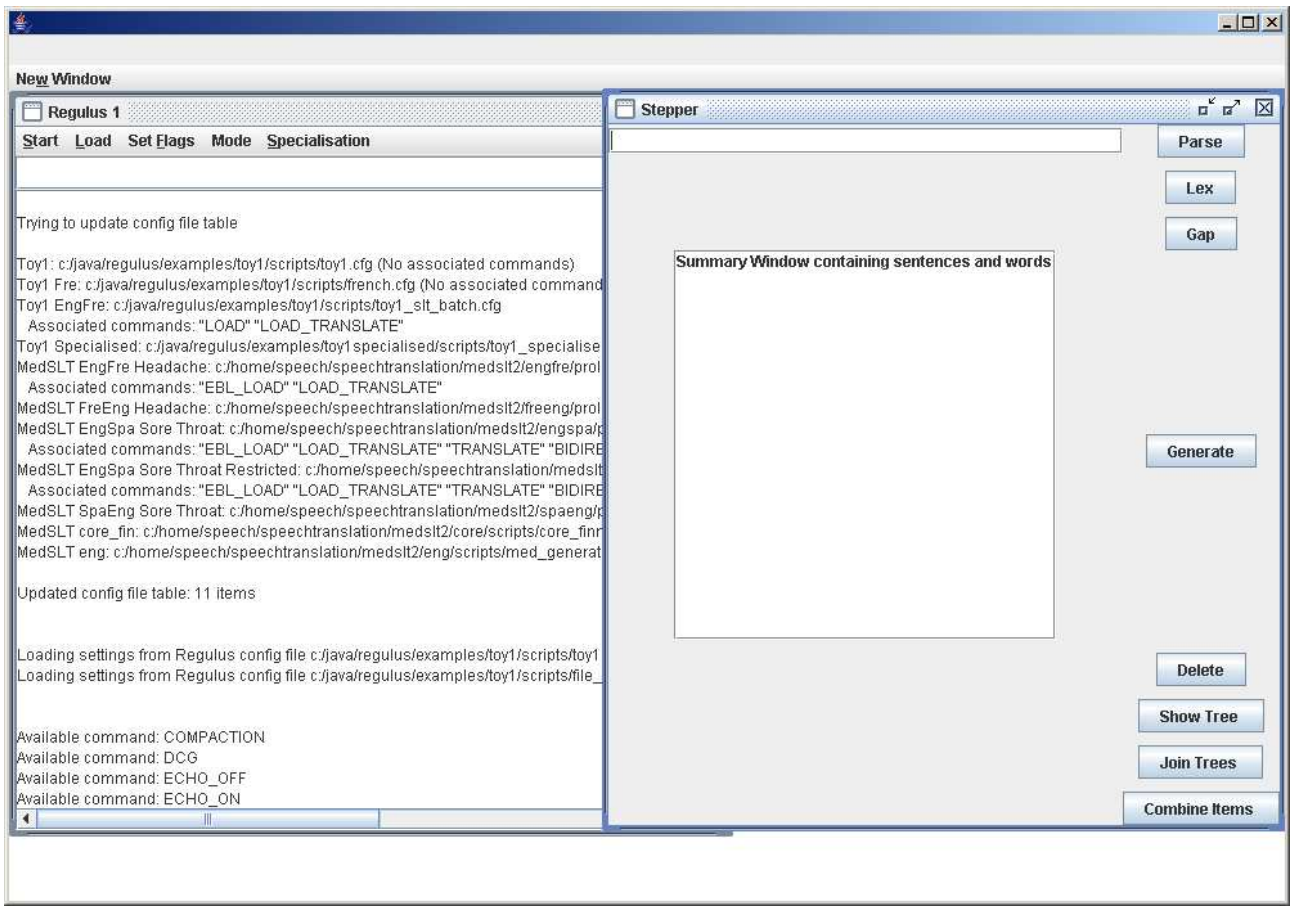
We will show examples of other types of load command later.

The Stepper

The Stepper is a tool that lets you create, examine and manipulate grammatical structures defined by Regulus grammars. To enter the Stepper, click on the Mode menu and choose Start Stepper:



This will bring up a Stepper window.



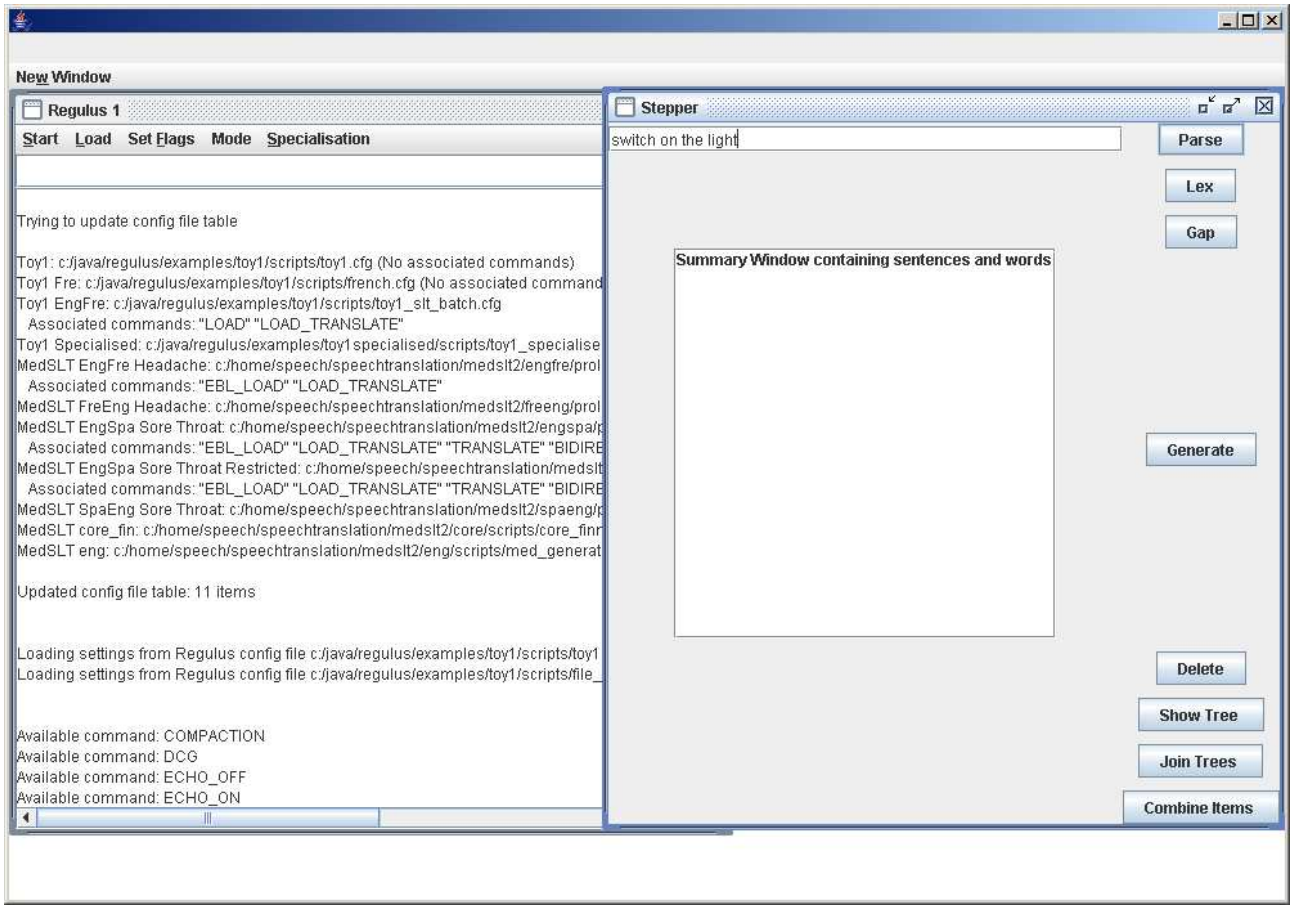
The box at the top of the Stepper window is an input area, where you can enter words or phrases which you want to parse or look up in the lexicon.

The box immediately beneath is the item output area. “Items” hold results of performing Regulus linguistic operations, such as lexical lookup, parsing or generation. Whenever you have successfully done something like parsing or a generating a sentence, this will produce new lines in the item output area. If you select items, you can view them as trees by clicking on the Show Tree button. The buttons on the right-hand side of the Stepper window have the following functions:

- **Parse:** This button will parse the sentence you have entered in the input area.
- **Lex**: Parse the word you have entered in the input area.
- **Generate:** Select an item in the item output area. Pressing the Generate button will invoke the generation grammar to create new items. A generation grammar must be loaded first.
- **Show Tree:** Select an item in the item output area. When you press the Show Tree button, a tree representation of the grammatical structure of the selected item will be displayed.
- **Join Trees:** Select two items in the item output area. When you press the Join Tree button, these two trees will be joined into a third tree which you will find in the item output area.
- **Combine Items:** For this button you will need to select one or more items in the item output area. When you press the Combine Items button, the stepper will attempt to find a grammar rule which it can use to combine the selected items into a new item which will be added to the items output area. If there is more than one applicable rule, it will show alternatives in a menu.

Parsing a sentence

To parse a sentence, write it in the input window and press the Parse button. In this example, we enter the sentence “switch on the light”.



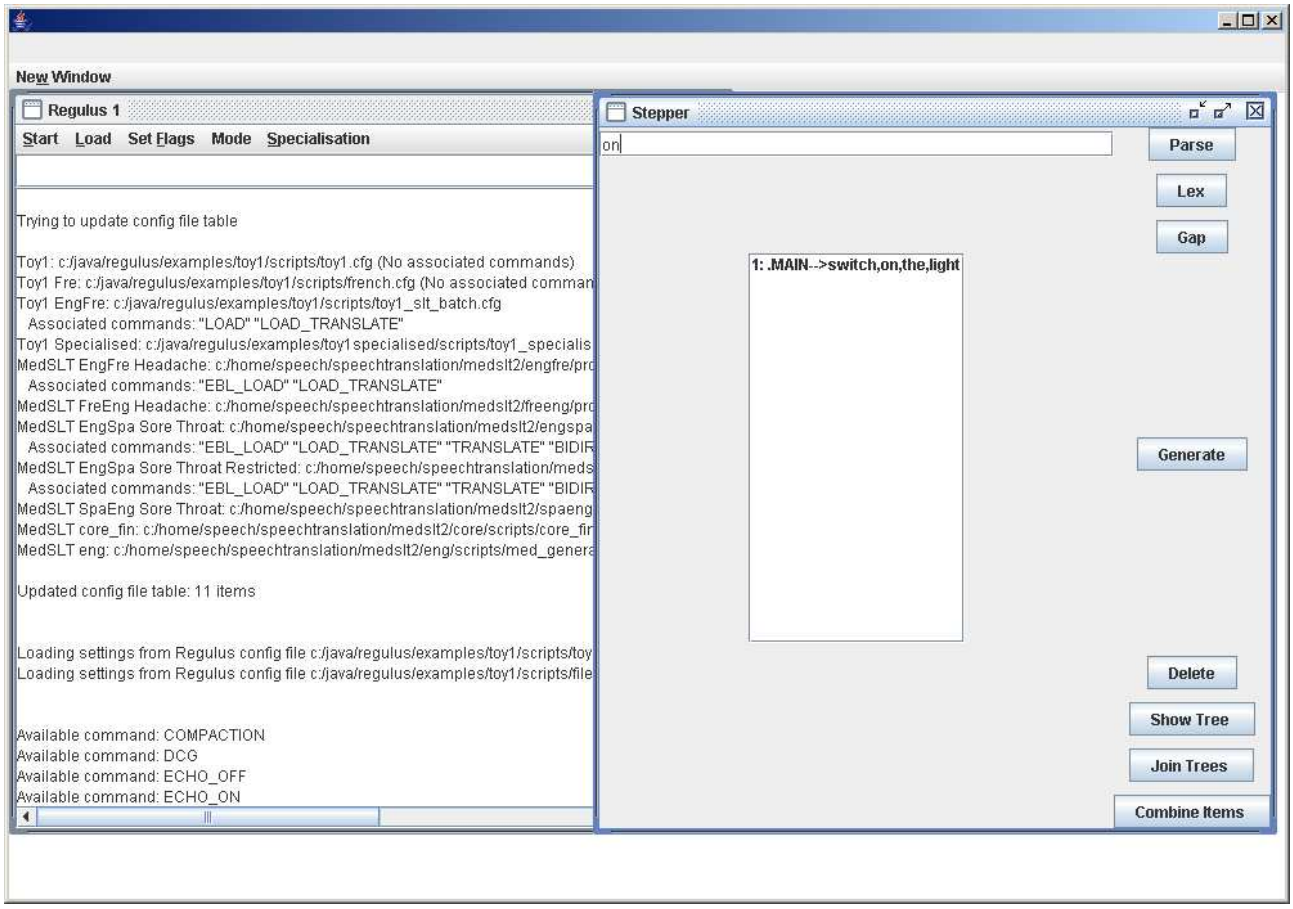
After the parse button is pressed, a message appears showing whether the sentence has been successfully parsed or not. Click on OK.

