



odk

ONTOLOGY DEVELOPMENT KIT

Continuous Integration and FAIR release
management for modular ontologies

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Matentzoglou and Philip Strömert



Logical axioms in ontologies relate entities from diverse ontologies

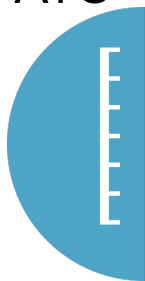
Hypolysinemia



=



Quality
PATO



decreased
amount



ChEBI

part of

.ü uberon



lysine

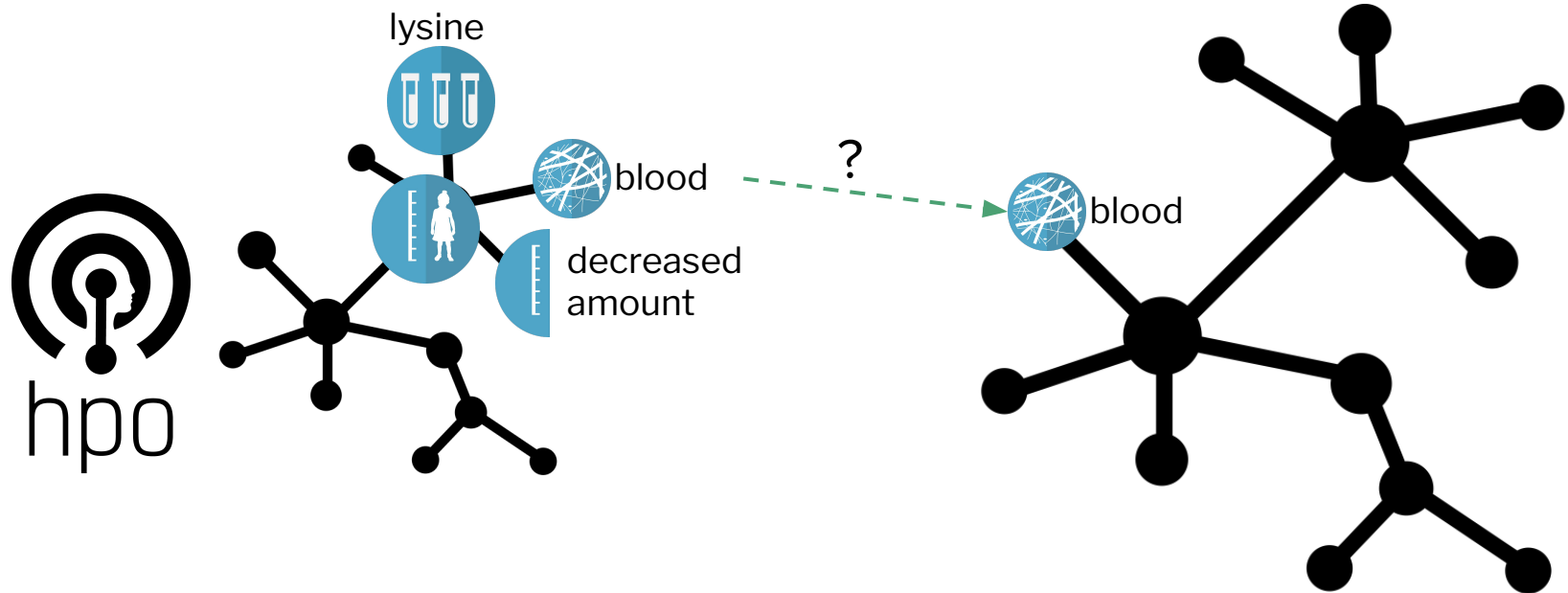
Entity



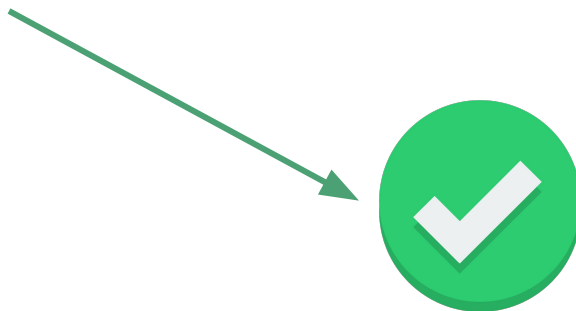
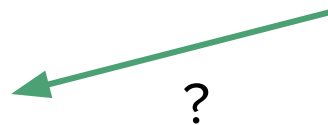
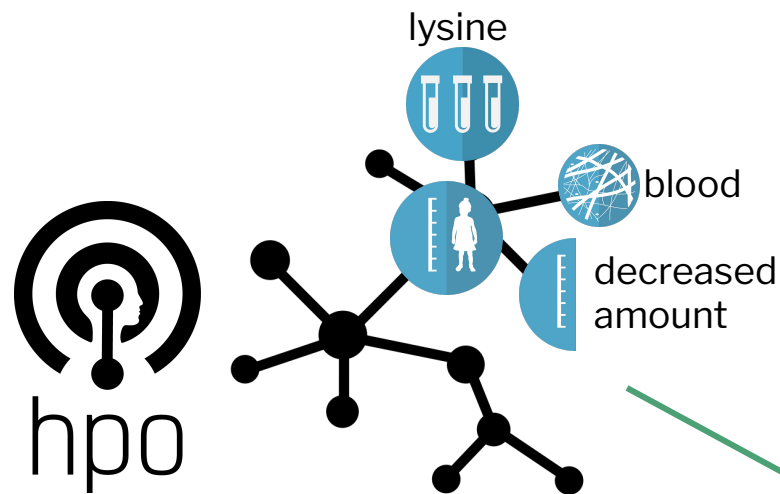
blood

How do I get terms from external ontologies to re-use them?

