Exercise: Using Roma

1   Before you start

In this exercise, you will use **Roma**, a web tool available from the TEI web site and usable with any web browser: Firefox or Internet Explorer or Opera for example. Once you have created your schema, you will also need an XML-aware editor: oXygen in our case.

Our goal is to make a schema which we can use to mark up Punch pages. We don't need all of of TEI Lite, much less the full TEI, but we do need bits of various modules. We'll also have to tinker with some of the modules, to make our schema more helpful with daily editing.

2   Making your own schema

1. Open the Roma application, by pointing your favourite web browser at `http://www.tei-c.org/Roma/`

2. The Roma start screen allows you to create a new customization, or to upload an existing customization for further work. We will start from scratch, which means ticking the first radio button ("Build schema (Create a new customisation by adding elements and modules to the smallest recommended schema)"). Press the `Start` button at bottom left of the screen to continue.

The next and subsequent screens show you a row of tabs which you can select to carry out a part of the customization process:

New start making a new customization

Customize set the name, description etc. for the customization and also the interface language

Language set the languages to be used for names in the generated schema and for the documentation

Modules select the TEI modules you wish to operate on

Add Elements define new (non-TEI) elements for use in the generated schema

Change Classes modify existing attribute class definitions

Schema generate a schema in DTD, RelaxNG, or W3C Schema language

Documentation generate human-readable reference documentation in HTML or PDF

Save Customization generate an ODD file defining the current customization

Sanity Checker run a consistency check of the modifications made to a schema

At the foot of each screen is a red `Save` button: remember to press this before moving on to the next tab, or your changes will have no effect.

We won't explore all of these options in this tutorial.

1. Enter a title and filename for your schema. We suggest `TEI for Punch` and `tei_ipp` respectively. Change the Description of your schema at the bottom if you like, but leave the other fields unchanged.

2. If you want to change the interface language, select the language of your choice (but the rest of this exercise assumes you are working in English.

3. Press the red Save button and then select the `Modules` tab to proceed.

The modules screen shows two lists: on the left are all available TEI modules; on the right are the modules currently selected for your schema. You can add modules from the list on the left, and remove modules from the list on the right, by clicking the appropriate word next to the module you wish to operate on.

1. For this exercise, we will need the following extra modules:

   - `figures`
   - `corpus`
   - `namesdates`

   Click the word `add` next to the name of each module.

2. The modules chosen contain many more elements than we need, so we will now remove some of them, simplifying the view in the XML editor. Click the name of a module in the *List of selected modules* (the right-most column) to see a list of the elements this module defines.

Each element listed has a name, a radio button indicating whether it is to be included or excluded, a tag name, a description, and a link to a further screen where its attributes are specified. The question mark following each element name is linked to its full documentation in the TEI; the element name itself is linked to a screen on which you can modify it. We'll use these facilities later.

For now, note that you can toggle inclusion or exclusion of all elements in the list by clicking the appropriate column heading. For example, click on `Exclude` to remove all elements from the module.

Now work down the list clicking the radio button to restore or add elements. We make suggestions for the elements you will need to have in your schema for this and the following exercises, but feel free to add others if you wish. Remember to press the red `Save` button when you have finished with each module. Press the `Modules` or `back` links to go back to the list of modules.

from the core module delete everything except `<bibl>`, `<cit>`, `<date>`, `<desc>`, `<emph>`, `<foreign>`, `<gap>`, `<graphic>`, `<head>`, `<hi>`, `<item>`, `<l>`,`<label>`,`<lg>`,`<list>`, `<mentioned>`, `<milestone>`, `<name>`,`<note>`, `<p>`, `<pb>`, `<ptr>`, `<quote>`, `<ref>`, `<said>`, `<soCalled>`, `<sp>`, `<speaker>`, `<stage>`and `<title>`

from the header module delete everything except `<availability>`, `<change>`, `<distributor>`, `<edition>`, `<editionmStmt>`, `<encodingDesc>`, `<fileDesc>`, `<idno>`, `<keywords>`, `<profileDesc>`, `<projectDesc>`, `<publicationStmt>`, `<revisionDesc>`, `<samplingDecl>`, `<sourceDesc>`, `<teiHeader>`, and `<titleStmt>`

from the textstructure module delete everything except `<TEI>`, `<back>`, `<body>`, `<div>`, `<front>`, `<signed>`, and `<text>`.

from the figures module delete `<formula>`.

from the corpus module delete everything except `<particDesc>`.

from the namesdates module ... well, it's up to you which elements you will need here. To complete these exercises we suggest you retain at least the following: `<affiliation>`, `<birth>`, `<death>`, `<education>`, `<event>`, `<forename><listPerson>`, `<occupation>`, `<persName>`, `<person>`, `<placeName>`, `<state>`, `<surname>`, and `<trait>`.

We are now ready to generate a schema. Click the *Schema* tab, and then press the red `Generate` button, taking the default option of a RELAXNG compact schema. Your browser will ask whether you want to save or open the generated file: save it to your Desktop. Then complete this stage by going to the *Save Customization* tab of Roma and saving your work as a file on your desktop. Do not close the web browser, as we'll use it again shortly.

