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TBX between termbases and ontologies

Detlef Reineke
Universidad de Las Palmas de Gran Canaria
TiT – Terminology & Translation Institute

Introduction

For the purpose of reuse, terminology is exchanged between language applications, mostly translation-orientated, and TBX. Data exchange with description formalisms of the Semantic Web like RDF, RDFS, OWL or SKOS constitute an increasingly important scenario for TBX. However, when migrating terminology between TBX and the serializations of the mentioned formalisms, the question arises as to which kind of information is relevant to data exchange. It would surely be presumptuous to try to determine an approximate number of exchange constellations, since data exchange between terminological databases and knowledge databases can range from relatively flat-structured and simple to very comprehensive and complex data models.

The present article describes a nearly automated, well-defined conversion routine based on a maximal TBX data model. Smaller data models may be derived from the model depicted here. Potential use cases for the maximal data model are knowledge databases targeted also for terminologists, translators or content authors who wish to enrich their knowledge database with meaningful terminological information. In the reverse case, such terminology-enriched knowledge databases provide an added value for translation-orientated or monolingual language production environments so that data exchange from RDF, RDFS, OWL or SKOS serializations to TBX is also highly desirable.

Data model

The conversion routine described in this article uses TBX and the RDF/XML serialization. On the TBX-side, the sample data model instantiates the following data categories:

- term entry level: id, subject field, definition, source (of definition), figure, source (of figure), concept position, superordinate concept generic and subordinate concept generic
- language section: xml:lang
- term section: id, term, part of speech, grammatical gender, grammatical number, source (of term)
- term component section: id, termComp, part of speech, grammatical gender and grammatical number..

The aim was to completely map the TBX data model to RDF/XML and to reconvert the RDF/XML output file document back to TBX without data loss. Additionally, the RFD/XML document included the ISOcat persistent identifiers of the TBX data categories, the data category names (subject field), the data category identifiers (subjectField) as well as data type of the data category values for the purpose of further data processing. The complete TBX document instance and the corresponding RDF/XML output file can be found in annex A and annex B.

TBX

The core structure of TBX document instances is based on the metamodel of ISO 16642, i. e. every terminological entry (= termEntry element) must contain at least one language section (= langSet element) and the latter also ought to have at least one term section (= tig or = ntig element). In general, terminological data categories are instantiated as a value of a type attribute associated with a metadata category (descrip, admin, xref, etc.). A small number of data categories is instantiated in form of element names (term, date, note) or as attributes (id, xml:lang).

Example 1

```
<termEntry id="teid_1114">
   <langSet xml:lang="en">
      <tig>
         <term id="tid_2114_1">oil circuit-breaker</term>
      </tig>
   </langSet>
</termEntry>
```

The structure and the content of terminological entries usually differ from termbase to termbase. Therefore, TBX has been designed as a framework in order to meet user-defined requirements with a maximum possible number of data models. ISO 30042 recommends a concrete instance of TBX called TBX-Default. This TBX dialect comprises a total of 117 data categories. TBX-Basic is a leaner version (29 data categories, plus the ntig element is not allowed) and, at the moment, an expert group is developing an even smaller TBX dialect called TBX-Min which will include only about a dozen data categories. To achieve a maximum of interoperability among the three mentioned standard TBX dialects, it is intended to define the smaller dialects as exact subsets of the bigger dialects. Another objective of the expert group is to establish syntactic variants of these dialects where data categories are instantiated as elements and not as value of an attribute (<definition>...</definition> instead of <descrip type="definition">...</definition>). In the following, "TBX" always refers to the three standard dialects in attribute style.

RDF

RDF (Resource Description Framework) allows making logical statements about any kind of things (resources). In principle, every statement consists of a triple (subject, predicate, object). The RDF data model is based on formal semantics where the relations between the resources are represented by means of a graph. Subjects and objects (ellipses) constitute the nodes of the graph whereas the predicate is represented by a labeled arrow. Fig. 1 shows a simple graph that describes the relation between a circuit-breaker and the media used for arc extinction.

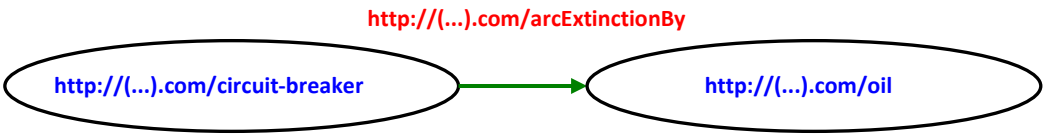

Fig. 1.: Simple RDF graph describing a relation between a circuit-breaker and its extinction media

As illustrated, the resources are allocated with URIs (Uniform Resource Identifiers, ASCII-based) or IRIs (Internationalized Resource Identifiers, Unicode-based). These identifiers need not necessarily be linked to existing resources (on the internet, on a computer, etc.). URIs or IRIs are merely used to unambiguously designate the resources and, therefore, be able to address them efficiently. As these identifiers can hardly be processed, resources can be issued as literals (string in boxes) (s. Fig. 2).

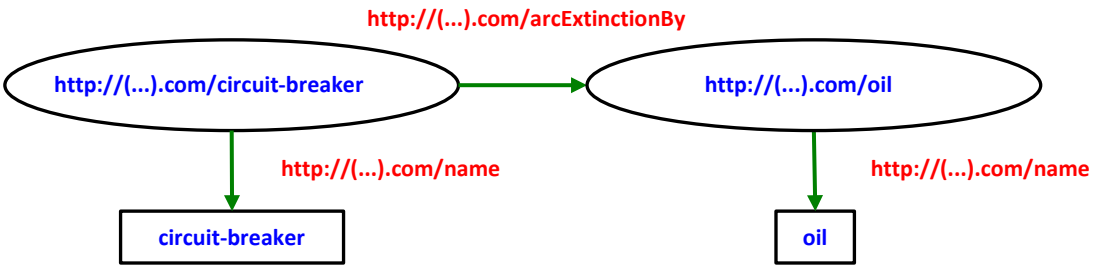

Fig. 2.: RDF graph with two literals

As can be seen by the example of the predicate, resources are not only physical objects; concepts, designations, data categories and the like can also be expressed in a RDF data model. Fig. 3 illustrates a graph which represents the relations between a termbase, the concept *oil circuit-breaker*, the language section and the term “oil circuit-breaker”.

