Task Group on Sinopia Application Profiles

Final Report

November 1, 2020

Introduction

The PCC Sinopia resource templates are built on the experiences and active participation of: 1) the Library of Congress catalogers who have participated in the LC Pilot over the past three years, and who have been active in providing feedback on the LC profiles; and 2), the members of the LD4 Profiles and Serials Affinity Groups, who worked over two years to develop the LD4P profiles and experimented with their own specialized templates. The Task Group would like to acknowledge their hard work and invaluable contributions to template development. Also, the TG would like to thank the LD4P developers, particularly Jeremy Nelson and Justin Littman, and Michelle Futornick, the LD4P project owner.

The charge of the Task Group is available on the PCC web site at https://www.loc.gov/aba/pcc/taskgroup/Sinopia-Profiles-charge.pdf.

Members of the Task Group are:

> Paloma Graciani Picardo (Co-Chair)
> Nancy Lorimer (Co-Chair)
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> Nancy Fallgren
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Methodology & Intent

The PCC Sinopia resource templates are based on:

1. LD4P profiles developed by the Profiles Affinity Group and Serials Affinity Group during LD4P Phase 2. These were both intended to reflect PCC requirements, though sometimes diverge according to the needs of the LD4P cohort. The LD4P profiles, in turn, were based on the then-current LC profiles. Changes were made in tandem with LC modifications, in accordance to Cohort needs, and, in some cases, to adapt to the Sinopia environment.

2. Requirements for the BIBCO & CONSER Metadata Application Profiles (MAPs)--the BSR and CSR--as laid out by PCC. This includes the use of RDA as a content standard and interpretation of MARC fields required by the MAPs. The TG made use of both the actual application profiles and the PCC BSR to BIBFRAME and CSR to BIBFRAME spreadsheets.

3. Vocabularies used by MARC catalogers in their daily work, vocabularies developed by LC for BF cataloging and stored on id.loc.gov, and non-library vocabularies requested by LD4P cohort profile wranglers, and that were made available by Questioning Authority

(QA) during the grant period. It should be noted that while Sinopia resource templates favor certain vocabularies through providing lookups in QA, other vocabularies may be used by adding URIs manually and PCC is welcome to request new vocabularies from QA. PCC has always been fairly liberal about the vocabularies catalogers may use, and the TG does not imply any judgement in its choices.

The TG made copies of the LD4P templates and adjusted them as follows:

- Renamed the templates
- Combined a few monograph and serial templates into one generalized template when the only difference was a single additional property in the serials template
- Added properties that were deemed possibly important for interoperability and conversion needs
- Added more references to RDA via URLs to the RDA Toolkit
- Added more general instructions for data entry in some templates
- Created new templates when necessary

The intention of these templates is to provide a structured core of resource templates that allow catalogers to create PCC-level descriptions with uniform modeling and a basic set of vocabularies. It is hoped that they serve as the basis for a formal PCC standard (as an extension to the current BSR and CSR) at some point, and that in feeding the PCC data pool, serve as a pool of well-structured data to share, and provide vendors and developers data with which to experiment.

While these templates are very close in content to those developed by the LD4P2 cohort, the TG felt it necessary to create separate PCC templates for the following reasons:

1. LD4P2 templates belong to, and their maintenance is controlled by, the Profiles Affinity Group. While the AG is primarily made up of members from PCC institutions, many are not PCC catalogers themselves, and membership in PCC is not required. This means that PCC would only be one voice in shaping these templates.

2. To "brand" the templates as belonging to PCC and only updated by those charged to do so by PCC.

3. PCC templates include PCC-required properties and defaults, and will eventually act in similar fashion to the BSR and CSR in Sinopia.

4. To provide templates that PCC knows will convert to a PCC MARC record once conversion is supported.

Report Sections

The TG report consists of three separate documents:

1. A written report that describes methodology, initial decisions regarding nested vs. un-nested templates, modeling issues encountered, and recommendations for enhancements to Sinopia, changes to the BIBFRAME ontology, and for maintenance of the templates.

2. Templates necessary for cataloging monographs (books) and serials in Sinopia. The templates currently reside in Sinopia--Stage, a non-production server where users experiment with templates and modeling before moving to the production server. To isolate the PCC templates from other templates in Stage, one can simply type "pcc" into the "Find a resource template" field at the top of the template list.

