TGN Place Type Relation

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# Getty Source Info

## TGN Place Types

Each TGN place has Place Types. This field is mandatory and multiple: a place has usually between 1 and 10 types

* There are almost 1800 place types, ranging from "shantytown" to "undersea mountain chain"
* Place types are now **maintained in AAT**.
* Patricia Harpring, 6 Mar 2014: Most place types are in the published AAT. There are around 80 TGN place types terms that are still in a candidate hierarchy. The AAT data will be frozen tomorrow for our annual publication process. As soon as it is unfrozen in a few weeks, I will complete the editing and moving of these 80 remaining place type terms to their proper AAT hierarchies.
* <https://jira.getty.edu/browse/ITSLOD-133>: rename TGN "guide" place names for consistency
* Place types form a **hierarchy**. The leaf level are Concepts, but there are also Guide Terms. E.g.:

<centers related to religions/religious cultures> 11000
 <Buddhist centers> 11100
 Buddhist center 11110
 Hinayana center 11111
 <Hindu centers> 11150
 Hindu center 11151
 Brahman center 11152

When applied to a particular place (PTYPE\_ROLE\_RELS table):

* Place Types are **Ordered**
* There's a **Preferred** type
* Place types have **Historic Info**: Historic flag, Start Date, End Date, and Comment (display date).

This allows GVP to record very detailed info. E.g. for **Machupicchu, Peru**:

* deserted settlement (preferred, current). Start: 1430, End: 1550. Comment: building started ca. 1440; was inhabited until the Spanish conquest of Peru in 1532
* archaeological site (current). Start: 1911. Comment: rediscovered in 1911
* ruins (current)
* inhabited place (historical)
* Inca center (historical). Start: 1440, End: 1550. Comment building started ca. 1440; was inhabited until the Spanish conquest of Peru in 1532

## ULAN Agent Characteristics

ULAN uses person characteristics that will one day also be migrated to AAT, such as:

* Gender, e.g. male
* Nationality, e.g. Italian, Florentine
* Profession, e.g. artist, draftsman, painter, mathematician, architect, engineer, musician, scientist, sculptor, author, designer, theorist
(yes, Leonardo Da Vinci is all of these)

## Current Use of BTG, BTP, BTI

The [GVP Ontology](http://vocab.getty.edu/ontology) defines custom properties **gvp:broaderGeneric, gvp:broaderPartitive, gvp:broaderInstantial** that are sub-props of skos:broader.

* Hopefully one day we'll start using the iso-thes: properties

BTG, BTP, BTI are currently used as follows in the Getty vocabularies (count by relation type and the subject **above**):

select ?p ?typ (count(\*) as ?c) {

 ?x ?p ?y. ?x a ?typ. ?typ rdfs:subClassOf gvp:Subject

 filter ((?p=gvp:broaderPartitive || ?p=gvp:broaderInstantial || ?p=gvp:broaderGeneric)

 && ?typ != gvp:Subject)

} group by ?p ?typ



* AAT has mostly **gvp:broaderGeneric**relations,
and a few gvp:broaderPartitive, e.g. "skirts are part of dresses", and "WHATEVER components are part of WHATEVER"
* TGN has almost exclusively **gvp:broaderPartitive** relations ("Firenze" is part of "Italy")
* ULAN has mostly **gvp:broaderInstantial** relations ("Leonardo da Vinci" is an instance of "Persons, Artists"),
and some gvp:broaderPartitive, mostly "sub-org is part of org"

Therefore BTG, BTI, BTP can be mixed in a thesaurus:

* AAT mixes BTG and BTP,
* ULAN mixes BTI and BTP.

## BTG, BTP, BTI and Transitivity

Jutta Lindenthal argued convincingly that **skos:broaderTransitive** should be established only for BTG and BTP but not BTI (nor mixed paths of BTG+BTP).

* Unfortunately these are "traditionally" declared as sub-properties of skos:broader, which itself is sub-property of skos:broaderTransitive (unconditionally feeds into it)
* E.g. "fuselages" gvp:broaderGeneric <aircraft and spacecraft components> gvp:broaderPartitive  "air and space transportation vehicles", which infers "fuselages" skos:broaderTransitive "air and space transportation vehicles".
* skos:broaderTransitive is often used for query expansion. But in this case it would give wrong results: if you're looking for documents about "air vehicles", you (arguably) should not get documents about "fuselages" because "fuselages" **are not** "air vehicles".
* On the other hand, it would be correct to infer something like "fuselages" gvp:broaderPartitiveTransitive "air vehicles" because "fuselages" **are parts of** "air vehicles"
* It is still an unresolved question whether and how to "compose" such relations, especially when they span Guide Terms
* We raised a discussion on the SKOS mailing list in Oct 2013
* We have a task to investigate GVP usage: <https://jira.getty.edu/browse/ITSLOD-44>
* We have a task to continue the discussion: <https://jira.getty.edu/browse/ITSLOD-108>

# Place Type Relation

An important question is **how to apply** Place Types to Places, i.e. **what relation to use**.

* ULAN will have a similar question: how to apply agent characteristics to agents

Let's call this tentatively **gvp:placeType**, and let's analyze what it should be a sub-property of

## Sub-prop of skos:broader

I suggest to make **gvp:placeType** a sub-prop of **gvp:broaderInstantial** from Place (in TGN) to Place Type (in AAT).

