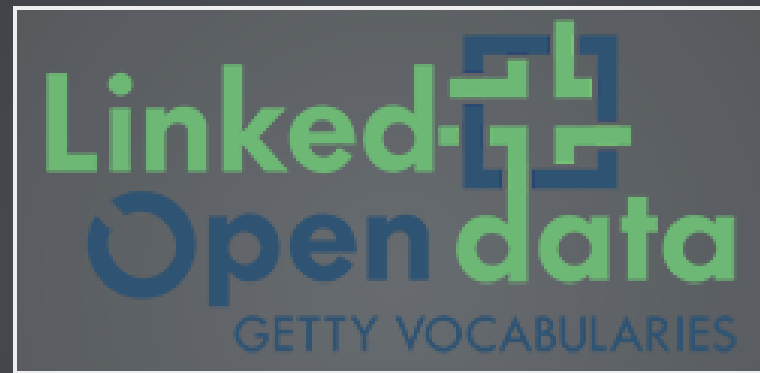


GVP LOD: ONTOLOGIES AND SEMANTIC REPRESENTATION

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CIDOC Congress, Dresden, Germany

2014-09-05: International Terminology Working Group

2014-09-09: Getty special session

[full version \(HTML\)](#), short version ([PDF](#), [slideshare](#)).

Press [O](#) for overview, [H](#) for help.

Proudly made in plain text with [reveal.js](#), [org-reveal](#), [org-mode](#)
and [emacs](#).

ONTOTEXT SCOPE OF WORK

<http://vocab.getty.edu>

- Ontology development: <http://vocab.getty.edu/ontology>
- Contribution to [ISO 25964 ontology](#) (latest thesauri standard)
- Complete mapping specification
- Help with R2RML conversion scripts, contrib to RDB2RDF (Perl), rrx:languageColumn extension
- GraphDB (OWLIM) repository. Enterprise Edition (clustered)
- Sem app dev (customized Forest UI), tech consulting
- SPARQL 1.1 endpoint: <http://vocab.getty.edu/sparql>
- Documentation (100 pages): <http://vocab.getty.edu/doc>
- Lots of sample queries, incl charts, geographic, etc
- Per-entity export files, explicit/total data dumps
- Help desk / support
- Presentations, scientific papers

SEMANTIC RESOLUTION & CONTENT NEGOTIATION

All GVP, AAT and TGN URLs resolve, returning human or machine readable content through content negotiation (303 redirect). Eg about the ontology:

http://vocab.getty.edu/ontology	semantic URI, content-negotiated
http://vocab.getty.edu/ontology.html	page (application/xhtml+xml)
http://vocab.getty.edu/ontology.rdf	application/rdf+xml
http://vocab.getty.edu/ontology.ttl	text/turtle

Eg about an AAT subject

http://vocab.getty.edu/aat/300011154	semantic URI, con-neg
http://vocab.getty.edu/aat/300011154.html	page (application/xhtml+xml)
http://vocab.getty.edu/aat/300011154.rdf	application/rdf+xml
http://vocab.getty.edu/aat/300011154.ttl	text/turtle
http://vocab.getty.edu/aat/300011154.nt	NTriples

GVP VOCABULARY DATA

Scope includes:

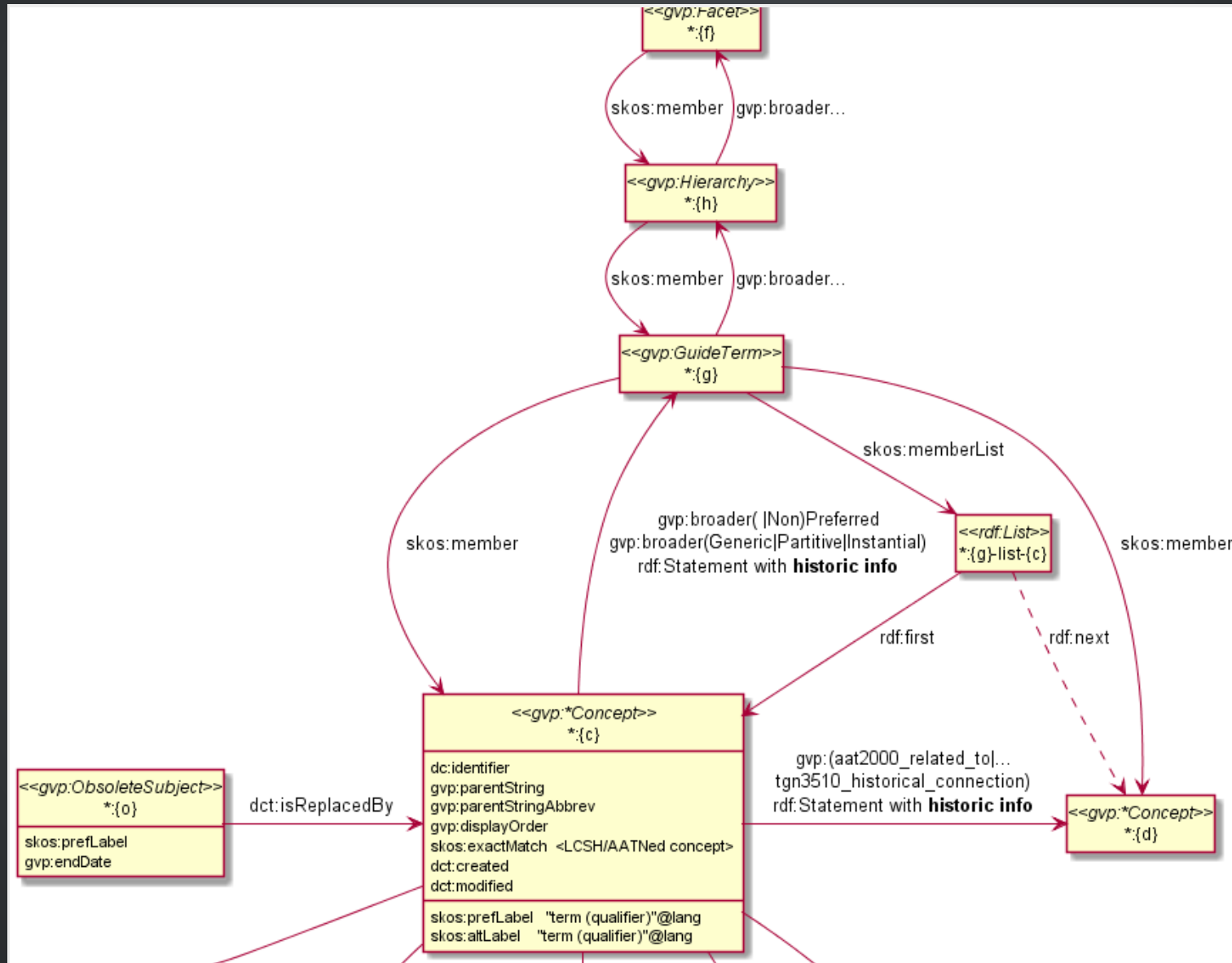
- Subjects: Concepts but also non-concepts
- Obsolete subjects (and `dct:isReplacedBy`)
- Terms: plain (SKOS) & rich (SKOS-XL). Term characteristics
- Languages (some custom lang tags)
- Hierarchical rels: custom & standard, distinguish BTG,BTP,BTI
- Associative rels (170 subprop of `skos:related`)
- Historic info on rels (`rdf:Statement`) and terms
- Alignment (exactMatch to LCSH)
- Sources (`bibo:Document`, `bibo:DocumentPart` with locator)
- Contributors (`foaf:Agent`)
- Revision history (`prov:Activity`)
- Thesaurus-specific (TGN place types, coordinates)