3   Using your schema in oXygen

You can use oXygen and the file you just made to check that your schema is correct. Proceed as follows:

- Open the file you were working on with oXygen at the end of the last exercise (if you have lost it, or did not complete the exercise, you can use the file exercise3-complete.xml in the teidata folder).

- At the head of the file there is an Oxygen processing instruction beginning <?oxygen RNGSchema="... This tells OxyGen which schema file it should use to validate your document. In the last exercise we were using the general purpose teilite schema; now we will change over to the schema we have just generated. Delete the whole of the processing instruction line.

- Now go to the menu `Document`, then `XML Document` and then `Associate Schema`. Choose the `RELAXNG` tab, and locate your schema file (you will need to select "Browse for local folder" from the drop down menu, or select the middle folder icon on the right to browse).

- oXygen will insert another processing instruction at the start of your file to mark the schema location, and attempt to validate the file. Try inserting some new elements, and you should see a different collection of possibilities from those you saw before.

4   Enhancing your schema

Our schema now includes only the elements we want for the Punch project, but we would like to constrain it further. For example, we have used the `type` attribute on the `<div>` element to categorize each component of an issue by means of a code. It would be useful to make sure that this code is always present, and also to make sure the values used all come from the same fixed list.

Go back to Roma. (If you have closed the browser, you will need to restart Roma and reload the session you saved earlier). Go to the *Modules* tab and click on `textstructure` in the right-hand column. Find `<div>` and click on `Change attributes` on the right-hand side. This will show you all the attributes of `<div>`. Click on `type`, and you will be able to change its properties:

1. Change the `Is it optional` radio button to make it compulsory

2. Change the radio button for `Closed list?` to make it a closed list

3. In the box for `List of values`, type

```
cartoon,verse,review,prose,snippet,snippets
```

(ie a list of possible values, separated by commas).

4. Click the red **Save** button

Now Generate a new schema, just as you did as before, and save it under the name tei_ipp.rnc, over-writing the file that you created before. Reload your file in oXygen. There should be a validation errors, because one of the **<div>**s in the file has no type attribute specified. Supply a value and validate again: try giving an illegal value to check that your list of legal values is being respected.

Now we will add a completely new element. As you've probably noticed, Mr Punch is very fond of combining a quotation from some other newspaper with a sarcastic comment, and using the result to fill up space on the page. We've included an example in the prose.xml file you used earlier.

The TEI already has an element for the combination of a quotation and a bibliographic reference (**<cit>**); we will define a new element called **<citCom>** for the combination of that with an optional comment.

1. Re-open Roma if necessary.

2. Select the **add Elements** tab.

3. Enter citCom as the name of the new element, and supply a brief description for it.

4. This element can appear anywhere within a **<div>** element, so make it a member of the model.divPart model class by checking the tick box next to that name.

5. We want this element to have a type attribute, so make it a member of the att.typed attribute class by checking the tickbox next to that name.

6. In dropdown list labelled Contents select **User content**: we want to define our own content model for this element.

7. Complete the **<content>** element in the box below by adding the following set of declarations:

```
<rng:ref  name="cit"
    xmlns:tei="http://www.tei-c.org/ns/1.0"/>
<rng:oneOrMore>
  <rng:ref  name="model.pLike"/>
</rng:oneOrMore>
```

which says that a **<citCom>** must have a **<cit>** followed by one or more members of the model.pLike class.

8. Save your changes, generate your schema, and use Oxygen to check that your new element is now available for use.

Note that your new element is defined in a new namespace because it is not a TEI element — it is unique to the IPP. This means that any of its direct child elements which *are* in the TEI namespace (for example, a **<cit>** or a **<p>**) must state this explicitly by including a TEI namespace declaration. OxyGen will help you do this, but take care!

5   Documenting your schema with Roma

One of the major benefits of Roma is that after you have customized your schema it can produce two ways of documenting the changes you have made.

- Select the `Save Customization` tab to save an ODD file

- Select the `Documentation` tab to convert the ODD file into human-readable documentation in HTML or PDF.

The ODD file indicates how your schema differs from full TEI, what modules you have included, what elements you may have added and changed, and so forth. You should keep this file along with with your generated schema, in case you need to generate a new schema with additional elements or constrain it further. Other people can generate the schema for your documents in different schema languages if needed. Moreover, this document, like other ODD files, is an ordinary TEI document which you can edit using OxyGen for example.

The HTML or other documentation generated by Roma looks like a subset of the standard TEI reference manual. Because the TEI is itself maintained as a very large ODD file, Roma has access to all the information in the Guidelines about all of the elements, attributes, classes, or macros you've chosen to include in your customization, and can include it in your user project manual.

6   Other things to try with Roma

1. How do you go about renaming an existing element? What happens in the ODD when you do?

2. Once you have an ODD, you can generate project-specific documentation. Where would you put this prose in the ODD file? Try generating some test documentation with additions you have made.

3. Experiment with starting with different exemplar customization Roma offers. Which do you think would be best for your project?

4. Save the ODD for the TEI ALL Plus schema — how does this add in schemas from other namespaces?

5. Try modifying the schema specification in your ODD using oXygen. If you remove one of the `<elementSpec mode="delete">` lines what happens? Try improving the documentation of the changes you made in the schema. Try adding some usage examples.