



Ontology Evaluation

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Goal 1: To **help** ontology engineers to **diagnose** their **ontologies** in order to find **common pitfalls**

Pitfall Catalogue

- 41 pitfall descriptions
- Importance levels
- Classification by evaluation dimensions
- Repair tips

Goal 2: To **ease** the ontology **diagnosis** activity by means of providing suitable **technological support**, **lessening** thus the **effort** required from ontology engineers


OOPS!

- 48 detection methods
- 33 pitfalls detected
- Access for users (web user interface)
- Access for systems (web service)

OOPS! – Ontology Pitfall Scanner!



- Implements the **48** detection methods for **33** pitfalls
 - Pitfalls selection
 - Selection by dimensions and aspects
- Web user interface <http://oops.linkeddata.es/>
- Web service <http://oops-ws.oeg-upm.net/>

 Ontology Pitfall Scanner!

Importance level

OOPS! (Ontology Pitfall Scanner!) helps you to detect some of the most common pitfalls appearing when developing ontologies.

To try it, enter a URI or paste an OWL document into the text field below. A list of pitfalls and the elements of your ontology where they appear will be displayed.

URI input

Example: <http://data.semanticweb.org>

OWL code input

If you checked this checkbox, Namespaces will be checked.

Results for P04: Creating unconnected ontology elements.

Results for P05: Defining wrong inverse relationships.

Results for P08: Missing annotations.

Results for P11: Missing domain or range in properties.

Results for P12: Equivalent properties not explicitly declared.

Results for P13: Inverse relationships not explicitly declared.

This pitfall appears when any relationship (except for those that are defined as symmetric) does not have an inverse relationship (owl:inverseOf) defined within the ontology.

- OOPS! has the following suggestions for the relationships without inverse:
 - > <http://data.semanticweb.org/ns/swc/ontology#hasPart> could be inverse of <http://data.semanticweb.org/ns/swc/ontology#isLocationFor>
 - > <http://data.semanticweb.org/ns/swc/ontology#isLocationFor> could be inverse of <http://data.semanticweb.org/ns/swc/ontology#hasPart>
 - > <http://swrc.ontoware.org/ontology#participant> could be inverse of <http://swrc.ontoware.org/ontology#hasLocation>
- Sorry, OOPS! has no suggestions for the following relationships without inverse:
 - > <http://www.w3.org/2002/12/cal/ical#component>
 - > <http://www.w3.org/2002/12/cal/ical#dtstamp>
 - > <http://www.w3.org/2002/12/cal/ical#dtstart>