One of the richest thesauri I've seen

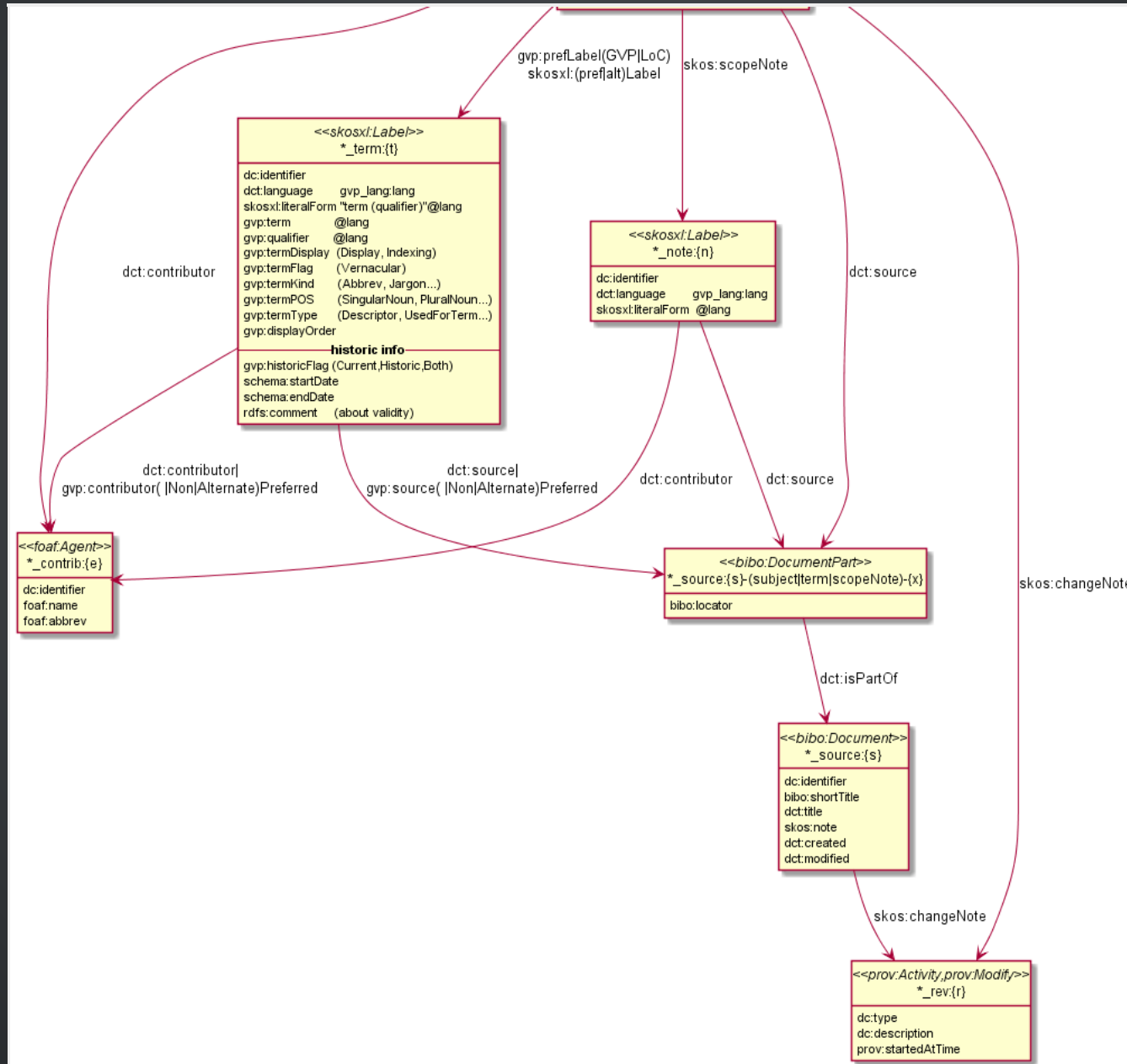
EXTERNAL ONTOLOGIES

Prefix	Ontology	Used for
bibo:	Bibliography Ontology	Sources
dc:	Dublin Core Elements	common
dct:	Dublin Core Terms	common
foaf:	Friend of a Friend ontology	Contributors
iso:	ISO 25946 (latest on thesauri)	iso:ThesaurusArray, BTG/BTP/BTI
owl:	Web Ontology Language	Basic RDF representation
prov:	Provenance Ontology	Revision history
rdf:	Resource Description Framework	Basic RDF representation
rdfs:	RDF Schema	Basic RDF representation
schema:	Schema.org	common, geo (TGN)
skos:	Simple Knowledge Org System	Basic vocabulary representation
skosxl:	SKOS Extension for Labels	Rich labels
wgs:	W3C World Geodetic Survey geo	Geo (TGN)
xsd:	XML Schema Datatypes	Basic RDF representation

