1. ATL Transformation Example

1.1. Example: Book → Publication

The Book to Publication example describes a very simple transformation task. In the metamodel Book the class Book contains an ordered set of Chapters. These Chapters hold the information of the number of pages of Chapters. The metamodel Publication is simpler; its class Publication contains a title and the total number of pages. For the transformation, all chapters of a Book have to be visited to calculate the total number of pages.

1.1.1. Metamodels

The source metamodel Book (see Figure 1 Book) consists of the class Book which contains a set of Chapters. Each Book has a title and each Chapter a title. The Chapter instances hold the information of the number of pages.

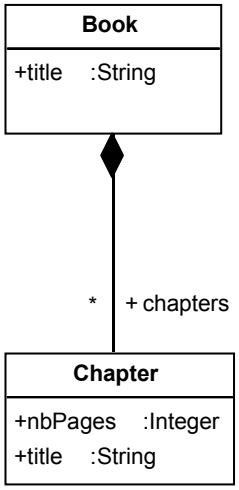

Figure 1 Book

The target metamodel Publication (see Figure 2 Publication) consists of the class Publication which holds a title and the number of pages.

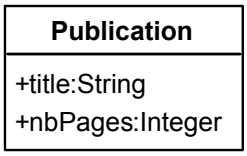

Figure 2 Publication

1.1.2. Rules Specification

These are the rules to transform a Book model to a Publication model:

- For each Book instance, a Publication instance has to be created. The attributes of the Publication instance are set as follows:
  - The title of a Publication has to be set with the title of a Book.
  - The total number of pages of a Publication is the sum of the pages of the Chapters of a Book.

1.1.3. ATL Code for the Example Book → Publication

The ATL code for the transformation of a Book model to a Publication model consists of one rule, Book2Publication. In this rule all pages of all Chapters of a Book are being added up. In OCL exists a sum function which will be added in a future ATL version.

```
module Book2Publication;
create OUT : Publication from IN : Book;

uses strings;

rule Book2Publication {
      from
            e : Book!Book
      to
            out : Publication!Publication (
                  title <- e.title,
                  numPages <- e.chapters->collect(f|f.nbPages)->
                                    iterate(pages;
                                                acc : Integer = 0 |
                                                acc + pages)
                                          )
}
```