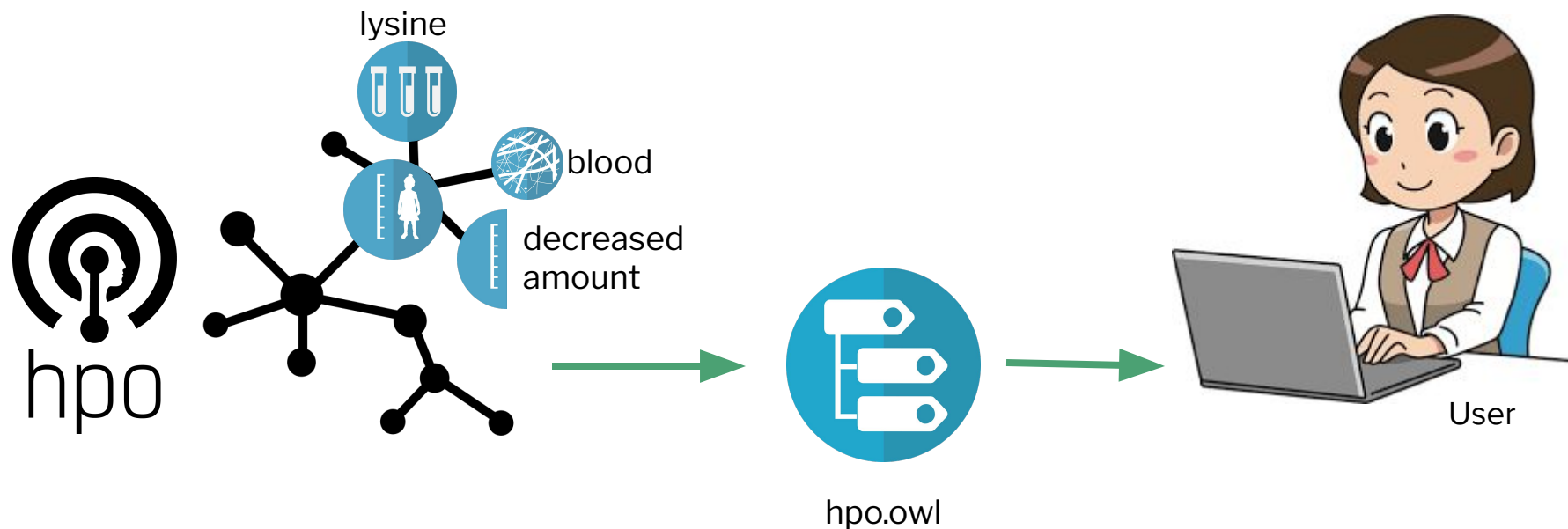
ü uberon



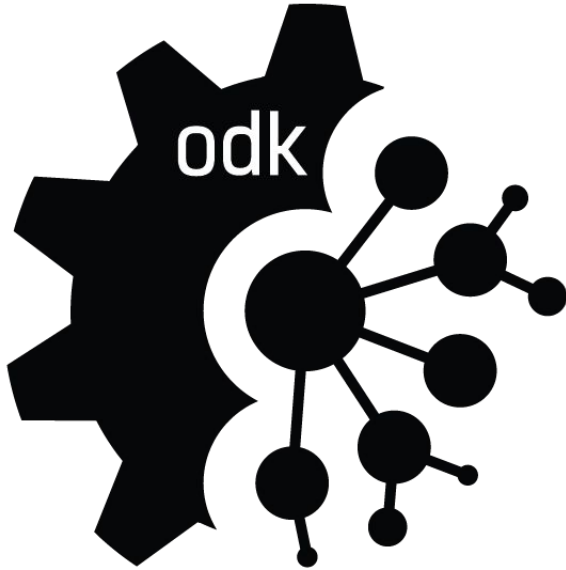
How do I make sure that whenever I make a change, I didn't break anything?



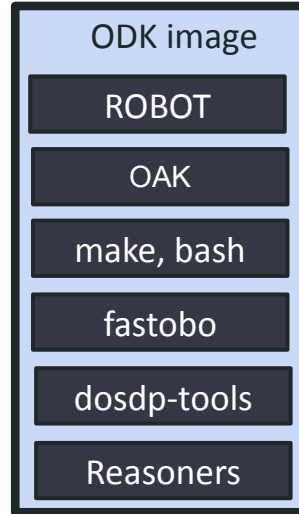
How do I make sure all users can access the ontology in a standardised, FAIR manner?



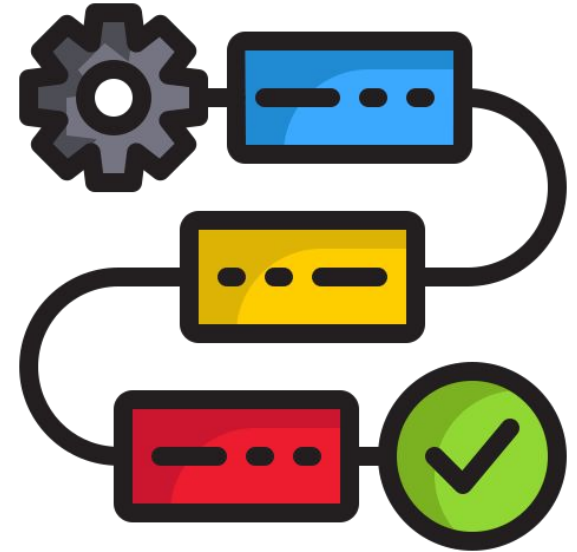