GVP SEMANTIC REPRESENTATION

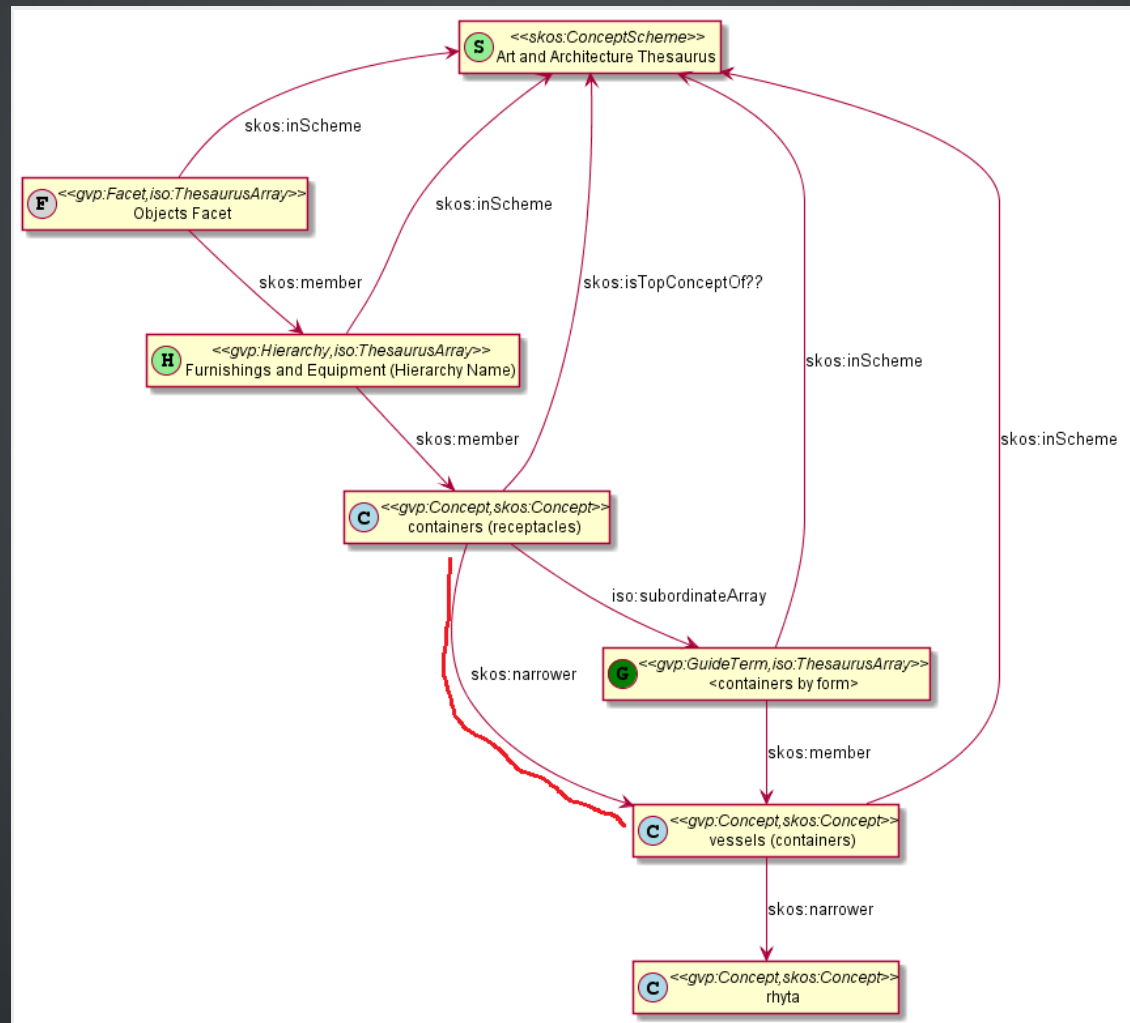


GVP SEMANTIC REPRESENTATION (2)



HIERARCHICAL RELATIONS

Use iso:ThesaurusArray to allow Guide Terms below Concepts.
Infer cross-threading SKOS/ISO broader relations



KEY VALUES (FLAGS) ARE IMPORTANT

Excel-driven Ontology Generation™ (getty-codes.xls to getty-codes.ttl)

Key val can be mapped to Custom sub-class, Custom (sub-)prop, **Ontology Value** (eg <term/kind/Abbreviation>)

vocab table	field	val	ObjectProperty	Class	label	domain	range	subProperty	subClassOf	ConceptSchem
	subject	record_type	F		Facet					gvp:Subject, iso:ThesaurusArray
AAT	subject	record_type	H		Hierarchy Name					gvp:Subject, iso:ThesaurusArray
AAT	subject	record_type	G		Guide Term					gvp:Subject, iso:ThesaurusArray
AAT	subject	record_type	C		Concept					gvp:Subject, skos:Concept
	subject	record_type	-		Obsolete Subject					gvp:Subject
TGN	subject	record_type	P		Physical Place Concept					gvp:Subject, skos:Concept
TGN	subject	record_type	A		Administrative Place Concept					gvp:Subject, skos:Concept
TGN	subject	record_type	B		Physical and Administrative Place Concept					gvp:Subject, skos:Concept
	subject_rels	preferred	P	gvp:broaderPreferred	Preferred Parent	gvp:Subject	gvp:Subject	gvp:broader		
	subject_rels	preferred	N	gvp:broaderNonPreferred	Non-Preferred Parent	gvp:Subject	gvp:Subject	gvp:broader		
	subject_rels	hier_rel_type	G	gvp:broaderGeneric	Parent (Generic)	gvp:Subject	gvp:Subject	gvp:broader		
	subject_rels	hier_rel_type	P	gvp:broaderPartitive	Parent (Partitive)	gvp:Subject	gvp:Subject	gvp:broader		
	subject_rels	hier_rel_type	I	gvp:broaderInstantial	Parent (Instantial)	gvp:Subject	gvp:Subject	gvp:broader		
	term	preferred	P	gvp:prefLabelGVP	Preferred Label for GVP	gvp:Subject	skosxl:Label			
	term	aacr2_flag	Y	gvp:prefLabelLoC	Preferred Label for LoC	gvp:Subject	skosxl:Label			
	term	vernacular	V	gvp:termFlag	Term Flag	skosxl:Label	skos:Concept			term/flag/
	term	other_flags	A	gvp:termKind	Term Kind	skosxl:Label	skos:Concept			term/kind/
AAT	term	other_flags	C	gvp:termKind	Term Kind	skosxl:Label	skos:Concept			term/kind/
AAT	term	other_flags	CN	gvp:termKind	Term Kind	skosxl:Label	skos:Concept			term/kind/
AAT	term	other_flags	F	gvp:termKind	Term Kind	skosxl:Label	skos:Concept			term/kind/
AAT	term	other_flags	J	gvp:termKind	Term Kind	skosxl:Label	skos:Concept			term/kind/
AAT	term	other_flags	N	gvp:termKind	Term Kind	skosxl:Label	skos:Concept			term/kind/
AAT	term	other_flags	S	gvp:termKind	Term Kind	skosxl:Label	skos:Concept			term/kind/

```

gvp:Facet a owl:Class ;
  rdfs:isDefinedBy <http://vocab.getty.edu/ontology> ;
  rdfs:subClassOf gvp:Subject, iso:ThesaurusArray ;
  rdfs:label "Facet" ;
  rdfs:comment "One of the major divisions of a vocabulary" ;
  skos:example "Objects Facet (AAT), World (TGN)" ;
  dct:description "One of the major divisions of a vocabulary.\nExample: Objects Facet (AAT), World (TGN)".
  
