Chapter 2

EMF lecture

2.1 Basics

1. Create an Ecore model project by New | Other | Eclipse Modelling Framework | Ecore Model Project.
2. Name it to `hu.bme.mit.inf.socialnetwork`. Click next. The wizard propose a default namespace properties, where the Ns Uri is not suitable. Change it to `http://inf.mit.bme.hu/socialnetwork`.
3. Select the *Design* viewpoint. This provides the diagrams that focuses on teh developement phase of the metamodelling.
4. Change the modelling perspective.
5. An empty diagram editor appears. Create a diagram visible on Figure 2.1.

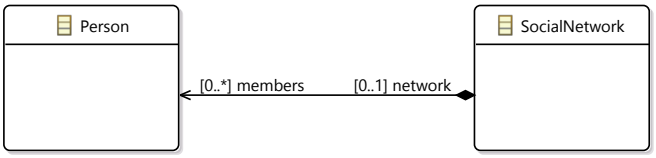

Figure 2.1: Initial metamodel

2.2 EMF Task: Social Network

Create a metamodel to model a social network. The model should contain the following concepts:

- **Persons** with **Genders**
- **Friendship**, **Family memberships**, **collegial** . . . relations
- **Communities**, **Subcommunities**

A possible solution is visible in Figure 2.2.

2.3 Code Generation

1. Open the generated `socialnetwork.genmodel`, and observe the property view.
2. fill the *Base Package* field of the `Socialnetwork` package to `hu.bme.mit.inf` in order to define the java package generated from the EMF one.

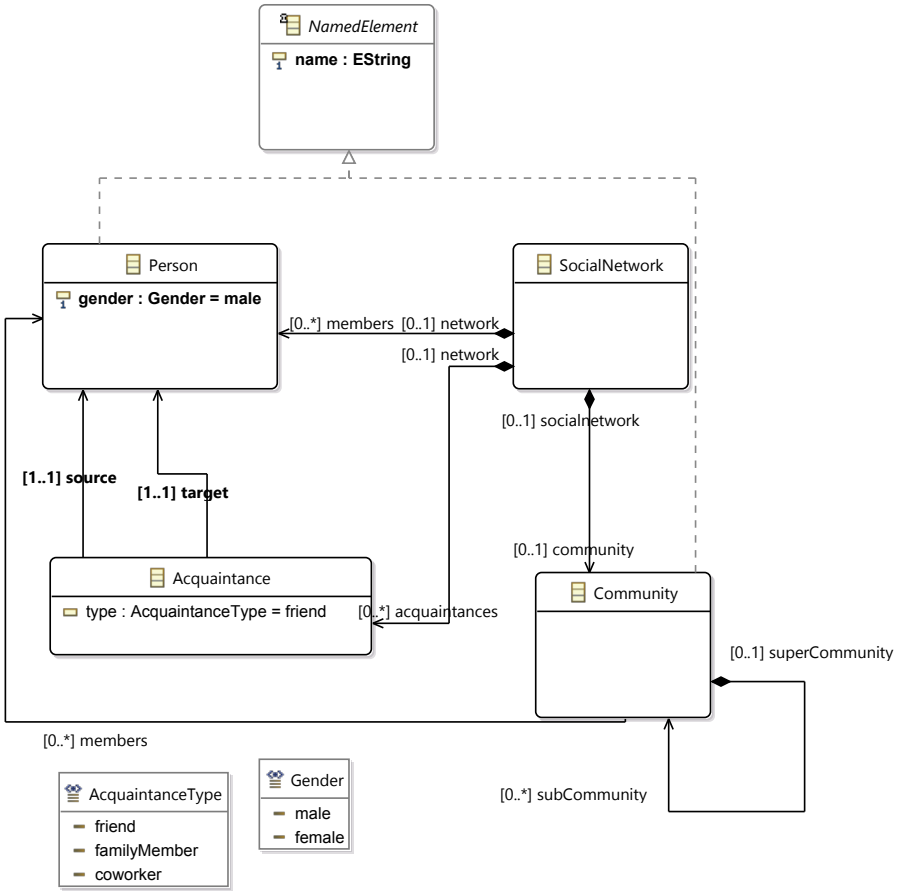

Figure 2.2: Full metamodel

3. Generate model and check the new code in the src folder.
   - Simple `interfaces` for each classes. The interfaces extend the `EObject` interface.
   - `enums` for enums.
   - `Package` for metadata handling, e.g. `EReference getCommunity_Socialnetwork()` returns a reference-type instance. Note that the package is singleton, the instance is acquired by teh `eInstance` function.
   - A factory, which able to create each instance object. It is also a singleton class.
4. Generate the *edit* and the *editor*.
5. Start a runtime project and create a sample project, put a new social network model in it by New | Other... | Example EMF Model Creation Wizard | Socialnetwork Model
6. Choose `Social Network` root element, and click Finish.
7. Create an isntance model visible in Figure 2.3.

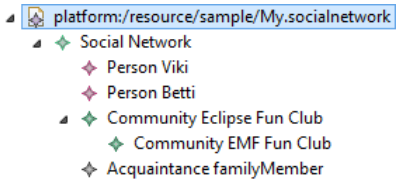

Figure 2.3: Example instance model

2.4 Use Generated Code

1. Open the `hu.bme.mit.plugindemo` project, which is referring to the model project. Open the `CommandHandler.java` file.
2. Create an event handler that reads a Social Network, and prints the members.

```
@Override
public Object execute(ExecutionEvent event) throws ExecutionException {
 ISelection selection = HandlerUtil.getCurrentSelection(event);
 if(selection instanceof IStructuredSelection) {
 Object first = ((IStructuredSelection)selection).getFirstElement();
 if(first instanceof SocialNetwork) {
  SocialNetwork target = (SocialNetwork) first;
  String enumeration = "The network contains " + target.getMembers().size() + " members";
  for(Person member : target.getMembers()) enumeration+="\n - " + member.getName();
  MessageDialog.openInformation(HandlerUtil.getActiveShell(event),
   "Network analysis",enumeration);
  }else MessageDialog.openInformation(HandlerUtil.getActiveShell(event),
   "The selected element is not a Social Network",""+selection);
 }
 return null;
}
```

Figure 2.4: fig:emfhandler