If the sentence has been successfully parsed and you have clicked OK, the sentence will appear as an item in the item window in the stepper window.

Adding lexical items

You can also create Items corresponding to individual lexical entries. To do this, enter the surface form of the lexical item in the input field, just as you did when parsing a sentence, and press the Lex button. If there is more than one item with the given surface form, a menu is displayed.

In this example, we enter the word “on” in the input field.

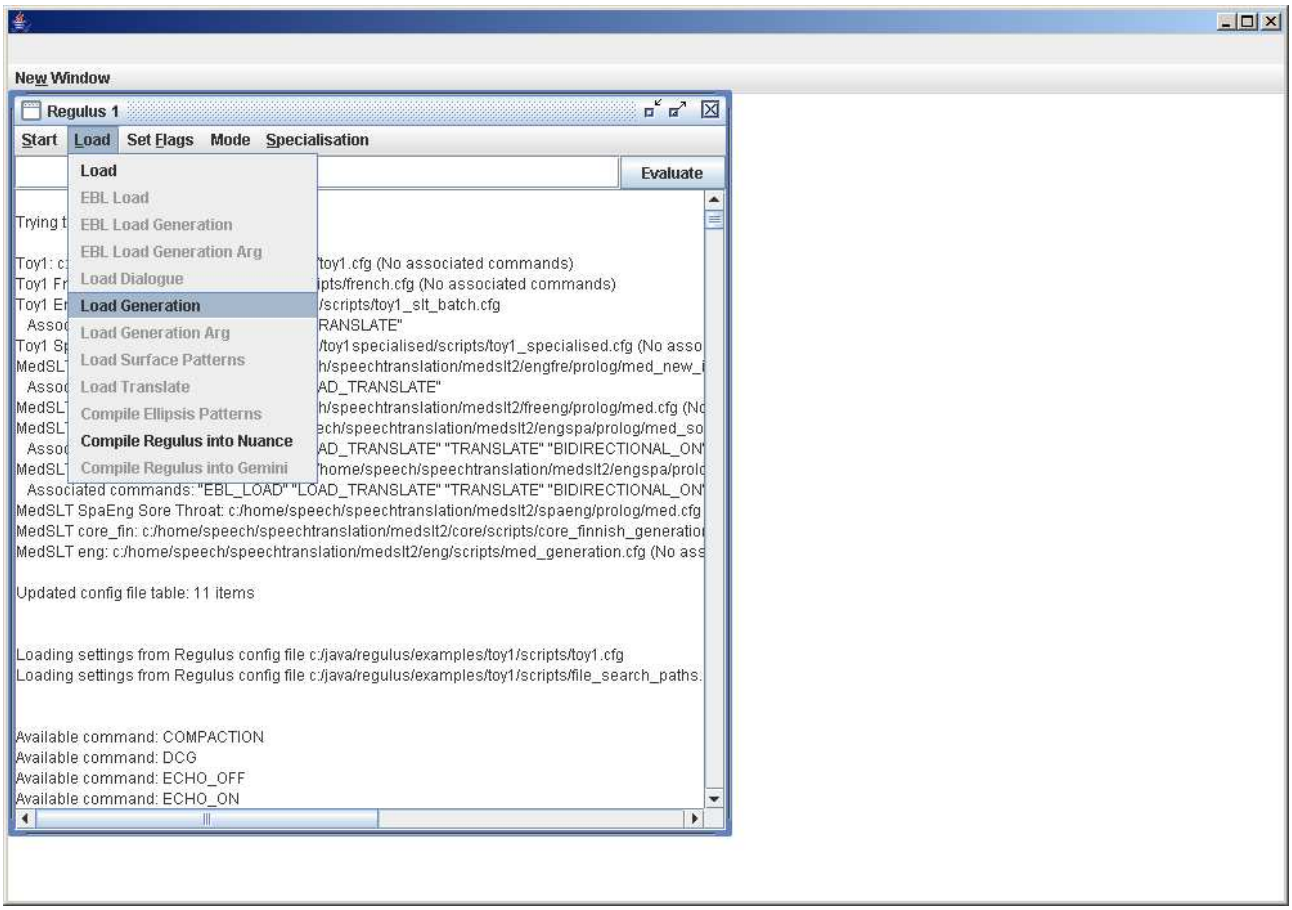


After the Lex button is pressed, you will get a message saying whether the word has been successfully found or not. Click on OK.

If the word was found, the lexical entry will appear as an Item in the item window.

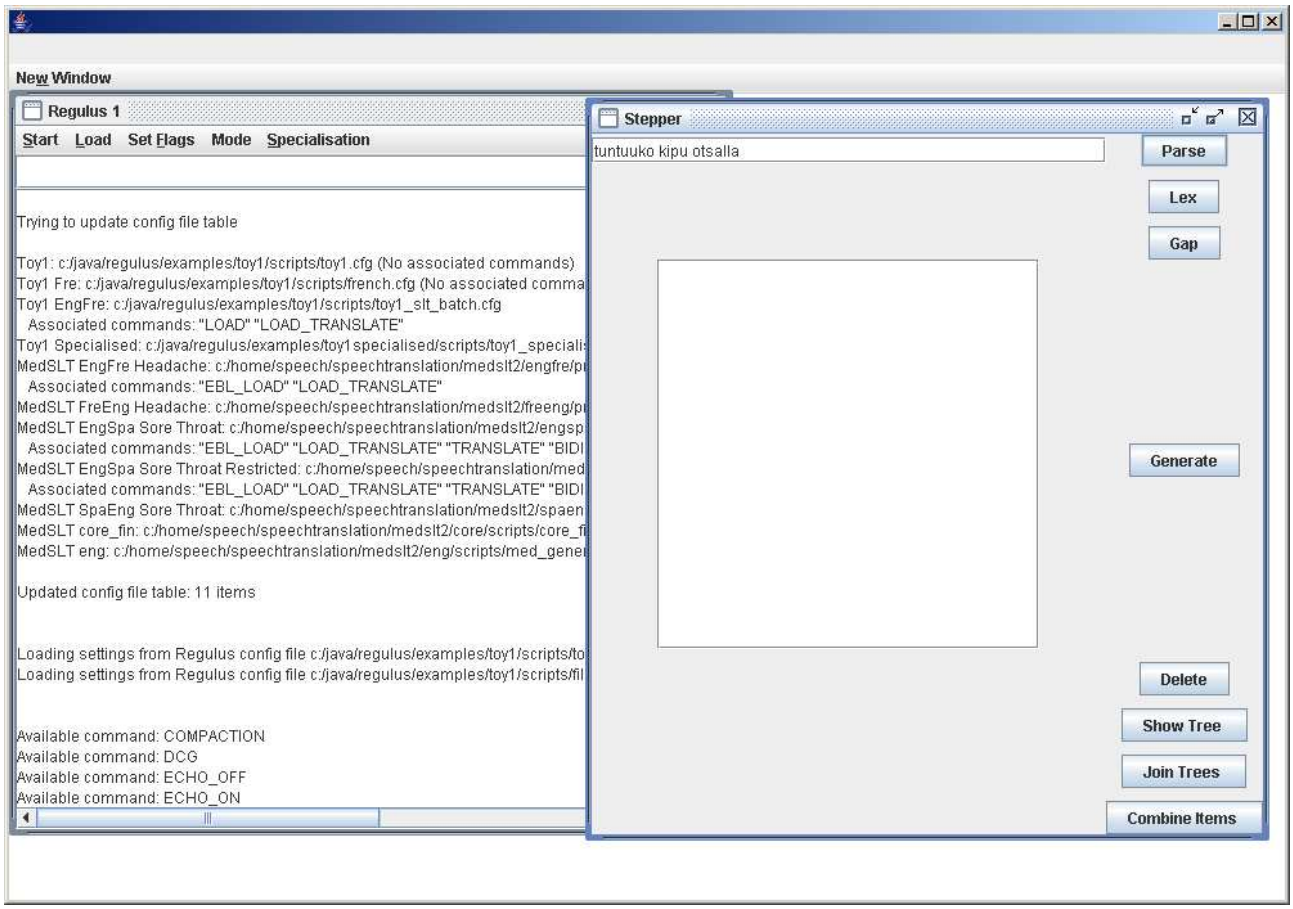
Generating sentences

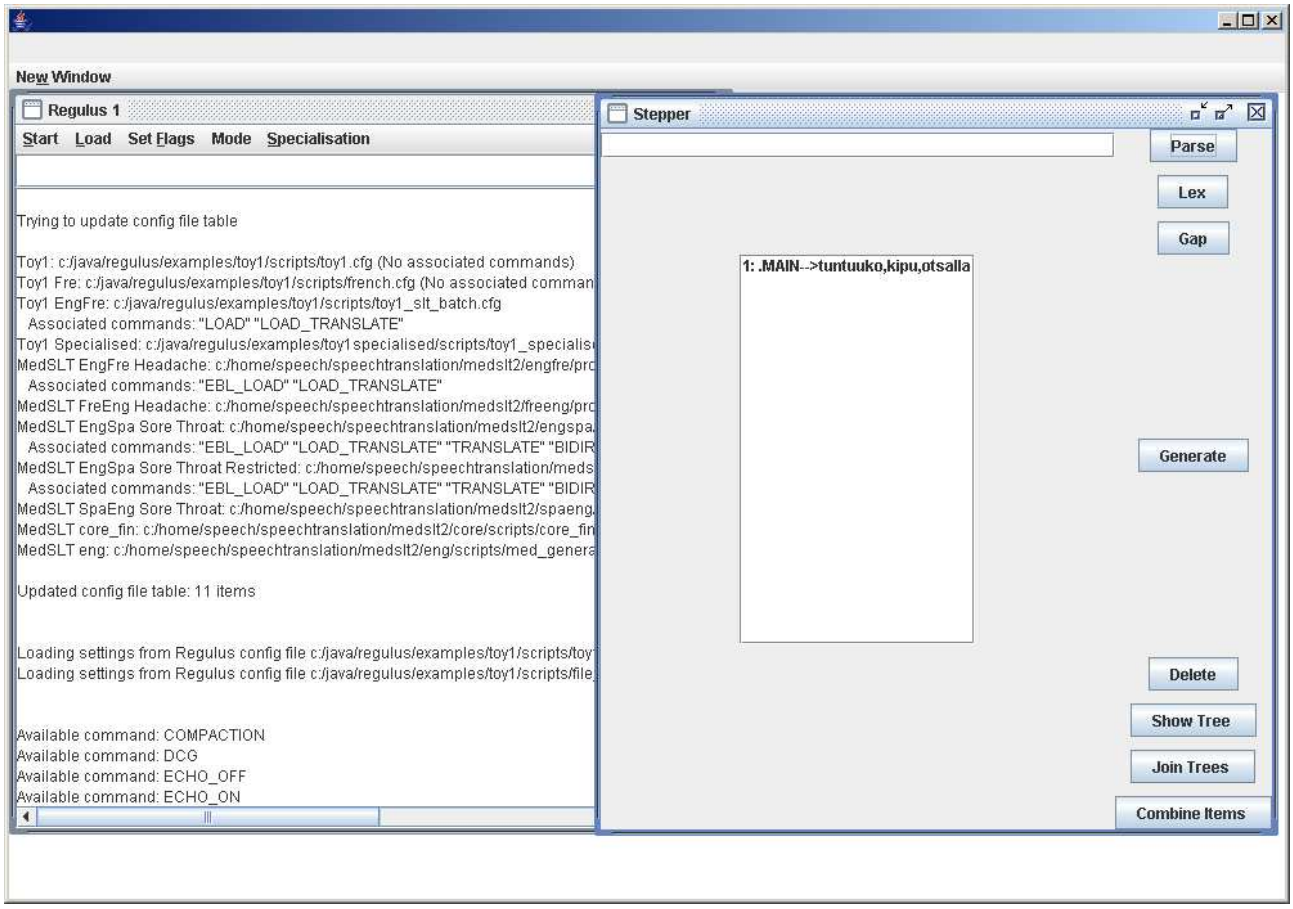
To be able to use the Regulus generation capability, you first need to load a generation grammar. You do this by selecting the Load Generation option from the Load menu. The generation grammar grammar must be defined in the current config file.