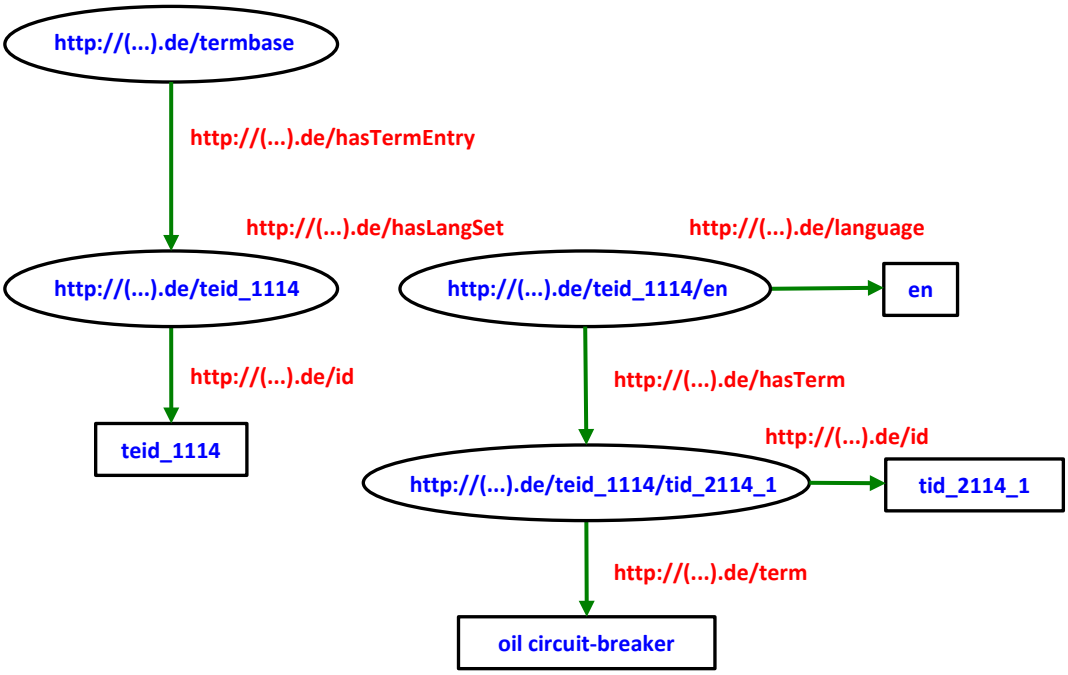

Fig. 3.: RDF graph representing the relations between a termbase, a terminological entry and an English term

For the purpose of this article, the URIs of the RDF/XML serialization have been designed in such a way that they indicate the structure of the terminological entry or the path within TBX document instance to a certain extent. In order to keep URIs relatively short (and therefore, human reader-friendler), concepts, terms and term components are represented by the values of their corresponding id attributes within the TBX document instance. As in TBX, the language sections are represented by ISO language codes. The predicates are labeled using the node names of the TBX core structure and the corresponding data category identifiers (tit:hasTermEntry, tit:hasLangset, tit:hasTerm, tit:hasPartOfSpeech, etc.). The graph in Fig. 3 corresponds to the following RDF/XML coding:

Example 2

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
 xmlns:tit="http://www.tit-institute.de/" xml:base="http://www.tit-institute.de/">
  <rdf:Description rdf:about="http://www.tit-institute.de/termbase">
    <tit:hasTermEntry>
      <rdf:Description rdf:about="teid_1114">
      <tit:id>teid_1114</tit:id>
        <tit:hasLangSet>
          <rdf:Description rdf:about="teid_1114/en">
            <tit:langSet>en</tit:langSet>
            <tit:hasTerm>
              <rdf:Description rdf:about="teid_1114/en/tid_2114_1">
                <tit:id>tid_2114_1</tit:id>
                <tit:term>oil circuit-breaker</tit:term>
              </rdf:Description>
            </tit:hasTerm>
          </rdf:Description>
        </tit:hasLangSet>
      </rdf:Description>
    </tit:hasTermEntry>
  </rdf:Description>
</rdf:RDF>
```

In RDF/XML, the resource identifiers of subjects and objects are instantiated as value of a rdf:about attribute. The URIs of predicates appear as element names and literals have no further child element. To shorten URIs and improve the readability of the code, an xml:base attribute may be inserted to declare a base URI (in the present case “http://www.tit-institute.de/”). When generating the graph, the relative paths in the RDF/XML document (for example, the value “teid_1114” of the rdf:about attribute) are then expanded to complete URIs (“http://www.tit-institute.de/teid_1114”).

TBX > RDF/XML

The starting point for the development of the present conversion routine is the migration of terminological data to RDF/XML. The main focus during XSLT transformation was on how to handle the persistent identifiers of the data categories and the data type information for the values of the data categories. The transformation process is exemplarily presented here. For further details on XSLT, see the website of the World Wide Web Consortium.

Persistent identifiers

As stated above, the data model should include information about the persistent identifiers of TBX data categories defined in ISOcat in order to improve the stringency and the reliability of the RDF statements. Fig. 4 shows a graph which describes the relations between a data category instantiated in a TBX document (http://(...).de/.../subjectField), the value of the data category (switchgear, controlgear and fuses), the concept of the data category registered in ISOcat (http://www.isocat.org/datcat/DC-489), the data category name (subject field) and the data category identifier (subjectField).

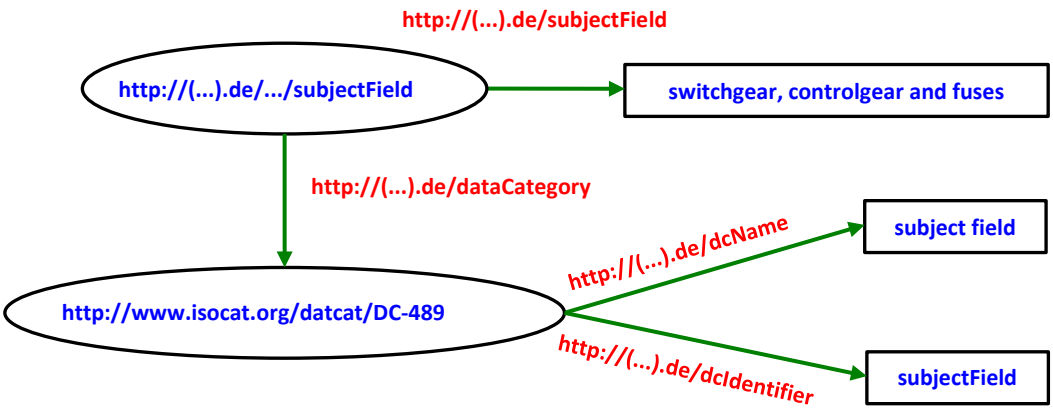

Fig. 4: RDF graph describing data categories

At the moment, persistent identifiers are included in ISOcat, but are not specified in the standard TBX data category constraints (XCS file and RNG Schema). The XCS file still contains the identifiers from the withdrawn ISO 12620:1999 (<descripSpec name="definition" datcatId="ISO12620A-0501">). The RNG Schema does not even have identifiers for data categories. The following mechanisms could be used to prepare the XSLT mapping of persistent identifiers to RDF/XML:

- Implement persistent identifiers in terminology tools and export them to TBX
- Include persistent identifiers and extract them from the XCS file / RNG Schema during transformation
- Allocate persistent identifiers in the XSLT style sheet

Implementing persistent identifiers in terminology tools could lead to the following results:

Example 3