```

ASSOCIATIVE RELATIONS ARE VALUABLE

More Excel-driven Ontology Generation™ (assoc-rels.xls to assoc-rels.ttl)

- Relations come in owl:inverseOf pairs (or owl:SymmetricProperty self-inverse)

fcode	icode	domain (C1)	LOD frel	range (C2)	LOD irel	Editor frel - From C1 to C2	Editor irel - From C2 to C1	fexample	iexample
2000		any	related to	any		any - related to - any	same	<i>gulf red</i> is related to <i>light red (pigment)</i>	<i>light red (pigment)</i> is related to <i>gulf red</i>
2001		any	formerly referred to	any		any - formerly referred - any	same	<i>gigues</i> formerly referred to <i>fiddles</i>	<i>fiddles</i> formerly referred to <i>gigues</i>
2100		any	distinguished from	any		any - distinguished from - any	same	<i>historic farms</i> are distinguished from <i>abandoned farms</i> ; <i>naive art</i> is distinguished from <i>outsider art</i>	<i>abandoned farms</i> are distinguished from <i>historic farms</i> ; <i>outsider art</i> is distinguished from <i>naive art</i>

```

gvp:aat2000_related_to a owl:ObjectProperty;
  rdfs:subPropertyOf skos:related;
  rdfs:domain skos:Concept; rdfs:range skos:Concept;
  # domain "any"; range "any";
  dc:identifier "2000";
  skos:prefLabel "aat2000_related_to";
  dc:title "related to - any";
  skos:example "gulf red is related to light red (pigment)";
  skos:scopeNote "generic relationship, not explained" ;
  dct:description ""any - related to - any; generic relationship, not explained.
  Example: gulf red is related to light red (pigment)"" .
gvp:aat2000_related_to a owl:SymmetricProperty.
  
```

GVP ONTOLOGY

<http://vocab.getty.edu/ontology>, LOV Entry. 10 classes, 177 props: a lot are from excel, so editable by Getty

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◆ Ontologies (1):

[Getty Vocabulary Program ontology](#)

● Classes (10):

[AdminPlaceConcept](#) , [Concept](#) , [Facet](#) , [GuideTerm](#) , [Hierarchy](#) , [ObsoleteSubject](#) , [PhysAdminPlaceConcept](#) , [PhysPlaceConcept](#) , [Scope Note](#) , [Subject](#)

▣ Properties (177):

[aat2000_related_to](#) , [aat2001_formerly_referred_to](#) , [aat2100_distinguished_from](#) , [aat2110_meaning-usage_overlaps_with](#) , [aat2203_associated_with](#) , [aat2205_causes-is_required](#) , [aat2206_caused_by-requires](#) , [aat2208_locus-setting_for](#) , [aat2209_used-located_in](#) , [aat2211_produce](#) , [aat2212_produced_by](#) , [aat2215_required_for](#) , [aat2216_require](#) , [aat2218_used-function_as](#) , [aat2219_have_form](#) , [aat2222_act_upon](#) , [aat2223_are_acted_upon](#) , [aat2281_have_counterpart](#) , [aat2285_practiced-studied_by](#) , [aat2286_practice-study](#) , [aat2291_locus-setting_for](#) , [aat2292_work-live_in](#) , [aat2294_locus-setting_for](#) , [aat2295_located_in](#) , [aat2311_performed_by](#) , [aat2312_perform](#) , [aat2315_used_by](#) , [aat2316_use](#) , [aat2318_involved_in](#) , [aat2319_involves](#) , [aat2321_used_by](#) , [aat2322_use](#) , [aat2325_created_by](#) , [aat2326_create](#) , [aat2328_involved_with](#) , [aat2329_involves](#) , [aat2332_affiliated_with](#) , [aat2333_have_affiliates](#) , [aat2335_associated_with](#) , [aat2336_has_associates](#) , [aat2397_focus_of](#) , [aat2398_focuses_on](#) , [aat2408_locus-setting_for](#) , [aat2409_takes_place_in](#) , [aat2411_involved_in](#) , [aat2412_involves](#) , [aat2415_required_for](#) , [aat2416_requires](#) , [aat2418_uses](#) , [aat2419_used_for](#) , [aat2421_locus-setting_for](#) , [aat2422_takes_place_in](#) , [aat2424_produced_by](#) , [aat2425_produces](#) , [aat2427_produced_by](#) , [aat2428_produces](#) , [aat2431_required_for](#) , [aat2432_requires](#) , [aat2434_contextualized_in](#) , [aat2435_context_for](#) , [aat2501_made_of-require](#) , [aat2502_material_for](#) , [aat2504_used-located_in](#) , [aat2505_locus-setting_for](#) , [aat2507_produce-process](#) , [aat2508_produced-processed_by](#) , [aat2551_reflect-produced_by](#) , [aat2552_reflected_in-produces](#) , [aat2554_reflects](#) , [aat2555_reflected_in](#) , [aat2557_reflects](#) , [aat2558_reflected_in](#) , [aat2562_locus-setting_for](#) , [aat2563_located_in](#) , [aat2601_posessed-by-existing_in](#) , [aat2602_possess-exist_in](#) , [aat2604_posessed-by-existing_in](#) , [aat2605_possess-exist_in](#) , [aat2607_caused-by-requires](#) , [aat2608_causes-required_for](#) , [aat2612_posessed-by-existing_in](#) , [aat2613_possess-exist_in](#) , [aat2801_conjuncted_with](#) , [aat2802_exemplified_by](#) , [aat2803_example_of](#) , [aat2805_contextualized_in](#) , [aat2806_provide_context](#) , [aat2807_derived_from_common_source](#) , [aat2809_coexisted_with](#) , [aat2811_preceded](#) , [aat2812_followed](#) , [aat2814_constituent_of](#) , [aat2815_composed_of](#) , [aat2817_derived-made_from](#) , [aat2818_source_for](#) , [aat2821_based_on](#) , [aat2822_basis_of](#) , [aat2824_has_parallels_with](#) , [aat2826_used_with](#) , [aat2828_use-require](#) , [aat2829_used-required_for](#) , [aat2831_associated_with](#) , [aat2833_ancestor_of](#) , [aat2834_decendant_of](#) , [aat2836_derived-made_from](#) , [aat2837_source_for](#) , [aat2841_derived-made_from](#) , [aat2842_source_for](#) , [aat2845_used-located_in](#) , [aat2846_locus-setting_for](#) , [aat2848_involved_in](#) , [aat2849_involves](#) , [aat2852_involved_with](#) , [aat2853_involve](#) , [aat2875_characteristic_of](#) , [aat2876_characterized_by](#) , [aat2878_preceded-source_for](#) , [aat2879_followed-developed_from](#) , [aat2881_reflected_in](#) , [aat2882_reflect](#) , [aat2884_involved_with](#) , [aat2885_involves](#) , [aat2891_exemplified_by](#) , [aat2892_example_of](#) , [aat2894_exemplified_by](#) , [aat2895_example_of](#) , [aat2900_miscellaneous_relationship_broader](#) , [broaderExtended](#) , [broaderGeneric](#) , [broaderGenericExtended](#) , [broaderInstantial](#) , [broaderInstantialExtended](#) , [broaderNonPreferred](#) , [broaderPartitive](#) , [broaderPartitiveExtended](#) , [broaderPreferred](#) , [broaderPreferredExtended](#) , [contributorAlternatePreferred](#) , [contributorNonPreferred](#) , [contributorPreferred](#) , [displayOrder](#) , [historicFlag](#) , [narrower](#) , [narrowerExtended](#) , [parentString](#) , [parentStringAbbrev](#) , [placeTypeNonPreferred](#) , [placeTypePreferred](#) , [prefLabelGVP](#) , [prefLabelLoC](#) , [qualifier](#) , [sourceAlternatePreferred](#) , [sourceNonPreferred](#) , [sourcePreferred](#) , [term](#) , [termDisplay](#) , [termFlag](#) , [termKind](#) , [termPOS](#) , [termType](#) , [tgn3000_related_to](#) , [tgn3001_distinguished_from](#) , [tgn3005_possibly_identified_as](#) , [tgn3101_adjacent_to](#) , [tgn3102_coextensive_with](#) , [tgn3110_meaning-usage_overlaps_with](#) , [tgn3201_capital_of](#) , [tgn3202_capital_is](#) , [tgn3301_ally_of](#) , [tgn3317_member_of](#) , [tgn3318_member_is](#) , [tgn3401_moved_from](#) , [tgn3402_moved_to](#) , [tgn3411_successor_of](#) , [tgn3412_predecessor_of](#) , [tgn3510_historical_connection](#)

