Automated evaluation: FOOPS!
An Ontology Pitfall Scanner for the FAIR principles

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The rise of the FAIR Data principles

Other guidelines:

- Guidelines for Transparency and Openness Promotion (TOP) [2]
- Reproducibility Enhancement Principles (REP) [3]
- ...
FAIR is not new: Background in the Semantic Web

- Linked Data principles [1] and 5-star ranking
  1. Use URIs ★ Available
  2. HTTP URIs ★★ Machine readable
  3. Resolve and provide useful info ★★★ Open format
  4. Link to other URIs ★★★★ Use standards
     ★★★★★ Link to other resources

- LD Principles adapted to ontologies [2] [3]
- Best practices for accessing vocabularies [4]
- Tutorials for publishing vocabularies [5]

How does all come together?

[1] https://www.w3.org/DesignIssues/LinkedData.html
Validation service inspired by OOPS! (OntOlogy Pitfall Scanner)

- Designed to guide users
  - Tests have an explanation
  - Tests indicate potential errors

- Practical
  - Based on years of ontology engineering practices from research projects at UPM

- Aligned to FAIR

Live demo: https://w3id.org/foops/
FOOPS! in a nutshell

Enter an ontology URI

Ontology Pitfall Scanner for FAIR (Beta)

URI

https://w3id.org/example

Example: https://w3id.org/example (click here to enter this ontology)
FOOPS! An Ontology Pitfall Validator for the FAIR principles.

Ontology metadata summary

FAIRness coverage by category

FAIRness overall score. Note: this may be a quality indicator, but there is no defined threshold for FAIRness.

FAIR Category

Check

Check coverage

Check description

Check explanation
## Summary of supported tests

### Findable
- Ontology URI is resolvable
- Ontology URI is persistent
- Version IRI exists (and resolves)
- Ontology id is ontology URI
- Minimum metadata is available (e.g., title, description, version info, etc.)
- Ontology prefix is in registry
- Ontology is in registry

### Accessible
- Ontology is available in RDF/HTML (content negotiation)
- Ontology is in a registry (repeated)
- Ontology is URI is defined in HTTP/HTTPS

### Interoperable
- Ontology is at least available in RDF
- Ontology reuses known vocabularies for declaring metadata (DC, Schema, PROV, etc.)
- Ontology extends other vocabularies

### Reusable
- HTML representation of the ontology exists
- Extensive metadata is provided with the ontology
- Labels and descriptions exist for all terms
- License is provided and resolvable
- Metadata includes provenance information

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Help us improve FOOPS!

Errors? (please be gentle)
New tests?
Suggestions?

https://github.com/oeg-upm/fair_ontologies

Drop us a message:
foops@delicias.dia.fi.upm.es

Twitter: @OOPSoeg

https://w3id.org/foops/

Publications:
https://foops.linkeddata.es/about.html
What if you don’t have a URL yet for your ontology?
- Don’t worry! Follow these steps:
  - 1) Put your ontology in a GitHub repository
2) Activate GitHub pages

- General
  - Repository name
    - example
  - Template repository
  - Require contributors to sign off on web-based commits
  - Social preview
    - Images should be at least 640x320px (1280x640px for best display)
    - Download template
2) Activate GitHub pages

GitHub Pages

GitHub Pages is designed to host your personal, organization, or project pages from a GitHub repository.

Your site is live at https://dgarijo.github.io/example/

Build and deployment

Source

Deploy from a branch

Branch

Your GitHub Pages site is currently being built from the master branch. Learn more.

Branch

master

Theme Chooser

Select a theme to publish your site with a Jekyll theme. Learn more.

Choose a theme

Your site was last deployed to the github-pages environment by the workflow. Learn more about deploying to GitHub Pages using custom workflows
3) Copy final link in FOOPS!

URI

https://dgarijo.github.io/example/release/1.0.1/ontology.ttl

Example: https://w3id.org/example (click [here](https://w3id.org/example) to enter this ontology)

Title: The example ontology

URI: https://w3id.org/example

License: [http://creativecommons.org/licenses/by/2.0/](http://creativecommons.org/licenses/by/2.0/)

74%

Reusuable (6.75/9)