The ODK is a toolbox and ontology life-cycle management system



Toolbox



Workflow system

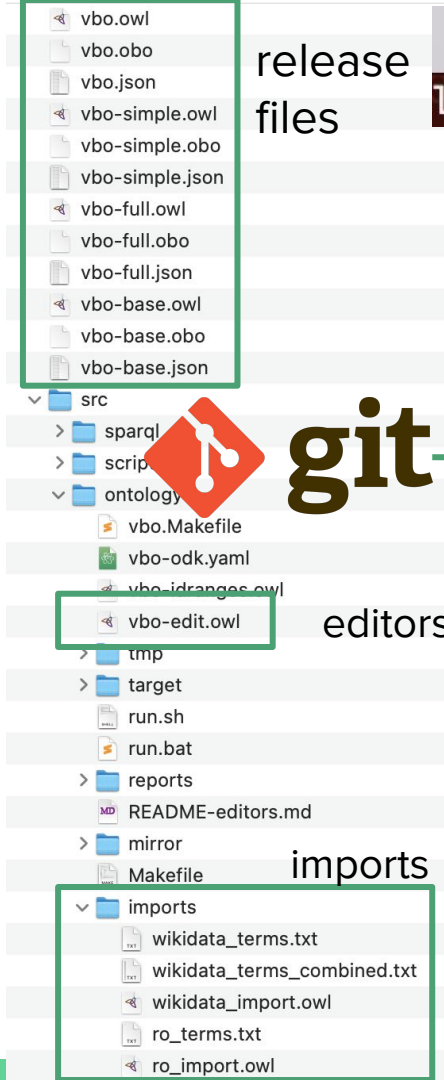


 **docker**
docker pull obolibrary/odkfull

Overview



Generate standard
git repository



git

editors file



GitHub Actions



Travis CI

```
MP — -bash  
logy (main) $ sh run.sh make refresh-chebi
```

Executable workflows:

- Imports, releases
- Testing
- Uses ODK toolbox

Social workflows:

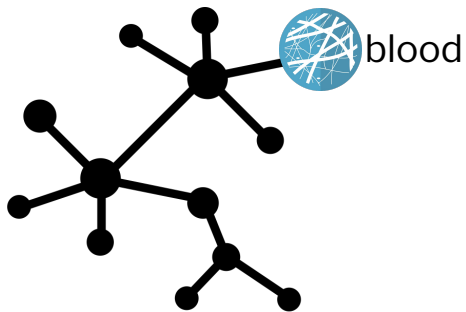
- Issues
- Pull requests

CI/CD:

- Automatic testing
- Automatic updates
- Diffs

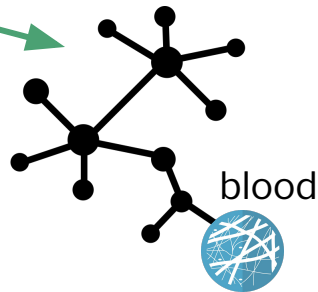
Workflow: Dependency management

hp-edit.owl

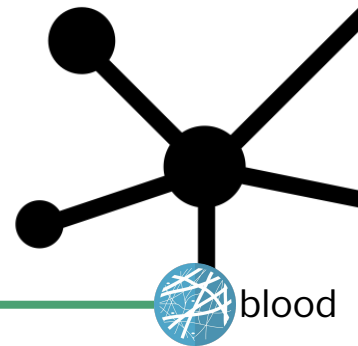


imports

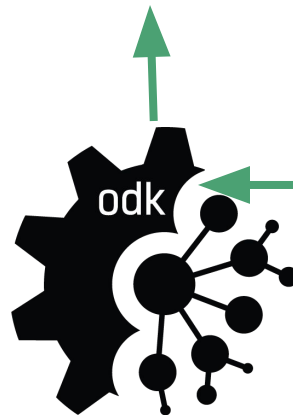
uberon_import.owl



ü uberon



- Repeatable workflows (“refresh-uberon”)
- Stay always current with the axiomatisation of upstream sources
- Manage small import modules using use-case optimised computational extraction techniques instead of adhoc term import or importing the whole.



Toolbox

- ROBOT
- OAK
- sssom-py
- owltools

Open megbalk wants to merge 3 commits into master from issue-

Conversation 0 Commits 3 Checks 3

megbalk commented 2 days ago

issue #2617

megbalk added 3 commits 17 days ago

- Update uberon-edit.obo
- Merge branch 'master' into issue-2617
- Update uberon-edit.obo

megbalk requested a review from bvarner-ebi 2 days ago

Add more commits by pushing to the issue-2617 branch on obophe

This branch has not been deployed
No deployments

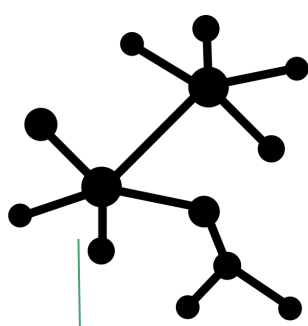
Review required
At least 1 approving review is required by reviewers with write :
No results found for -tqn
1 pending reviewer