◆ Individuals (44):

[Abbreviation](#) , [Adjectival](#) , [Alternate Descriptor](#) , [Art and Architecture Thesaurus](#) , [Both](#) , [Both Singular and Plural](#) , [Chemical Name](#) , [Common term](#) , [Current](#) , [Descriptor](#) , [FIPS Code](#) , [Full term](#) , [Getty Research Institute](#) , [Historic](#) , [Historic Flag concept scheme](#) , [ISO alpha-2 code](#) , [ISO alpha-3 code](#) , [ISO numeric-2 code](#) , [ISO numeric-3 code](#) , [Jargon or Slang](#) , [Loan Term](#) , [Neologism](#) , [Noun](#) , [Official Name](#) , [Ontotext Corp](#) , [Part of Speech concept scheme](#) , [Past Participle](#) , [Plural Noun](#) , [Provisional Name](#) , [Pseudonym](#) , [Scientific or Technical term](#) , [Singular Noun](#) , [Site Name](#) , [Term Display concept scheme](#) , [Term Flag concept scheme](#) , [Term Kind concept scheme](#) , [Term Type concept scheme](#) , [Thesaurus of Geographic Names](#) , [US Postal Service Code](#) , [Use for Display](#) , [Use in Indexes/lists](#) , [Used for Term](#) , [Verbal Noun/Gerund](#) , [Vernacular](#)

OBSOLETE SUBJECTS

- AAT obsolete subjects are 4.4% of valid subjects, which shows a good rate of editorial actions
- Obsolete subjects may have been used in client data. In order not to leave such data hanging, we publish minimal information:

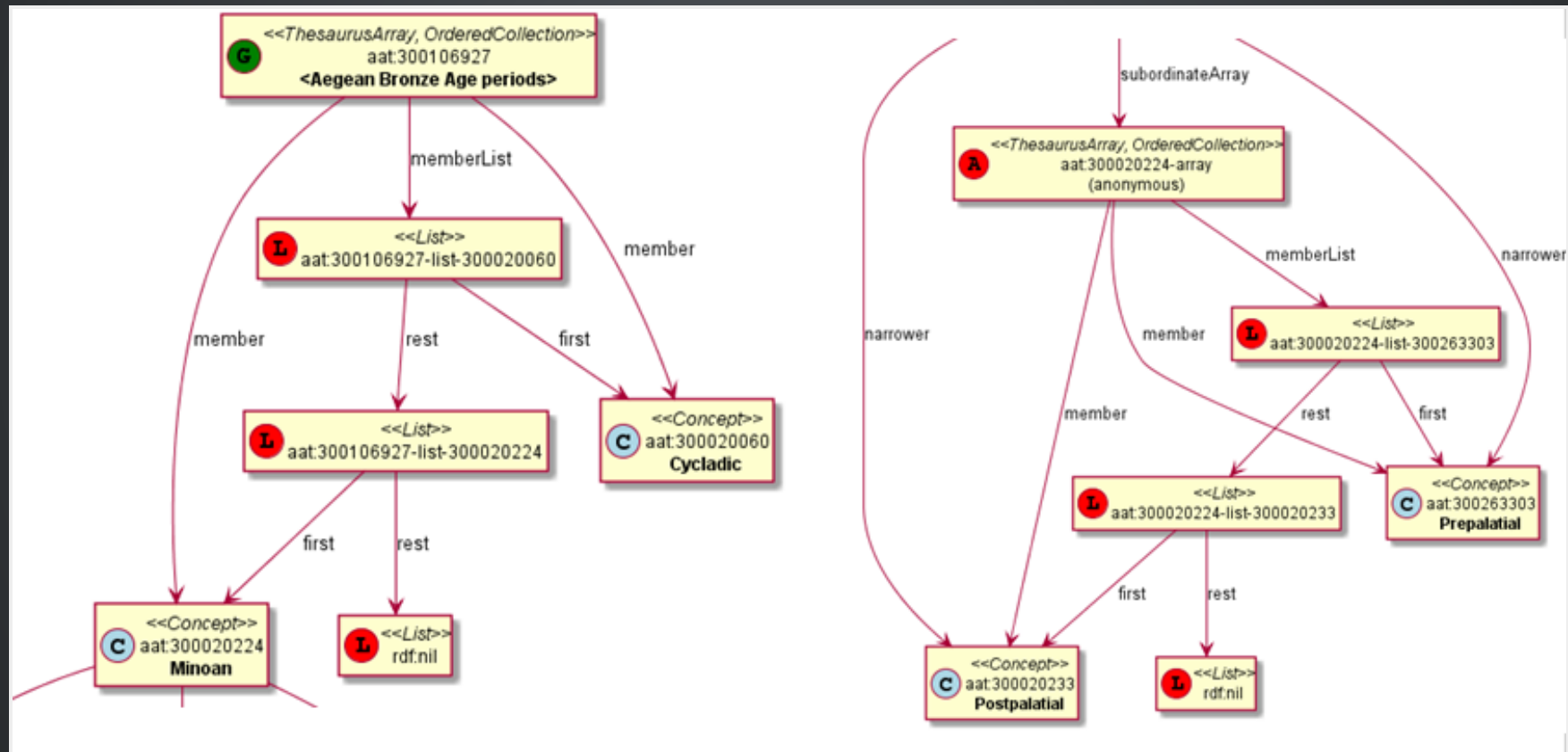
```
aat:300123456 a gvp:ObsoleteSubject; # Was made non-publishable
skos:prefLabel "Made up subject";
skos:inScheme aat: ;
schema:endDate "2012-12-31T12:34:56"^^xsd:dateTime.
```

```
aat:300386746 a gvp:ObsoleteSubject; # Was merged to a dominant Subject
skos:prefLabel "Buncheong";
skos:inScheme aat: ;
dct:isReplacedBy aat:300018699; # Punch'ong
schema:endDate "2012-12-31T12:34:56"^^xsd:dateTime.
```


USE OF ISO:THESAURUSARRAY IN GVP

Use rdf:List for ordered children.