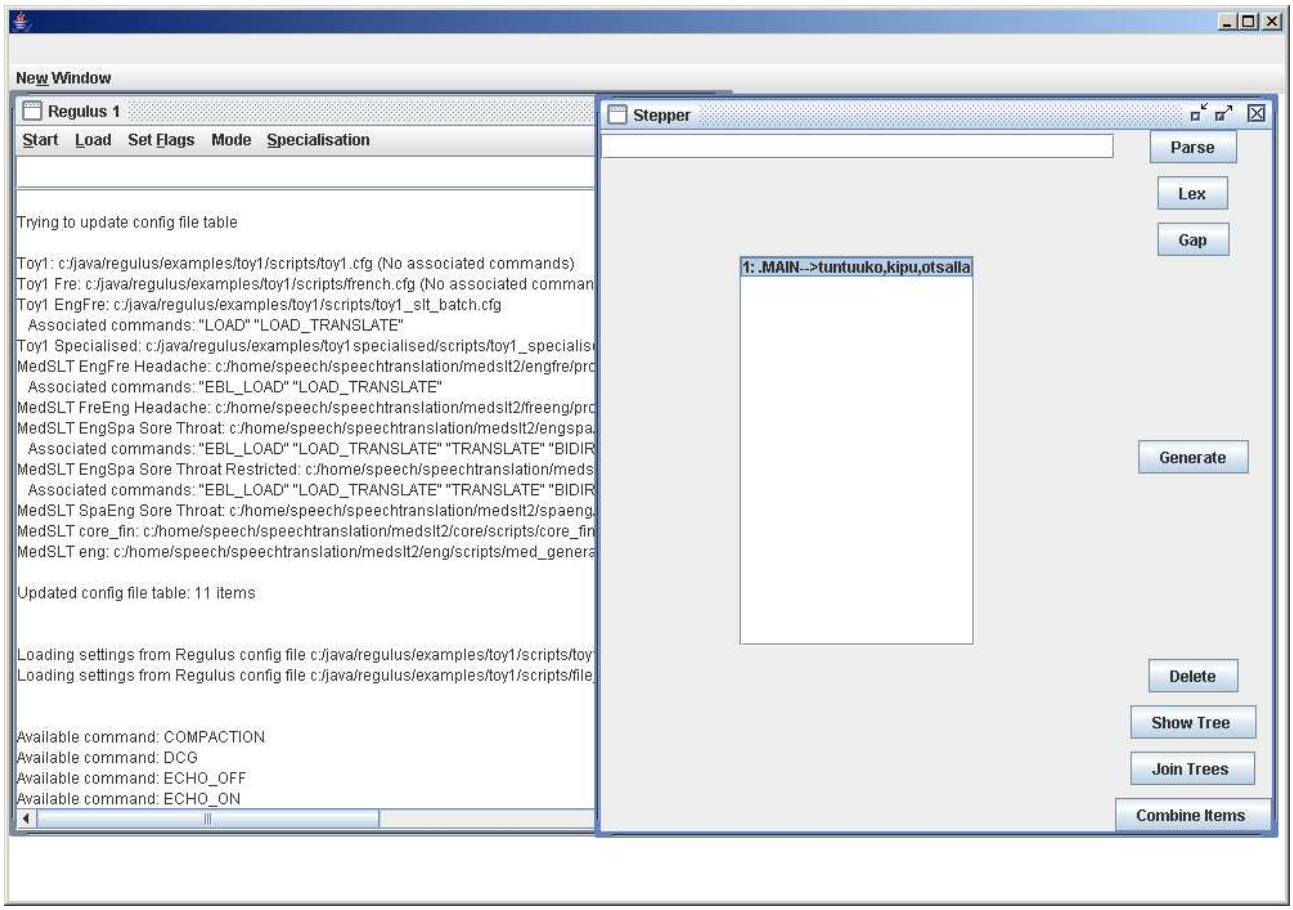
Once you have loaded the generation grammar, you can attempt to perform generation on any item currently in the Item Area.

Here is a Finnish language example, using the Finnish grammar developed by Marianne Santaholma under the MedSLT project. Start by entering the Finnish sentence “tuntuuko kipu otsalla”(is the pain frontal):



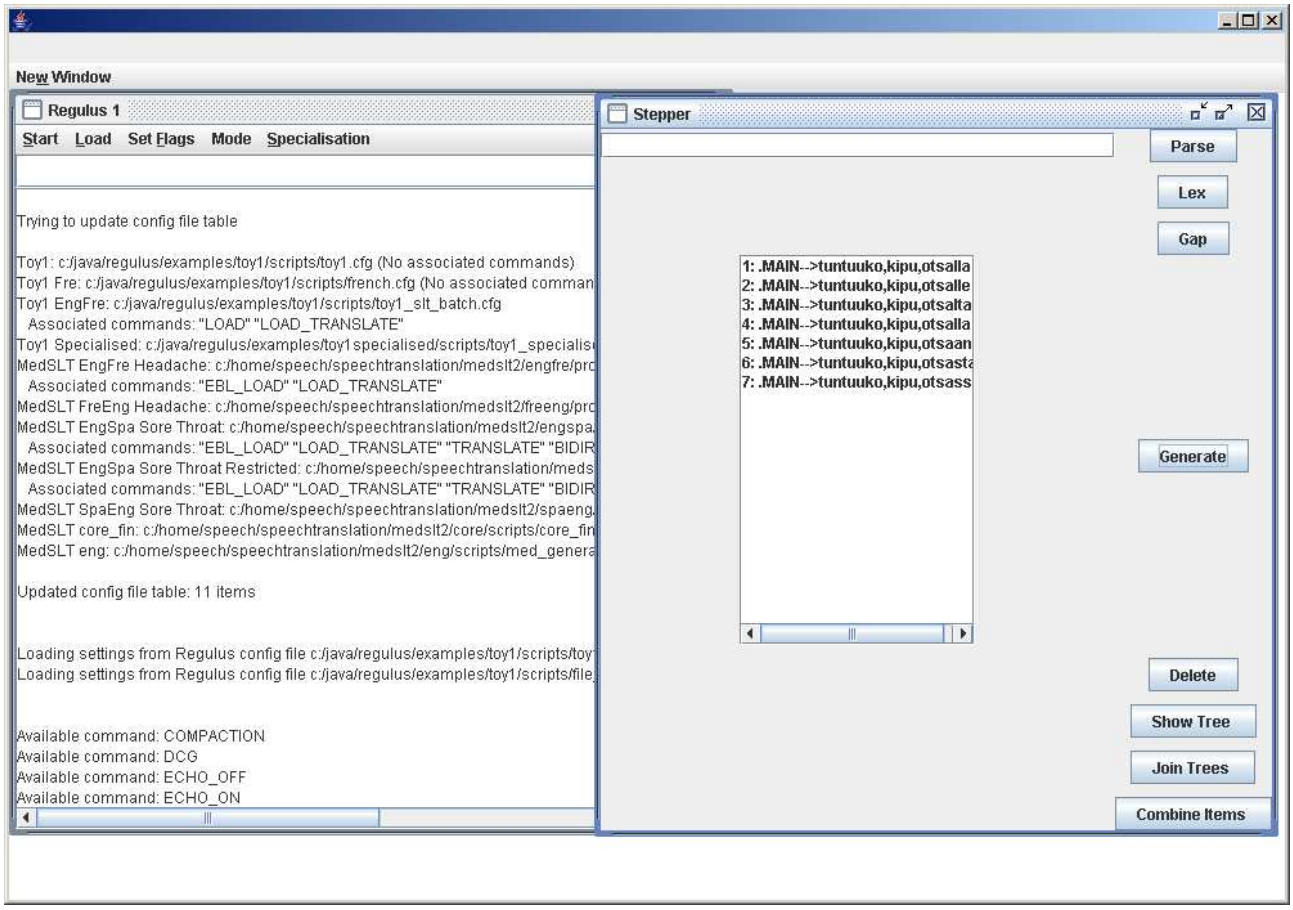


As described above, parse it by pressing the Parse button. This creates a new Item.
Select this sentence in the item window:



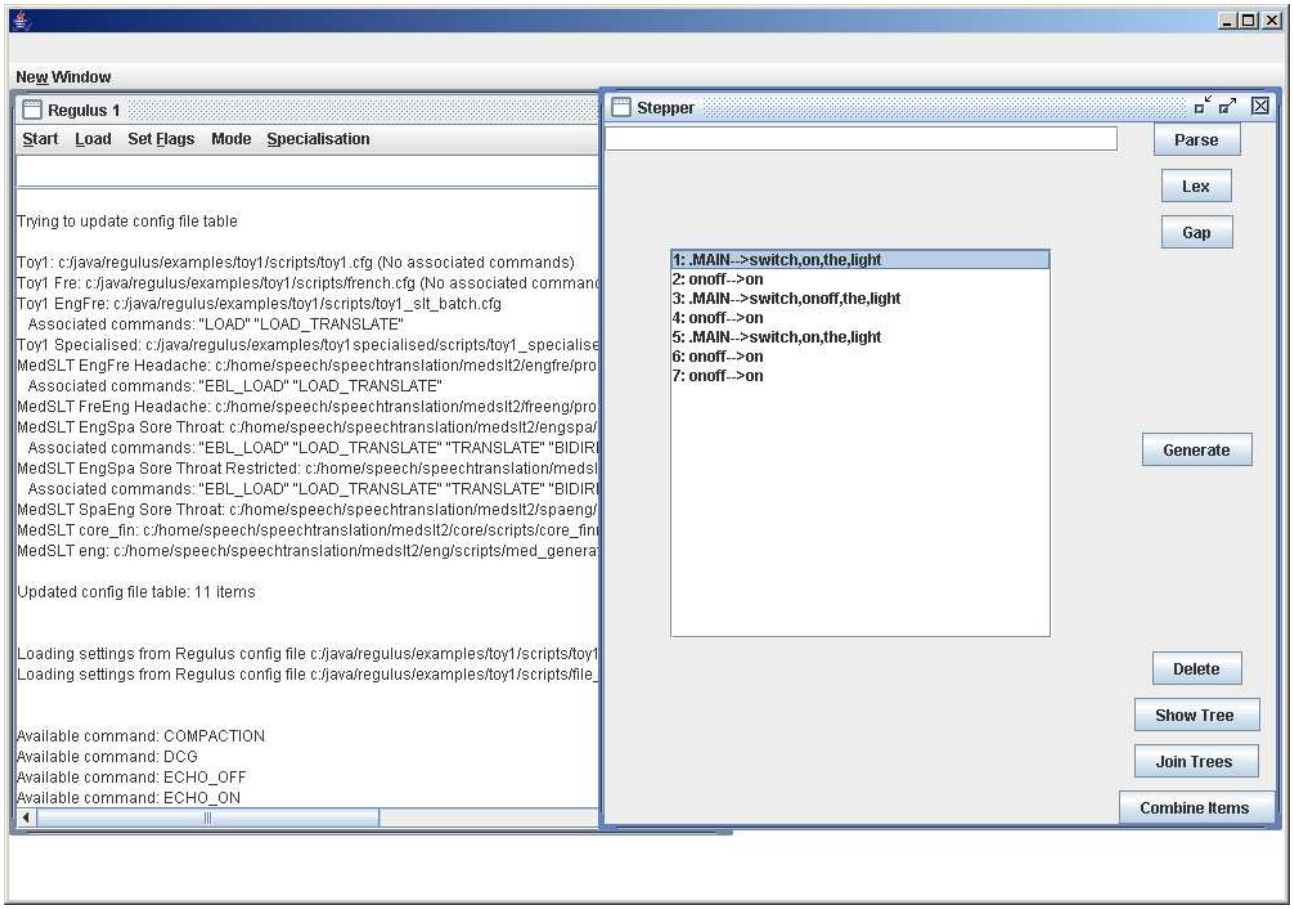
Click on the Generate button in order to generate sentences from the item which you have selected. The system will tell you if you have been successful in generating items from your selected sentence, and how many items you have generated.

Click on the OK button.
The generated sentences will appear in the Items window.

