Vocabulary of a Friend (VOAF)

VOAF is a vocabulary specification providing elements allowing the description of vocabularies (RDFS vocabularies or OWL ontologies) used in the Linked Data Cloud. In particular it provides properties expressing the different ways such vocabularies can rely on, extend, specify, annotate or otherwise link to each other. It relies itself on Dublin Core and voiD. The name of the vocabulary makes an explicit reference to FOAF because VOAF can be used to define networks of vocabularies in a way similar to the one FOAF is used to define networks of people.

Metadata:

Property	Value
Creator	Bernard Vatant
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Namespace URI	http://purl.org/vocommons/voaf#
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Version Info	2.3
Previous versions	v2.2 (2013-04-24) v2.1 (2012-10-15) v2.0 (2012-07-03) v1.1 (2011-11-16) v1.0 (2011-03-11)
Modifications from v2.2 to v2.3	Refined the voaf:dataset to a more complex element with occurrences information and added extra properties to represent metrics of vocabulary elements usage in LOV and LOD
Modifications from v2.1 to v2.2	Added properties to represent metrics of vocabulary elements usage in LOV and LOD
Modifications from v2.0 to v2.1	Added description of queries used to infer a particular VOAF relation between two vocabularies
Modifications from v1.1 to v2.0	Namespace moved to purl. Introduction of versions using FRBR. voaf:Vocabulary rdfs:subClassOf frbr:Work.
Modifications from v1.0 to v1.1	Depreciation of voaf:exampleDataset, replaced by voaf:dataset

Vocabulary in use example:

The network of vocabularies defined in such a way is described in the Linked Open Vocabularies dataset

Classes:

voaf:Vocabulary

Vocabulary - A vocabulary used in the linked data cloud. An instance of voaf:Vocabulary relies on or is used by at least another instance of voaf:Vocabulary

URI: http://purl.org/vocommons/voaf#Vocabulary
Sub class of: void:Dataset
Sub class of: frbr:Work

voaf:VocabularySpace

Vocabulary Space - A vocabulary space defines any relevant grouping of vocabularies e.g., designed for similar purposes or domains, or designed by the same publisher or the same project, etc. A vocabulary can belong to zero, one or more vocabulary spaces. Dublin Core properties isPartOf and hasPart are used to link a vocabulary to a vocabulary space

URI: http://purl.org/vocommons/voaf#VocabularySpace

voaf:DatasetOccurrences

Dataset occurrences - Class used to store the number of occurences of a vocabulary in a particular dataset

URI: http://purl.org/vocommons/voaf#DatasetOccurrences

Properties:

voaf:classNumber

number of classes - The number of classes defined in the vocabulary namespace.

URI: http://purl.org/vocommons/voaf#classNumber
Domain: voaf:Vocabulary
Range: xsd:integer

Associated Query:

```
PREFIX rdfs:<http://www.w3.org/2000/01/rdf-schema#>
PREFIX owl:<http://www.w3.org/2002/07/owl#>
PREFIX voaf:<http://purl.org/vocommons/voaf#>
CONSTRUCT{
?vocab voaf:classNumber ?nbClass
}
WHERE{
  SELECT (COUNT(distinct ?class) AS ?nbClass) ?vocab
  WHERE{
    {?class a rdfs:Class.}
    UNION{?class a owl:Class.}
    ?class a ?type.
    FILTER(?type!=owl:DeprecatedClass)
    ?class rdfs:isDefinedBy ?vocab.
    ?vocab a voaf:Vocabulary.
  }GROUP BY ?vocab
}
```

Run this query on Linked Open Vocabularies (LOV) data

voaf:propertyNumber

number of properties - The number of properties defined in the vocabulary namespace.

