

# Dos and Don'ts of extending the VIVO ontology

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# Local ontology extensions to accommodate NLM publication types – are they needed?

<http://www.nlm.nih.gov/mesh/pubtypes.html>

Asserted class hierarchy:



## Local extensions

- ▼ ● Thing
  - ▼ ● ERO\_0000016
    - **ControlledClinicalTrial**
  - ▼ ● ERO\_0001716
    - **Directory**
  - ▼ ● AcademicArticle
    - **ComparativeStudy**
    - **EvaluationStudy**
  - ▼ ● Document
    - **Autobiography**
    - **Bibliography**
    - **Biography**
    - **CaseReports**
  - **Abstract**
  - ▼ ● Database
    - **Directory**
  - **Organization**
  - **Person**

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# local:ControlledClinicalTrial

Class Annotations

Class Usage

Usage: ControlledClinicalTrial

Show:  this  disjoints  named sub/superclasses

Found 2 uses of ControlledClinicalTr

▼ ● ControlledClinicalTrial

● ControlledClinicalTrial **subClassOf** ERO\_0000016

ControlledClinicalTrial **label** "ControlledClinicalTrial"@en-US

According to NLM: Work consisting of a clinical trial involving one or more test treatments, at least one control treatment, specified outcome measures for evaluating the studied intervention, and a bias-free method for assigning patients to the test treatment. The treatment may be drugs, devices, or procedures studied for diagnostic, therapeutic, or prophylactic effectiveness. Control measures include placebos, active medicine, no-treatment, dosage forms and regimens, historical comparisons, etc. When randomization using mathematical techniques, such as the use of a random numbers table, is employed to assign patients to test or control treatments, the trial is characterized as a RANDOMIZED CONTROLLED TRIAL.

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# local:Directory

Usage: Directory

Show:  this  disjoints  named sub/superclasses

Found 3 uses of Directory

- ▼ ● Directory
  - Directory *label* "Directory"@en-US
  - Directory **subClassOf** Database
  - Directory **subClassOf** ERO\_0001716

According to NLM: Work consisting of an alphabetical or classified list of names, organizations, subjects, etc., giving usually titles, addresses, affiliations, and other professional data.

**Why not use: Directory from FaBiO**

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# Directory FaBiO

directory<sup>c</sup>

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**IRI:** <http://purl.org/spar/fabio/Directory>

A database of information which is heavily optimized for reading.

**has super-classes**

database<sup>c</sup>

A database of information which is heavily optimized for reading.  
Subclass of Database

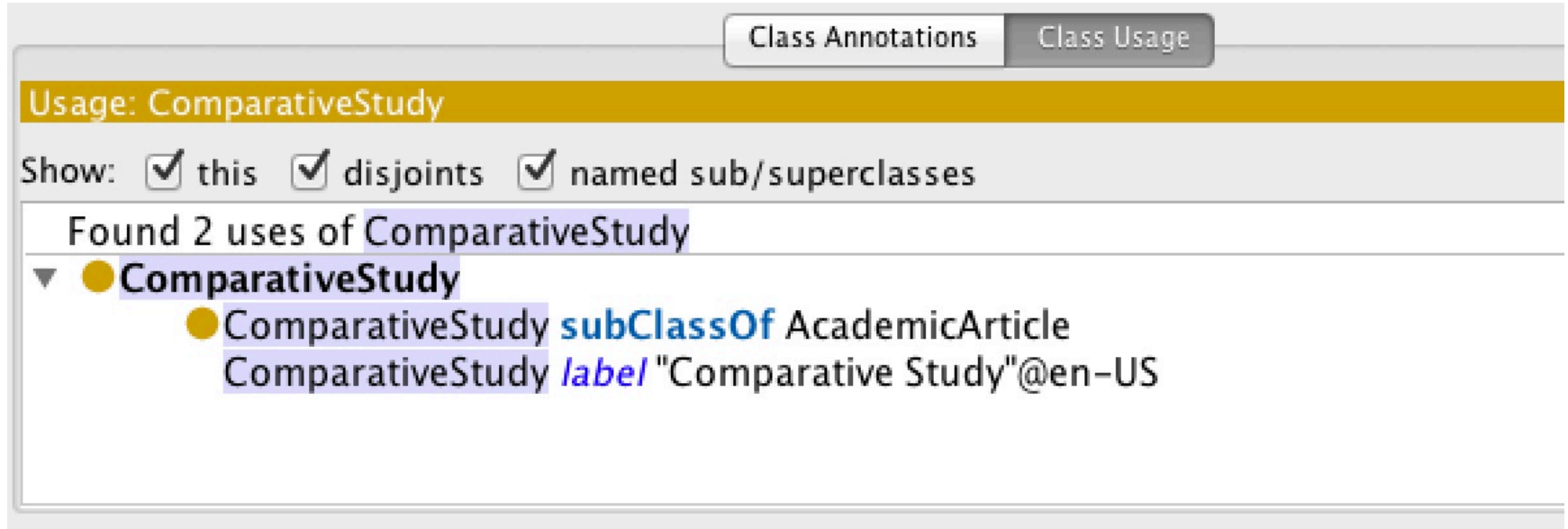
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# local:Comparative Study



