

	<p style="text-align: center;">ESTRELLA IST-2004-027655</p> <p style="text-align: center;"><i>European project for Standardized Transparent Representations in order to Extend Legal Accessibility Specific Targeted Research or Innovation Project</i></p> <p>Specific Targeted Research Project Information Society Technologies</p>
--	--

Deliverable N°: 4.2
Refined translators to and from LKIF for each of the knowledge formats of the participating vendors

Version: FINAL 1.0 Allex Gold

Due date of Deliverable: September 30, 2008

Actual submission date: September 30, 2008

Start date of Project: 1 January 2006

Duration: 30 months

Project Coordinator: Universiteit van Amsterdam (NL)

Lead contractor deliverable: Corvinus University Budapest

Participating contractors: Alma Mater Studiorum - Universita di Bologna (IT), University of Liverpool (UK), Fraunhofer Gesellschaft zur foerderung der angewandten forschung e.v. (DE), RuleWise b.v. (NL), RuleBurst (EUROPE) Ltd. (UK), knowledgeTools International GmbH (DE), Interaction Design Ltd. (UK), SOGEI - Societa Generale d'Informatica S.P.A. (IT), Ministro per le Riforme e le Innivazioni nella Publica Amministrazione (IT), Hungarian Tax and Financial Control Administration (HU), Budapesti Corvinus Egyetem (HU), Ministero dell'Economia e delle Finanze (IT), Consorzio Pisa Ricerche SCARL (IT)

	<p>Project funded by the European Community under the 6th Framework Programme</p>
---	---

Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Translation between the representation languages of LKIF and Alex Gold

Contents:

1	INTRODUCTION.....	3
2	COMPARISON OF THE LANGUAGES.....	3
3	THE COMMON INTERSECTION OF THE LANGUAGES	4
4	WORKAROUND METHODS IN TRANSLATING LKIF TO ALLEX GOLD	4
4.1	HIGHER-ARITY PREDICATES	4
4.2	DEFEASIBILITY	4
5	TRANSLATING FROM LKIF TO ALLEX GOLD	5
6	TRANSLATION FROM ALLEX GOLD TO LKIF	6
APPENDIX A	EXAMPLE TRANSLATION FROM LKIF TO ALLEX GOLD.....	6
APPENDIX B	EXAMPLE TRANSLATION FROM ALLEX GOLD TO LKIF	43

1 Introduction

The following document will shortly overview the methods of translating between the languages of LKIF and Alex Gold. First the two description languages are compared, with special emphasis on the topic of which of their elements can be mapped in a natural way to those of the other language, in other words, what is the common intersection of the two languages.

Following this, we concentrate on those elements, which do not have a direct counterpart in the other language, but can be translated using some “workaround” methods. Finally those elements are enumerated which are totally alien to the other representation.

The document is organized as follows. In Section 2, a brief comparison of the two languages is given. Section 3 and Section 4 examines which are the common parts of the two languages and which cannot be translated “directly”. Sections 5 and 6 detail the exact methods, giving longer descriptions of the algorithms themselves. We conclude by providing some basic, illustrative examples, in Appendix B and Appendix A.

2 Comparison of the languages

Although the basic aims of both languages are the same, namely to model a given (legal) environment consisting of some entities and rules using logical rules, there are significant differences between them, which hinder a “direct” translation. In the following list, we enumerate these differences.

- While LKIF basically treats domain entities as atomic constants which do not have any additional features or attributes, in Alex Gold, a frame hierarchy is supported (and required) for the description of the properties each entity. Inheritance among these frames is also supported, thus allowing for the use/building/construction of a rudimentary/simpler object-oriented class hierarchy.
On the contrary, any property of an LKIF atom, has to be assigned to it through a multiary predicate.
- As it was suggested above, predicates of arbitrary arity are supported by LKIF, actually, they provide the primary way of describing any property or relation of domain entities. In Alex Gold, however, this language feature is totally missing: the language allows only the representation of attributes belonging to exactly one frame. As it will be shown later, this is the drawback of Alex Gold which hinders a natural translation between the languages the most.
- As it more or less follows from the previous point, LKIF allows to take any statement to infer about, while in Alex Gold, only the values of frame attributes can be the goals of inference.

There are also some further differences between the two languages which, under some assumptions and given that some restrictions are accepted can be more or less eliminated.

- LKIF highly supports defeasibility of rules (and hence reached subconclusions). Although Alex Gold lacks this feature, there is a possibility

of defining default values for attributes; through this mechanism, some kind of defeasibility can be simulated.

- LKIF support meta-level inference, meaning that the applicability of a given rule in a given situation can also be the subject of debate, and hence be inferred about. Alex Gold does not support such a complex hierarchization of rules, static priorities can be assigned to rules.

3 The common intersection of the languages

The following language elements can –to some extent– be regarded as direct counterparts of each other, i.e. these will form the backbone of the translation algorithms.

Domain entities in LKIF are represented by atoms, these can be directly translated to Alex Gold frames (without properties yet).

- Unary predicates of LKIF can be translated to Boolean attributes of Alex Gold frame attributes. Furthermore, if we know that one argument of a binary LKIF predicate will always take an atom as its value and the other a string or numeric constant, it can be represented by an Alex Gold attribute of the corresponding type.
- Strict (non-defeasible) rules of LKIF, which is built up solely from the above elements can be translated to Alex Gold rules.

In short, it can be guaranteed for these subsets of the languages that a knowledge base can be translated “literally” to the other, i.e. each element is represented by one counterpart in the translation, and translating “back” the translated knowledge base will result in practically the original one.

Although in the next Section it will be shown that broader subsets of LKIF can also be translated successfully, this property will not hold for these “extended” algorithms.

4 Workaround methods in translating LKIF to Alex Gold

In the following paragraphs we shortly introduce those methods which can be applied in Alex Gold knowledge bases to simulate some of the missing LKIF functionalities.

4.1 Higher-arity predicates

Since Alex Gold does not have a mechanism to represent multiary predicates, hence for every possible instantiation of such a predicate a frame (so-called predicate-value frame) representing its truth value has to be explicitly allocated. This means that e.g. if in LKIF we have a binary predicate ‘relativeOf’ and two atoms ‘Adam’ and ‘Eve’, then we have to allocate four frames in Alex Gold, each for one instantiation: ‘relativeOf(Adam, Adam)’, ‘relativeOf(Adam, Eve)’, ‘relativeOf(Eve, Adam)’, and ‘relativeOf(Eve, Eve)’. Using Alex Golds selector formulas in statements of rules a rule referring to the predicate can be represented by one counterpart (not taking into account the complexity of the head and body of the rule).