3. A spreadsheet that provides the modeling in detail for each resource template required for cataloging. Monographs, Serials, and Administrative Metadata are grouped in separate tabs, each with modeling of all the resource templates referenced in the larger templates. This means that many of these templates are repeated on each sheet, which is not ideal, since each needs to be updated separately when it is changed. The TG, however, felt it to be important at this time for PCC members to see the entire modeling of each primary template on one sheet. Each sheet is also internally linked, and each resource template is linked to a JSON-LD serialization of that template.

Resource Templates

Naming Templates

All templates in Sinopia have two "names"--a template ID and a label. The template ID also populates the URI for the template.

The form of the template ID is based on the Library of Congress pattern, which was then adopted by the LD4P2 cohort. The pattern is as follows:

- The name of the group/institution in charge of the template
  - PCC templates use "pcc"
- The ontology of the primary class the template models
  - PCC templates use either "bf2" or "bflc"
- The bibliographic format the template is used for, if for a specific format
- The specific class the template supports

Examples

The template ID for a monographic work (bf:Work) is:

pcc:bf2:Monograph:Work

The template ID for Administrative metadata (bf:AdminMetadata) is:
pcc:bf2:AdministrativeMetadata

The template ID for a related work for monographs (bflc:Relation) is:
pcc:bflc:Monograph:RelatedWork

Labels for the templates are based on the ID, but with some differences. Labels for the "primary" templates--work, instance, item, adminmetadata--are preceded with the prefix "_PCC". The underscore places these templates near the top of the template listing in Sinopia with other primary templates and at the very top when the view is restricted to "pcc", and "brands" the template as being PCC-created and maintained. This is a pattern developed as part of the LD4P2 cohort. This prefix is followed by the ontology of the Class being modeled, the class name, and lastly the specific format in parentheses (or the term "general" if it has general applicability, but there is another for a specific format). The primary PCC templates thus have the following names:

_PCC BF2 Work (Monograph)
_PCC BF2 Work (Serial)
_PCC BF2 Instance (Monograph)
_PCC BF2 Instance (Serial)
_PCC BF2 Item (Monograph)
_PCC BF2 Item (Serial)
_PCC BF2 Administrative Metadata

Other templates are simply known by their class name or an RDA equivalent. Some that represent subclasses of a larger class include the name of the class so that they are grouped in the alphabetical list. For example:

Extent
Frequency
Agent--Person
Identifiers--ISBN

There is some question whether the grouping of subclasses, useful in the alphabetical list, adds too much "noise" to the template itself, and will be up to PCC to decide. Label names are simple to change and changing them has no semantic ramifications.

Nested vs Un-nested Templates

When the LD4 Profiles Affinity Group first started work on profiles, it was creating what are now known as "nested" profiles, meaning that either the instance template was embedded in the work template or the work template in the instance. This had the advantage that the cataloger dealt with just one template for cataloging. There are, however, some serious disadvantages in

the current Sinopia environment.

1. The embedded template serializes as a blank node, and in the Sinopia environment, this currently means that it does not have a URI associated with it as an entity. It is possible to program Sinopia to create a URI for a blank node, but this has not been implemented. If PCC is interested in nested templates, a formal request to the developers via github for an enhancement is necessary.

2. The relationship between the primary entity of the template and the embedded template is unidirectional. If a cataloger starts with a work template, they can link from the work to the instance, but not the inverse without creating a regressive loop. This is a major weakness of the nested template. Resolving it would require inferencing of inverse properties, something that is not currently possible in the Sinopia environment.

3. At this time, un-nested templates better support sharing of metadata because of their modular structure.

Partly because of these problems, the TG decided to emphasize un-nested templates which avoid these issues. Also, in what the TG feels is an added benefit, un-nested templates emphasize that we are now describing entities, not creating "records". Un-nested templates also encourage and facilitate re-use because of the entity-based approach they create. That said, future iterations on Sinopia might include improvements to the cataloger experience to minimize the effect these separate templates have on both the data and workflows.

The TG has said it will look into how Sinopia might better support nested templates. The new template environment, however, emphasizes individual templates over nested ones, particularly since the "profile" level has been removed from the templates. The TG has not had the time to experiment with nested templates in the new template-creation environment.

Modeling Issues

The "ordered" attribute

In the work cycle that ended on October 9, 2020, a new property attribute "ordered" was added to Sinopia. Use of the attribute has the result that if multiple values are added, those values will always appear in the same order in the rdf using the rdf:first and rdf:rest properties. Because it was so new, the TG did not have much time to explore the attribute, and has thus far only added it to bf:subject (Subject of work in the template). There are likely other places where it would also be useful--bf:subtitle for example--something that PCC should consider. There are some qualms about the attribute as well, mainly a concern it might cause interoperability issues in the future.