The screenshot shows an IDE window with two tabs: "Class Annotations" and "Class Usage". The "Class Usage" tab is active, displaying the usage of the class `ComparativeStudy`. The title bar of the usage view is "Usage: ComparativeStudy". Below the title bar, there are three checked checkboxes: "this", "disjoints", and "named sub/superclasses". The main content area shows "Found 2 uses of ComparativeStudy". A tree view is expanded to show the following uses:

- **ComparativeStudy**
  - ComparativeStudy **subClassOf** AcademicArticle
  - ComparativeStudy **label** "Comparative Study"@en-US

According to NLM: Comparison of outcomes, results, responses, etc for different techniques, therapeutic approaches or other inputs.

OR use Academic article?

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# local:EvaluationStudy

The screenshot shows a software interface with two tabs: "Class Annotations" and "Class Usage". The "Class Usage" tab is active. Below the tabs, there is a header "Usage: EvaluationStudy" on a yellow background. Underneath, there are three checked checkboxes: "this", "disjoints", and "named sub/superclasses". A section titled "Found 2 uses of EvaluationStudy" is expanded to show two items: "EvaluationStudy subClassOf AcademicArticle" and "EvaluationStudy label 'EvaluationStudy'@en-US".

According to NLM: Works consisting of studies determining the effectiveness or utility of processes, personnel, and equipment.

OR use Academic article?

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## Academic article

- "Classical Article" – academic article
- "English Abstract" – academic article
- "Historical Article" – academic article
- "Introductory Journal Article" same as below
- "Journal Article" academic article
- "Meta-Analysis"- academic article
- "Multicenter Study"- academic article
- "Overall" – academic article ...

# local:Autobiography

The screenshot shows a software interface with two tabs: 'Class Annotations' and 'Class Usage'. The 'Class Usage' tab is active. Below the tabs, there is a yellow header bar with the text 'Usage: Autobiography'. Underneath, there are three checked checkboxes: 'this', 'disjoints', and 'named sub/superclasses'. A line of text reads 'Found 2 uses of Autobiography'. Below this, there is a dropdown arrow followed by a yellow circle and the text 'Autobiography'. Underneath this, there are two items: 'Autobiography label "Autobiography"@en-US' and 'Autobiography subClassOf Document'. The text 'subClassOf' is highlighted in blue.

According to NLM: Works consisting of self-described accounts.

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# Autobiography

Publication Formats [V02]

Biography [V02.170]

Personal Narratives [V02.170.875]

▶ Autobiography [V02.170.875.500]

MeSH three structure

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# local:Bibliography

The screenshot shows a software interface with two tabs: "Class Annotations" and "Class Usage". The "Class Usage" tab is active. Below the tabs, there is a yellow header bar that says "Usage: Bibliography". Underneath, there are three checked checkboxes: "this", "disjoints", and "named sub/superclasses". A line of text reads "Found 2 uses of Bibliography". Below this, a tree view shows a collapsed item "Bibliography" with a yellow circle next to it. When expanded, it shows two items: "Bibliography subClassOf Document" and "Bibliography label 'Bibliography'@en-US".