URI: http://purl.org/vocommons/voaf#propertyNumber
Domain: voaf:Vocabulary
Range: xsd:integer

Associated Query:

```
PREFIX rdf:<http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs:<http://www.w3.org/2000/01/rdf-schema#>
PREFIX owl:<http://www.w3.org/2002/07/owl#>
PREFIX voaf:<http://purl.org/vocommons/voaf#>
CONSTRUCT{
?vocab voaf:propertyNumber ?nbProp
}
WHERE{
  SELECT (COUNT(distinct ?prop) AS ?nbProp) ?vocab
  WHERE{
    {?prop a rdf:Property.}
    UNION{?prop a owl:ObjectProperty.}
    UNION{?prop a owl:DatatypeProperty.}
    UNION{?prop a owl:AnnotationProperty.}
    UNION{?prop a owl:FunctionalProperty.}
    UNION{?prop a owl:OntologyProperty.}
    UNION{?prop a owl:AsymmetricProperty.}
    UNION{?prop a owl:InverseFunctionalProperty.}
    UNION{?prop a owl:IrreflexiveProperty.}
    UNION{?prop a owl:ReflexiveProperty.}
    UNION{?prop a owl:SymmetricProperty.}
    UNION{?prop a owl:TransitiveProperty.}
    ?prop a ?type.
    FILTER(?type!=owl:DeprecatedProperty)
    ?prop rdfs:isDefinedBy ?vocab.
    ?vocab a voaf:Vocabulary.
  }GROUP BY ?vocab
}
```

Run this query on Linked Open Vocabularies (LOV) data

voaf:reliesOn

relies on - Indicates that the subject vocabulary uses or extends some class or property of the object vocabulary

URI: http://purl.org/vocommons/voaf#reliesOn
Domain: voaf:Vocabulary
Range: voaf:Vocabulary
Sub property of: void:vocabulary
Sub property of: terms:references

voaf:usedBy

used by - Indicates that the subject vocabulary is used by the object vocabulary

URI: http://purl.org/vocommons/voaf#usedBy
Domain: voaf:Vocabulary
Range: voaf:Vocabulary
Inverse of: voaf:reliesOn

voaf:metadataVoc

metadata vocabulary - Indicates that the subject vocabulary uses the object vocabulary in metadata at vocabulary or element level

URI: http://purl.org/vocommons/voaf#metadataVoc
Domain: voaf:Vocabulary
Range: voaf:Vocabulary
Sub property of: voaf:reliesOn

Associated Query:

```
PREFIX rdfs:<http://www.w3.org/2000/01/rdf-schema#>
PREFIX owl:<http://www.w3.org/2002/07/owl#>
PREFIX voaf:<http://purl.org/vocommons/voaf#>
CONSTRUCT{
  ?vocab1 voaf:metadataVoc ?vocab2
}
WHERE{
  ?elem1 ?elem2 ?o.
  ?elem1 rdfs:isDefinedBy ?vocab1.
  ?vocab1 a voaf:Vocabulary.
  ?elem2 rdfs:isDefinedBy ?vocab2.
  ?vocab2 a voaf:Vocabulary.
  FILTER(?vocab1!=?vocab2)
}
```

voaf:extends

extends - Indicates that the subject vocabulary extends the expressivity of the object vocabulary by declaring subsumption relationships, using object vocabulary class as domain or range of a subject vocabulary property, defining local restrictions etc ...

URI: http://purl.org/vocommons/voaf#extends
Domain: voaf:Vocabulary
Range: voaf:Vocabulary
Sub property of: voaf:reliesOn

Associated Query:

```
PREFIX rdfs:<http://www.w3.org/2000/01/rdf-schema#>
PREFIX owl:<http://www.w3.org/2002/07/owl#>
PREFIX voaf:<http://purl.org/vocommons/voaf#>
CONSTRUCT{
  ?vocab1 voaf:extends ?vocab2
}
WHERE{
{?elem1 owl:inverseOf ?elem2. FILTER(!isBlank(?elem2))}
  UNION{?elem1 rdfs:domain ?elem2. FILTER(!isBlank(?elem2))}
  UNION{?elem1 rdfs:range ?elem2. FILTER(!isBlank(?elem2))}
  UNION{?elem2 rdfs:domain ?elem1. FILTER(!isBlank(?elem1))}
  UNION{?elem2 rdfs:range ?elem1. FILTER(!isBlank(?elem1))}
  ?elem1 rdfs:isDefinedBy ?vocab1.
  ?vocab1 a voaf:Vocabulary.
  ?elem2 rdfs:isDefinedBy ?vocab2.
  ?vocab2 a voaf:Vocabulary.
  FILTER(?vocab1!=?vocab2)
}
```

Run this query on Linked Open Vocabularies (LOV) data

voaf:specializes

specializes - Indicates that the subject vocabulary defines some subclasses or subproperties of the object vocabulary, or local restrictions on those.