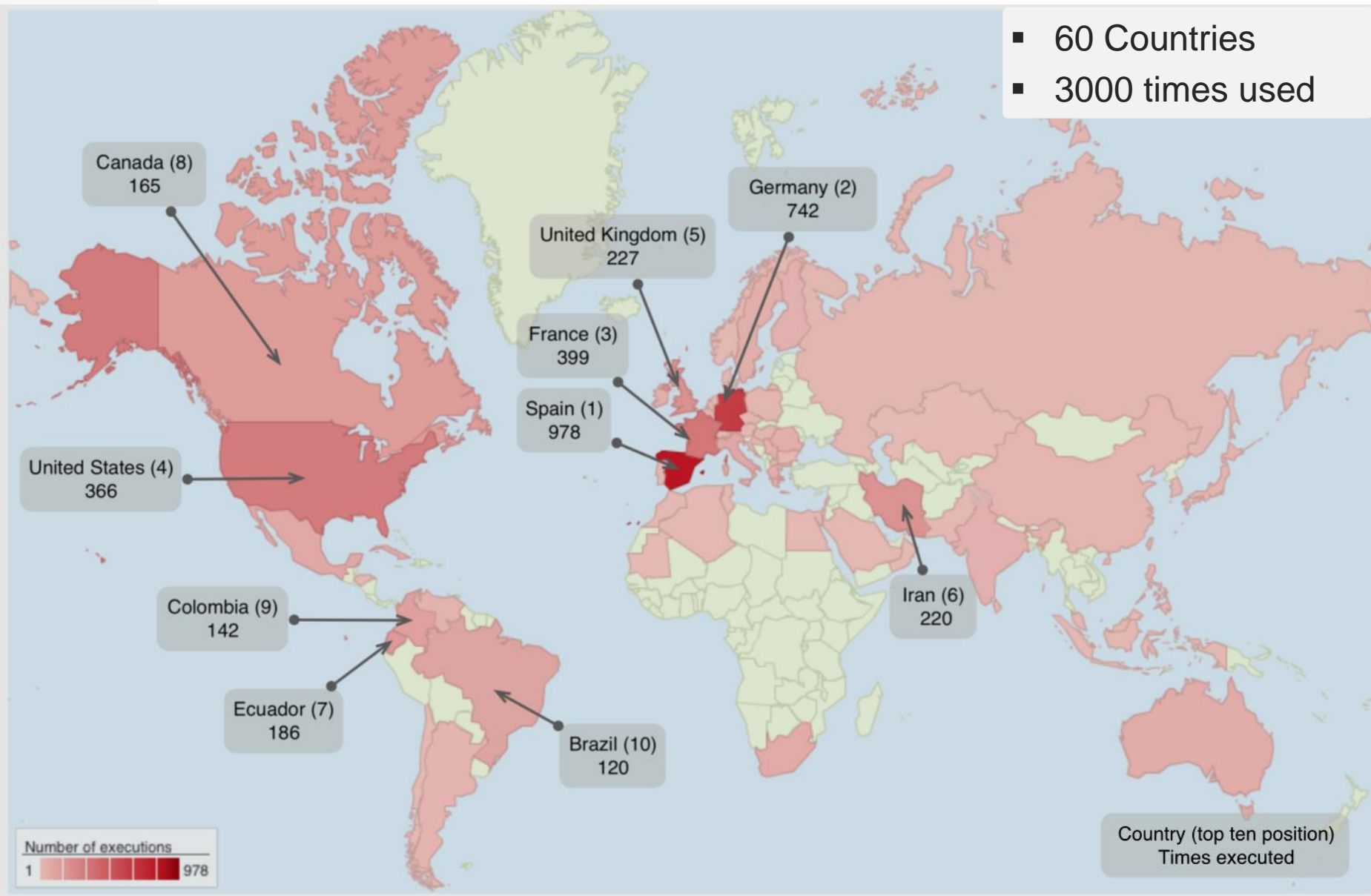
11 cases | Minor

```
<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:owl="http://www.w3.org/2002/07/owl#"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema#"
  xmlns:oops="http://www.oeg-upm.net/oops#"
  xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#" >
  <rdf:Description rdf:about="http://www.oeg-upm.net/oops#suggestion">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
  </rdf:Description>
  <rdf:Description rdf:about="http://www.oeg-upm.net/oops/fdeaa6-71d6-4557-
    a17a-dc3244ff536b">
    <oops:hasCode rdf:datatype="http://www.w3.org/2001/XMLSchema#string">P10</
    oops:hasCode>
    <oops:hasName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Missing
      disjointness [1, 2, 3]</oops:hasName>
    <oops:hasDescription rdf:datatype="http://www.w3.org/2001/XMLSchema#string">
      The ontology lacks disjoint axioms between classes or between properties
      that should be defined as disjoint.</oops:hasDescription>
    <rdf:type
      rdf:resource="http://www.oeg-upm.net/oops#pitfall"/>
    <oops:hasImportanceLevel rdf:datatype="http://www.w3.org/2001/XMLSchema#
      string">Important</oops:hasImportanceLevel>
    <oops:hasNumberAffectedElements rdf:datatype="http://www.w3.org/2001/
      XMLSchema#integer">1</oops:hasNumberAffectedElements>
  </rdf:Description>
  <rdf:Description rdf:about="http://www.oeg-upm.net/oops/496ae03d-48c6-406d-8
    d07-530bf05c9a61">
    <oops:hasPitfall rdf:resource="http://www.oeg-upm.net/oops/fdeaa6-71d6
      -4557-a17a-dc3244ff536b"/>
    <rdf:type rdf:resource="http://www.oeg-upm.net/oops#response"/>
  </rdf:Description>
  <rdf:Description rdf:about="http://www.oeg-upm.net/oops#pitfall">
    <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
  </rdf:Description>
</rdf:RDF>
```

Pitfall description

Affected elements

International adoption and use



International adoption and use

- Integrated in other systems:
 - 3 External: LOV, OntoHub, DrOntoAPI
 - 3 OEG: Widoco, SmartCity ontology catalogue, OnToolology
- Used at university courses
- Used in scientific reports
 - Evaluation and assessment
- Used in companies
 - Development and training



Ontohub Staging Ontologies Symbols Logics Languages

<http://owl.cs.manchester.ac.uk/repository/download?ontology=http://www.semanticweb.org/ontologies/chemical&format=RDF/XML> unknown / OWL2

<http://owl.cs.manchester.ac.uk/repository/download?ontology=http://www.semanticweb.org/ontologies/chemical&format=RDF/XML>

Test with OOPS!

Classes 48 DataProperties 11 ObjectProperties 9 AnnotationProperties 1 Sentences 124

1 2 Next Last »

25 per page

Text

VX_SpecificPublishedWork

VX_RelatedPublishedWork

VX_Precursor

VX_Agent

VR_SpecificPublishedWork

VOCABS TERMS AGENTS SPARQL/DUMP

Friend of a Friend vocabulary (foaf)

oops! vapour ✓

n3

Statistics

Classes	13
Properties	62
Datatypes	0
Instances	0

Expressivity

RDF RDFS

Tags

People

LOD

Vocabulary used in 249 datasets

Metadata

URI	http://xmlns.com/foaf/0.1/
Namespace	http://xmlns.com/foaf/0.1/
homepage	http://www.foaf-project.org/
Description	FOAF is a project devoted to linking people and information using the Web. Regardless of whether information is in people's heads, in physical or digital documents, or in the form of factual data, it can be linked. @en
Language	
Creator	Libby Miller Dan Brickley
Publisher	Dan Brickley
Comment	(2013-06-04) Bernard Vatant: From the specification : "FOAF has been evolving gradually since its creation in mid-2000. There is now a stable core of classes and properties that will not be changed, beyond modest adjustments to their documentation to track implementation feedback and emerging best practices."