```
<descrip type="subjectField" pid="http://www.isocat.org/datcat/DC-489">switchgear,
controlgear and fuses</descrip>
```

If the pid instances are to be validated against TBX content models, the core-structure DTD, for example, would have to be adapted to include a pid attribute where necessary, and the name of the corresponding entities should be extended accordingly by adding “Pid”. Example 4 shows a matching DTD entity for the instance in example 3:

Example 4

```
<!ENTITY % impIDLangTypTgtDtypPid
      id ID #IMPLIED
      xml:lang CDATA #IMPLIED
      type CDATA #REQUIRED
      target IDREF #IMPLIED
      datatype CDATA #IMPLIED
      pid CDATA #IMPLIED>
```

The value of the pid attribute could be selected from the TBX document instance during transformation:

Example 5

```
<xsl:if test="descrip/@type='subjectField'">
  ...
  <tit:dataCategory>
    <rdf:Description>
      <xsl:attribute name="rdf:about">
        <xsl:value-of select="descrip/@pid"/>
      </xsl:attribute>
      ...
    </rdf:Description>
  </tit:dataCategory>
...
</xsl:if>
```

The transformation would generate the following RDF/XML code:

Example 6

```
<tit:hasSubjectField>
  <rdf:Description rdf:about="teid_1112/subjectField">
    <tit:subjectField>switchgear, controlgear and fuses</tit:subjectField>
    <tit:dataCategory>
      <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-489">
      ...
      </rdf:Description>
    </tit:dataCategory>
  </rdf:Description>
</tit:hasSubjectField>
```

In the RNG Schema, entities and their names should also be adapted accordingly adding a ref element and a name attribute with the corresponding attribute value (pid.attibutes):

Example 7

```
<define xmlns="http://relaxng.org/ns/structure/1.0" name="IDLangTgtDtypPid.attributes">
  <ref name="lang.attributes"/>
  <ref name="id.attributes"/>
  <ref name="target-IDREF.attributes"/>
  <ref name="IDLangTgtDtyp.attribute.datatype"/>
  <ref name="pid.attributes"/>
</define>
```

As an alternative, the persistent identifiers might be selected from the data category constraints (XCS file or RNG Schema). The coding of the XCS file and the corresponding DTD, for example, should be changed as follows:

Example 8

```
<descripSpec name="subjectField" datcatId="ISO12620A-04"
pid="http://www.isocat.org/datcat/DC-489">

<!ENTITY % specAtt.attributes
      datcatId CDATA #REQUIRED
      name CDATA #REQUIRED
      pid CDATA #REQUIRED>
```

In the style sheet, the selection of the pid attribute value would be coded as shown in example 9:

Example 9

```
<xsl:if test="descrip/@type='subjectField'">
  ...
  <xsl:value-of select="document('TBXXCSV02.xcs')/TBXXCS/datCatSet/
   descripSpec[@name='subjectField']/@pid"/>
  ...
</xsl:if>
```

A third and leaner variant for mapping persistent identifiers to RDF/XML consists of incorporating them directly in the XSLT style sheet:

Example 10

```
<xsl:if test="descrip/@type='subjectField'">
  ...
  <tit:dataCategory>
    <rdf:Description>
      <xsl:attribute name="rdf:about">
        <xsl:text>http://www.isocat.org/datcat/DC-489</xsl:text>
      </xsl:attribute>
      <tit:dcName>subject field</tit:dcName>
      <tit:dcIdentifier>subjectField</tit:dcIdentifier>
    </rdf:Description>
  </tit:dataCategory>
  ...
</xsl:if>
```

Data types

In the previous examples untyped literals like <tit:dataCategoryName>subject field</tit:dataCategoryName> were used. However, RDF literals are rarely processed as mere character strings, but instead are interpreted for further processing as specific data types (for example, as a date or an identifier for referencing purposes). In RDF/XML, the data type can be instantiated by means of the rdf:datatype attribute. The data type instantiation requires the corresponding namespace declaration in the RDF/XML document instance (xmlns:xs="http://www.w3.org/2001/XMLSchema#"):

Example 11

```
<tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">teid_1114</tit:id>
<tit:langSet rdf:datatype="http://www.w3.org/2001/XMLSchema#language">en</tit:langSet>
```

Data type information cannot be derived without further manipulation from TBX document instances or TBX content models, since TBX does not provide data type description mechanisms in the classical sense. Of course, the TBX content models contain data type attribute declarations, but the attribute values are basically used to determine the type of text handling (plainText, basicText, noteText) or to point to the existence of closed data categories (picklist).

Similar to the mapping of persistent identifiers, the following preparatory measures would be applicable when transforming data type information to RDF/XML:

- Data typing in the terminology tools and export the data type information to TBX
- Include data type information and extract it from the in XCS file / RNG Schema during transformation
- Allocate data type information in the XSLT style sheet

If the values of the data categories were already typed within the terminology tools and then exported to TBX, the instantiation of data category value for “subjectField” in example 3 would result in the following coding:

Example 12

```
<descrip type="subjectField" pid="http://www.isocat.org/datcat/DC-489"
datatype="string">switchgear, controlgear and fuses</descrip>
```

Such an instance where the value domain is interpreted in a broader sense would correctly validate against the TBX core structure DTD. Since the data type attribute is processed as CDATA, character data like „string“, „ID“, „date“, etc. would be valid. Nevertheless, this instantiation variant does not avoid the necessity for declaring new attributes to enable the instantiation of certain type of data type information. This is due to the fact that an attribute can only be associated with one element at a time. But frequently different data types appear in a single element – for example, when a descrip element contains a text value (data type “string”) as well as a target attribute, for example, whose value would be of ID type. In such cases, additional attributes would be necessary (for example target-datatype, id-datatype, etc.). And even if the originally intended value domain of the datatype attribute is preserved and an alternative attribute is declared (for example, xs-datatype or similar), additional attributes have to be created to enable the description of the target or id attribute values.

The TBX core structure entity “% impIDLangTypTgtDtyp” is the only entity that provides a datatype attribute. For data elements instantiated at the basic nodes of the TBX core-structure (termEntry-, langSet-, term- and termComp-Elemente), this attribute is not allowed in the current DTD. In order to be able to generate valid TBX document instances, the corresponding components of TBX DTD should be extended to include the data type attribute.

The manipulation of the XCS file and the RNG Schema is no ideal solution either because similar data typing mechanisms have to be implemented. As with the persistent identifiers, the leanest variant would consist of linking the instantiation of the data type information to a conditional. The mapping of the data type information of data category values to RDF/XML could be generated using an xsl:if element:

Example 13