URI: http://purl.org/vocommons/voaf#specializes
Domain: voaf:Vocabulary
Range: voaf:Vocabulary
Sub property of: voaf:reliesOn

Associated Query:

```
PREFIX rdfs:<http://www.w3.org/2000/01/rdf-schema#>
PREFIX owl:<http://www.w3.org/2002/07/owl#>
PREFIX voaf:<http://purl.org/vocommons/voaf#>
PREFIX skos:<http://www.w3.org/2004/02/skos/core#>
CONSTRUCT{
  ?vocab1 voaf:specializes ?vocab2
}
WHERE{
  {?elem1 rdfs:subPropertyOf ?elem2. FILTER(!isBlank(?elem2))}
  UNION{?elem1 rdfs:subClassOf ?elem2. FILTER(!isBlank(?elem2))}
  UNION{?elem1 skos:broadMatch ?elem2. FILTER(!isBlank(?elem2))}
  ?elem1 rdfs:isDefinedBy ?vocab1.
  ?vocab1 a voaf:Vocabulary.
  ?elem2 rdfs:isDefinedBy ?vocab2.
  ?vocab2 a voaf:Vocabulary.
  FILTER(?vocab1!=?vocab2)
}
```

Run this query on Linked Open Vocabularies (LOV) data

voaf:generalizes

generalizes - Indicates that the subject vocabulary generalizes by some superclasses or superproperties the object vocabulary.

URI: http://purl.org/vocommons/voaf#generalizes
Domain: voaf:Vocabulary
Range: voaf:Vocabulary
Sub property of: voaf:reliesOn

Associated Query:

```
PREFIX rdf:<http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs:<http://www.w3.org/2000/01/rdf-schema#>
PREFIX owl:<http://www.w3.org/2002/07/owl#>
PREFIX voaf:<http://purl.org/vocommons/voaf#>
PREFIX skos:<http://www.w3.org/2004/02/skos/core#>
CONSTRUCT{
  ?vocab1 voaf:generalizes ?vocab2
}
WHERE{
  {?elem1 skos:narrowMatch ?elem2. FILTER(!isBlank(?elem2))}
  UNION{?elem2 rdfs:subPropertyOf ?elem1.}
  UNION{?elem1 a owl:Class. ?elem1 owl:unionOf ?union. ?union rdf:first ?elem2.}
  UNION{?elem1 a owl:Class. ?elem1 owl:unionOf ?union. ?union rdf:rest ?union2. ?union2 rdf:first ?elem2.}
  UNION{?elem1 a owl:Class. ?elem1 owl:unionOf ?union. ?union rdf:rest ?union2. ?union2 rdf:rest ?union3. ?union3
rdf:first ?elem2.}
  UNION{?elem1 a owl:Class. ?elem1 owl:unionOf ?union. ?union rdf:rest ?union2. ?union2 rdf:rest ?union3. ?union3
rdf:rest ?union4. ?union4 rdf:first ?elem2.}
  UNION{?elem1 a owl:Class. ?elem1 owl:unionOf ?union. ?union rdf:rest ?union2. ?union2 rdf:rest ?union3. ?union3
rdf:rest ?union4. ?union4 rdf:rest ?union5. ?union5 rdf:first ?elem2.}
  FILTER(!isBlank(?elem2))
  ?elem1 rdfs:isDefinedBy ?vocab1.
  ?vocab1 a voaf:Vocabulary.
  ?elem2 rdfs:isDefinedBy ?vocab2.
  ?vocab2 a voaf:Vocabulary.
  FILTER(?vocab1!=?vocab2)
}
```

Run this query on Linked Open Vocabularies (LOV) data

voaf:hasEquivalencesWith

has equivalences with - Indicates that the subject vocabulary declares some equivalent classes or properties with the object vocabulary.