Novelty: if parent is Concept, use anonymous ThesaurusArray



CONTRIBUTION TO ISO 25946

- Contributed to [ISO 25946 ontology \(LOV entry\)](#)
- First industrial use of ISO 25946
- Defined appropriate combinations of BTG, BTP, BTI relations (first formally defined in ISO).

On Compositionality of ISO 25964 Hierarchical Relations (BTG, BTP, BTI), V.Alexiev, J.Lindenthal, A.Isaac. [Draft paper, Presentation at NKOS 2014 Workshop, London, 12 Sep 2014](#)

	BTGx	BTPx	BTIx
BTGx	BTGE	BTPE	no
BTPx	BTPE	BTPE	no
BTIx	BTIE	no	no

- Eg: anvil components BTP <anvils and anvil accessories> BTG <forging and metal-shaping tools> => BTPE
- Mount Athos BTI Orthodox religious center BTG religious center => BTIE

TERMS

Support multilingual labels: both SKOS (plain)...

```
aat:300198841 a skos:Concept , gvp:Subject , gvp:Concept ;
  skos:prefLabel "rhyta"@el-latn , "rhyta"@en , "rhytons"@es , "rhytons"@fr ;
  skos:altLabel "rhyta"@es , "rhyton"@es , "rhyton"@en , "rhyton"@el-latn ...;
  skosxl:prefLabel aat_term:1000198841-en , aat_term:1000198841-el-Latn ...;
  skosxl:altLabel aat_term:1000198841-es , aat_term:1000297235-en ...
```

... and rich info in SKOS-XL:

```
aat_term:1000198841-en a skosxl:Label ;
  dc:identifier "1000198841" ;
  dct:language aat:300388277 , gvp_lang:en ; # owl:sameAs
  dct:contributor aat_contrib:10000000 , aat_contrib:10000131 ;
  skosxl:literalForm "rhyta"@en ;          ##### with Qualifier if applicable
  gvp:term "rhyta"@en ;                   ##### no qualifier
  gvp:displayOrder "1"^^xsd:positiveInteger ;
  gvp:termType <term/type/Descriptor> ;    ##### Descr/AltDescr/UseFor
  gvp:termPOS <term/POS/PluralNoun> ;     ##### Part of Speech
  gvp:contributorPreferred aat_contrib:10000000 , aat_contrib:10000088 ;
  gvp:contributorNonPreferred aat_contrib:10000131 ;
  gvp:sourcePreferred aat_source:2000051089-term-1000198841 ...;
  dct:source aat_source:2000024811 , aat_source:2000052946 ...;
  gvp:sourceNonPreferred aat_source:2000052946 ;
  gvp:sourceAlternatePreferred aat_source:2000048328-term-1000198841 .
```

SOME CUSTOM LANGUAGE TAGS

Despite the richness of IANA tags (9000), we had to define new tags, using several extension mechanisms:

- Private language, e.g.
 - **x-byzantin-Latn**: Byzantine Greek (transliterated)
 - **x-frisian** (IANA/ISO has codes for predecessor Old Frisian and dialects West, Saterland and North Frisian)
- Private language used in specific region, e.g.
 - **qqq-002**: African language (not specified which)
 - **qqq-ET**: Ethiopian (not specified: Boro/Borna, Karo...)
- Private modifier, e.g.
 - **grc-Latn- x-liturgic**: Liturgical Greek
 - **ber-Latn- x-dialect**: Berber Dialects (transliterated)
 - **fa-Latn- x-middle**: Persian, Middle (transliterated)
 - **zh-Latn-pinyin- x-notone**: transliterated Pinyin without tones

SOURCES

bibo:Document or bibo:DocumentPart

```
aat_source:2000051089 a bibo:Document;  
  dc:identifier "2000051089"  
  bibo:shortTitle "AATA database (2002-)";  
  dct:title "Getty Conservation Institute (GCI). database of AATA Online...".  
aat_source:2000051089-term-1000198841 a bibo:DocumentPart;  
  dct:isPartOf aat_source:2000051089;  
  bibo:locator "128257 checked 26 January 2012".
```

Applied to subject, term, scopeNote:

```
aat:300198841 # subject (rhyta)  
  dct:source aat_source:2000030301-subject-300198841;  
  dct:source aat_source:2000052378.  
aat_term:1000198841-en # term "rhyta"@en  
  gvp:sourceNonPreferred aat_source:2000049728;  
  dct:source aat_source:2000051089-term-1000198841.  
aat_scopeNote:34904 # scopeNote  
  dct:source aat_source:2000046502.
```

CONTRIBUTORS

foaf:Agent

```
aat_contrib:10000131 a foaf:Agent;  
  dc:identifier "10000131";  
  foaf:nick "CDBP-DIBAM";  
  foaf:name "Centro de Documentación de Bienes Patrimoniales...".
```

Applied to subject, term, scopeNote:

```
aat:300198841 # subject "rhyta"  
  dct:contributor aat_contrib:10000131;  
  dct:contributor aat_contrib:10000000.  
aat_term:1000198841-en # term "rhyta"@en  
  gvp:contributorNonPreferred aat_contrib:10000131;  
  gvp:contributorPreferred aat_contrib:10000000.  
aat_scopeNote:34904 # scopeNote  
  dct:contributor aat_contrib:10000000.
```

HISTORIC INFO

Includes dates of applicability, historicFlag, comment. Applied to terms; hier & assoc rels, place types (using rdf:Statement)

```
aat_term:1000002693-en a skosxl:Label;  
  skosxl:literalForm "lambruscatura"@en ;  
  gvp:historicFlag <http://vocab.getty.edu/historic/historic> ;  
  schema:startDate "0900"^^xsd:gYear ;  
  schema:endDate "1700"^^xsd:gYear ;  
  rdfs:comment "Medieval term for wainscoting".  
  
aat_rel:300020271-aat2812_followed-300020269 a rdf:Statement;  
  rdf:subject      aat:300020271;          # Second Dynasty (Egyptian)  
  rdf:predicate    gvp:aat2812_followed;  
  rdf:object       aat:300020269;          # First Dynasty (Egyptian)  
  rdfs:comment     "Second Dynasty began ca. 2775 BCE";  
  schema:startDate "-2785"^^xsd:gYear;  
  schema:endDate   "-2765"^^xsd:gYear.  
  
tgn:7011179-placeType-300008347 a rdf:Statement;  
  rdf:subject      tgn:7011179;          # Siena  
  rdf:predicate    gvp:placeTypePreferred;  
  rdf:object       aat:300008347;          # inhabited place  
  rdfs:comment     "settled by Etruscans (flourished 6th century BCE)";  
  schema:startDate "-0800"^^xsd:gYear;  
  gvp:displayOrder "1"^^xsd:positiveInteger.
```