```
<xsl:if test="descrip/@type='subjectField'">
  ...
  <tit:subjectField>
    <xsl:attribute name="rdf:datatype">
      <xsl:text>http://www.w3.org/2001/XMLSchema#string</xsl:text>
    </xsl:attribute>
    <xsl:value-of select="descrip[@type='subjectField']/text()"/>
  </tit:subjectField>
  ...
   </tit:hasSubjectField>
</xsl:if>
```

Further issues

When transforming from TBX to RDF/XML, the tig and ntig elements can be easily distinguished by means of xsl:if. In relation to the term components the question arises if it would be desirable to allocate persistent identifiers as with terms.

The TBX sample document instance (see annex A) includes sources for figures. The sources point to external resources and are described using the data category “xSource”. This data category is neither listed in ISOcat’s TBX-Default data category selection nor in the Terminology profile. Therefore, a provisional persistent identifier was created (http://www.isocat/datcat/DC-xSource).

There might be need for discussion with regards to the ISO 30042 data category names/identifers “elementIdentifer” und “lang”. The question is whether both data categories names/identifiers should be explicitely mapped to RDF/XML. In ISOcat, the data category name/identifier “lang” corresponds to „language identifier”/”languageIdentifier” and has a persistent identifer (http::://www.isocat.org/datcat/DC-279). “elementIdentifier”is not listed in ISOcat. If needed, a provisional persistent identifier should be created (for example “http://www.isocat.org/datcat/DC-id”).

Another issue that might need further clarification is the handling of data category names when data is not directly allocated in the style sheet, but extracted form external resources. For the moment, TBX standard resources do not contain data category names that could be used for mapping.

RDF/XML > TBX

In the XSLT style sheet for the transformation of the generated RDF/XML document instance back to TBX all those elements have been omitted that do not lead to valid TBX document instances, such as the persistent identifiers, the data type information as well as the data category names. The transformation had no errors and generated a valid TBX document instance.

Conclusion and outlook

A user-defined transformation style sheet can be relatively easily designed. But it would be interesting to create a style sheet as a kind of content model to be able to map a maximum or all possible TBX document instances to RDF/XML automatically without the necessity of further user-specific adaption. Such a style sheet should completely reflect the recommended TBX dialects.

Another issue concerns the conversion between TBX and more powerful semantic description formalisms such as RDFS or OWL. Constructs like rdfs:Class, rdfs:subClassOf, owl:Class, owl:equivalentClass or owl: intersectionOf are surely of interest when dealing with subject-specific queries and reasoning:

Example 14

```
<?xml version="1.0" encoding="utf-8"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
 xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
 xmlns:tit="http://www.tit-institute.de/examples#">
  <rdfs:Class rdf:about="http://www.tit-institute.de/examples/
   mechanicalSwitchingGear">
    <rdfs:label xml:lang="de">mechanisches Schaltgerät</rdfs:label>
    <rdfs:label xml:lang="fr">appareil mécanique de connexion</rdfs:label>
  </rdfs:Class>
  <rdfs:Class rdf:about="http://www.tit-institute.de/examples/circuit-breaker">
    <rdfs:label xml:lang="de">Leistungsschalter</rdfs:label>
    <rdfs:label xml:lang="fr">disjoncteur</rdfs:label>
    <rdfs:subClassOf rdfs:resource="http://www.tit-institute.de/examples/
     mechanicalSwitchingGear"/>
  </rdfs:Class>
  <rdfs:Class rdf:about="http://www.tit-institute.de/examples/vacuumCircuit-breaker">
    <rdfs:label xml:lang="de">Vakuumleistungsschalter</rdfs:label>
    <rdfs:label xml:lang="fr">disjoncteur à vide</rdfs:label>
    <rdfs:subClassOf rdfs:resource="http://www.tit-institute.de/examples/circuit-
     breaker"/>
  </rdfs:Class>
</rdf:RDF>
```

However, it seems that TBX itself offers few ontological constellations (relation between closed data categories and their values, relation between data categories and the metamodel levels of ISO 16642, and so on). The mapping of TBX-specific ontologies (key word: relational register) and conversions between TBX and RFDS/OWL/SKOS serializations will be part of future research work at the Terminology & Translation Institute.

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Annex A (TBX document instance)


```xml
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE martif SYSTEM "TBXcoreStructV02.dtd">
<martif type="TBX" xml:lang="en">
  <martifHeader>
    <fileDesc>
      <sourceDesc>
        <p>my-termbase.xlsx</p>
      </sourceDesc>
    </fileDesc>
    <encodingDesc>
      <p type="XCSURI">./TBXXCSV02.XCS"</p>
    </encodingDesc>
  </martifHeader>
  <text>
    <body>
      <termEntry id="teid_1111">
        <langSet xml:lang="en">
          <tig>
            <term id="tid_2111_1">mechanical switching device</term>
          </tig>
        </langSet>
      </termEntry>
      <termEntry id="teid_1112">
        <descrip type="subjectField">switchgear, controlgear and fuses</descrip>
        <descripGrp>
          <descrip type="definition">a mechanical switching device, capable of making, carrying and breaking currents under normal circuit
           conditions and also making, carrying for a specified time and breaking currents under specified abnormal circuit conditions such as
           those of short circuit</descrip>
          <admin type="source">http://www.electropedia.org</admin>
        </descripGrp>
        <xref type="xGraphic" target="circuit-breaker.jpg"/>
        <xref type="xSource" target="http://de.wikipedia.org"/>
        <descrip type="conceptPosition">1.2.5</descrip>
        <descrip type="superordinateConceptGeneric" target="teid_1111">mechanical switching device</descrip>
        <descrip type="subordinateConceptGeneric" target="teid_1113">air circuit-breaker</descrip>
        <descrip type="subordinateConceptGeneric" target="teid_1114">oil circuit-breaker</descrip>
        <descrip type="subordinateConceptGeneric" target="teid_1115">vacuum circuit-breaker</descrip>
        <descrip type="subordinateConceptGeneric" target="teid_1116">gas-blast circuit-breaker</descrip>
        <descrip type="subordinateConceptGeneric" target="teid_1117">sulphur hexafluoride circuit-breaker</descrip>
        <descrip type="subordinateConceptGeneric" target="teid_1118">air-blast circuit-breaker</descript>
        <langSet xml:lang="en">
          <tig>
            <term id="tid_2112_1">circuit-breaker</term>
              <termNote type="partOfSpeech">noun</termNote>
              <termNote type="grammaticalNumber">singular</termNote>
              <admin type="source">http://www.electropedia.org</admin>
```