Use of rdfs:label vs. rdf:value

The profiles created by the Library of Congress use a mixture of rdfs:label and rdf:value for literal values. The literal rdfs:label is used for notes and descriptive fields like bf:note and bf:statementOfResponsibility. The literal rdf:value is used for identifiers and other fields with structured values, following the W3C recommendation 5.4.3 in the RDF schema. For example, the bf:identifiedBy classes (bf:Issn, bf:Lccn, bf:Barcode, etc.) use rdf:value as do the bf:classification classes (bf:ClassificationLcc, bf:ClassificationNlm).

The use of rdfs:label vs. rdf:value is a wider question that remains unresolved in the RDF community at large. Because of this, the TG decided to follow the LC lead in these templates to provide a consistent practice that could be retained or easily changed in the future as best practices develop.

Primary Contribution & Contribution

Use of bflc:PrimaryContribution

The class bflc:PrimaryContribution is not part of core BF, but from the Library of Congress BF extension (bflc). Its primary function is to provide the equivalent of a MARC 1XX field both for discovery and for conversion to MARC. It is not necessary in BF itself, nor is it an RDA necessity, except of course for use in the MARC environment. The TG has included the class in both the monograph and serial work templates in order to remain as consistent as possible with the LC profiles and to assist in conversion to MARC.

Typing of bf:Agent

There has been a fair amount of discussion in the Profiles Affinity about whether to provide individual reference templates for the subclasses of bf:Agent (bf:Person, etc.) within the Sinopia contribution and primary contribution templates or whether to rely on the authority file itself to provide this on the fly when we have such capability. A direct lookup is a simpler model and it also avoids unilaterally stating that URIs from other authority/entity files are bf:Agents[1], which is not good linked data practice. It also results in better RDF in Sinopia, avoiding a specific modeling construct that the templates do not handle well. On the other hand, a direct lookup must rely on the external dataset to assert the type, leaving the actual Sinopia data untyped, and making it much more difficult to convert the BF data to MARC.

Vocabularies used in the Contribution & Primary Contribution templates

Thus far, both the Profiles Affinity Group and the Library of Congress have used the LC NAF authority record URI as the object of the bf:agent property. This is not correct, since a bf:Agent is an RWO, not an authority record. The Profiles Affinity Group has left the lookup as is, since it did not want to be out of alignment with LC. The TG has also left the modeling as is for this

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[1] Ideally, bf:agent would not have a range of bf:Agent, but instead be open-ended, since not all possible vocabularies (e.g., ISNI, Wikidata) are bf:Agents. For NAF the type should be asserted by the external dataset itself. For entities created within Sinopia, there should be a way to assert the type in the template.

initial template set.

If PCC wishes to reference Wikidata or ISNI, both RWOs, an alternate model of bf:Contribution is needed and should be made available to the Wikidata Pilot members working with Wikidata and Sinopia. An experimental version is provided below and in Sinopia.

It should be noted that the Library of Congress, in developing the LC "Hubs", has developed behind-the-scenes programming that provides both RWO and authority record URIs.

Alternate bf:Contribution Template for RWOs (Contribution--Real World Object)

```
bf:contribution [ a bf:Contribution ;
        bf:agent URI from NAF RWO, Wikidata, or ISNI ;
        bf:identifiedBy NAR URI
        ] .
```

To use bf:identifiedBy for the NAF URI (the URI for the authority record), either the authority URI will need to be mapped as a bf:Identifier, or the range bf:Identifier should be removed from the property. Alternatively, a new property in BIBFRAME should be considered that links an entity to an authority record (perhaps "bf:hasAuthority" and its inverse).

Series

Series relationships appear in both the bf:Instance and the bf:Work.The bf:Instance template contains the property bf:seriesStatement. It is intended to include all the metadata that might be expressed in a more granular fashion with the properties bf:seriesStatement, bf:seriesEnumeration, bf:subseriesStatement and bf:subseriesEnumeration.

The reason for keeping them together is that there is no other way to logically group together multiple series statements with multiple enumerations since they are all expressed as literals.This same modeling was adopted by both the Profiles Affinity Group and the Library of Congress.

