X-lexicon 4.2

Brief introduction

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Notice

This text assumes a basic knowledge of X-definition technology.
Questions, remarks, and bug reports please send to: xdef@syntea.cz.
The actual version of X-definition can be downloaded from https://github.com/Syntea/xdef
or http://www.xdefinice.cz/en/.
You can also download jar files, documentation, and sources from the Nexus repository manager at:
https://oss.sonatype.org/#nexus-search;gav~org.xdef.

1 Terms and abbreviations

X-definition	1. The language used for the description of the structure, content, processing, and construction of XML objects. 2. XML element in the X-definition language.
X-lexicon	Technology for creating lexicons in different languages
X-position	X-position is a form of description of a location of the model in a set of X-definitions (in the XDPool)

2 X-lexicon

X-lexicon technology enables working with XML data modified to different local languages. The names of models of elements and attributes are modified to the given language according to the specification of X-lexicon in X-definition source files.

X-lexicon is an XML special element with the namespace of X-definition where such local names of XML elements and attribute items in the models in X-definition require modification according to the given local language.

Let us have the X-definition describing an insurance contract:

```
<xd:def xmlns:xd = "http://www.xdef.org/xdef/4.2" xd:name = "contract">
  <Contract
    Number = "required int()"
    Date   = "required date()">
    <Owner
      Name      = "required string()"
      CompanyID = "required num(8)" />
  </Contract>
...
</xd:def>
```

The items are specified in separate lines. The specification starts with the X-position of an item (element or attribute) and after white spaces follows the name in the specified language. Note that the name must be a valid XML name.

As an example let us describe the lexicon for the English language and the German language. The models in the project are described in the English language, so we specify the English language is the default. The required modifications for the German language will be:

```
Contract -> Vertrag, Number -> Nummer, Date -> Datum, Owner -> Inhaber, CompanyID -> FirmenID.
```

Note the attribute name Name in the element model Owner is the same in both languages, so it will not be changed.

The description for each language is written to the element “xd:lexicon” in the namespace of X-definition. For each required language must be specified one element xd:lexicon. In the attribute "language" must specify the language name which it describes. The language name must be a valid Java identifier. If in a given language are no changes of tags from a model then the attribute xd:default may be specified as “true”, i.e. no transformation will be provided for the given language.

Each line of the text content of xd:lexicon element describes the X-position of an item and required change of name. Not-described items will remain without change.

So the xd:lexicon elements for the model of Contract from the example above for the English language will be:

```
<xd:lexicon xmlns:xd="http://www.xdef.org/xdef/4.2" language="Contract_eng" default="yes"/>
```

The lexicon for the German language will be:

```
<xd:lexicon xmlns:xd="http://www.xdef.org/xdef/4.2" language="Contract_deu">
  contract#Contract                 Vertrag
  contract#Contract/@Number         Nummer
  contract#Contract/@Date           Datum
  contract#Contract/Owner           Inhaber
  contract#Contract/Owner/@CompanyID FirmenID
</xd:lexicon>
```

The xd:lexicon elements may be inserted into an X-definition:

```
<xd:def xmlns:xd = "http://www.xdef.org/xdef/4.2" xd:name = "contract">
  <Contract
    Number = "required int()"
    Date   = "required date()">
    <Owner
      Name      = "required string()"
      CompanyID = "required num(8)" />
  </Contract>

 <xd:lexicon language="Contract_eng" default="yes"/>

<xd:lexicon language="Contract_deu">
  contract#Contract                 Vertrag
  contract#Contract/@Number         Nummer
  contract#Contract/@Date           Datum
  contract#Contract/Owner           Inhaber
  contract#Contract/Owner@CompanyID FirmenID
</xd:lexicon>

</xd:def>
```

3 Validation of input XML data

If you have the data in a specific language (which differs from the default one), you must specify to the XDDocument object the language in which the data will be processed by the method setLexiconLanguage. The parameter of this method contains the name of the language.

Let's have the XML document in the German language:

```
<Vertrag Nummer = "123456" Datum  = "2019-02-25">
    <Inhaber Name = "Syntea" FirmenID = "87654321" />
</Vertrag>
```

If you compile X-definition from the example above and you have the compiled XDPool in the field xpool, you must first create the XDDocument, set the lexicon language, and then parse the input data:

```
XDDocument xdoc = xpool.createXDDocument("contract");
xdoc.setLexiconLanguage("Contract_deu");
xdoc.xparse(inputData, reporter);
```

4 Translation of input XML data to a different language.

If you have to translate the data from one language to another language you may use the method xtranslate on the XDDocument object. The following example translates the given input data from the German language to the English language. If you have input data in the German version:

```
<Vertrag Nummer = "123" Datum = "2018-03-11">
  <Inhaber Name = "Franz Bayer" FirmenID = "00123456" />
</Vertrag>
```

Java program:

```
XDDocument xdoc = xpool.createXDDocument("contract");
```

```
xdoc.translate(inputData, "Contract_deu", "eng", reporter);
```

From the German version input will be created the English:

```
<Contract Number = "123" Date = "2018-03-11">
  <Inhaber Name = "Franz Bayer" CompanyID = "00123456" />
</Contract>
```