4.2 Defeasibility

Alex Gold does not support such a mechanism, so only the extremes of the handling of defeasible statements can be simulated. An attribute can get its value basically from two sources (not counting e.g. user input), namely from the result of inference

i.e. ‘rules’ or can take a default value. The order in which these are evaluated can be changed, and hence we have two options:

- If ‘default’ precedes ‘rules’, the default value will always be taken into account, as if we always accepted LKIF assumptions.
- If ‘rules’ precedes ‘default’, the truth value of every statement will be inferred if possible, as if no LKIF assumptions were accepted.

On the other hand, LKIF lacks a direct mechanism to represent entity hierarchies like that of Alex Gold’s frame structure, however this can easily be done using rules about unary predicates denoting class memberships (e.g. **if** `memberOf_ancestorClass(?x)` **then** `memberOf_descendantClass(?x)`’).

5 Translating from LKIF to Alex Gold

In this and the following Section we describe in detail the algorithms of translating knowledge bases from Alex Gold to LKIF and vice versa

The translation algorithm from LKIF to Alex Golds performs the following steps.

- Create an empty Alex Gold knowledge base.
- Two so-called root frames are created: one will be the ancestor of all frames representing LKIF entities (‘object-root’ frame), the other will be the ancestor of all frames representing the values of each instantiation of multiary predicates (‘predicate-root’ frame).
- Every LKIF constant and individual is stored in a temporary list and a frame is created to represent it.
- The statements of every LKIF axiom and zero-body rule (i.e. a rule which practically behaves as an axiom) is converted: unary predicates are translated into attributes of frames, multiary predicates are converted into the corresponding predicate-value frame, with its ‘argument’ attributes having as default values the names of the arguments of the predicate.
Note, that the bodies and heads of rules and the axioms are first converted so that to have disjunctive normal forms. In this phase only those can be represented correctly by Alex Gold which have no ‘or’ operators in themselves.
- The translation of “real” rules proceeds in the following steps:
 - The conclusion of each rule is examined, the values of those predicates which appear in them can be the results of inference, hence the unary ones are added to the ‘object-root’ frame as attributes; for each multiary one, the frames representing its possible instantiations are created with the argument-attributes having the values of the instantiated argument as default, and an inferable ‘value-attribute’.
 - Furthermore, one frame is created to represent the predicate itself as their direct ancestor of the above and the direct descendant of the ‘predicate-root’ frame. This frame will be referred to by selector-formulas of the future Alex Gold rules.
 - As it has been mentioned previously, the heads and bodies of rules are transformed into disjunctive normal forms. Every ‘head-minterm’–‘body-minterm’ pair will be represented by a separate Alex Gold rule. The

statements can be represented directly by the corresponding attributes, hence this step is relatively straightforward.

6 Translation from Alex Gold to LKIF

The conversion algorithm consists of the following steps.

- First, the frame hierarchy is converted into LKIF rules, the following will be represented by these:
 - It is assumed that a predicate exists denoting the membership of the class.
 - Each frame is member of its own class.
 - If it has some parent, it will be asserted, that membership of the frame's own class implies the membership in the parent's class.
- In the second step, assertions about the attributes of frames are made, these are the following:
 - A rule denoting that members of the frame at hand do have such an attribute. Note that this practically means that some entities cannot be the arguments of given predicates; this restriction does not exist originally in LKIF, this is why these rules have to be added, in order to emulate the behavior of Alex Gold by LKIF as closely as possible.
 - If the attribute has a default value it has to be asserted by a corresponding axiom (or zero-body rule, although these are obsolete since the introduction of axioms). Attention has to be paid for whether the attribute is inherited locally (i.e. only the possessor frame has the given value) or globally (i.e. the descendants will share the same value).
- Finally, rules are translated. As in the opposite direction, this step is rather straightforward because of the basic similarity of the structures of rules of different languages. The only difficulty in this step is that the restrictions implied by the frame hierarchy (viz. by the fact that because of the inheritance relations not every frame has every attribute): this is done by using the predicates introduced in the first step to restrict the applicability of the rule.

Appendix A Example translation from LKIF to Alex Gold

The example LKIF knowledge base was the following.

```
<?xml version="1.0" encoding="UTF-8"?>
<?oxygen
RNGSchema="file:/Users/tgo/Documents/Projects/Carneades/dist/schemas/
LKIF.rnc" type="compact"?>
<lkif>
  <theory id="vat">
    <rules>
      <!--
***** -->
      <!-- PART I. - Is the vendor liable for paying VAT for a given
selling -->
      <rule id="vendorIsLiableForPayingVAT">
        <head>
          <s
pred="isLiableForPayingVATFor"><v>Selling</v><v>Vendor</v></s>
        </head>
```

```

<body>
<and>
  <s pred="vendorOf"><v>Selling</v><v>Vendor</v></s>
  <s pred="isDistanceSelling"><v>Selling</v></s>
  <s pred="isTaxablePersonInAMemberState"><v>Vendor</v></s>
  <s pred="hasEuropeanTaxNumber"><v>Vendor</v></s>
</and>
</body>
</rule>

<rule id="fact_1"><head><s
pred="vendorOf"><c>selling</c><c>vendor</c></s></head></rule>
<rule id="fact_3"><head><s
pred="isTaxablePersonInAMemberState"><c>vendor</c></s></head></rule>
<rule id="fact_4"><head><s
pred="hasEuropeanTaxNumber"><c>vendor</c></s></head></rule>

<rule id="isDistanceSelling">
<head>
  <s pred="isDistanceSelling"><v>Selling</v></s>
</head>
<body>
<and>
  <s pred="vendorOf"><v>Selling</v><v>Vendor</v></s>
  <s pred="acquirerOf"><v>Selling</v><v>Acquirer</v></s>
  <s pred="goodsOf"><v>Selling</v><v>Goods</v></s>
  <s pred="memberStateOf"><v>Vendor</v><v>SourceCountry</v></s>
  <s pred="memberStateOf"><v>Acquirer</v><v>TargetCountry</v></s>

  <s pred="isSpecialAcquirer"><v>Acquirer</v></s>
  <s pred="notTransportedBy"><v>Acquirer</v><v>Selling</v></s>
  <not><s pred="areSpecialGoods"><v>Goods</v></s></not>

  <not><s
pred="equals"><v>SourceCountry</v><v>TargetCountry</v></s></not>
  </and>
</body>
</rule>

<rule id="fact_5"><head><s
pred="acquirerOf"><c>selling</c><c>acquirer</c></s></head></rule>
<rule id="fact_6"><head><s
pred="goodsOf"><c>selling</c><c>goods</c></s></head></rule>
<rule id="fact_7"><head><s
pred="memberStateOf"><c>vendor</c><c>hungary</c></s></head></rule>
<rule id="fact_8"><head><s
pred="memberStateOf"><c>acquirer</c><c>austria</c></s></head></rule>

<rule id="fact-a"><head><s
pred="isSpecialAcquirer"><c>acquirer</c></s></head></rule>
<rule id="fact-b"><head><s
pred="notTransportedBy"><c>acquirer</c><c>selling</c></s></head></rule>
</rule>
<rule id="fact-c"><head><not><s
pred="areSpecialGoods"><c>goods</c></s></not></head></rule>
<rule id="fact-d"><head><not><s
pred="equals"><c>hungary</c><c>austria</c></s></not></head></rule>
<!--
***** -->
</rules>
</theory>