```
    </tig>
  </langSet>
  <langSet xml:lang="de">
    <tig>
      <term id="tid_3112_1">Leistungsschalter</term>
        <termNote type="partOfSpeech">noun</termNote>
        <termNote type="grammaticalGender">masculine</termNote>
        <termNote type="grammaticalNumber">singular</termNote>
        <admin type="source">http://www.electropedia.org</admin>
    </tig>
  </langSet>
  <langSet xml:lang="fr">
    <tig>
      <term id="tid_4112_1">disjoncteur</term>
        <termNote type="partOfSpeech">noun</termNote>
        <termNote type="grammaticalGender">masculine</termNote>
        <termNote type="grammaticalNumber">singular</termNote>
        <admin type="source">http://www.electropedia.org</admin>
    </tig>
  </langSet>
</termEntry>
<termEntry id="teid_1113">
  <langSet xml:lang="en">
    <tig>
      <term id="tid_2113_1">air circuit-breaker</term>
    </tig>
  </langSet>
</termEntry>
<termEntry id="teid_1114">
  <langSet xml:lang="en">
    <tig>
      <term id="tid_2114_1">oil circuit-breaker</term>
    </tig>
  </langSet>
</termEntry>
<termEntry id="teid_1115">
  <descrip type="subjectField">switchgear, controlgear and fuses</descrip>
  <descripGrp>
    <descrip type="definition">a circuit-breaker in which the contacts open and close within a highly evacuated envelope</descrip>
    <admin type="source">http://www.electropedia.org</admin>
  </descripGrp>
  <xref type="xGraphic" target="vacuum-circuit-breaker.jpg"/>
  <xref type="xSource" target="http://de.wikipedia.org"/>
  <descrip type="conceptPosition">1.2.5.f.3</descrip>
  <descrip type="superordinateConceptGeneric" target="teid_1112">circuit-
   breaker</descrip>
  <langSet xml:lang="en">
    <tig>
      <term id="tid_2115_1">vacuum circuit-breaker</term>
        <termNote type="partOfSpeech">noun</termNote>
```

```
        <termNote type="grammaticalNumber">singular</termNote>
        <admin type="source">http://www.electropedia.org</admin>
    </tig>
  </langSet>
  <langSet xml:lang="de">
    <tig>
      <term id="tid_3115_1">Vakuumleistungsschalter</term>
        <termNote type="partOfSpeech">noun</termNote>
        <termNote type="grammaticalGender">masculine</termNote>
        <termNote type="grammaticalNumber">singular</termNote>
        <admin type="source">http://www.electropedia.org</admin>
    </tig>
  </langSet>
  <langSet xml:lang="fr">
    <ntig>
      <termGrp>
        <term id="tid_4115_1">disjoncteur à vide</term>
        <termNote type="partOfSpeech">noun</termNote>
        <termNote type="grammaticalGender">masculine</termNote>
        <termNote type="grammaticalNumber">singular</termNote>
        <termCompList type="termElement">
          <termCompGrp>
            <termComp id="tcid_4115_1_1">disjoncteur</termComp>
            <termNote type="partOfSpeech">noun</termNote>
            <termNote type="grammaticalGender">masculine</termNote>
            <termNote type="grammaticalNumber">singular</termNote>
          </termCompGrp>
          <termCompGrp>
            <termComp id="tcid_4115_1_2">à</termComp>
            <termNote type="partOfSpeech">preposition</termNote>
          </termCompGrp>
          <termCompGrp>
            <termComp id="tcid_4115_1_3">vide</termComp>
            <termNote type="partOfSpeech">noun</termNote>
            <termNote type="grammaticalGender">masculine</termNote>
            <termNote type="grammaticalNumber">singular</termNote>
          </termCompGrp>
        </termCompList>
      </termGrp>
      <admin type="source">http://www.electropedia.org</admin>
    </ntig>
  </langSet>
</termEntry>
<termEntry id="teid_1116">
  <langSet xml:lang="en">
    <tig>
      <term id="tid_2116_1">gas-blast circuit-breaker</term>
    </tig>
  </langSet>
</termEntry>
```

```
      <termEntry id="teid_1117">
        <langSet xml:lang="en">
          <tig>
            <term id="tid_2117_1">sulphur hexafluoride circuit-breaker</term>
          </tig>
        </langSet>
      </termEntry>
      <termEntry id="teid_1118">
        <langSet xml:lang="en">
          <tig>
            <term id="tid_2118_1">air-blast circuit-breaker</term>
          </tig>
        </langSet>
      </termEntry>
    </body>
  </text>
</martif>
```

Annex B (RDF/XML document instance)


```xml
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:xs="http://www.w3.org/2001/XMLSchema#" xmlns:tit="http://www.tit-
 institute.de/" xml:base="http://www.tit-institute.de/">
  <rdf:Description rdf:about="http://www.tit-institute.de/termbase">
    <tit:hasTermEntry>
      <rdf:Description rdf:about="teid_1111">
        <tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">teid_1111</tit:id>
        <tit:hasLangSet>
          <rdf:Description rdf:about="teid_1111/en">
            <tit:langSet rdf:datatype="http://www.w3.org/2001/XMLSchema#language">en</tit:langSet>
            <tit:hasTerm>
              <rdf:Description rdf:about="teid_1111/en/tid_2111_1">
                <tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">tid_2111_1</tit:id>
                <tit:term rdf:datatype="http://www.w3.org/2001/XMLSchema#string">mechanical switching device</tit:term>
                <tit:dataCategory>
                  <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-508">
                    <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">term</tit:dcName>
                    <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">term</tit:dcIdentifier>
                  </rdf:Description>
                </tit:dataCategory>
              </rdf:Description>
            </tit:hasTerm>
          </rdf:Description>
        </tit:hasLangSet>
      </rdf:Description>
    </tit:hasTermEntry>
    <tit:hasTermEntry>
      <rdf:Description rdf:about="teid_1112">
        <tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">teid_1112</tit:id>
        <tit:hasSubjectField>
          <rdf:Description rdf:about="teid_1112/subjectField">
            <tit:subjectField rdf:datatype="http://www.w3.org/2001/XMLSchema#string">switchgear, controlgear and fuses</tit:subjectField>
            <tit:dataCategory>
              <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-489">
                <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subject field</tit:dcName>
                <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subjectField</tit:dcIdentifier>
              </rdf:Description>
            </tit:dataCategory>
          </rdf:Description>
        </tit:hasSubjectField>
        <tit:hasDefinition>
          <rdf:Description rdf:about="teid_1112/definition">
            <tit:definition rdf:datatype="http://www.w3.org/2001/XMLSchema#string">a mechanical switching device, capable of making,
             carrying and breaking currents under normal circuit conditions and also making, carrying for a specified time and breaking
             currents under specified abnormal circuit conditions such as those of short circuit</tit:definition>
            <tit:dataCategory>
```