Some checks were not successful
2 failing and 1 skipped checks
Diagnostics

CI / ontology_qc (pull_request) Failing after 3m



Continuous Integration Testing



← edit locally



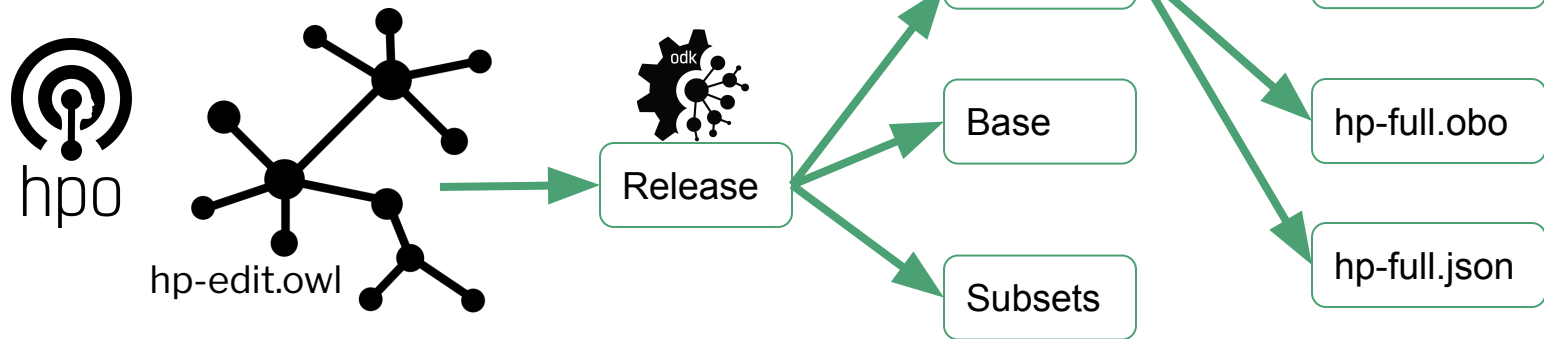
Developer

Make pull request

CI System
(GH actions)
runs ODK
checks

- No more broken ontologies on “main”
- No more fear you might “break stuff”
- Rich set of checks:
 - OWL profile checking
 - ROBOT report (incl. many best practices)
 - Customisable with SPARQL-based unit testing
 - Logical consistency

Workflow: Release pipeline



- Repeatable workflows (“prepare_release”)
- Robust pipelines to generate standard release files reliably and quickly
- Following OBO Best practices:
 - Standard serialisations
 - Standard release variants (base, full)
 - Versioning
 - Clear separation of editors and release environment
- Fully customisable (release variants, serialisations, base-iris)

3. Merge to main branch
4. Create a GitHub release

These steps are outlined in detail in the follow

Run a release with the ODK

Preparation:

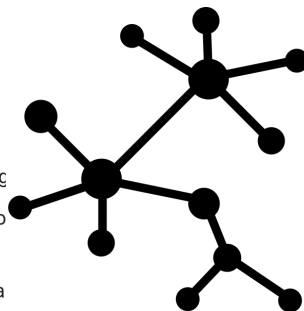
1. Ensure that all your pull requests are merged
2. Make sure that all changes to main are committed (there are no modified files)
3. Locally make sure you have the latest changes
4. Checkout a new branch (e.g. `git checkout -b release`)
5. You may or may not want to refresh your installation
6. Make sure you have the latest ODK installed

To actually run the release, you:

1. Open a command line terminal window and run `cd /src/ontology`
2. Run release pipeline: `sh run.sh make pre`
this process can take up to 90 minutes - e.g. on, like PRO or CHEBI.
3. If everything went well, you should see the following output:
`are now in ../../ - now you should commit the changes to the hosting site such as GitHub or GitLab`

This will create all the specified release targets (e.g. `ont-base`) and copy them into your release directory

Documentation



Design patterns?



How to run a release?

SOPs?

- Add getting started guides for other onboarding new curators and developers
- Provided detailed documentation on how all workflows work (imports, releases etc)
- Document design patterns
- User documentation

Acknowledgements

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Core team

- @matentzn Nicolas Matentzoglou (Semantically)
- @gouttegd Damien Goutte-Gattat (Flybase)
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- @balhoff Jim Balhoff (RENCI)
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- @dosumis David Osumi-Sutherland (EMBL-EBI)
- @ehartley Emily Hartley (Critical Path Institute)
- @hkir-dev Huseyin Kir (EMBL-EBI)
- @shawntanzk Shawn Tan (EMBL-EBI)
- @ubynr Ismail Ugur Bayindir (EMBL-EBI)

Paper in Database:
<https://arxiv.org/abs/2207.02056>

More than 70 documented uses.