There are, however, a few drawbacks:

1. In order for the statement to read easily, the cataloger needs to add ISBD punctuation to separate the sections. This is not exactly a drawback, but a bit out of place in a linked data environment. It could potentially help, however, in converting these statements to the MARC 490 field and its subfields

2. If an ISSN is present, it is to be transcribed as part of the bf:seriesStatement or bf:subseriesStatement. This makes sense logically, since the ISSN is for the series, not

the individual monograph. However, since it is transcribed as part of a string, it is not readily available as a searchable identifier. This needs some more thought.

The bf:Work template contains the property bf:hasSeries. This is a work-to-work relationship, as indicated in both FRBR & IFLA-LRM. Because it is a work-to-work relationship there is no enumeration, since that is an instance-level property.

This relationship, while in RDA, is not actually used currently by PCC. We instead use the 8XX, which gives the series plus its enumeration for that particular volume. The PCC Aggregates in Beta RDA Task Group recently recommended that this particular relationship not be used and to instead continue with the 490/830 combination, and that recommendation was accepted by PoCo. This makes sense in MARC but is more difficult in BF, since without it there is no mention of the series in the bf:Work, except perhaps an identifier for the ISSN.

Provision Activity

Currently, the PCC templates provide access to provision activity (publication, distribution, manufacture, production) in two ways: 1. As a transcribed string using bf:provisionActivityStatement; and 2. Using lookups for Place (of publication, etc.) and Name (of publisher, distributor, etc.). The name lookup is accompanied by a role lookup, allowing a cataloger to specifically state the role of that name (e.g., printer). This method was developed as part of LD4P2, where strong use cases were present to make both available, though neither is mandatory.

There are some benefits and problems with both methods. For the transcribed string, a cataloger can use RDA punctuation to provide conjectured or missing dates, and can transcribe the publisher's name as written, which has been found to be useful in some authority work. On the other hand, the cataloger also needs to resort to ISBD punctuation to delineate the place, publisher, and date from one another, which is not ideal. For the lookups, the main problem is that publishers more often than not do not have URIs available, in NAF or anywhere else, which forces the cataloger to add a literal. The Library of Congress profiles, on which the LD4P profiles were originally based, have now done away with the publisher agent lookup, and the place lookup goes to the MARC country codes, with the final goal of populating the 008 field in a MARC record.

RDA

It is well known that there is no official mapping between BIBFRAME and RDA. The closest we have are the LC profiles and the BSR- and CSR- to BIBFRAME spreadsheets from some years ago, but none of these is "official".

The current templates primarily follow the lead of LC in creating templates -- using RDA terminology in the labels, and providing links to RDA instructions when possible. For the PCC templates, the TG has added several more links to RDA. These will, of course, need to be

updated once we move to beta RDA.

One area in which RDA provides a rich source of relationship properties is for relationships between works that is far more granular than in BF. While they are not easy to use in a template environment thus far (see comments below on property menus), the TG does propose using the RDA unconstrained properties for relating works/expressions for monographs. For serials, the issue is more complicated, since most of the necessary relationships for serials are included in the BF ontology. Because of this, the TG has used the BF properties in the serial related work templates. PCC will need to decide whether it will use only BF properties, only RDA unconstrained properties, or both--perhaps stating that use BF properties if they exist, but otherwise use RDA.

Administrative Metadata

Modeling

Sinopia relies on an Administrative Metadata template to provide relevant metadata associated with the primary templates: Work, Instance and Item. The current Administrative metadata template records information about record creation (cataloger, institution and date), description information (language, rules and authentication) and record modification.

The task group has tested two different template approaches. The first, which is based on that of the Library of Congress, includes all properties at one level. While relatively simple, this approach does not allow the cataloger to associate a modification date with a modifying institution, something that is seen as a major drawback. In the second approach, a nested modification metadata template is embedded within the main metadata template. This provides the opportunity to indicate modifications to the description and associated metadata in a more granular way, and keeps the date and the institution as one clump of data. However, there is not an appropriate BIBFRAME property for this nesting. A new property would have to be requested.

The TG has thought of, but has not yet had time to experiment with, a third method. In this approach, the basic AdminMetadata template would be used, but a cataloger modifying the description would add a whole new template rather than adding to the existing one. In this way, changes could be tracked.

For now, the PCC Administrative Metadata template therefore follows the first approach, but encourages PCC to explore the issue further. In doing so, it should be remembered that bf:AdminMetadata, while necessary in the LC and Sinopia environments, might not be used in other environments if there is another way to track this data, such as supporting quads and/or statement tracking.