```

```
</lkif>
```

It resulted in the below Alex Gold file.

```
<?xml version="1.0" encoding="utf-8"?>
<Alex kb-language="en" xml-version="">
  <Frames>
    <Frame>
      <Name>
        <TextVersion lang="en">object</TextVersion>
      </Name>
      <Parents />
      <Attributes>
        <Attribute>
          <Name>
            <TextVersion lang="en">isDistanceSelling</TextVersion>
          </Name>
          <Type>logical</Type>
          <Sources>
            <Source>rules</Source>
          </Sources>
        </Attribute>
      </Attributes>
    </Frame>
    <Frame>
      <Name>
        <TextVersion lang="en">predicate</TextVersion>
      </Name>
      <Parents />
      <Attributes />
    </Frame>
    <Frame>
      <Name>
        <TextVersion lang="en">selling</TextVersion>
      </Name>
      <Parents>
        <Parent weight="0">object</Parent>
      </Parents>
      <Attributes />
    </Frame>
    <Frame>
      <Name>
        <TextVersion lang="en">vendor</TextVersion>
      </Name>
      <Parents>
        <Parent weight="0">object</Parent>
      </Parents>
      <Attributes>
        <Attribute>
          <Name>
            <TextVersion
lang="en">isTaxablePersonInAMemberState</TextVersion>
          </Name>
          <Type>logical</Type>
          <Sources>
            <Source>default</Source>
          </Sources>
          <Default>
            <TextVersion lang="en">{true}</TextVersion>
          </Default>
        </Attribute>
      </Attributes>
    </Frame>
  </Frames>
</Alex>
```

```

<Attribute>
  <Name>
    <TextVersion lang="en">hasEuropeanTaxNumber</TextVersion>
  </Name>
  <Type>logical</Type>
  <Sources>
    <Source>default</Source>
  </Sources>
  <Default>
    <TextVersion lang="en">{true}</TextVersion>
  </Default>
</Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion lang="en">acquirer</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">object</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">isSpecialAcquirer</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">{true}</TextVersion>
      </Default>
    </Attribute>
  </Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion lang="en">goods</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">object</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">areSpecialGoods</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">{false}</TextVersion>
      </Default>
    </Attribute>
  </Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion lang="en">hungary</TextVersion>

```

```

</Name>
<Parents>
  <Parent weight="0">object</Parent>
</Parents>
<Attributes />
</Frame>
<Frame>
  <Name>
    <TextVersion lang="en">austria</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">object</Parent>
  </Parents>
  <Attributes />
</Frame>
<Frame>
  <Name>
    <TextVersion lang="en">vendorOf</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">predicate</Parent>
  </Parents>
  <Attributes />
</Frame>
<Frame>
  <Name>
    <TextVersion lang="en">vendorOf_selling_vendor</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">vendorOf</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">selling</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">vendor</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>
      </Name>
      <Type>logical</Type>

```

```

    <Sources>
      <Source>default</Source>
    </Sources>
    <Default>
      <TextVersion lang="en">{true}</TextVersion>
    </Default>
  </Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion lang="en">acquirerOf</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">predicate</Parent>
  </Parents>
  <Attributes />
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">acquirerOf_selling_acquirer</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">acquirerOf</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">selling</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">acquirer</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">{true}</TextVersion>

```

```

        </Default>
      </Attribute>
    </Attributes>
  </Frame>
  <Frame>
    <Name>
      <TextVersion lang="en">goodsOf</TextVersion>
    </Name>
    <Parents>
      <Parent weight="0">predicate</Parent>
    </Parents>
    <Attributes />
  </Frame>
  <Frame>
    <Name>
      <TextVersion lang="en">goodsOf_selling_goods</TextVersion>
    </Name>
    <Parents>
      <Parent weight="0">goodsOf</Parent>
    </Parents>
    <Attributes>
      <Attribute>
        <Name>
          <TextVersion lang="en">arg_0</TextVersion>
        </Name>
        <Type>text</Type>
        <Sources>
          <Source>default</Source>
        </Sources>
        <Default>
          <TextVersion lang="en">selling</TextVersion>
        </Default>
      </Attribute>
      <Attribute>
        <Name>
          <TextVersion lang="en">arg_1</TextVersion>
        </Name>
        <Type>text</Type>
        <Sources>
          <Source>default</Source>
        </Sources>
        <Default>
          <TextVersion lang="en">goods</TextVersion>
        </Default>
      </Attribute>
      <Attribute>
        <Name>
          <TextVersion lang="en">value</TextVersion>
        </Name>
        <Type>logical</Type>
        <Sources>
          <Source>default</Source>
        </Sources>
        <Default>
          <TextVersion lang="en">{true}</TextVersion>
        </Default>
      </Attribute>
    </Attributes>
  </Frame>
  <Frame>
    <Name>

```

```

    <TextVersion lang="en">memberStateOf</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">predicate</Parent>
  </Parents>
  <Attributes />
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">memberStateOf_vendor_hungary</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">memberStateOf</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">vendor</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">hungary</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">{true}</TextVersion>
      </Default>
    </Attribute>
  </Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">memberStateOf_acquirer_austria</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">memberStateOf</Parent>