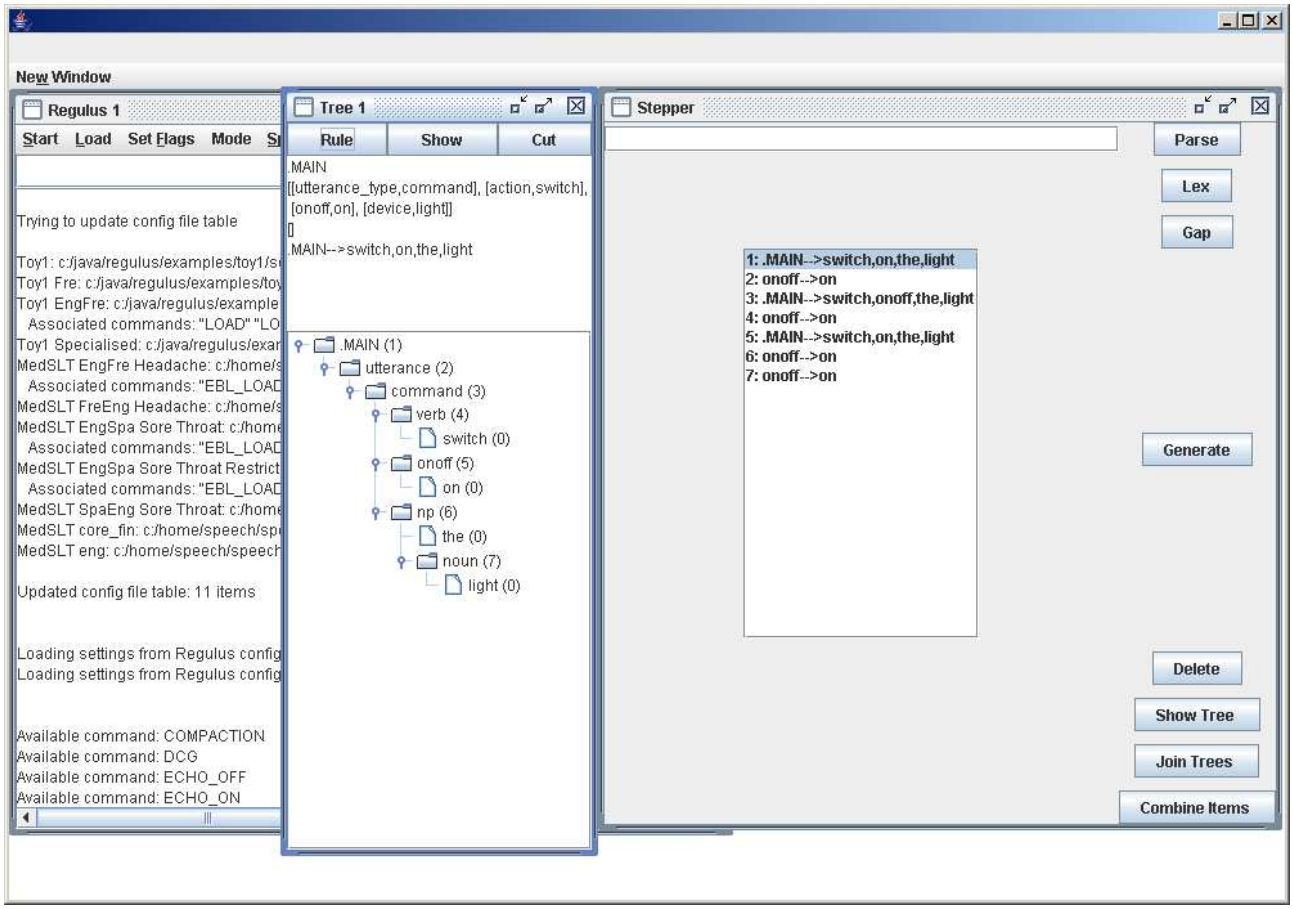


Displaying items

To display an Item, first select it in the Item window:



Now press the Show Tree button. A new window will appear with the item's grammatical structure displayed as a tree.

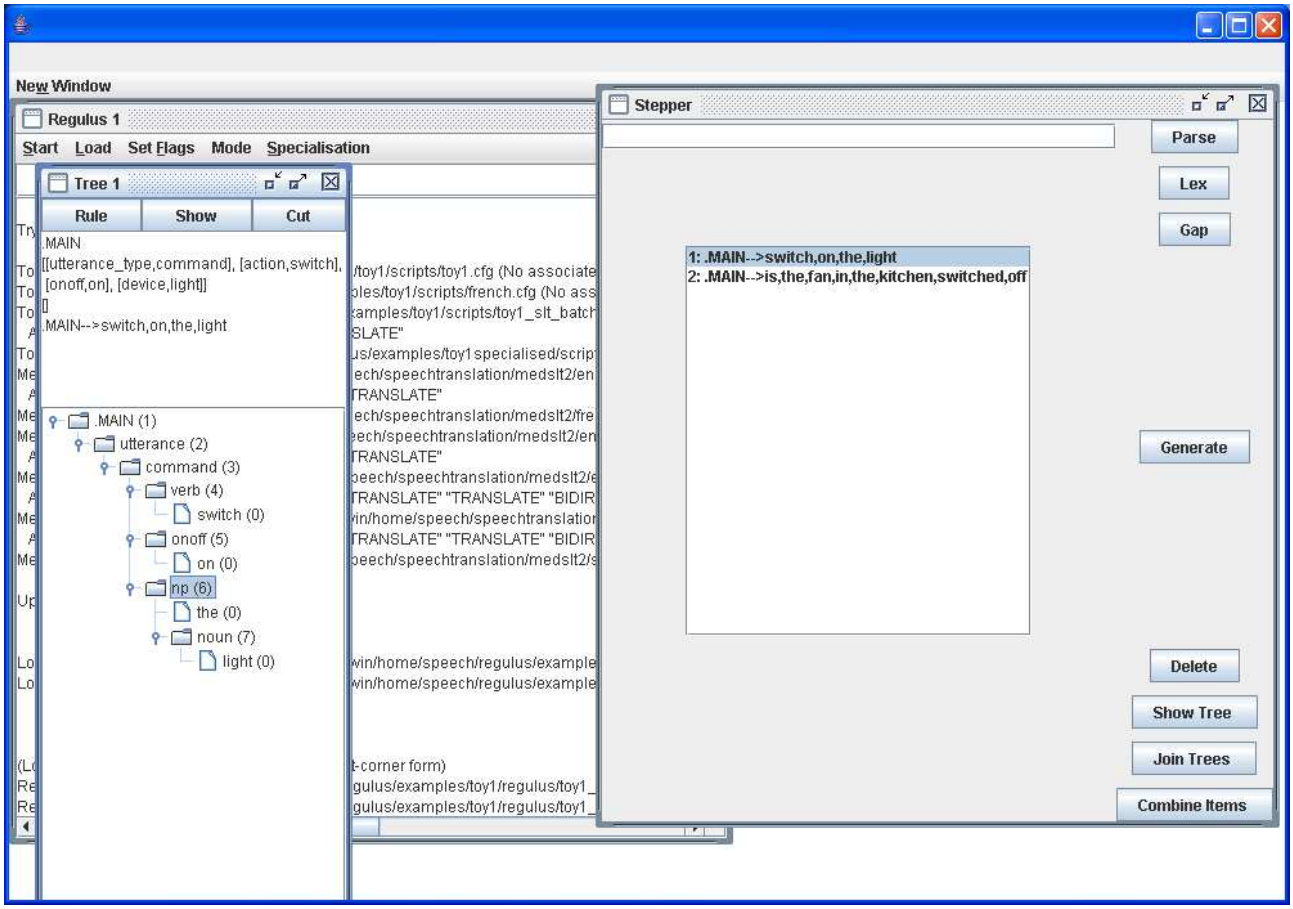


Cutting and Joining Items

One of the most interesting capabilities of the Stepper is that it allows the developer to try to build up new linguistic analyses by combining pieces of structure from existing ones. The Cut and Join buttons are used for this purpose.

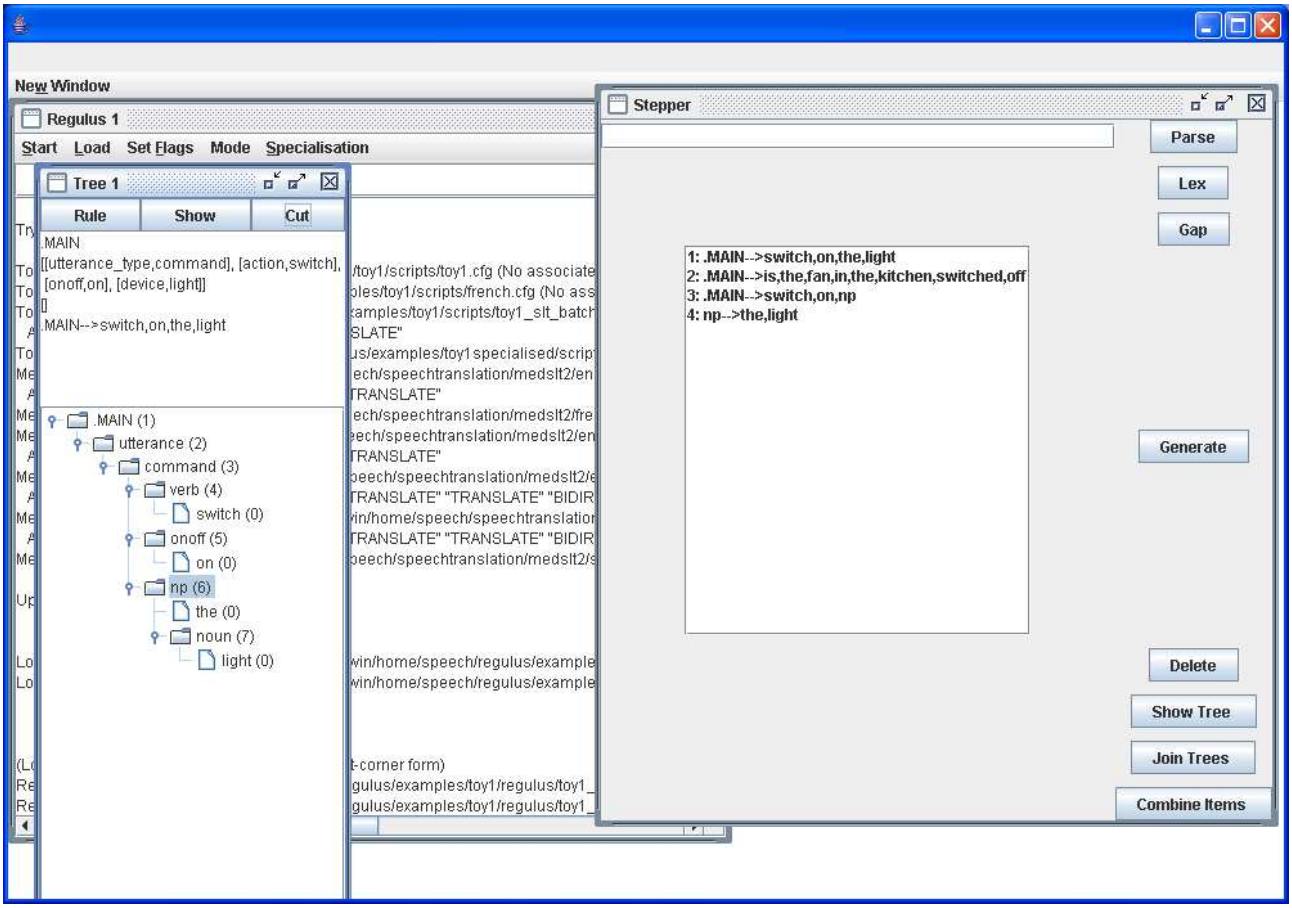
Suppose that we trying to find out exactly why the Toy1 grammar is unable to parse the sentence “switch on the kitchen”. We start by using the Parse command to build Items for “switch on the light” and “is the fan in the kitchen switched on”. Our strategy will be to cut out the phrase “the light” from the first sentence and “the kitchen” from the second, and then try to paste “the kitchen” into the hole left in the first sentence.