1. The TG, along with the Profiles Affinity Group and many of the PCC Cohort, question the relevance of bflc:encodingLevel in a linked data environment. We understand that SCS is already exploring this issue.
2. *The Code List for Cultural Heritage Locations*, the lookup for the institution that creates or modifies a description, does not currently work. As a workaround, catalogers need to add the URI for their institution manually. With recent changes to how id.loc.gov handles the Cultural Heritage list, a lookup is possible and can be made available soon.
3. The property bflc:profile, intended to hold the name of the template, was removed. Sinopia automatically includes this information in the rdf.

Item Data

Item metadata is generally not relevant to PCC standards, since it focuses on bibliographic data for sharing among different institutions. Nevertheless, the TG felt it necessary to create an Item template for both serials and monographs for use by PCC libraries, since many will need it for conversion purposes or to share with other linked data repositories (e.g., SHARE-VDE or OCLC). This template is intended to be "a template for a template". It is fully expected that individual institutions will clone the template and adjust the defaults and some properties according to their individual needs.

Enumeration and Chronology

The only difference between the monograph and serial item templates is the modeling of enumeration and chronology. In the monograph template, the property bf:enumerationAndChronology links to two referred resource templates, bf:Enumeration and bf:Chronology, each with the property rdfs:label. In the serials template the property links to a single referred resource template bf:Enumeration and Chronology, which itself has two properties, bf:firstIssue and bf:lastIssue.

The TG (with the exception of Nancy Fallgren) has no practical experience with serials item data. To us, the first model, which follows that of LC, seems aimed at creating separate item records for each volume. The second model, on the other hand, seems more oriented toward MARC holdings.These both seem to be valid uses of this property, but the usefulness of either model will depend on individual institutional workflow models. While we considered combining the two models onto one Item template, in the end, the TG left the two separate. PCC, of course, may decide otherwise.

Recommendations of the Task Group

Recommendations for Sinopia Development

Below are listed enhancements to Sinopia that the TG suggests to support PCC cataloging (and cataloging in general).

1. ## Support for resource template version control

   Until this current work cycle, there was no support at all for version control of templates. Both the LD4 Profiles Affinity Group and LD4P cohort in general felt that version control was important and added it to the development list (issue 2128). The Affinity Group experimented with adding a version property directly to the JSON, but it was not recognized by Sinopia and caused the template to fail. The details of this are given in the github issue.

   The new template creation system now allows for the changing of the creation date of a template, and there is some experimentation in using that date as a version date. It is a weak workaround, however, since it leaves no trace of previous version dates. Further testing is needed to identify a template version control strategy that works in the new template creation and management context.

2. ## Support for Library of Congress Complex Subject Headings

   If PCC wants to make full use of LCSH combinations of headings, there will need to be development to support it. Sinopia is currently only able to provide subject components through lookups to the LCSH vocabulary. It is not able to combine headings. Complex subjects in id.loc.gov and the LC BF editor use a madsrdf:componentList property to keep the subheadings order, but Sinopia Resource templates don't support a property type list. Alternative approaches to this are currently being explored (e.g. issue 2358). There is also a new "ordered" attribute in the Sinopia template creator which may assist in using LCSH, but needs to be explored further.

3. ## Repeatability Support for Nested Templates

   Sinopia does not permit a property to be repeated on the same resource template, since it makes it very difficult to recall a description back into a template or to convert the description. This is generally not a problem because the value of that property can be made repeatable. The template creator does this by adding the property attribute "repeatable", which allows multiple values to be entered in the field. This repeatability, however, also extends to referred templates, even if they are not intended to be repeatable. The primary example of this is the case of the Primary Contribution and

Contribution templates. The property bf:contribution has the "repeatable" attribute, because there may be multiple general contributions or a primary contribution and general contribution. Primary Contribution, however, should not itself be repeatable, since it represents the 1XX field in a MARC record. But because the template shares a property with the Contribution template, it remains repeatable.

One possible solution for this would be to allow properties to be repeatable when they go to different resource templates or possibly when it points to both a resource template and a direct lookup or some other differing combination. The different value destination would result in less trouble for recalling descriptions back into templates or in conversion, but this needs to be tested.