URI: http://purl.org/vocommons/voaf#hasEquivalencesWith
Domain: voaf:Vocabulary
Range: voaf:Vocabulary
Sub property of: voaf:reliesOn

Associated Query:

```
PREFIX rdfs:<http://www.w3.org/2000/01/rdf-schema#>
PREFIX owl:<http://www.w3.org/2002/07/owl#>
PREFIX voaf:<http://purl.org/vocommons/voaf#>
PREFIX skos:<http://www.w3.org/2004/02/skos/core#>
CONSTRUCT{
  ?vocab1 voaf:hasEquivalencesWith ?vocab2
}
WHERE{
  {?elem1 owl:equivalentProperty ?elem2.}
  UNION{?elem1 owl:sameAs ?elem2.}
  UNION{?elem1 owl:equivalentClass ?elem2.}
  UNION{?elem2 owl:equivalentProperty ?elem1.}
  UNION{?elem2 owl:equivalentClass ?elem1.}
  UNION{?elem1 skos:exactMatch ?elem2.}
  UNION{?elem2 skos:exactMatch ?elem1.}
  FILTER(!isBlank(?elem2))
  ?elem1 rdfs:isDefinedBy ?vocab1.
  ?vocab1 a voaf:Vocabulary.
  ?elem2 rdfs:isDefinedBy ?vocab2.
  ?vocab2 a voaf:Vocabulary.
  FILTER(?vocab1!=?vocab2)
}
```

Run this query on Linked Open Vocabularies (LOV) data

voaf:hasDisjunctionsWith

has disjunctions with - Indicates that the subject vocabulary declares some disjunct classes with the object vocabulary.

URI: http://purl.org/vocommons/voaf#hasDisjunctionsWith
Domain: voaf:Vocabulary
Range: voaf:Vocabulary
Sub property of: voaf:reliesOn

Associated Query:

```
PREFIX rdfs:<http://www.w3.org/2000/01/rdf-schema#>
PREFIX owl:<http://www.w3.org/2002/07/owl#>
PREFIX voaf:<http://purl.org/vocommons/voaf#>
CONSTRUCT{
  ?vocab1 voaf:hasDisjunctionsWith ?vocab2
}
WHERE{
  ?elem1 owl:disjointWith ?elem2. FILTER(!isBlank(?elem2))
  ?elem1 rdfs:isDefinedBy ?vocab1.
  ?vocab1 a voaf:Vocabulary.
  ?elem2 rdfs:isDefinedBy ?vocab2.
  ?vocab2 a voaf:Vocabulary.
  FILTER(?vocab1!=?vocab2)
}
```

 Run this query on Linked Open Vocabularies(LOV) data

voaf:similar

similar - Used to assert that two vocabularies are similar in scope and objectives, independently of the fact that they otherwise refer to each other.

URI: http://purl.org/vocommons/voaf#similar
Domain: voaf:Vocabulary
Range: voaf:Vocabulary
Type : owl:SymmetricProperty

voaf:toDoList

to-do list - Describes future tasks planned by a resource curator. This property is primarily intended to be used for vocabularies or datasets, bu the domain is left open, it can be used for any resource. Use iCalendar Vtodo class and its properties to further describe the task calendar, priorities etc.

URI: http://purl.org/vocommons/voaf#toDoList
Range: cal:Vtodo

voaf:occurrencesInVocabularies

occurrences in vocabularies - Vocabulary term occurrences in vocabularies.

URI: http://purl.org/vocommons/voaf#occurrencesInVocabularies

Range: xsd:integer

voaf:occurrencesInDatasets

occurrences in datasets - Vocabulary term occurrences in datasets.

URI: http://purl.org/vocommons/voaf#occurrencesInDatasets
Range: xsd:integer

voaf:reusedByVocabularies

reused by vocabularies - Distinct number of vocabularies reusing a resource.

URI: http://purl.org/vocommons/voaf#reusedByVocabularies
Range: xsd:integer

voaf:reusedByDatasets

reused by datasets - Distinct number of datasets reusing a resource.

URI: http://purl.org/vocommons/voaf#reusedByDatasets
Range: xsd:integer

voaf:usageInDataset

usage in dataset - usage statistics in a dataset

URI: http://purl.org/vocommons/voaf#usageInDataset
Domain: voaf:Vocabulary
Range: void:DatasetOccurrences

voaf:inDataset

in dataset - dataset in which a vocabulary occurred

URI: http://purl.org/vocommons/voaf#inDataset
Domain: voaf:DatasetOccurrences
Range: void:Dataset

voaf:occurrences

occurrences - Number of occurrences of a vocabulary in a dataset

URI: http://purl.org/vocommons/voaf#occurrences
Domain: voaf:DatasetOccurrences
Range: xsd:integer

If you have any remark, suggestion or question, please contact editors