```

```

</Parents>
<Attributes>
  <Attribute>
    <Name>
      <TextVersion lang="en">arg_0</TextVersion>
    </Name>
    <Type>text</Type>
    <Sources>
      <Source>default</Source>
    </Sources>
    <Default>
      <TextVersion lang="en">acquirer</TextVersion>
    </Default>
  </Attribute>
  <Attribute>
    <Name>
      <TextVersion lang="en">arg_1</TextVersion>
    </Name>
    <Type>text</Type>
    <Sources>
      <Source>default</Source>
    </Sources>
    <Default>
      <TextVersion lang="en">austria</TextVersion>
    </Default>
  </Attribute>
  <Attribute>
    <Name>
      <TextVersion lang="en">value</TextVersion>
    </Name>
    <Type>logical</Type>
    <Sources>
      <Source>default</Source>
    </Sources>
    <Default>
      <TextVersion lang="en">{true}</TextVersion>
    </Default>
  </Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion lang="en">notTransportedBy</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">predicate</Parent>
  </Parents>
  <Attributes />
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">notTransportedBy_acquirer_selling</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">notTransportedBy</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>

```

```

    </Name>
    <Type>text</Type>
    <Sources>
      <Source>default</Source>
    </Sources>
    <Default>
      <TextVersion lang="en">acquirer</TextVersion>
    </Default>
  </Attribute>
  <Attribute>
    <Name>
      <TextVersion lang="en">arg_1</TextVersion>
    </Name>
    <Type>text</Type>
    <Sources>
      <Source>default</Source>
    </Sources>
    <Default>
      <TextVersion lang="en">selling</TextVersion>
    </Default>
  </Attribute>
  <Attribute>
    <Name>
      <TextVersion lang="en">value</TextVersion>
    </Name>
    <Type>logical</Type>
    <Sources>
      <Source>default</Source>
    </Sources>
    <Default>
      <TextVersion lang="en">{true}</TextVersion>
    </Default>
  </Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion lang="en">equals</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">predicate</Parent>
  </Parents>
  <Attributes />
</Frame>
<Frame>
  <Name>
    <TextVersion lang="en">equals_hungary_austria</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">equals</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>

```

```

    <TextVersion lang="en">hungary</TextVersion>
  </Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">arg_1</TextVersion>
  </Name>
  <Type>text</Type>
  <Sources>
    <Source>default</Source>
  </Sources>
  <Default>
    <TextVersion lang="en">austria</TextVersion>
  </Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">value</TextVersion>
  </Name>
  <Type>logical</Type>
  <Sources>
    <Source>default</Source>
  </Sources>
  <Default>
    <TextVersion lang="en">{false}</TextVersion>
  </Default>
</Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion lang="en">isLiableForPayingVATFor</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">predicate</Parent>
  </Parents>
  <Attributes />
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_selling_selling</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">selling</TextVersion>
      </Default>
    </Attribute>
  </Attributes>
  <Name>

```

```

    <TextVersion lang="en">arg_1</TextVersion>
  </Name>
  <Type>text</Type>
  <Sources>
    <Source>default</Source>
  </Sources>
  <Default>
    <TextVersion lang="en">selling</TextVersion>
  </Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">value</TextVersion>
  </Name>
  <Type>logical</Type>
  <Sources>
    <Source>rules</Source>
  </Sources>
</Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_vendor_selling</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">vendor</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">selling</TextVersion>
      </Default>
    </Attribute>
  </Attributes>
  <Attribute>
    <Name>
      <TextVersion lang="en">value</TextVersion>
    </Name>
    <Type>logical</Type>
    <Sources>
      <Source>rules</Source>
    </Sources>
  </Attribute>
</Frame>

```

```

        </Sources>
      </Attribute>
    </Attributes>
  </Frame>
  <Frame>
    <Name>
      <TextVersion
lang="en">isLiableForPayingVATFor_acquirer_selling</TextVersion>
    </Name>
    <Parents>
      <Parent weight="0">isLiableForPayingVATFor</Parent>
    </Parents>
    <Attributes>
      <Attribute>
        <Name>
          <TextVersion lang="en">arg_0</TextVersion>
        </Name>
        <Type>text</Type>
        <Sources>
          <Source>default</Source>
        </Sources>
        <Default>
          <TextVersion lang="en">acquirer</TextVersion>
        </Default>
      </Attribute>
      <Attribute>
        <Name>
          <TextVersion lang="en">arg_1</TextVersion>
        </Name>
        <Type>text</Type>
        <Sources>
          <Source>default</Source>
        </Sources>
        <Default>
          <TextVersion lang="en">selling</TextVersion>
        </Default>
      </Attribute>
      <Attribute>
        <Name>
          <TextVersion lang="en">value</TextVersion>
        </Name>
        <Type>logical</Type>
        <Sources>
          <Source>rules</Source>
        </Sources>
      </Attribute>
    </Attributes>
  </Frame>
  <Frame>
    <Name>
      <TextVersion
lang="en">isLiableForPayingVATFor_goods_selling</TextVersion>
    </Name>
    <Parents>
      <Parent weight="0">isLiableForPayingVATFor</Parent>
    </Parents>
    <Attributes>
      <Attribute>
        <Name>
          <TextVersion lang="en">arg_0</TextVersion>
        </Name>

```

```

    <Type>text</Type>
    <Sources>
      <Source>default</Source>
    </Sources>
    <Default>
      <TextVersion lang="en">goods</TextVersion>
    </Default>
  </Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">arg_1</TextVersion>
  </Name>
  <Type>text</Type>
  <Sources>
    <Source>default</Source>
  </Sources>
  <Default>
    <TextVersion lang="en">selling</TextVersion>
  </Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">value</TextVersion>
  </Name>
  <Type>logical</Type>
  <Sources>
    <Source>rules</Source>
  </Sources>
</Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_hungary_selling</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">hungary</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>

```

```

    <TextVersion lang="en">selling</TextVersion>
  </Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">value</TextVersion>
  </Name>
  <Type>logical</Type>
  <Sources>
    <Source>rules</Source>
  </Sources>
</Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_austria_selling</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">austria</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">selling</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>rules</Source>
      </Sources>
    </Attribute>
  </Attributes>
</Frame>
<Frame>
  <Name>