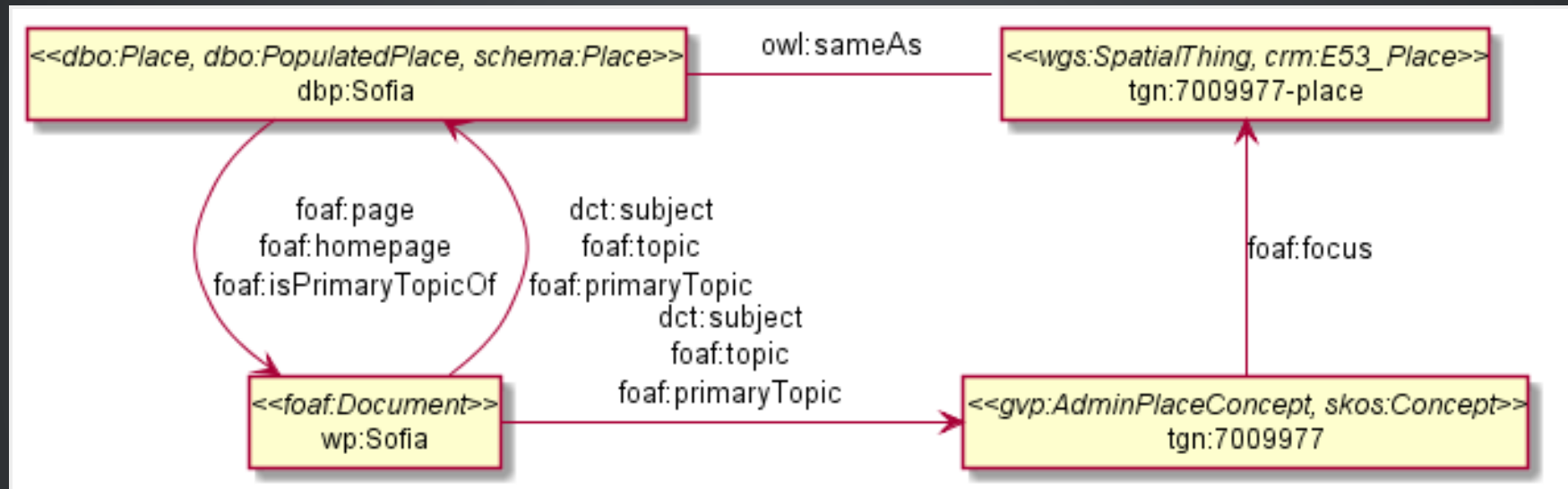

REVISION HISTORY

PROV is too complex, so we simplify:

```
aat:300018699
  skos:changeNote aat_rev:12345, aat_rev:12346, aat_rev:12347;
  prov:wasGeneratedBy aat_rev:12345;
  dct:created "2014-01-02T01:02:03"^^xsd:dateTime;
  dct:modified "2014-01-03T01:02:03"^^xsd:dateTime;
  dct:issued "2014-01-04T01:02:03"^^xsd:dateTime.
aat_rev:12345 a prov:Activity, prov:Create;
  dc:type "created";
  prov:startedAtTime "2014-01-02T01:02:03"^^xsd:dateTime.
aat_rev:12346 a prov:Activity, prov:Modify;
  prov:used aat:300018699;
  dc:type "term added";
  dc:description "leggings, puttee (1000248060)";
  prov:startedAtTime "2014-01-03T01:02:03"^^xsd:dateTime.
aat_rev:12347 a prov:Activity, prov:Publish;
  prov:used aat:300018699;
  dc:type "issued";
  prov:startedAtTime "2014-01-04T01:02:03"^^xsd:dateTime.
```

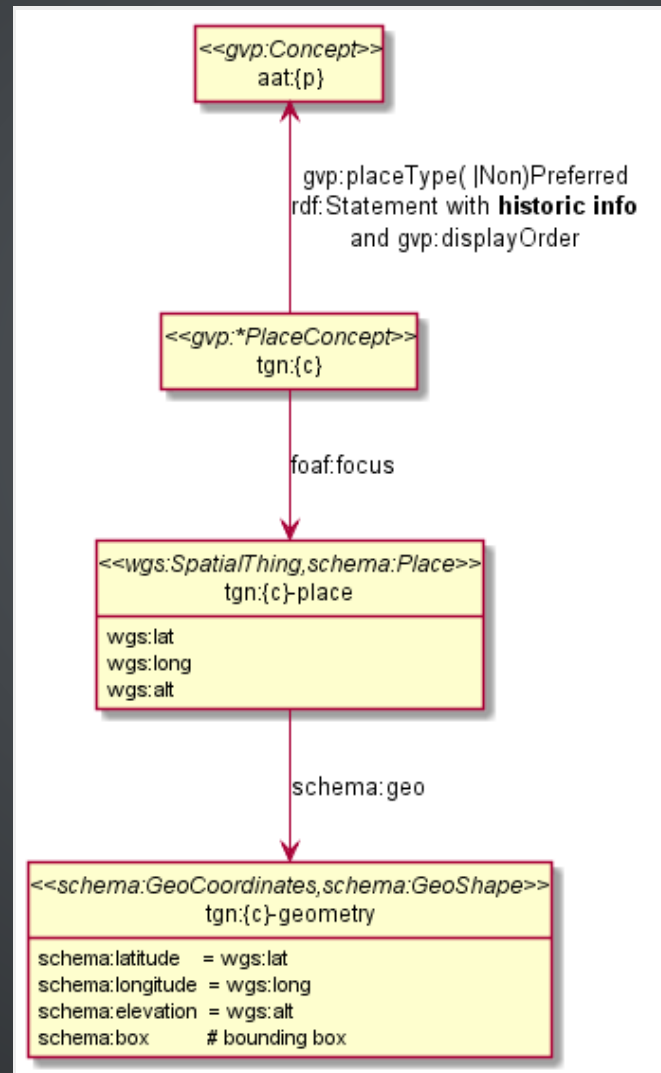

TGN SPECIFICS: CONCEPT-PLACE DUALITY

Duality between Concept and its denotation (ala VIAF, UK BL, FR BnF, SE KB...)