We use the Show Tree command to display the first Item, and select the NP node for “the light”:

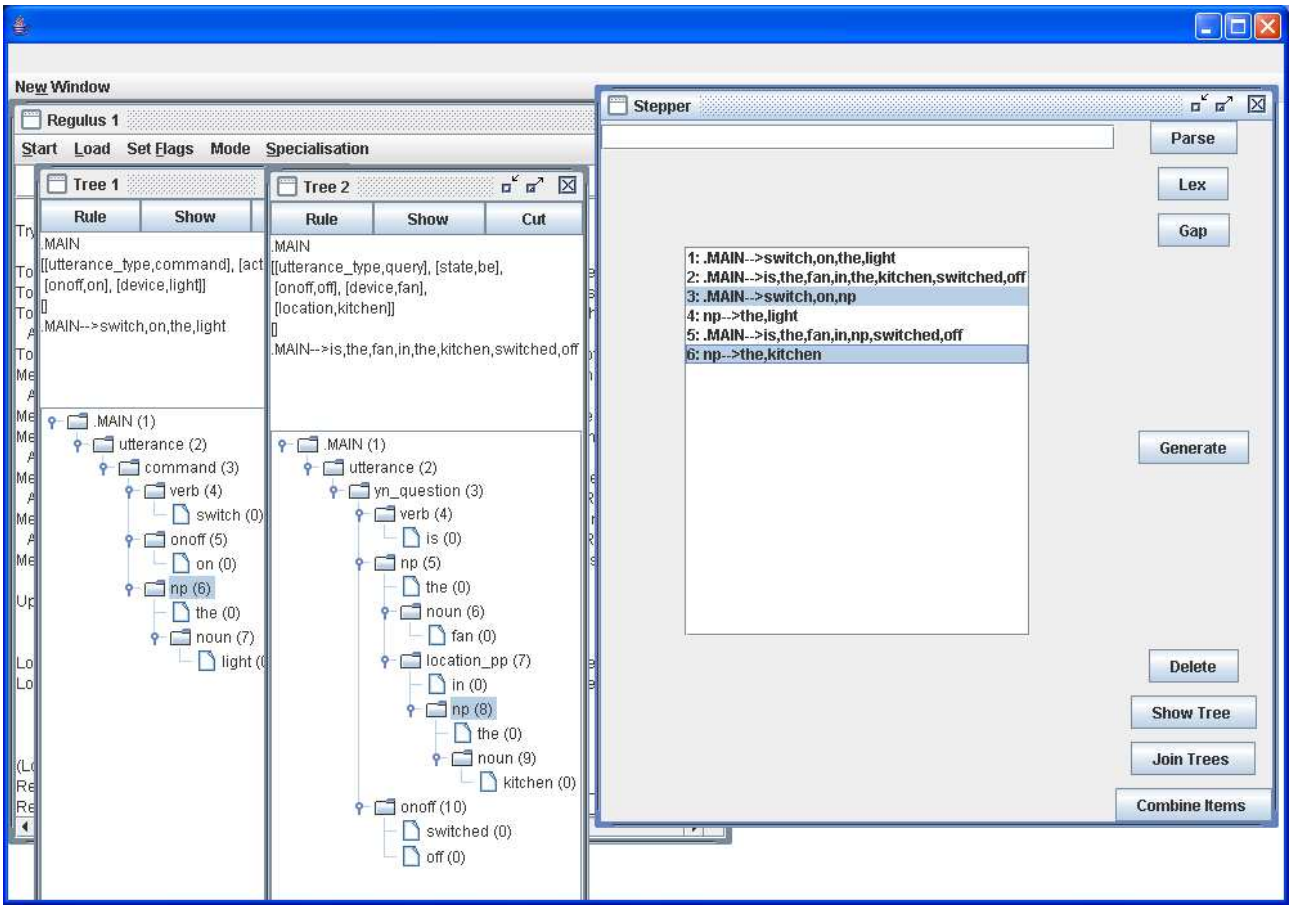


We then press the Cut button. This produces the message

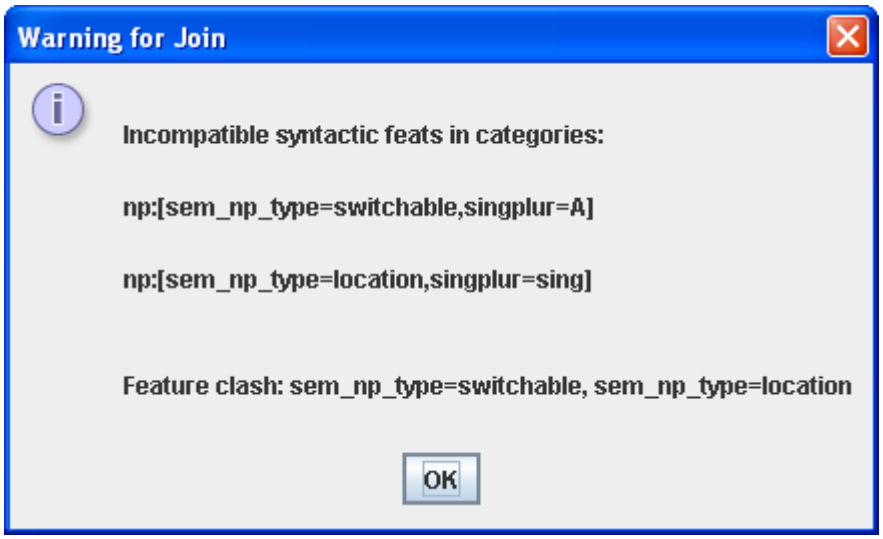
After we press “OK”, we can see that two new Items, 3 and 4, have appeared in the Item Area. Number 3 is marked “.MAIN --> switch,on,np” - this is the version of Item 1 in which “the light” has been cut out, leaving an NP gap. Number 4 is the NP that has been removed.



In the same way, we can show the tree for Item 2, “is the fan switched on in the kitchen”, and cut out the NP marked “the kitchen”. This produces two more Items, 5 and 6. As before, the first of these (Item 5) is the original item with an NP hole, and the second (Item 6) is the material that has been removed. Finally, we select Items 3 and 6 (to select more than one item, hold down the Ctrl key and click on the items) and press Join Trees:

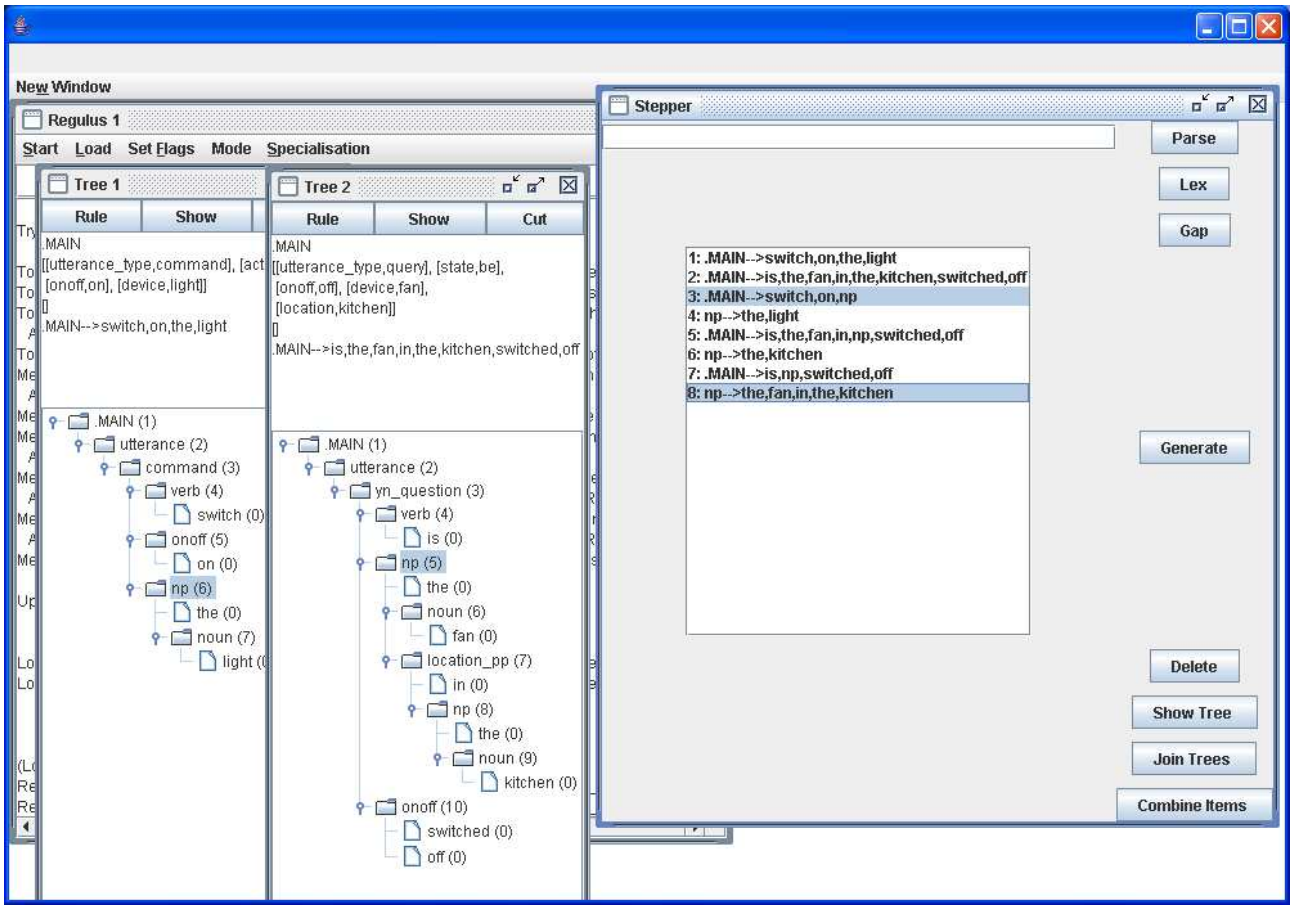


We get the following informative message:



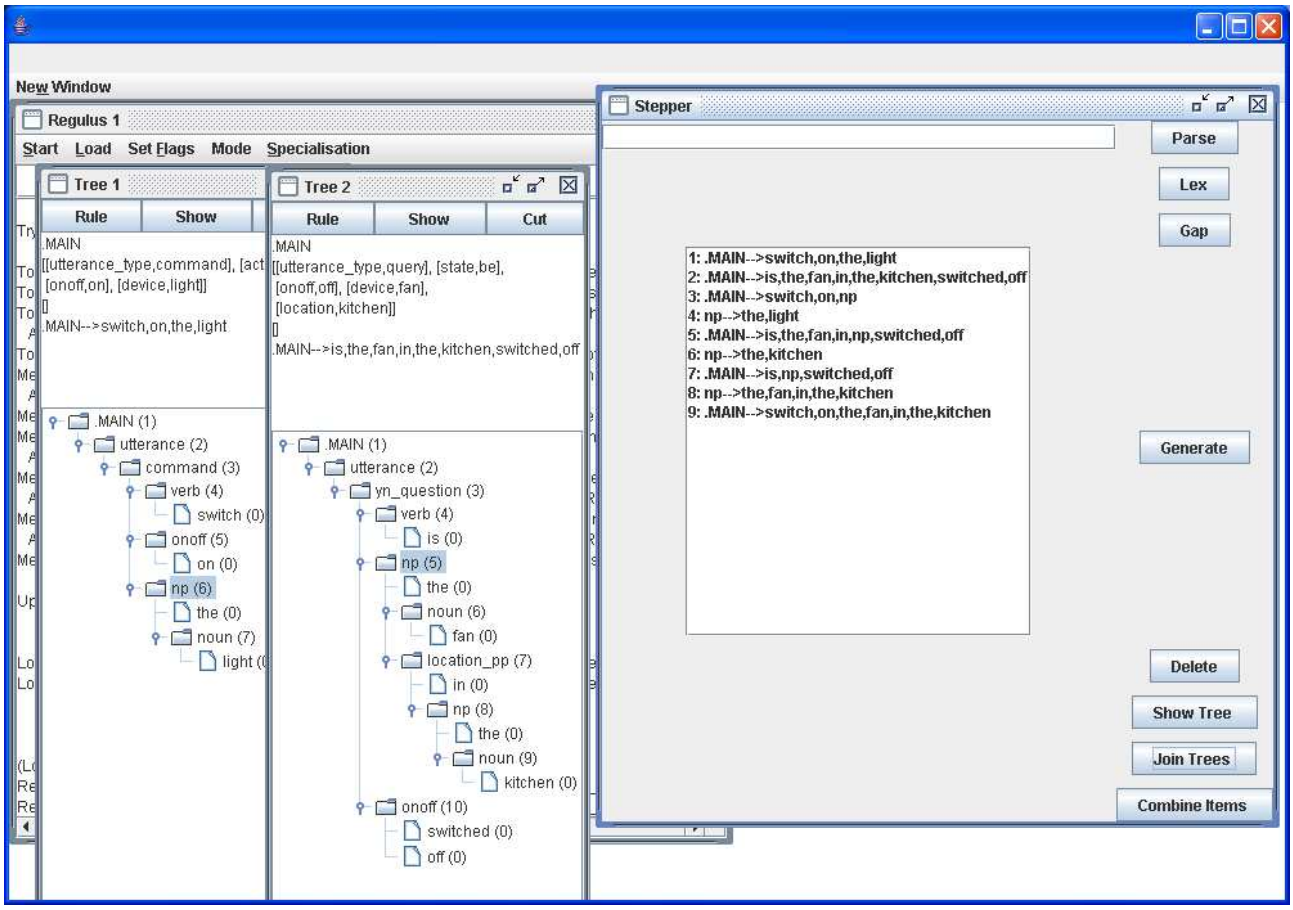
This shows that the incompatibility is specifically in the feature sem_np_type.