```

```

    <TextVersion
lang="en">isLiableForPayingVATFor_selling_vendor</TextVersion>
    </Name>
    <Parents>
      <Parent weight="0">isLiableForPayingVATFor</Parent>
    </Parents>
    <Attributes>
      <Attribute>
        <Name>
          <TextVersion lang="en">arg_0</TextVersion>
        </Name>
        <Type>text</Type>
        <Sources>
          <Source>default</Source>
        </Sources>
        <Default>
          <TextVersion lang="en">selling</TextVersion>
        </Default>
      </Attribute>
      <Attribute>
        <Name>
          <TextVersion lang="en">arg_1</TextVersion>
        </Name>
        <Type>text</Type>
        <Sources>
          <Source>default</Source>
        </Sources>
        <Default>
          <TextVersion lang="en">vendor</TextVersion>
        </Default>
      </Attribute>
      <Attribute>
        <Name>
          <TextVersion lang="en">value</TextVersion>
        </Name>
        <Type>logical</Type>
        <Sources>
          <Source>rules</Source>
        </Sources>
      </Attribute>
    </Attributes>
  </Frame>
  <Frame>
    <Name>
      <TextVersion
lang="en">isLiableForPayingVATFor_vendor_vendor</TextVersion>
    </Name>
    <Parents>
      <Parent weight="0">isLiableForPayingVATFor</Parent>
    </Parents>
    <Attributes>
      <Attribute>
        <Name>
          <TextVersion lang="en">arg_0</TextVersion>
        </Name>
        <Type>text</Type>
        <Sources>
          <Source>default</Source>
        </Sources>
        <Default>
          <TextVersion lang="en">vendor</TextVersion>

```

```

    </Default>
  </Attribute>
  <Attribute>
    <Name>
      <TextVersion lang="en">arg_1</TextVersion>
    </Name>
    <Type>text</Type>
    <Sources>
      <Source>default</Source>
    </Sources>
    <Default>
      <TextVersion lang="en">vendor</TextVersion>
    </Default>
  </Attribute>
  <Attribute>
    <Name>
      <TextVersion lang="en">value</TextVersion>
    </Name>
    <Type>logical</Type>
    <Sources>
      <Source>rules</Source>
    </Sources>
  </Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_acquirer_vendor</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">acquirer</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">vendor</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>

```

```

        </Name>
        <Type>logical</Type>
        <Sources>
            <Source>rules</Source>
        </Sources>
    </Attribute>
</Attributes>
</Frame>
<Frame>
    <Name>
        <TextVersion
lang="en">isLiableForPayingVATFor_goods_vendor</TextVersion>
    </Name>
    <Parents>
        <Parent weight="0">isLiableForPayingVATFor</Parent>
    </Parents>
    <Attributes>
        <Attribute>
            <Name>
                <TextVersion lang="en">arg_0</TextVersion>
            </Name>
            <Type>text</Type>
            <Sources>
                <Source>default</Source>
            </Sources>
            <Default>
                <TextVersion lang="en">goods</TextVersion>
            </Default>
        </Attribute>
        <Attribute>
            <Name>
                <TextVersion lang="en">arg_1</TextVersion>
            </Name>
            <Type>text</Type>
            <Sources>
                <Source>default</Source>
            </Sources>
            <Default>
                <TextVersion lang="en">vendor</TextVersion>
            </Default>
        </Attribute>
        <Attribute>
            <Name>
                <TextVersion lang="en">value</TextVersion>
            </Name>
            <Type>logical</Type>
            <Sources>
                <Source>rules</Source>
            </Sources>
        </Attribute>
    </Attributes>
</Frame>
<Frame>
    <Name>
        <TextVersion
lang="en">isLiableForPayingVATFor_hungary_vendor</TextVersion>
    </Name>
    <Parents>
        <Parent weight="0">isLiableForPayingVATFor</Parent>
    </Parents>
    <Attributes>

```

```

<Attribute>
  <Name>
    <TextVersion lang="en">arg_0</TextVersion>
  </Name>
  <Type>text</Type>
  <Sources>
    <Source>default</Source>
  </Sources>
  <Default>
    <TextVersion lang="en">hungary</TextVersion>
  </Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">arg_1</TextVersion>
  </Name>
  <Type>text</Type>
  <Sources>
    <Source>default</Source>
  </Sources>
  <Default>
    <TextVersion lang="en">vendor</TextVersion>
  </Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">value</TextVersion>
  </Name>
  <Type>logical</Type>
  <Sources>
    <Source>rules</Source>
  </Sources>
</Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_austria_vendor</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">austria</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>

```

```

    <Sources>
      <Source>default</Source>
    </Sources>
  </Default>
  <TextVersion lang="en">vendor</TextVersion>
</Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">value</TextVersion>
  </Name>
  <Type>logical</Type>
  <Sources>
    <Source>rules</Source>
  </Sources>
</Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_selling_acquirer</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">selling</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">acquirer</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>rules</Source>
      </Sources>
    </Attribute>
  </Attributes>

```

```

</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_vendor_acquirer</TextVersion>
    </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">vendor</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">acquirer</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>rules</Source>
      </Sources>
    </Attribute>
  </Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_acquirer_acquirer</TextVersion>
    </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>

```

```

    </Sources>
    <Default>
      <TextVersion lang="en">acquirer</TextVersion>
    </Default>
  </Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">arg_1</TextVersion>
  </Name>
  <Type>text</Type>
  <Sources>
    <Source>default</Source>
  </Sources>
  <Default>
    <TextVersion lang="en">acquirer</TextVersion>
  </Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">value</TextVersion>
  </Name>
  <Type>logical</Type>
  <Sources>
    <Source>rules</Source>
  </Sources>
</Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_goods_acquirer</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">goods</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">acquirer</TextVersion>
      </Default>
    </Attribute>
  </Attributes>
</Frame>

```

```

    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>rules</Source>
      </Sources>
    </Attribute>
  </Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_hungary_acquirer</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">hungary</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">acquirer</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>rules</Source>
      </Sources>
    </Attribute>
  </Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_austria_acquirer</TextVersion>
  </Name>
  <Parents>

```

```

    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">austria</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">acquirer</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>rules</Source>
      </Sources>
    </Attribute>
  </Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_selling_goods</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">selling</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>

```

```

    <TextVersion lang="en">arg_1</TextVersion>
  </Name>
  <Type>text</Type>
  <Sources>
    <Source>default</Source>
  </Sources>
  <Default>
    <TextVersion lang="en">goods</TextVersion>
  </Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">value</TextVersion>
  </Name>
  <Type>logical</Type>
  <Sources>
    <Source>rules</Source>
  </Sources>
</Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_vendor_goods</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">vendor</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">goods</TextVersion>
      </Default>
    </Attribute>
  </Attributes>
  <Attribute>
    <Name>
      <TextVersion lang="en">value</TextVersion>
    </Name>
    <Type>logical</Type>
    <Sources>
      <Source>rules</Source>
    </Sources>
  </Attribute>
</Frame>

```

```

    </Sources>
  </Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_acquirer_goods</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">acquirer</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">goods</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>rules</Source>
      </Sources>
    </Attribute>
  </Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_goods_goods</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>