According to NLM: A work consisting of a list of books, articles, documents, publications, and other items, usually on a single subject or related subjects.

Think of possible use cases?

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# Technical report = bibo:report? Do we need a new sub-class?

[technical report](#)<sup>c</sup>

IRI: <http://purl.org/spar/fabio/TechnicalReport>

A report of a technical nature.

has super-classes

[report](#)<sup>c</sup>

**FaBiO**

**Techreport**

**bibTeX**

**rdfs:subClassOf** [Entry](#)

**rdfs:label** Techreport

**rdfs:comment** A report published by a school or other institution, usually numbered within a series.

**bibo:report** - A document describing an account or statement describing in detail an event, situation, or the like, usually as the result of observation, inquiry, etc..

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# Technical report is sub-class of bibo:report

Usage: Report ⏏ ⏏ ⏏

Show:  this  disjoints  named sub/superclasses

Found 9 uses of Report

- ▼ ● Report
  - Report [IAO\\_0000115](#) "A document describing an account or statement describing in detail an event, situation,
  - Report [comment](#) "A document describing an account or statement describing in detail an event, situation, or th
  - Report [label](#) "Report"
  - Report [subClassOf](#) Document

**How we use it** - Medical Subject Heading (MeSH) definition of Technical Report: Work consisting of a formal report giving details of the investigation and results of a medical or other scientific problem. When issued by a government agency or comparable official body, its contents may be classified, unclassified, or declassified with regard to security clearance. This publication type may also cover a scientific paper or article that records the current state or current position of scientific research and development. If so labeled by the editor or publisher, this publication type may be properly used for journal articles.

**bibo:report** - A document describing an account or statement describing in detail an event, situation, or the like, usually as the result of observation, inquiry, etc..

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# Technical report is sub-class of bibo:report

Usage: Report



Show:  this  disjoints  named sub/superclasses

Found 9 uses of Report

## ▼ ● Report

Report [IAO\\_0000115](#) "A document describing an account or statement describing in detail an event, situation,

Report [comment](#) "A document describing an account or statement describing in detail an event, situation, or th

Report [label](#) "Report"

● Report [subClassOf](#) Document

report<sup>c</sup>

back t

IRI: <http://purl.org/spar/fabio/Report>

A formal factual, methodological, statistical, technical or research report issued by an individual, group, agency, government body or other institution.

has super-classes

[work<sup>c</sup>](#)

has sub-classes

[case report<sup>c</sup>](#), [deliverable report<sup>c</sup>](#), [meeting report<sup>c</sup>](#), [news report<sup>c</sup>](#), [technical report<sup>c</sup>](#), [trial report<sup>c</sup>](#)

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# Case report = bibo:report? Do we need a new sub-class?

[case report](#)<sup>c</sup>

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**IRI:** <http://purl.org/spar/fabio/CaseReport>

A report about a particular case or situation.

**has super-classes**

[report](#)<sup>c</sup>

**has sub-classes**

[clinical case report](#)<sup>c</sup>

According to NLM: Clinical presentations that may be followed by evaluative studies that eventually lead to a diagnosis.

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# vivo:CaseStudy

## Annotations: CaseStudy

Annotations 

### IAO\_0000112

"A form of qualitative descriptive research that is used to study individuals, a small group of participants, or a group as a whole. Medical usage (from MeSH): clinical presentations that may be followed by evaluative studies that eventually lead to a diagnosis."

### IAO\_0000115

"A qualitative descriptive research study of individuals or a group"

### label

"Case Study"

vivo:CaseStudy uses same definition as NLM Case Reports

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# local:CaseReports

Usage: CaseReports

Show:  this  disjoints  named sub/superclasses

Found 2 uses of CaseReports

- ▼ ● CaseReports
  - CaseReports *label* "CaseReports"@en-US
  - CaseReports *subClassOf* Document

According to NLM: Clinical presentations that may be followed by evaluative studies that eventually lead to a diagnosis.

Use vivo:CaseStudy or move CaseStudy as sub-class of bibo:report?

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# Local ontology extensions to accommodate NLM publication types located at:

[https://github.com/vioil/ontology\\_extensions](https://github.com/vioil/ontology_extensions)