* This is possible, because SKOS allows skos:broaderMatch (and by inference skos:broader) to go across thesauri (skos:ConceptSchemes).
* We don't want to use skos:broaderMatch, because that's used for thesaurus alignment, whereas we have a different case.
* Just because it is possible doesn't mean it is well-advised. Let's do some analysis

Similarities between gvp:placeType (see [TGN Place Types](#_TGN_Place_Types)) and the hierarchical relation (gvp:broader, normal parents):

* Place types are **hierarchical**, so are parents.
* Place types are **ordered**, so are parents. But the semantics is inverted: children of a parent are ordered (looking down), while types of a place are ordered (looking up)
* There's a **preferred** type, and a preferred parent
* There is **historic info** on types, and also on the hierarchical relation

Such approach will conceptually "graft" TGN places under the respective AAT concepts, providing a type hierarchy to complement the place containment hierarchy

* If a user searches for descendants (skos:narrowerTransitive) of <centers related to religions/religious cultures>, he will find not only subtypes thereof (e.g. "Buddhist center"), but also actual religious centers!
* So the user will be able to search by place type and place containment using the same standard SKOS mechanism, fully hierarchically.
* Consider the [TGN Website Search](http://www.getty.edu/research/tools/vocabularies/tgn/?find=&place=&nation=&prev_page=1&english=Y)﻿. In addition to place name, it allows the user to specify place type and ancestor (called Nation). But the type is not hierarchical, and ancestor is limited to country/continent only
* With this approach, if we let the user specify any word from the type/ancestor, he will be able to make powerful specific queries, e.g.

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type/Ancestor** | **Type/Ancestor** | **Result** |
|  | religious | China | religious centers in China |
|  | orthodox | Europe | Orthodox Eastern (Christian), Orthodox Jewish, or Orthodox Caliphate centers in Europe |
|  | undersea | ocean | undersea features (e.g. caves, ridges) in oceans |
| Sofia | Mexico | Chihuahua | places called "Sofia" in Mexico, Chihuahua state |
| Sofia | ranch | Mexico | ranchos called "Sofia" in Mexico (same single result) |

## Possible Confusion

Using SKOS-related properties for both the type and containment hierarchies is powerful but it may also be confusing. Getty are wary of mixing broaderInstantial in TGN, which currently uses broaderPartitive only (and an unrelated property for placeType). In the past they had examples of such mixing that didn't work well. (The way they put it: "don't want to mess around with our hierarchies and place types in TGN"). But we need to identify the specific disadvantages and confusions:

* Searching for descendants (skos:narrowerTransitive) of a place type will return sub-types, but also specific places of that type (and sub-types).
* Each place has a preferred type and a preferred super-place. If we put them together, the place will have two preferred parents.
* The sort ordering is enforced upward for place types, but downward for sub-places (this is a minor issue)

## SKOS-unrelated Property

The alternative is to use a property that's not related to SKOS, e.g. dc:type. It seems worse:

* SKOS consumers will plain ignore dc:type of a Concept since no SKOS best practice recommends such use
* Users won't expect [dc:type](http://dctype/) to be a hierarchical value, and that they have to use the path dc:type/skos:broaderTransitive to access all super-types

## CIDOC CRM

CIDOC CRM uses distinct and unrelated properties for this:

* [P2 has type](http://personal.sirma.bg/vladimir/crm/entity_list_cleaned.html#P2_has_type--is_type_of) for "place type" and [P127 has broader term](http://personal.sirma.bg/vladimir/crm/entity_list_cleaned.html#P127_has_broader_term--has_narrower_term) for "place super-type". P127 is an analog of skos:broader
* [P89 falls within](http://personal.sirma.bg/vladimir/crm/entity_list_cleaned.html#P89_falls_within--contains) for "super-place" (earlier versions also had [P88i forms part of](http://personal.sirma.bg/vladimir/crm/entity_list_cleaned.html#P88_consists_of--forms_part_of))

Some in the CRM community (including Martin Doerr) contend that SKOS should be used only for concepts (universals), and not for named entities such as places (particulars).

Some in the SKOS community (including Antoine Isaac) disagree. There are many SKOS thesauri that capture places, e.g. NISV's GTAA (e.g. Amsterdam <http://data.beeldengeluid.nl/gtaa/31586>).

It's clear that TGN will be published as a SKOS thesaurus, with additional place-specific classes and properties. We'll respect a "concept-thing" dichotomy, using foaf:focus to relate the two. E.g.

tgn:7018759-concept a skos:Concept;

 foaf:focus tgn:7018759-place;

 skos:prefLabel "Sofiya-Grad";

 gvp:broaderPartitive tgn:7006413-concept; # Bulgaria

 gvp:placeType aat:123456. # region (administrative division)

tgn:7018759-place a geo:SpatialThing, crm:E53\_Place, <Place classes from other ontologies>;

 skos:prefLabel "Sofiya-Grad"; crm:P87\_is\_identified\_by [crm:P3\_has\_note "Sofiya-Grad"];

 dc:type aat:123456; crm:P2\_has\_type aat:123456; # region (administrative division)

 geo:lat 42.6830; geo:long 23.3160 .

tgn:7006413-concept a skos:Concept;

 foaf:focus tgn:7006413-place;

 skos:prefLabel "Bulgaria";

 gvp:placeType aat:123457. # Nation

tgn:7006413-place a geo:SpatialThing, crm:E53\_Place, <Place classes from other ontologies>;

 skos:prefLabel "Bulgaria"; crm:P87\_is\_identified\_by [crm:P3\_has\_note "Bulgaria"];

 dc:type aat:123457; crm:P2\_has\_type aat:123457; # Nation

 geo:lat 43.0; geo:long 25.0 .