```

```

    <Type>text</Type>
    <Sources>
      <Source>default</Source>
    </Sources>
    <Default>
      <TextVersion lang="en">goods</TextVersion>
    </Default>
  </Attribute>
</Attribute>
  <Name>
    <TextVersion lang="en">arg_1</TextVersion>
  </Name>
  <Type>text</Type>
  <Sources>
    <Source>default</Source>
  </Sources>
  <Default>
    <TextVersion lang="en">goods</TextVersion>
  </Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">value</TextVersion>
  </Name>
  <Type>logical</Type>
  <Sources>
    <Source>rules</Source>
  </Sources>
</Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_hungary_goods</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">hungary</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>

```

```

    <TextVersion lang="en">goods</TextVersion>
  </Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">value</TextVersion>
  </Name>
  <Type>logical</Type>
  <Sources>
    <Source>rules</Source>
  </Sources>
</Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_austria_goods</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">austria</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">goods</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>rules</Source>
      </Sources>
    </Attribute>
  </Attributes>
</Frame>
<Frame>
  <Name>

```

```

    <TextVersion
lang="en">isLiableForPayingVATFor_selling_hungary</TextVersion>
    </Name>
    <Parents>
      <Parent weight="0">isLiableForPayingVATFor</Parent>
    </Parents>
    <Attributes>
      <Attribute>
        <Name>
          <TextVersion lang="en">arg_0</TextVersion>
        </Name>
        <Type>text</Type>
        <Sources>
          <Source>default</Source>
        </Sources>
        <Default>
          <TextVersion lang="en">selling</TextVersion>
        </Default>
      </Attribute>
      <Attribute>
        <Name>
          <TextVersion lang="en">arg_1</TextVersion>
        </Name>
        <Type>text</Type>
        <Sources>
          <Source>default</Source>
        </Sources>
        <Default>
          <TextVersion lang="en">hungary</TextVersion>
        </Default>
      </Attribute>
      <Attribute>
        <Name>
          <TextVersion lang="en">value</TextVersion>
        </Name>
        <Type>logical</Type>
        <Sources>
          <Source>rules</Source>
        </Sources>
      </Attribute>
    </Attributes>
  </Frame>
  <Frame>
    <Name>
      <TextVersion
lang="en">isLiableForPayingVATFor_vendor_hungary</TextVersion>
    </Name>
    <Parents>
      <Parent weight="0">isLiableForPayingVATFor</Parent>
    </Parents>
    <Attributes>
      <Attribute>
        <Name>
          <TextVersion lang="en">arg_0</TextVersion>
        </Name>
        <Type>text</Type>
        <Sources>
          <Source>default</Source>
        </Sources>
        <Default>
          <TextVersion lang="en">vendor</TextVersion>
        </Default>
      </Attribute>
    </Attributes>
  </Frame>

```

```

    </Default>
  </Attribute>
  <Attribute>
    <Name>
      <TextVersion lang="en">arg_1</TextVersion>
    </Name>
    <Type>text</Type>
    <Sources>
      <Source>default</Source>
    </Sources>
    <Default>
      <TextVersion lang="en">hungary</TextVersion>
    </Default>
  </Attribute>
  <Attribute>
    <Name>
      <TextVersion lang="en">value</TextVersion>
    </Name>
    <Type>logical</Type>
    <Sources>
      <Source>rules</Source>
    </Sources>
  </Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_acquirer_hungary</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">acquirer</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">hungary</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>

```

```

        </Name>
        <Type>logical</Type>
        <Sources>
            <Source>rules</Source>
        </Sources>
    </Attribute>
</Attributes>
</Frame>
<Frame>
    <Name>
        <TextVersion
lang="en">isLiableForPayingVATFor_goods_hungary</TextVersion>
    </Name>
    <Parents>
        <Parent weight="0">isLiableForPayingVATFor</Parent>
    </Parents>
    <Attributes>
        <Attribute>
            <Name>
                <TextVersion lang="en">arg_0</TextVersion>
            </Name>
            <Type>text</Type>
            <Sources>
                <Source>default</Source>
            </Sources>
            <Default>
                <TextVersion lang="en">goods</TextVersion>
            </Default>
        </Attribute>
        <Attribute>
            <Name>
                <TextVersion lang="en">arg_1</TextVersion>
            </Name>
            <Type>text</Type>
            <Sources>
                <Source>default</Source>
            </Sources>
            <Default>
                <TextVersion lang="en">hungary</TextVersion>
            </Default>
        </Attribute>
        <Attribute>
            <Name>
                <TextVersion lang="en">value</TextVersion>
            </Name>
            <Type>logical</Type>
            <Sources>
                <Source>rules</Source>
            </Sources>
        </Attribute>
    </Attributes>
</Frame>
<Frame>
    <Name>
        <TextVersion
lang="en">isLiableForPayingVATFor_hungary_hungary</TextVersion>
    </Name>
    <Parents>
        <Parent weight="0">isLiableForPayingVATFor</Parent>
    </Parents>
    <Attributes>

```

```

<Attribute>
  <Name>
    <TextVersion lang="en">arg_0</TextVersion>
  </Name>
  <Type>text</Type>
  <Sources>
    <Source>default</Source>
  </Sources>
  <Default>
    <TextVersion lang="en">hungary</TextVersion>
  </Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">arg_1</TextVersion>
  </Name>
  <Type>text</Type>
  <Sources>
    <Source>default</Source>
  </Sources>
  <Default>
    <TextVersion lang="en">hungary</TextVersion>
  </Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">value</TextVersion>
  </Name>
  <Type>logical</Type>
  <Sources>
    <Source>rules</Source>
  </Sources>
</Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_austria_hungary</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">austria</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>

```

```

    <Sources>
      <Source>default</Source>
    </Sources>
  </Default>
  <TextVersion lang="en">hungary</TextVersion>
</Default>
</Attribute>
<Attribute>
  <Name>
    <TextVersion lang="en">value</TextVersion>
  </Name>
  <Type>logical</Type>
  <Sources>
    <Source>rules</Source>
  </Sources>
</Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_selling_austria</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">selling</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">austria</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>rules</Source>
      </Sources>
    </Attribute>
  </Attributes>