```
      <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-168">
        <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">definition</tit:dcName>
        <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">definition</tit:dcIdentifier>
      </rdf:Description>
    </tit:dataCategory>
    <tit:hasSource>
      <rdf:Description rdf:about="teid_1112/definition/source">
        <tit:source rdf:datatype="http://www.w3.org/2001/XMLSchema#string">http://www.electropedia.org</tit:source>
        <tit:dataCategory>
          <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-471">
            <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">source</tit:dcName>
            <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">source</tit:dcIdentifier>
          </rdf:Description>
        </tit:dataCategory>
      </rdf:Description>
    </tit:hasSource>
  </rdf:Description>
</tit:hasDefinition>
<tit:hasFigure>
  <rdf:Description rdf:about="teid_1112/figure">
    <tit:figure rdf:datatype="http://www.w3.org/2001/XMLSchema#base64Binary">circuit-breaker.jpg</tit:figure>
    <tit:dataCategory>
      <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-2920">
        <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">figure</tit:dcName>
        <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">figure</tit:dcIdentifier>
      </rdf:Description>
    </tit:dataCategory>
    <tit:hasSource>
      <rdf:Description rdf:about="teid_1112/figure/source">
        <tit:source rdf:datatype="http://www.w3.org/2001/XMLSchema#string">http://de.wikipedia.org</tit:source>
        <tit:dataCategory>
          <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-xSource">
            <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">xSource</tit:dcName>
            <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">xSource</tit:dcIdentifier>
          </rdf:Description>
        </tit:dataCategory>
      </rdf:Description>
    </tit:hasSource>
  </rdf:Description>
</tit:hasFigure>
<tit:hasConceptPosition>
  <rdf:Description rdf:about="teid_1112/conceptPosition">
    <tit:conceptPosition rdf:datatype="http://www.w3.org/2001/XMLSchema#string">1.2.5</tit:conceptPosition>
    <tit:dataCategory>
      <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-141">
        <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">concept position</tit:dcName>
        <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">conceptPosition</tit:dcIdentifier>
      </rdf:Description>
    </tit:dataCategory>
  </rdf:Description>
```

```
</tit:hasConceptPosition>
<tit:hasSuperordinateConceptGeneric>
  <rdf:Description rdf:about="teid_1111">
    <tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">teid_1111</tit:id>
    <tit:superordinateConceptGeneric rdf:datatype="http://www.w3.org/2001/XMLSchema#string">mechanical switching
     device</tit:superordinateConceptGeneric>
    <tit:dataCategory>
      <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-496">
        <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">superordinate concept generic</tit:dcName>
        <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">superordinateConceptGeneric</tit:dcIdentifier>
      </rdf:Description>
    </tit:dataCategory>
  </rdf:Description>
</tit:hasSuperordinateConceptGeneric>
<tit:hasSubordinateConceptGeneric>
  <rdf:Description rdf:about="teid_1113">
    <tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">teid_1113</tit:id>
    <tit:subordinateConceptGeneric rdf:datatype="http://www.w3.org/2001/XMLSchema#string">air circuit-breaker
    </tit:subordinateConceptGeneric>
    <tit:dataCategory>
      <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-491">
        <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subordinate concept generic</tit:dcName>
        <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subordinateConceptGeneric</tit:dcIdentifier>
      </rdf:Description>
    </tit:dataCategory>
  </rdf:Description>
</tit:hasSubordinateConceptGeneric>
<tit:hasSubordinateConceptGeneric>
  <rdf:Description rdf:about="teid_1114">
    <tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">teid_1114</tit:id>
    <tit:subordinateConceptGeneric rdf:datatype="http://www.w3.org/2001/XMLSchema#string">oil circuit-breaker
    </tit:subordinateConceptGeneric>
    <tit:dataCategory>
      <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-491">
        <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subordinate concept generic</tit:dcName>
        <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subordinateConceptGeneric</tit:dcIdentifier>
      </rdf:Description>
    </tit:dataCategory>
  </rdf:Description>
</tit:hasSubordinateConceptGeneric>
<tit:hasSubordinateConceptGeneric>
  <rdf:Description rdf:about="teid_1115">
    <tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">teid_1115</tit:id>
    <tit:subordinateConceptGeneric rdf:datatype="http://www.w3.org/2001/XMLSchema#string">vacuum circuit-breaker
    </tit:subordinateConceptGeneric>
    <tit:dataCategory>
      <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-491">
        <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subordinate concept generic</tit:dcName>
        <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subordinateConceptGeneric</tit:dcIdentifier>
      </rdf:Description>
```

```
    </tit:dataCategory>
  </rdf:Description>
</tit:hasSubordinateConceptGeneric>
<tit:hasSubordinateConceptGeneric>
  <rdf:Description rdf:about="teid_1116">
    <tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">teid_1116</tit:id>
    <tit:subordinateConceptGeneric rdf:datatype="http://www.w3.org/2001/XMLSchema#string">gas-blast circuit-breaker
    </tit:subordinateConceptGeneric>
    <tit:dataCategory>
      <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-491">
        <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subordinate concept generic</tit:dcName>
        <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subordinateConceptGeneric</tit:dcIdentifier>
      </rdf:Description>
    </tit:dataCategory>
  </rdf:Description>
</tit:hasSubordinateConceptGeneric>
<tit:hasSubordinateConceptGeneric>
  <rdf:Description rdf:about="teid_1117">
    <tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">teid_1117</tit:id>
    <tit:subordinateConceptGeneric rdf:datatype="http://www.w3.org/2001/XMLSchema#string">sulphur hexafluoride circuit-breaker
    </tit:subordinateConceptGeneric>
    <tit:dataCategory>
      <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-491">
        <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subordinate concept generic</tit:dcName>
        <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subordinateConceptGeneric</tit:dcIdentifier>
      </rdf:Description>
    </tit:dataCategory>
  </rdf:Description>
</tit:hasSubordinateConceptGeneric>
<tit:hasSubordinateConceptGeneric>
  <rdf:Description rdf:about="teid_1118">
    <tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">teid_1118</tit:id>
    <tit:subordinateConceptGeneric rdf:datatype="http://www.w3.org/2001/XMLSchema#string">air-blast circuit-breaker
    </tit:subordinateConceptGeneric>
    <tit:dataCategory>
      <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-491">
        <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subordinate concept generic</tit:dcName>
        <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subordinateConceptGeneric</tit:dcIdentifier>
      </rdf:Description>
    </tit:dataCategory>
  </rdf:Description>
</tit:hasSubordinateConceptGeneric>
<tit:hasLangSet>
  <rdf:Description rdf:about="teid_1112/en">
    <tit:langSet rdf:datatype="http://www.w3.org/2001/XMLSchema#language">en</tit:langSet>
    <tit:hasTerm>
      <rdf:Description rdf:about="teid_1112/en/tid_2112_1">
        <tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">tid_2112_1</tit:id>
        <tit:term rdf:datatype="http://www.w3.org/2001/XMLSchema#string">circuit-breaker</tit:term>
        <tit:dataCategory>
```