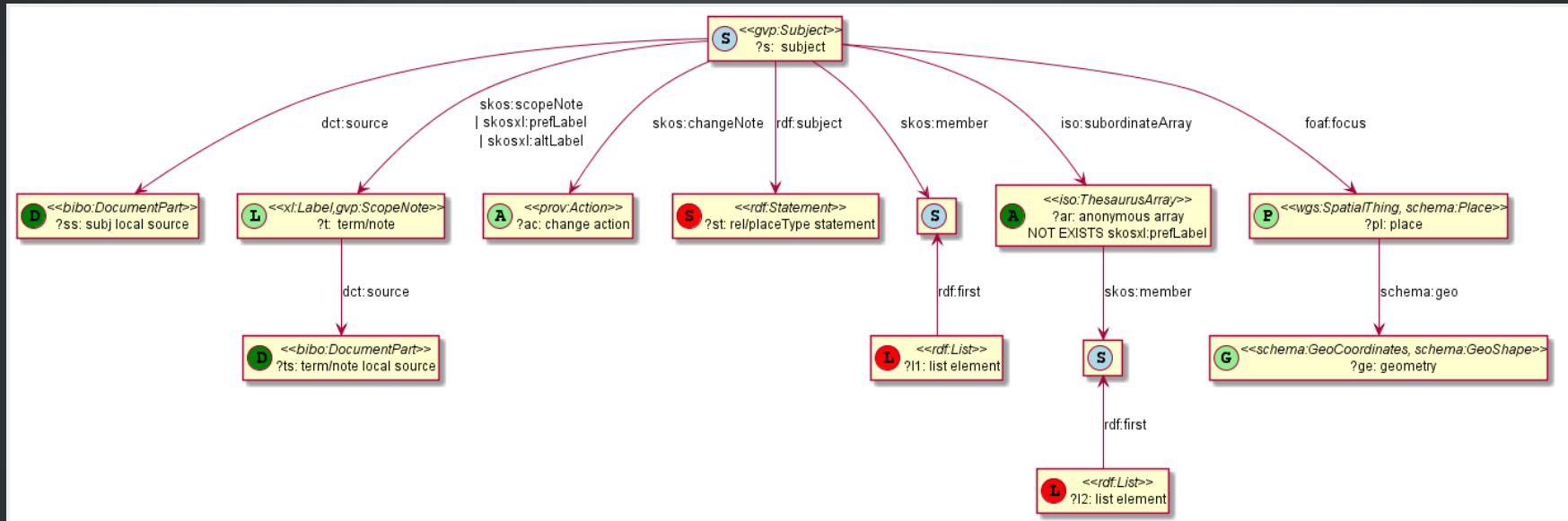


TGN SEMANTIC REPRESENTATION

Place types (TGN->AAT), Concept-Place duality, coordinates



CONSTRUCT QUERY: GET & CACHE ALL DATA FOR SUBJECT



- All data for these subsidiary objects is served by the resource URL
- Cached, thus served quickly
- Served in RDF/XML, N3/Turtle, NTriples, JSON, soon JSON-LD

DOCUMENTATION

Getty Vocabularies: Linked Open Data

Very detailed: 100 pages! Linkable anchors:

vocab.getty.edu/doc/#Full_Text_Search

Semantic Representation

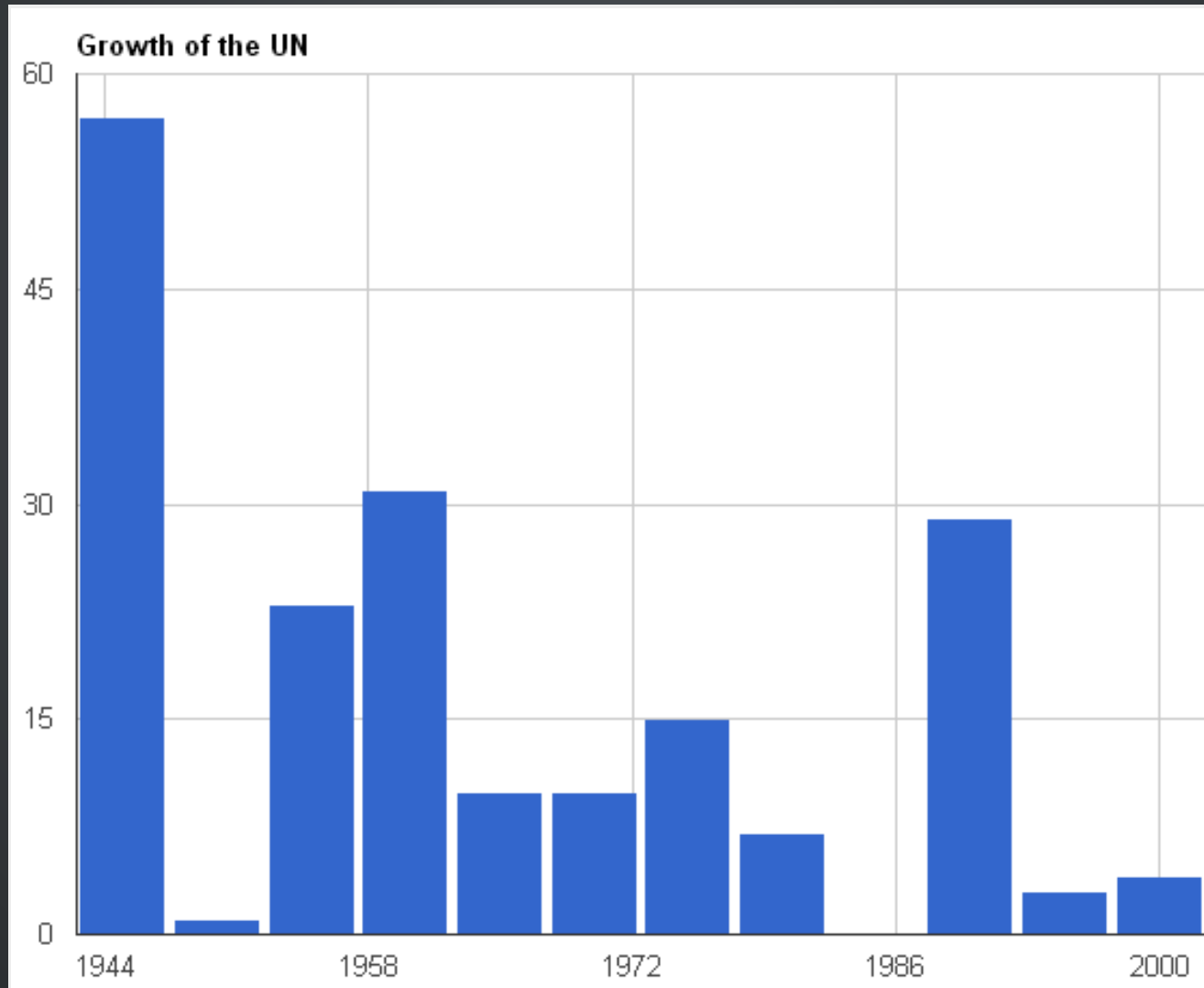
Version: 2.0
Last updated: 19 Aug 2014
HTML version: <http://vocab.getty.edu/doc/> (for link
PDF version: <http://vocab.getty.edu/doc/gvp-lod.pdf>
Formerly at: <http://www.getty.edu/research/tool/>
Initial version: Vladimir Alexiev, Joan Cobb, Greg
Updates: Vladimir Alexiev, Joan Cobb

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SAMPLE QUERY: BAR CHART WITH SPARQL

Number of UN members per year. [See doc](#) or [jsfiddle](#) with it



THANKS FOR YOUR TIME!

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