```

```

</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_vendor_austria</TextVersion>
    </Name>
    <Parents>
      <Parent weight="0">isLiableForPayingVATFor</Parent>
    </Parents>
    <Attributes>
      <Attribute>
        <Name>
          <TextVersion lang="en">arg_0</TextVersion>
        </Name>
        <Type>text</Type>
        <Sources>
          <Source>default</Source>
        </Sources>
        <Default>
          <TextVersion lang="en">vendor</TextVersion>
        </Default>
      </Attribute>
      <Attribute>
        <Name>
          <TextVersion lang="en">arg_1</TextVersion>
        </Name>
        <Type>text</Type>
        <Sources>
          <Source>default</Source>
        </Sources>
        <Default>
          <TextVersion lang="en">austria</TextVersion>
        </Default>
      </Attribute>
      <Attribute>
        <Name>
          <TextVersion lang="en">value</TextVersion>
        </Name>
        <Type>logical</Type>
        <Sources>
          <Source>rules</Source>
        </Sources>
      </Attribute>
    </Attributes>
  </Frame>
  <Frame>
    <Name>
      <TextVersion
lang="en">isLiableForPayingVATFor_acquirer_austria</TextVersion>
    </Name>
    <Parents>
      <Parent weight="0">isLiableForPayingVATFor</Parent>
    </Parents>
    <Attributes>
      <Attribute>
        <Name>
          <TextVersion lang="en">arg_0</TextVersion>
        </Name>
        <Type>text</Type>
        <Sources>
          <Source>default</Source>

```

```

    </Sources>
    <Default>
      <TextVersion lang="en">acquirer</TextVersion>
    </Default>
  </Attribute>
  <Attribute>
    <Name>
      <TextVersion lang="en">arg_1</TextVersion>
    </Name>
    <Type>text</Type>
    <Sources>
      <Source>default</Source>
    </Sources>
    <Default>
      <TextVersion lang="en">austria</TextVersion>
    </Default>
  </Attribute>
  <Attribute>
    <Name>
      <TextVersion lang="en">value</TextVersion>
    </Name>
    <Type>logical</Type>
    <Sources>
      <Source>rules</Source>
    </Sources>
  </Attribute>
</Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_goods_austria</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">goods</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">austria</TextVersion>
      </Default>
    </Attribute>

```

```

    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>rules</Source>
      </Sources>
    </Attribute>
  </Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_hungary_austria</TextVersion>
  </Name>
  <Parents>
    <Parent weight="0">isLiableForPayingVATFor</Parent>
  </Parents>
  <Attributes>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_0</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">hungary</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">arg_1</TextVersion>
      </Name>
      <Type>text</Type>
      <Sources>
        <Source>default</Source>
      </Sources>
      <Default>
        <TextVersion lang="en">austria</TextVersion>
      </Default>
    </Attribute>
    <Attribute>
      <Name>
        <TextVersion lang="en">value</TextVersion>
      </Name>
      <Type>logical</Type>
      <Sources>
        <Source>rules</Source>
      </Sources>
    </Attribute>
  </Attributes>
</Frame>
<Frame>
  <Name>
    <TextVersion
lang="en">isLiableForPayingVATFor_austria_austria</TextVersion>
  </Name>
  <Parents>

```

```

<Parent weight="0">isLiableForPayingVATFor</Parent>
</Parents>
<Attributes>
  <Attribute>
    <Name>
      <TextVersion lang="en">arg_0</TextVersion>
    </Name>
    <Type>text</Type>
    <Sources>
      <Source>default</Source>
    </Sources>
    <Default>
      <TextVersion lang="en">austria</TextVersion>
    </Default>
  </Attribute>
  <Attribute>
    <Name>
      <TextVersion lang="en">arg_1</TextVersion>
    </Name>
    <Type>text</Type>
    <Sources>
      <Source>default</Source>
    </Sources>
    <Default>
      <TextVersion lang="en">austria</TextVersion>
    </Default>
  </Attribute>
  <Attribute>
    <Name>
      <TextVersion lang="en">value</TextVersion>
    </Name>
    <Type>logical</Type>
    <Sources>
      <Source>rules</Source>
    </Sources>
  </Attribute>
</Attributes>
</Frame>
</Frames>
<Rules>
  <Rule weight="1">
    <Label>
      <TextVersion
lang="en">vendorIsLiableForPayingVAT__conc_0_minTerm_0</TextVersion>
    </Label>
    <Conditions>
      <Condition>(P_0:isLiableForPayingVATFor).arg_0 is
V_Selling</Condition>
      <Condition>(P_0:isLiableForPayingVATFor).arg_1 is
V_Vendor</Condition>
      <Condition>(P_1:vendorOf).arg_0 is V_Selling</Condition>
      <Condition>(P_1:vendorOf).arg_1 is V_Vendor</Condition>
      <Condition>(P_1:vendorOf).value is {true}</Condition>
      <Condition>(V_Selling:object).isDistanceSelling is
{true}</Condition>
      <Condition>(V_Vendor:object).isTaxablePersonInAMemberState is
{true}</Condition>
      <Condition>(V_Vendor:object).hasEuropeanTaxNumber is
{true}</Condition>
    </Conditions>
  </Rule>
</Rules>

```

```

    <Conclusion>(P_0:isLiableForPayingVATFor).value is
{true}</Conclusion>
    <Actions />
  </Rule>
  <Rule weight="1">
    <Label>
      <TextVersion
lang="en">isDistanceSelling__conc_0_minTerm_0</TextVersion>
    </Label>
    <Conditions>
      <Condition>(P_1:vendorOf).arg_0 is V_Selling</Condition>
      <Condition>(P_1:vendorOf).arg_1 is V_Vendor</Condition>
      <Condition>(P_1:vendorOf).value is {true}</Condition>
      <Condition>(P_2:acquirerOf).arg_0 is V_Selling</Condition>
      <Condition>(P_2:acquirerOf).arg_1 is V_Acquirer</Condition>
      <Condition>(P_2:acquirerOf).value is {true}</Condition>
      <Condition>(P_3:goodsOf).arg_0 is V_Selling</Condition>
      <Condition>(P_3:goodsOf).arg_1 is V_Goods</Condition>
      <Condition>(P_3:goodsOf).value is {true}</Condition>
      <Condition>(P_4:memberStateOf).arg_0 is V_Vendor</Condition>
      <Condition>(P_4:memberStateOf).arg_1 is
V_SourceCountry</Condition>
      <Condition>(P_4:memberStateOf).value is {true}</Condition>
      <Condition>(P_5:memberStateOf).arg_0 is
V_Acquirer</Condition>
      <Condition>(P_5:memberStateOf).arg_1 is
V_TargetCountry</Condition>
      <Condition>(P_5:memberStateOf).value is {true}</Condition>
      <Condition>(V_Acquirer:object).isSpecialAcquirer is
{true}</Condition>
      <Condition>(P_7:notTransportedBy).arg_0 is
V_Acquirer</Condition>
      <Condition>(P_7:notTransportedBy).arg_1 is
V_Selling</Condition>
      <Condition>(P_7:notTransportedBy).value is {true}</Condition>
      <Condition>(V_Goods:object).areSpecialGoods is
{false}</Condition>
      <Condition>(P_9>equals).arg_0 is V_SourceCountry</Condition>
      <Condition>(P_9>equals).arg_1 is V_TargetCountry</Condition>
      <Condition>(P_9>equals).value is {false}</Condition>
    </Conditions>
    <Conclusion>(V_Selling:object).isDistanceSelling is
{true}</Conclusion>
    <Actions />
  </Rule>
</Rules>
<Demons />
<Goals />
<Forms />
</Alex>

