Evaluation results

There are three levels of importance in pitfalls according to their impact on the ontology:

- Critical It is crucial to correct the pitfall. Otherwise, it could affect the ontology consistency, reasoning, applicability, etc.
- Important Though not critical for ontology function, it is important to correct this type of pitfall.
- Minor It is not really a problem, but by correcting it we will make the ontology nicer.

Pitfalls detected:

Results for P05: Defining wrong inverse relationships. 1 case — 1 case — Critical

Two relationships are defined as inverse relations when they are not necessarily inverse.

• This pitfall appears in the following elements:
› http://example.org/music#playsRole may not be inverse of http://example.org/music#hasRole

Results for P08: Missing annotations. — 12 cases — Minor

This pitfall consists in creating an ontology element and failing to provide human readable annotations attached to it. Consequently, ontology elements lack annotation properties that label them (e.g. rdfs:label, lemon:LexicalEntry, skos:prefLabel or skos:altLabel) or that define them (e.g. rdfs:comment or dc:description). This pitfall is related to the guidelines provided in [5].

• The following elements have neither rdfs:comment or skos:definition defined:
› http://example.org/music#Instrument
› http://example.org/music#Role
› http://example.org/music#MusicalInstrument
› http://example.org/music#isMemberOf
› http://example.org/music#hasMember
› http://example.org/music#playsInstrument
› http://example.org/music#playsRole
› http://example.org/music#roleName
› http://example.org/music#instrumentName
› http://example.org/music#numberOfTracks
› http://example.org/music#bandName
› http://example.org/music#personName

Results for P12: Equivalent properties not explicitly declared. 1 case

1 case

Important

The ontology lacks information about equivalent properties (owl:equivalentProperty) in the cases of duplicated relationships and/or attributes.

• The following attributes could be defined as equivalent:
› http://example.org/geo#placeName, http://example.org/music#placeName

Results for P13: Inverse relationships not explicitly declared. 7 cases

Minor

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

• This pitfall appears in the following elements:
› http://example.org/music#recordedAlbum
• This pitfall appears in the following elements:
› http://example.org/music#recordedAlbum
› http://example.org/music#recordedBy
› http://example.org/music#playsInstrument
› http://example.org/music#releasedBy
› http://example.org/music#performedSong
› http://example.org/music#hasTimeInterval
› http://example.org/music#recordedDuring

Results for P19: Defining multiple domains or ranges in properties. 5 cases

Critical

The domain or range (or both) of a property (relationships and attributes) is defined by stating more than one rdfs:domain or rdfs:range statements. In OWL multiple rdfs:domain or rdfs:range axioms are allowed, but they are interpreted as conjunction, being, therefore, equivalent to the construct owl:intersectionOf. This pitfall is related to the common error that appears when defining domains and ranges described in [7].

• This pitfall appears in the following elements:
› http://example.org/music#hasTimeInterval
› http://example.org/music#playsRole
› http://example.org/music#recordedBy
› http://example.org/music#hasRole
› http://example.org/music#compositionDate

Results for P36: URI contains file extension. Ontology*

Minor

This pitfall occurs if file extensions such as ".owl", ".rdf", ".ttl", ".n3" and ".rdfxml" are included in an ontology URI. This pitfall is related with the recommendations provided in [9].

*This pitfall applies to the ontology in general instead of specific elements.

Suggestions or warnings:

SUGGESTION: symmetric or transitive object properties| 1 case

According to the highest importance level of pitfall found in your ontology the conformace bagde suggested is "Critical pitfalls" (see below). You can use the following HTML code to insert the badge within your ontology documentation:


```
<p>
<a href="http://oops.linkeddata.es">
<img src="http://oops.linkeddata.es/resource/image/oops_critical.png"
alt="Critical pitfalls were found" height="69.6" width="100" /></a>
</p>
```

References

[1] Aguado-De Cea, G., Montiel-Ponsoda, E., Poveda-Villalón, M., and Giraldo-Pasmin, O.X. (2015).

[2] Noy, N. F., McGuinness, D. L., et al. (2001).

[3] Gómez-Pérez, A. (1999).

[4] Montiel-Ponsoda, E., Vila Suero, D., Villazón-Terrazas, B., Dunsire, G., Escolano Rodríguez, E., Gómez-Pérez, A. (2011).

[5] Vrandecic, D. (2010).

[6] Gómez-Pérez, A. (2004).

[7] Rector, A., Drummond, N., Horridge, M., Rogers, J., Knublauch, H., Stevens, R., Wang, H., and Wroe, C. (2004).

[8] Hogan, A., Harth, A., Passant, A., Decker, S., and Polleres, A. (2010).

[9] Archer, P., Goedertier, S., and Loutas, N. (2012).

[10] Bernes-Lee Tim. (2006).

[11] Heath, T. and Bizer, C. (2011).

[12] Vatant, B. (2012).

Enter your ontology to scan:

Enter a URI:

Example: http://oops.linkeddata.es/example/swc_2009-05-09.rdf

Enter a direct input:

If you include just RDF code, the following Pitfalls will not be checked:
P36. URI contains file extension
P37.Ontology not available
P40. Namespace hijacking

Uncheck this checkbox if you don't want us to keep a copy of your ontology.

Scan

Advanced evaluation

How to cite OOPS!

Poveda-Villalón, María, Asunción Gómez-Pérez, and Mari Carmen Suárez-Figueroa. "OOPS!(Ontology Pitfall Scanner!): An on-line tool for ontology evaluation." International Journal on Semantic Web and Information Systems (IJSWIS) 10.2 (2014): 7-34.

BibTex:

```
@article{poveda2014oops,
title={{OOPS! (OntOlogy Pitfall Scanner!): An On-line Tool for Ontology Evaluation}},
author={Poveda-Villal{\'o}n, Mar{\'i}a and G{\'o}mez-P{\'e}rez, Asunci{\'o}n and Su{\'a}rez-Figueroa, Mari Ca
journal={International Journal on Semantic Web and Information Systems (IJSWIS)},
volume={10},
number={2},
pages={7--34},
year={2014},
```

Escuela Técnica Superior de Ingenieros Informáticos

Universidad Politécnica de Madrid

María Poveda

Contact email: oops(at)delicias.dia.fi.upm.es. Latest revision April 2021