```
          <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-508">
            <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">term</tit:dcName>
            <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">term</tit:dcIdentifier>
          </rdf:Description>
        </tit:dataCategory>
        <tit:hasPartOfSpeech>
          <rdf:Description rdf:about="teid_1112/en/tid_2112_1/partOfSpeech">
            <tit:partOfSpeech rdf:datatype="http://www.w3.org/2001/XMLSchema#string">noun</tit:partOfSpeech>
            <tit:dataCategory>
              <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-396">
                <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">part of speech</tit:dcName>
                <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">partOfSpeech</tit:dcIdentifier>
              </rdf:Description>
            </tit:dataCategory>
          </rdf:Description>
        </tit:hasPartOfSpeech>
        <tit:hasGrammaticalNumber>
          <rdf:Description rdf:about="teid_1112/en/tid_2112_1/grammaticalNumber">
            <tit:grammaticalNumber rdf:datatype="http://www.w3.org/2001/XMLSchema#string">singular</tit:grammaticalNumber>
            <tit:dataCategory>
              <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-251">
                <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">grammatical number</tit:dcName>
                <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">grammaticalNumber</tit:dcIdentifier>
              </rdf:Description>
            </tit:dataCategory>
          </rdf:Description>
        </tit:hasGrammaticalNumber>
        <tit:hasSource>
          <rdf:Description rdf:about="teid_1112/en/tid_2112_1/source">
            <tit:source rdf:datatype="http://www.w3.org/2001/XMLSchema#string">http://www.electropedia.org</tit:source>
            <tit:dataCategory>
              <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-471">
                <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">source</tit:dcName>
                <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">source</tit:dcIdentifier>
              </rdf:Description>
            </tit:dataCategory>
          </rdf:Description>
        </tit:hasSource>
      </rdf:Description>
    </tit:hasTerm>
  </rdf:Description>
</tit:hasLangSet>
<tit:hasLangSet>
  <rdf:Description rdf:about="teid_1112/de">
    <tit:langSet rdf:datatype="http://www.w3.org/2001/XMLSchema#language">de</tit:langSet>
    <tit:hasTerm>
      <rdf:Description rdf:about="teid_1112/de/tid_3112_1">
        <tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">tid_3112_1</tit:id>
        <tit:term rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Leistungsschalter</tit:term>
        <tit:dataCategory>
```

```
    <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-508">
      <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">term</tit:dcName>
      <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">term</tit:dcIdentifier>
    </rdf:Description>
  </tit:dataCategory>
  <tit:hasPartOfSpeech>
    <rdf:Description rdf:about="teid_1112/de/tid_3112_1/partOfSpeech">
      <tit:partOfSpeech rdf:datatype="http://www.w3.org/2001/XMLSchema#string">noun</tit:partOfSpeech>
      <tit:dataCategory>
        <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-396">
          <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">part of speech</tit:dcName>
          <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">partOfSpeech</tit:dcIdentifier>
        </rdf:Description>
      </tit:dataCategory>
    </rdf:Description>
  </tit:hasPartOfSpeech>
  <tit:hasGrammaticalGender>
    <rdf:Description rdf:about="teid_1112/de/tid_3112_1/grammaticalGender">
      <tit:grammaticalGender rdf:datatype="http://www.w3.org/2001/XMLSchema#string">masculine</tit:grammaticalGender>
      <tit:dataCategory>
        <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-245">
          <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">grammatical gender</tit:dcName>
          <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">grammaticalGender</tit:dcIdentifier>
        </rdf:Description>
      </tit:dataCategory>
    </rdf:Description>
  </tit:hasGrammaticalGender>
  <tit:hasGrammaticalNumber>
    <rdf:Description rdf:about="teid_1112/de/tid_3112_1/grammaticalNumber">
      <tit:grammaticalNumber rdf:datatype="http://www.w3.org/2001/XMLSchema#string">singular</tit:grammaticalNumber>
      <tit:dataCategory>
        <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-251">
          <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">grammatical number</tit:dcName>
          <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">grammaticalNumber</tit:dcIdentifier>
        </rdf:Description>
      </tit:dataCategory>
    </rdf:Description>
  </tit:hasGrammaticalNumber>
  <tit:hasSource>
    <rdf:Description rdf:about="teid_1112/de/tid_3112_1/source">
      <tit:source rdf:datatype="http://www.w3.org/2001/XMLSchema#string">http://www.electropedia.org</tit:source>
      <tit:dataCategory>
        <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-471">
          <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">source</tit:dcName>
          <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">source</tit:dcIdentifier>
        </rdf:Description>
      </tit:dataCategory>
    </rdf:Description>
  </tit:hasSource>
</rdf:Description>
```