We now show an example of the Join command succeeding. In the Tree 2 window, select the NP node marked “the fan in the kitchen”, and press Cut again. We get two more Items, 7 and 8. Select Items 3 (“switch on NP”) and 8 (“the fan in the kitchen”), and press Join:



This time, we get the message

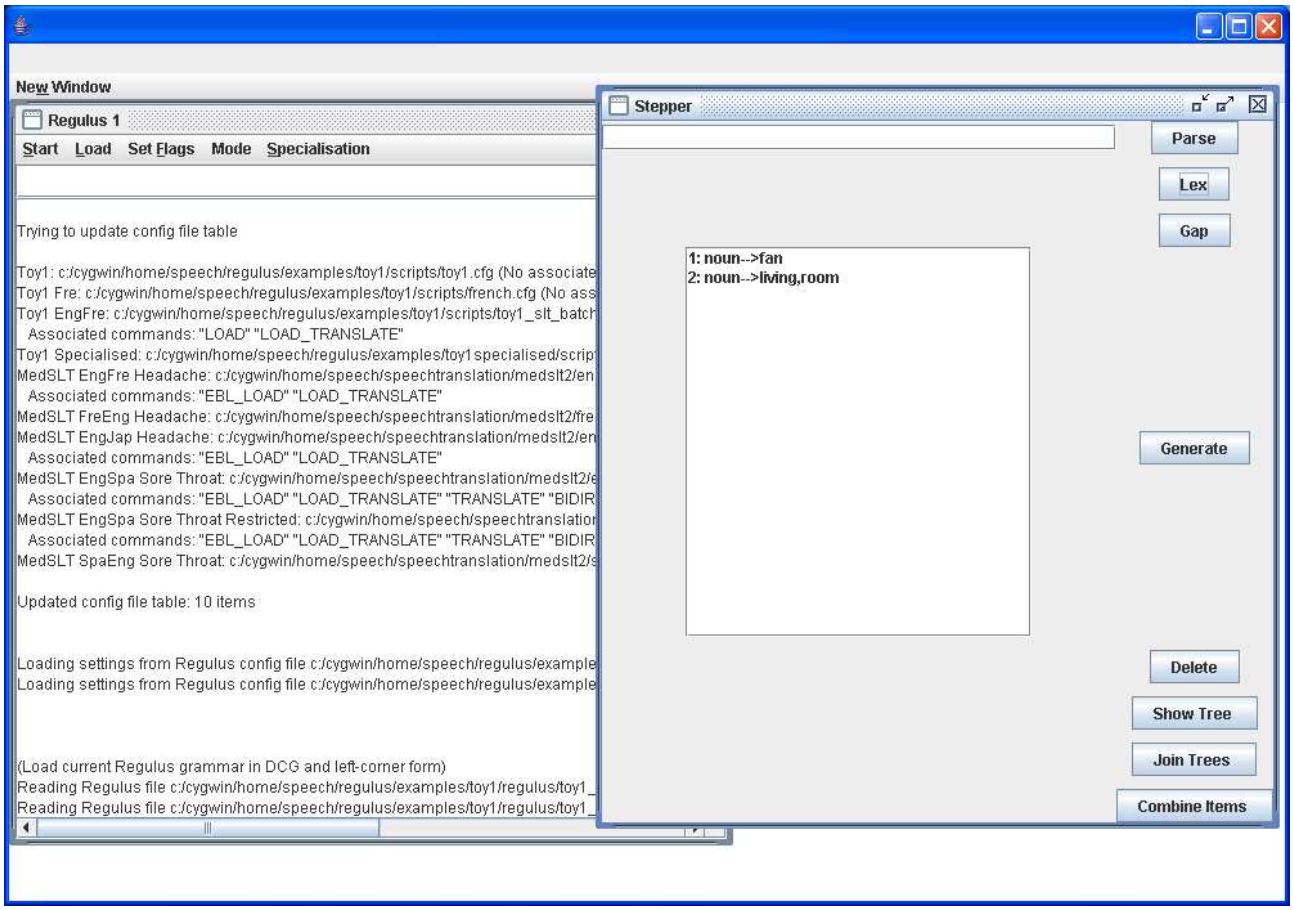
and we find a new Item has been added, for “switch on the fan in the kitchen”.



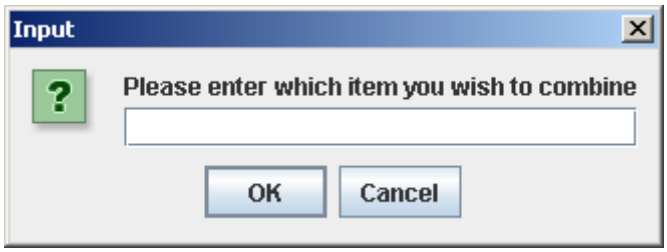
Bottom-up combination of Items

The easiest ways to build up new Items are those we have already seen: parsing, lexical lookup, cutting and joining. If none of these work, however, it is also possible to combine Items bottom-up.

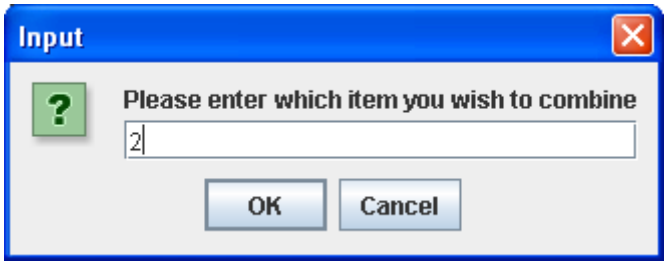
For example, in the Toy1 grammar, suppose we wanted to build up an Item representing the NP "the fan in the living room". We start by using the Lex command to add Items for the lexical entries "fan" and "living room", after which the display looks like this:



We first build the Item for the NP “the living room”. We press “Combine Items”. A window appears:

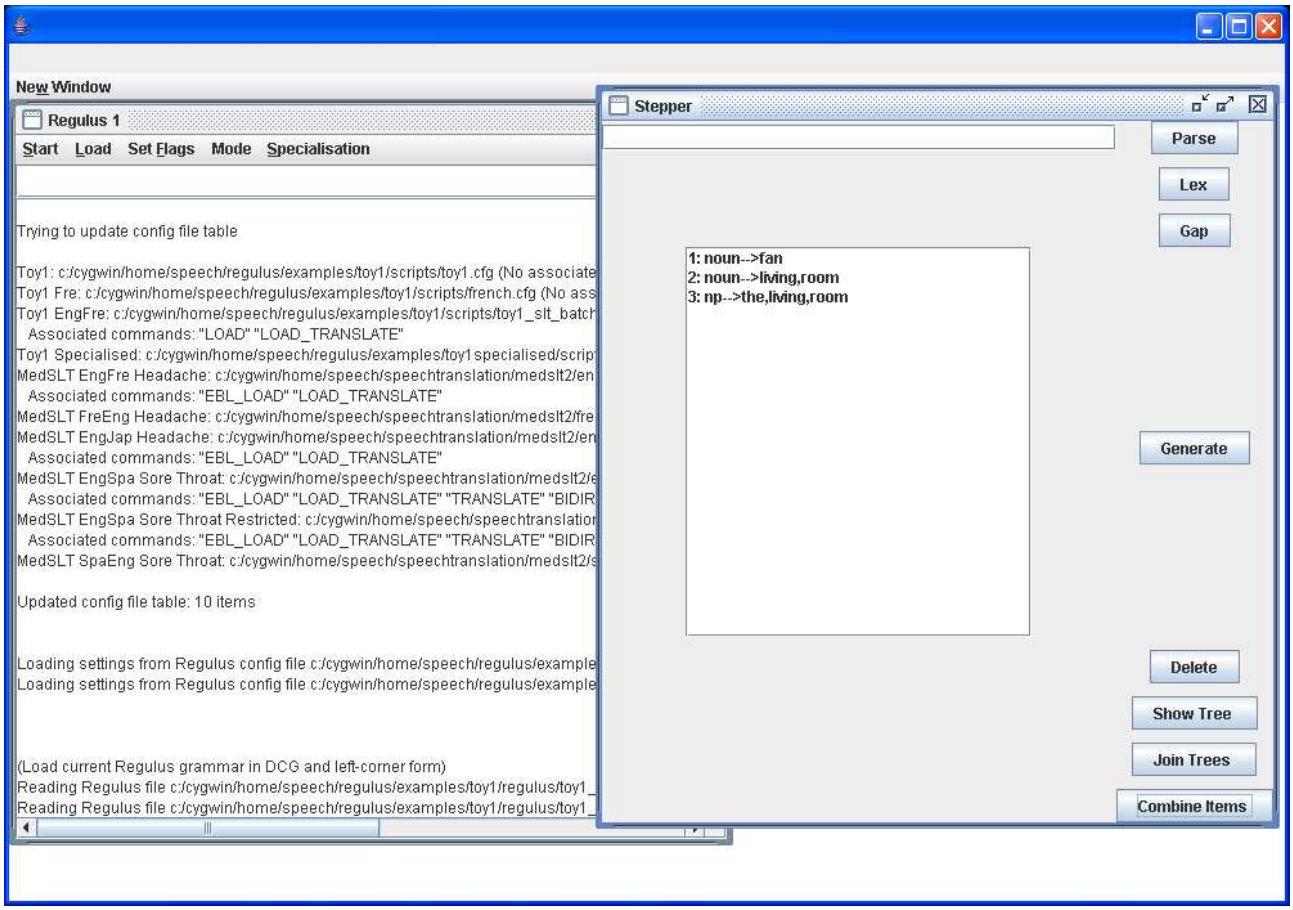


There is a slightly tricky point here: in this grammar, the word “the” in “the living room” is syncategorematic, in other words comes directly from a grammar rule rather from a lexical item. This means that, rather paradoxically, we build “the living room” only out of the Item for “living room”, so we fill in the box as follows:

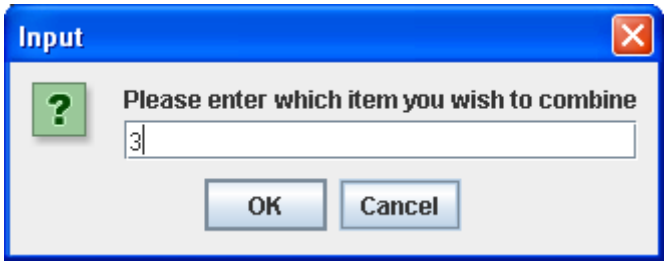


The combine command succeeds:

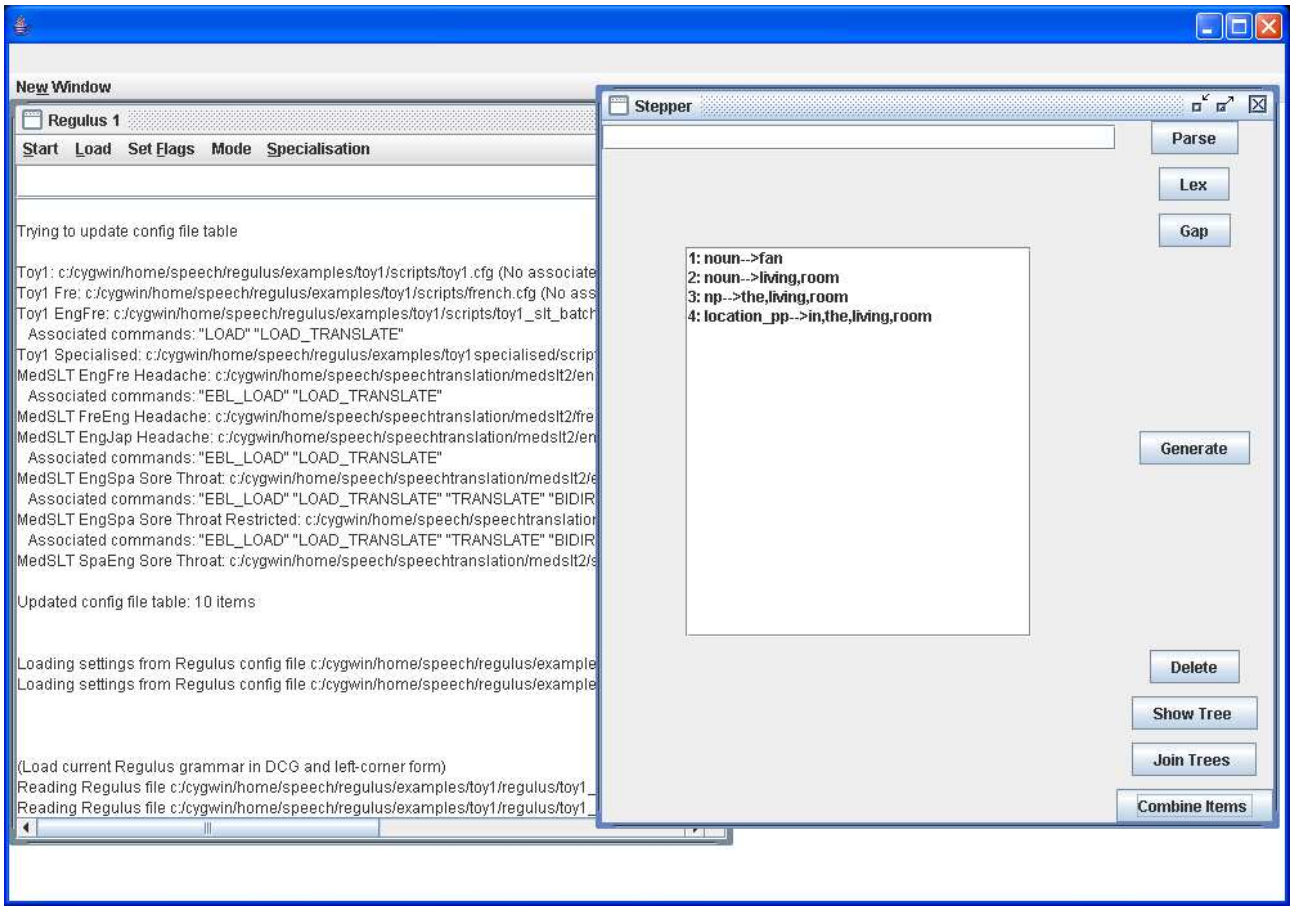
and the new state of the display is



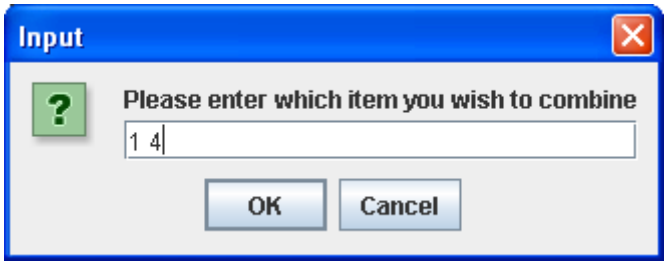
Next, we form the location_pp “in the living room”. In the Toy1 grammar, “in” is also syncategorematic, so the command looks like this:



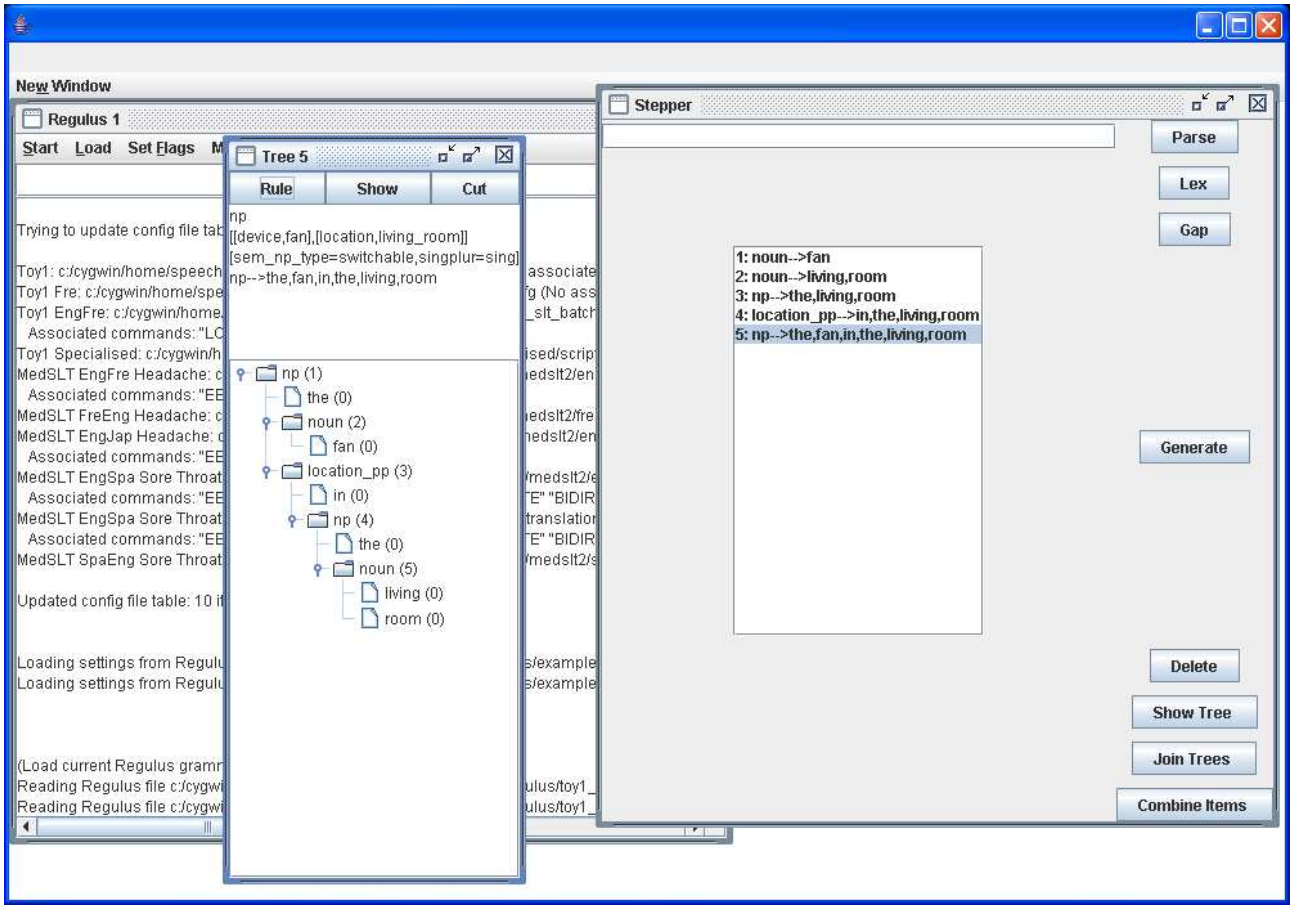
giving the following state of the display:



Finally, we build up the phrase “the fan in the living room”. This consists of a syncategorematic “the”, the noun “fan”, and the location_pp “in the living room”. The command is thus:

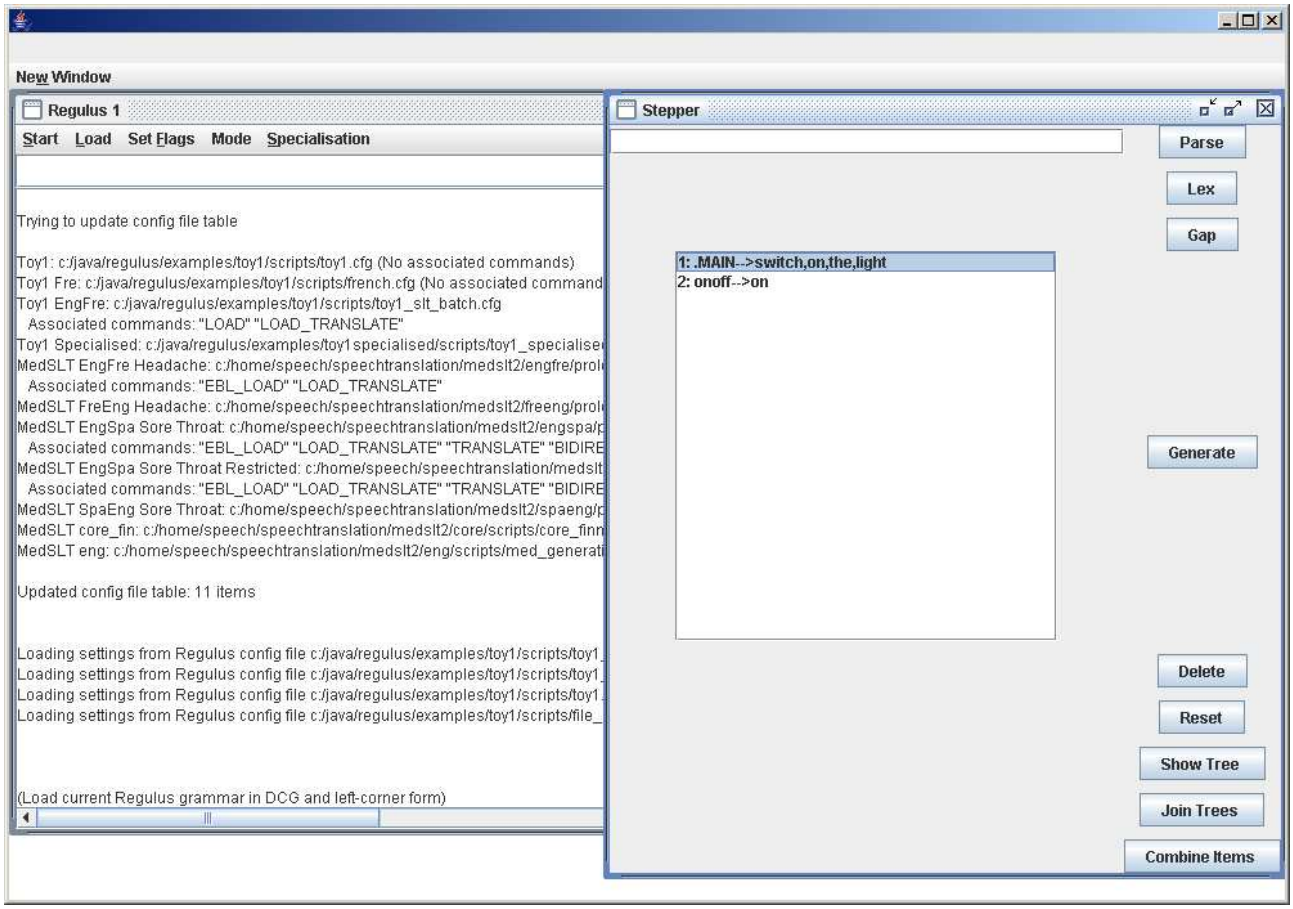


We show the final state of the display, after we have selected the new Item and displayed the associated tree.



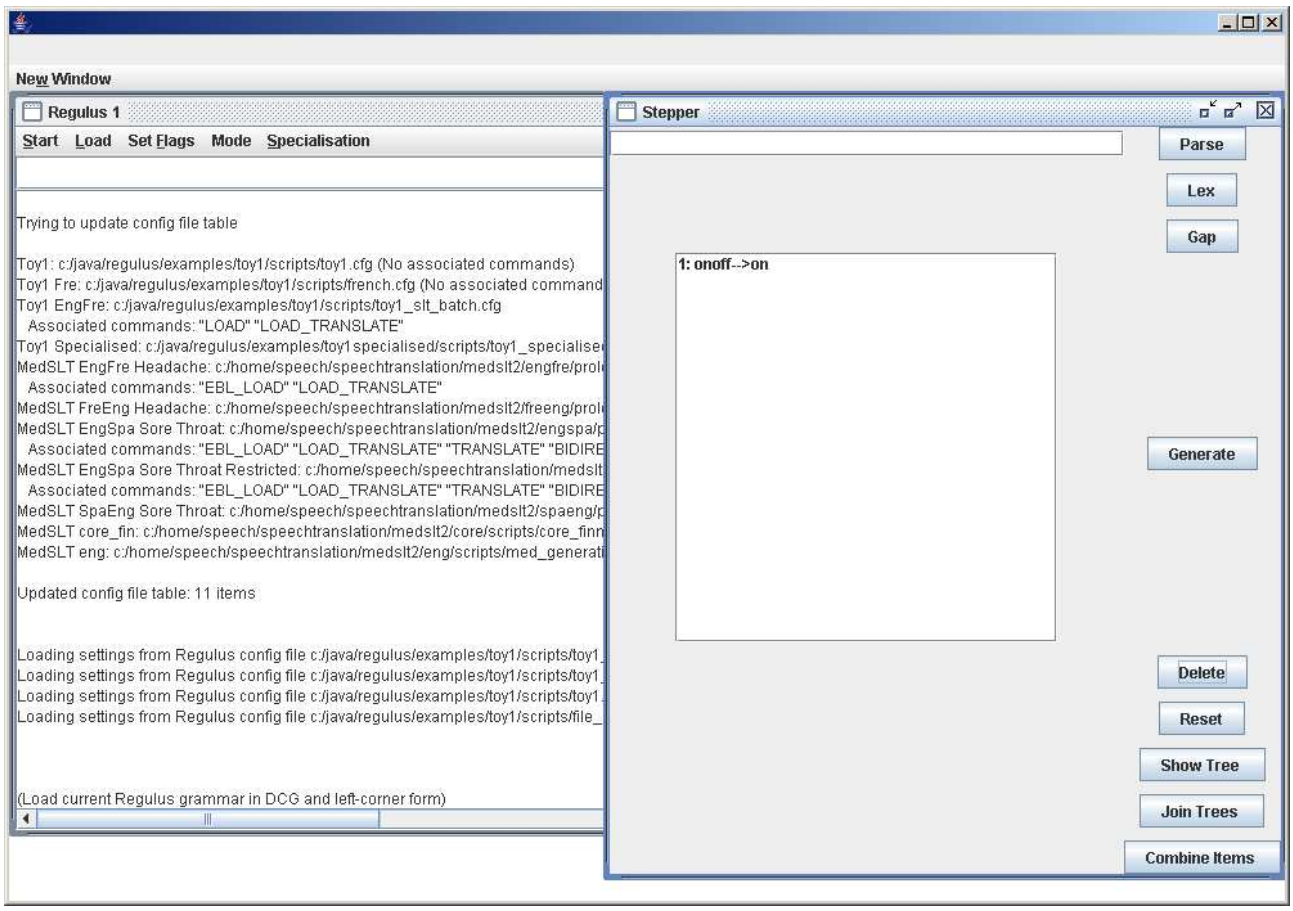
Deleting items

To delete a single item, start by selecting it from the item output area:

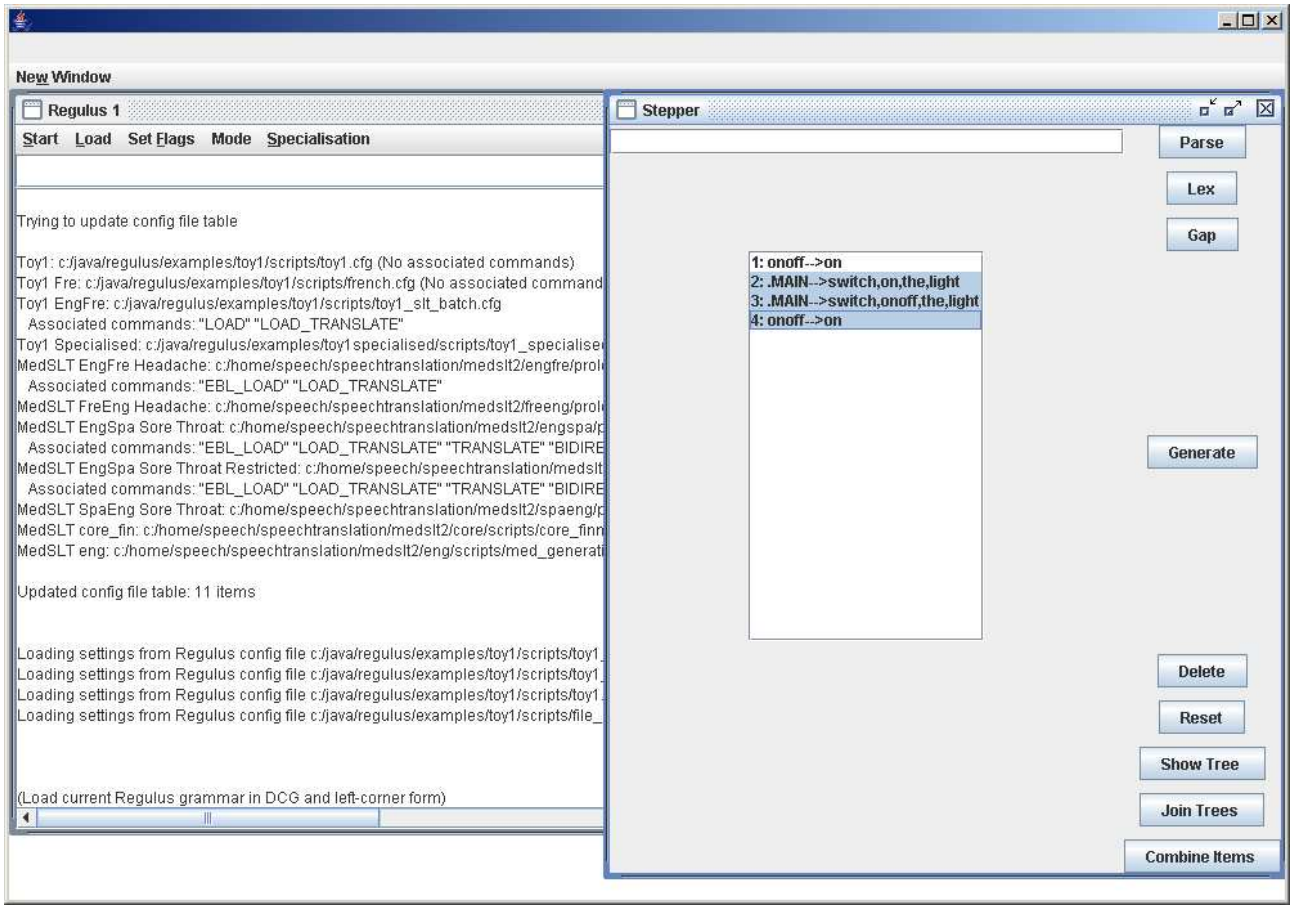


Press the Delete Button. A dialog box appears, asking you if you want to delete the selected item.

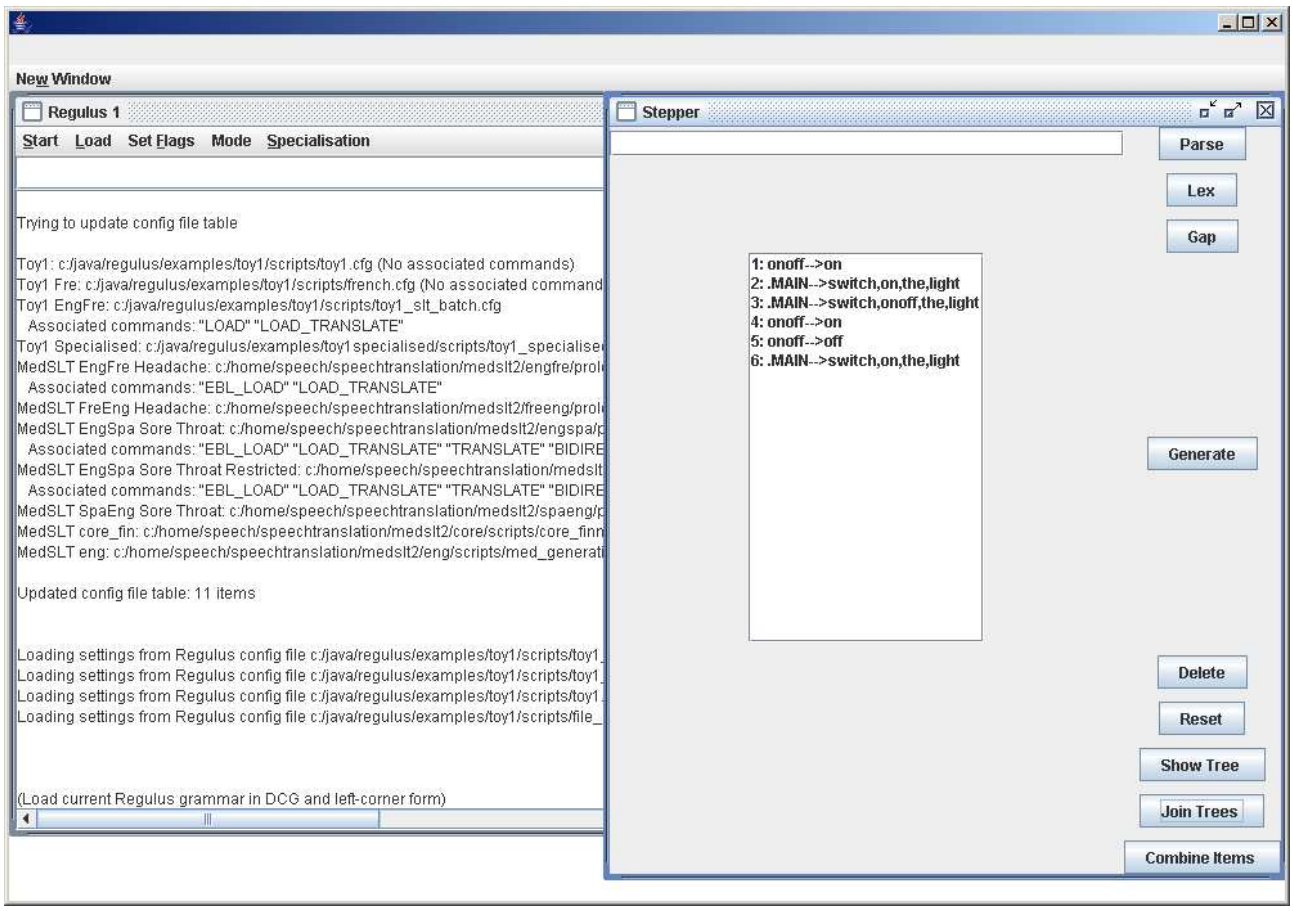
Click on OK . The display shows that the item has been removed; note that the item previously in second place has now been renumbered, so that it has become the new number 1.


New Window
Regulus 1
Start Load Set Flags Mode Specialisation
Trying to update config file table
Toy1: c:/java/regulus/examples/toy1/scripts/toy1.cfg (No associated commands)
Toy1 Fre: c:/java/regulus/examples/toy1/scripts/french.cfg (No associated command
Toy1 EngFre: c:/java/regulus/examples/toy1/scripts/toy1_slt_batch.cfg
Associated commands: "LOAD" "LOAD_TRANSLATE"
Toy1 Specialised: c:/java/regulus/examples/toy1 specialised/scripts/toy1_specialise
MedSLT EngFre Headache: c:/home/speech/speechtranslation/medslt2/engfre/prol
Associated commands: "EBL_LOAD" "LOAD_TRANSLATE"
MedSLT FreEng Headache: c:/home/speech/speechtranslation/medslt2/freeng/prol
MedSLT EngSpa Sore Throat: c:/home/speech/speechtranslation/medslt2/engspa/p
Associated commands: "EBL_LOAD" "LOAD_TRANSLATE" "TRANSLATE" "BIDIRE
MedSLT EngSpa Sore Throat Restricted: c:/home/speech/speechtranslation/medslt
Associated commands: "EBL_LOAD" "LOAD_TRANSLATE" "TRANSLATE" "BIDIRE
MedSLT SpaEng Sore Throat: c:/home/speech/speechtranslation/medslt2/spaeng/p
MedSLT core_fin: c:/home/speech/speechtranslation/medslt2/core/scripts/core_finn
MedSLT eng: c:/home/speech/speechtranslation/medslt2/eng/scripts/med_generati
Updated config file table: 11 items
Loading settings from Regulus config file c:/java/regulus/examples/toy1/scripts/toy1_
Loading settings from Regulus config file c:/java/regulus/examples/toy1/scripts/toy1_
Loading settings from Regulus config file c:/java/regulus/examples/toy1/scripts/toy1_
Loading settings from Regulus config file c:/java/regulus/examples/toy1/scripts/file_
(Load current Regulus grammar in DCG and left-corner form)
Stepper
Parse
Lex
Gap
1: onoff-->on
Generate
Delete
Reset
Show Tree
Join Trees
Combine Items

It is also possible to delete several items at once. Select them in turn while holding down the Ctrl key:



Press the delete button. For every item which you have requested to delete, a dialogue box will appear and you will have to confirm if you really want to delete the item or not.


New Window
Regulus 1
Start Load Set Flags Mode Specialisation
Trying to update config file table
Toy1: c:/java/regulus/examples/toy1/scripts/toy1.cfg (No associated commands)
Toy1 Fre: c:/java/regulus/examples/toy1/scripts/french.cfg (No associated command
Toy1 EngFre: c:/java/regulus/examples/toy1/scripts/toy1_slt_batch.cfg
Associated commands: "LOAD" "LOAD_TRANSLATE"
Toy1 Specialised: c:/java/regulus/examples/toy1 specialised/scripts/toy1_specialise
MedSLT EngFre Headache: c:/home/speech/speechtranslation/medslt2/engfre/prol
Associated commands: "EBL_LOAD" "LOAD_TRANSLATE"
MedSLT FreEng Headache: c:/home/speech/speechtranslation/medslt2/freeng/prol
MedSLT EngSpa Sore Throat: c:/home/speech/speechtranslation/medslt2/engspa/p
Associated commands: "EBL_LOAD" "LOAD_TRANSLATE" "TRANSLATE" "BIDIRE
MedSLT EngSpa Sore Throat Restricted: c:/home/speech/speechtranslation/medslt
Associated commands: "EBL_LOAD" "LOAD_TRANSLATE" "TRANSLATE" "BIDIRE
MedSLT SpaEng Sore Throat: c:/home/speech/speechtranslation/medslt2/spaeng/p
MedSLT core_fin: c:/home/speech/speechtranslation/medslt2/core/scripts/core_finn
MedSLT eng: c:/home/speech/speechtranslation/medslt2/eng/scripts/med_generati
Updated config file table: 11 items
Loading settings from Regulus config file c:/java/regulus/examples/toy1/scripts/toy1_
Loading settings from Regulus config file c:/java/regulus/examples/toy1/scripts/toy1_
Loading settings from Regulus config file c:/java/regulus/examples/toy1/scripts/toy1_
Loading settings from Regulus config file c:/java/regulus/examples/toy1/scripts/file_
(Load current Regulus grammar in DCG and left-corner form)
Stepper
Parse
Lex
Gap
1: onoff-->on
2: .MAIN-->switch,on,the,light
3: .MAIN-->switch,onoff,the,light
4: onoff-->on
5: onoff-->off
6: .MAIN-->switch,on,the,light
Generate
Delete
Reset
Show Tree
Join Trees
Combine Items