```

Appendix B Example translation from Alex Gold to LKIF

The example Alex Gold input was as follows.

```

<?xml version="1.0" encoding="UTF-8"?>
<Alex kb-language="en" xml-version="2.1">
  <Frames>
    <Frame>
      <Name>
        <TextVersion lang="en">selling</TextVersion>
      </Name>

```

```

        <Parents/>
        <Attributes>
            <Attribute>
                <Name>
                    <TextVersion
lang="en">isDistanceSelling</TextVersion>
                </Name>
                <Type>logical</Type>
                <Inheritance>local</Inheritance>
                <Sources>
                    <Source>default</Source>
                </Sources>
                <Default>
                    <TextVersion
lang="en">{true}</TextVersion>
                </Default>
            </Attribute>
        </Attributes>
    </Frame>
    <Frame>
        <Name>
            <TextVersion lang="en">vendor</TextVersion>
        </Name>
        <Parents/>
        <Attributes>
            <Attribute>
                <Name>
                    <TextVersion
lang="en">isTaxablePersonInAMemberState</TextVersion>
                </Name>
                <Type>logical</Type>
                <Inheritance>local</Inheritance>
                <Sources>
                    <Source>default</Source>
                </Sources>
                <Default>
                    <TextVersion
lang="en">{true}</TextVersion>
                </Default>
            </Attribute>
            <Attribute>
                <Name>
                    <TextVersion
lang="en">hasCommunityTaxNumber</TextVersion>
                </Name>
                <Type>logical</Type>
                <Inheritance>local</Inheritance>
                <Sources>
                    <Source>default</Source>
                </Sources>
                <Default>
                    <TextVersion
lang="en">{true}</TextVersion>
                </Default>
            </Attribute>
            <Attribute>
                <Name>
                    <TextVersion
lang="en">isLiableForPayingVAT</TextVersion>
                </Name>
                <Type>logical</Type>

```

```

                <Inheritance>local</Inheritance>
                <Sources>
                    <Source>rules</Source>
                </Sources>
            </Attribute>
        </Attributes>
    </Frame>
</Frames>
<Rules>
    <Rule weight="0">
        <Label>
            <TextVersion
lang="en">liabilityForPayingVAT</TextVersion>
        </Label>
        <Conditions>
            <Condition>vendor.isTaxablePersonInAMemberState is
{true}</Condition>
            <Condition>vendor.hasCommunityTaxNumber is
{true}</Condition>
            <Condition>selling.isDistanceSelling is
{true}</Condition>
        </Conditions>
        <Conclusion>vendor.isLiableForPayingVAT is
{true}</Conclusion>
        <Actions/>
    </Rule>
</Rules>
<Demos/>
<Goals>
    <Goal lang="en">vendor.isLiableForPayingVAT</Goal>
</Goals>
<Forms/>
</Alex>

```

Which is translated into the following LKIF knowledge base.

```

<?xml version="1.0" encoding="utf-16"?>
<lkif>
  <theory id="THEORY">
    <axioms />
    <rules>
      <rule id="ownClass_selling">
        <head>
          <s pred="isA_selling">
            <c>selling</c>
          </s>
        </head>
      </rule>
      <rule id="propertyOf_selling_isDistanceSelling">
        <head>
          <s pred="hasProperty_isDistanceSelling">
            <v>x</v>
          </s>
        </head>
        <body>
          <s pred="isA_selling">
            <v>x</v>
          </s>
        </body>
      </rule>

```

```

<rule id="defaultValueOf_selling::isDistanceSelling_{true}">
  <head>
    <s pred="isDistanceSelling">
      <c>selling</c>
    </s>
  </head>
</rule>
<rule id="ownClass_vendor">
  <head>
    <s pred="isA_vendor">
      <c>vendor</c>
    </s>
  </head>
</rule>
<rule id="propertyOf_vendor_isTaxablePersonInAMemberState">
  <head>
    <s pred="hasProperty_isTaxablePersonInAMemberState">
      <v>x</v>
    </s>
  </head>
  <body>
    <s pred="isA_vendor">
      <v>x</v>
    </s>
  </body>
</rule>
<rule
id="defaultValueOf_vendor::isTaxablePersonInAMemberState_{true}">
  <head>
    <s pred="isTaxablePersonInAMemberState">
      <c>vendor</c>
    </s>
  </head>
</rule>
<rule id="propertyOf_vendor_hasCommunityTaxNumber">
  <head>
    <s pred="hasProperty_hasCommunityTaxNumber">
      <v>x</v>
    </s>
  </head>
  <body>
    <s pred="isA_vendor">
      <v>x</v>
    </s>
  </body>
</rule>
<rule id="defaultValueOf_vendor::hasCommunityTaxNumber_{true}">
  <head>
    <s pred="hasCommunityTaxNumber">
      <c>vendor</c>
    </s>
  </head>
</rule>
<rule id="propertyOf_vendor_isLiableForPayingVAT">
  <head>
    <s pred="hasProperty_isLiableForPayingVAT">
      <v>x</v>
    </s>
  </head>
  <body>
    <s pred="isA_vendor">

```

```
        <v>x</v>
      </s>
    </body>
  </rule>
<rule id="liabilityForPayingVAT">
  <head>
    <s pred="isLiableForPayingVAT">
      <c>vendor</c>
    </s>
  </head>
  <body>
    <and>
      <s pred="isTaxablePersonInAMemberState">
        <c>vendor</c>
      </s>
      <s pred="hasCommunityTaxNumber">
        <c>vendor</c>
      </s>
      <s pred="isDistanceSelling">
        <c>selling</c>
      </s>
    </and>
  </body>
</rule>
</rules>
</theory>
</lkif>
```