```
    </tit:hasTerm>
  </rdf:Description>
</tit:hasLangSet>
<tit:hasLangSet>
  <rdf:Description rdf:about="teid_1112/fr">
    <tit:langSet rdf:datatype="http://www.w3.org/2001/XMLSchema#language">fr</tit:langSet>
    <tit:hasTerm>
      <rdf:Description rdf:about="teid_1112/fr/tid_4112_1">
        <tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">tid_4112_1</tit:id>
        <tit:term rdf:datatype="http://www.w3.org/2001/XMLSchema#string">disjoncteur</tit:term>
        <tit:dataCategory>
          <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-508">
            <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">term</tit:dcName>
            <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">term</tit:dcIdentifier>
          </rdf:Description>
        </tit:dataCategory>
        <tit:hasPartOfSpeech>
          <rdf:Description rdf:about="teid_1112/fr/tid_4112_1/partOfSpeech">
            <tit:partOfSpeech rdf:datatype="http://www.w3.org/2001/XMLSchema#string">noun</tit:partOfSpeech>
            <tit:dataCategory>
              <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-396">
                <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">part of speech</tit:dcName>
                <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">partOfSpeech</tit:dcIdentifier>
              </rdf:Description>
            </tit:dataCategory>
          </rdf:Description>
        </tit:hasPartOfSpeech>
        <tit:hasGrammaticalGender>
          <rdf:Description rdf:about="teid_1112/fr/tid_4112_1/grammaticalGender">
            <tit:grammaticalGender rdf:datatype="http://www.w3.org/2001/XMLSchema#string">masculine</tit:grammaticalGender>
            <tit:dataCategory>
              <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-245">
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                <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">grammaticalGender</tit:dcIdentifier>
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            </tit:dataCategory>
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        </tit:hasGrammaticalGender>
        <tit:hasGrammaticalNumber>
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            <tit:grammaticalNumber rdf:datatype="http://www.w3.org/2001/XMLSchema#string">singular</tit:grammaticalNumber>
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                <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">grammaticalNumber</tit:dcIdentifier>
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          </rdf:Description>
        </tit:hasGrammaticalNumber>
        <tit:hasSource>
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              <tit:dataCategory>
                <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-471">
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                  <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">source</tit:dcIdentifier>
                </rdf:Description>
              </tit:dataCategory>
            </rdf:Description>
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        </rdf:Description>
      </tit:hasTerm>
    </rdf:Description>
  </tit:hasLangSet>
</rdf:Description>
</tit:hasTermEntry>
<tit:hasTermEntry>
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    <tit:hasLangSet>
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        <tit:langSet rdf:datatype="http://www.w3.org/2001/XMLSchema#language">en</tit:langSet>
        <tit:hasTerm>
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                <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">term</tit:dcIdentifier>
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  </rdf:Description>
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        <tit:hasTerm>
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            <tit:term rdf:datatype="http://www.w3.org/2001/XMLSchema#string">oil circuit-breaker</tit:term>
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      <rdf:Description rdf:about="teid_1115/subjectField">
        <tit:subjectField rdf:datatype="http://www.w3.org/2001/XMLSchema#string">switchgear, controlgear and fuses</tit:subjectField>
        <tit:dataCategory>
          <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-489">
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            <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">subjectField</tit:dcIdentifier>
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    <tit:hasDefinition>
      <rdf:Description rdf:about="teid_1115/definition">
        <tit:definition rdf:datatype="http://www.w3.org/2001/XMLSchema#string">a circuit-breaker in which the contacts open and close
         within a highly evacuated envelope</tit:definition>
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          </rdf:Description>
        </tit:dataCategory>
        <tit:hasSource>
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        </tit:hasSource>
      </rdf:Description>
    </tit:hasDefinition>
    <tit:hasFigure>
      <rdf:Description rdf:about="teid_1115/figure">
        <tit:figure rdf:datatype="http://www.w3.org/2001/XMLSchema#base64Binary">vacuum-circuit-breaker.jpg</tit:figure>
```

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        <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">figure</tit:dcIdentifier>
      </rdf:Description>
    </tit:dataCategory>
    <tit:hasSource>
      <rdf:Description rdf:about="teid_1115/figure/source">
        <tit:source rdf:datatype="http://www.w3.org/2001/XMLSchema#string">http://de.wikipedia.org</tit:source>
        <tit:dataCategory>
          <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-xSource">
            <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">xSource</tit:dcName>
            <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">xSource</tit:dcIdentifier>
          </rdf:Description>
        </tit:dataCategory>
      </rdf:Description>
    </tit:hasSource>
  </rdf:Description>
</tit:hasFigure>
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    <tit:conceptPosition rdf:datatype="http://www.w3.org/2001/XMLSchema#string">1.2.5.f.3</tit:conceptPosition>
    <tit:dataCategory>
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        <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">concept position</tit:dcName>
        <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">conceptPosition</tit:dcIdentifier>
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  </rdf:Description>
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    <tit:superordinateConceptGeneric rdf:datatype="http://www.w3.org/2001/XMLSchema#string">circuit-breaker
    </tit:superordinateConceptGeneric>
    <tit:dataCategory>
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    <tit:langSet rdf:datatype="http://www.w3.org/2001/XMLSchema#language">en</tit:langSet>
    <tit:hasTerm>
      <rdf:Description rdf:about="teid_1115/en/tid_2115_1">
        <tit:id rdf:datatype="http://www.w3.org/2001/XMLSchema#ID">tid_2115_1</tit:id>
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            <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">term</tit:dcIdentifier>
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        </tit:dataCategory>
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          <rdf:Description rdf:about="teid_1115/en/tid_2115_1/partOfSpeech">
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            <tit:dataCategory>
              <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-396">
                <tit:dcName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">part of speech</tit:dcName>
                <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">partOfSpeech</tit:dcIdentifier>
              </rdf:Description>
            </tit:dataCategory>
          </rdf:Description>
        </tit:hasPartOfSpeech>
        <tit:hasGrammaticalNumber>
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              </rdf:Description>
            </tit:dataCategory>
          </rdf:Description>
        </tit:hasGrammaticalNumber>
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          <rdf:Description rdf:about="teid_1115/en/tid_2115_1/source">
            <tit:source rdf:datatype="http://www.w3.org/2001/XMLSchema#string">http://www.electropedia.org</tit:source>
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          </rdf:Description>
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    <tit:hasTerm>
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  </rdf:Description>
</tit:dataCategory>
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  <rdf:Description rdf:about="teid_1115/de/tid_3115_1/partOfSpeech">
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    <tit:dataCategory>
      <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-396">
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        <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">partOfSpeech</tit:dcIdentifier>
      </rdf:Description>
    </tit:dataCategory>
  </rdf:Description>
</tit:hasPartOfSpeech>
<tit:hasGrammaticalGender>
  <rdf:Description rdf:about="teid_1115/de/tid_3115_1/grammaticalGender">
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    <tit:dataCategory>
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    </tit:dataCategory>
  </rdf:Description>
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  </rdf:Description>
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    <tit:termComponent rdf:datatype="http://www.w3.org/2001/XMLSchema#string">disjoncteur</tit:termComponent>
    <tit:hasPartOfSpeech>
      <rdf:Description rdf:about="teid_1115/fr/tid_4115_1/tcid_4115_1_1/partOfSpeech">
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        <tit:dataCategory>
          <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-396">
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            <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">partOfSpeech</tit:dcIdentifier>
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        <tit:grammaticalGender rdf:datatype="http://www.w3.org/2001/XMLSchema#string">masculine</tit:grammaticalGender>
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    </tit:hasGrammaticalGender>
    <tit:hasGrammaticalNumber>
      <rdf:Description rdf:about="teid_1115/fr/tid_4115_1/tcid_4115_1_1/grammaticalNumber">
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      <rdf:Description rdf:about="teid_1115/fr/tid_4115_1/tcid_4115_1_2/partOfSpeech">
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      <tit:termComponent rdf:datatype="http://www.w3.org/2001/XMLSchema#string">vide</tit:termComponent>
      <tit:hasPartOfSpeech>
        <rdf:Description rdf:about="teid_1115/fr/tid_4115_1/tcid_4115_1_3/partOfSpeech">
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          <tit:dataCategory>
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          </tit:dataCategory>
        </rdf:Description>
      </tit:hasPartOfSpeech>
      <tit:hasGrammaticalGender>
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          <tit:dataCategory>
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              <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">grammaticalGender</tit:dcIdentifier>
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          </tit:dataCategory>
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      </tit:hasGrammaticalGender>
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    </rdf:Description>
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<tit:hasSource>
  <rdf:Description rdf:about="teid_1115/fr/tid_4115_1/source">
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      </rdf:Description>
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        <tit:hasTerm>
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            <tit:dataCategory>
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            </tit:dataCategory>
          </rdf:Description>
        </tit:hasTerm>
      </rdf:Description>
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    <tit:hasLangSet>
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              <rdf:Description rdf:about="http://www.isocat.org/datcat/DC-508">
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                <tit:dcIdentifier rdf:datatype="http://www.w3.org/2001/XMLSchema#string">term</tit:dcIdentifier>
              </rdf:Description>
            </tit:dataCategory>
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            </rdf:Description>
          </tit:hasTerm>
        </rdf:Description>
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          <tit:hasTerm>
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Annex C (circuit-breaker)