4. "Smoothing" of RDF for Nested Templates that are Lookups

It is not possible to correctly model a lookup that is the only value in a referred resource template (i.e., following a blank node). For example, the RDF for the lookup for a bf:Person in Sinopia is as follows:

```
bf:contribution [a bf:Contribution ;
        bf:agent [a bf:Person ;
                rdf:value URI
                ].
        ] .
```

whereas it should be:

```
bf:contribution [a bf:Contribution ;
        bf:agent URI for agent ] .
URI for agent [a bf:Person;
        rdfs:label Label for URI
        ] .
```

The LC profiles have behind-the-scenes programming that adjusts the modeling of the RDF, removing a blank node and a superfluous property. If the Sinopia entity is to interact well with the same property in other systems, it needs to have the correct RDF.

5. Provide Method to Create Local Entities instead of "Add new literal" feature

Sinopia lookups provide catalogers with URIs and labels from vocabularies provided through QA and selected by template creators. It is often the case, however, that the necessary value is not available in the vocabulary. Because of this, Sinopia allows a cataloger to enter a literal in place of a lookup.

This is a very useful feature, but unfortunately, it creates incorrect RDF. The properties that support the lookups are all object properties, meaning that the object of the triple must be an entity, i.e., have a URI.

To avoid this issue and yet still maintain this feature, Sinopia needs to develop a way to create local entities from within the work and instance templates, ideally with the ability to "type" the new entity as an instance of a BF class. This would create correct RDF, and offer better chances that the new term be reconciled with better known vocabularies on export.

6. Support for Subclass and Property Lookups

In some situations, such as for works, instances, and agents, it would be useful to be able to have a drop down list of subclasses of the primary class. This would reduce the number of resource templates required, and allow the cataloger to choose an appropriate subclass (or even the class itself if not a required range) using the property rdf:type. For example, an instance might have a dropdown list, that provides the subtypes of "Printed", "Manuscript", and "Electronic"; an agent might have a dropdown list, that provides the subtypes of "Person", "Organization", "Conference", "Family".

A similar feature would be invaluable for properties as well. There are numerous properties that relate works to one another in BF; there are many, many more in RDA that catalogers would like to use. The TG was able to enter BF relationship properties for serials individually, but this would result in a very unwieldy template for monographs if we were to do the same. This is why the template makes use of the rather convoluted model created by the Library of Congress, which uses the generic bflc:relation to link the works and adds a literal that gives the specific relationship. It would be far better to be able to choose the relevant property while cataloging, rather than build it into the template.

7. System-driven Administrative Metadata

The following properties in the Administrative Metadata should be machined-generated. This is not yet possible in Sinopia
   ○ bf:creationDate (timestamp)
   ○ bf:modificationDate (timestamp)
   ○ bf:generationProcess (Description of program or process used to generate the description by application of a particular machine transformation)
   ○ bf:procInfo (Processing information for the BIBFRAME description (e.g. when updated))

8. Additional Controlled Vocabularies from QA Service

While Sinopia and its lookups via Questioning Authority were being developed, the Library of Congress began adding multiple vocabularies to id.loc.gov. Many of these are not yet available to Sinopia template creators. While all of these vocabularies will eventually be required, for monographs we are missing the following:

- Script (https://id.loc.gov/vocabulary/mscript.html)
- Code List for Cultural Heritage Locations (https://id.loc.gov/vocabulary/organizations.html)

Recommendations for BIBFRAME Development

Below are listed changes to the BF ontology that the TG suggests to support PCC cataloging (and cataloging in general).

1. Remove Ranges from numerous BF properties

The addition of ranges to BF properties introduces challenges regarding inferencing and linked data best practices. At a practical level, a range may restrict the breadth of possible vocabularies that are usable according to best practice. For example, catalogers might use AAT terms to describe a form or genre. These terms, however, are not bf:GenreForms.

- Range of bf:GenreForm should be removed from bf:genreForm
- Range of bf:Language should be removed from bf:language
- Range of bf:Place should be removed from bf:place
- Range of bf:Content should be removed from bf:content
- Range of bf:Media should be removed from bf:media
- Range of bf:Carrier should be removed from bf:carrier
- Range of bf:GeographicCoverage should be removed from bf:geographicCoverage
- Range of bf:IntendedAudience should be removed from bf:intendedAudience
- Range of bf:Agent from bf:agent
- Range of bf:Identifer from bf:identifiedBy

2. Change bf:temporalCoverage from a Data Property to an Object Property

The data property bf:temporalCoverage should be changed to an object property (range of rdfs:literal should be removed from bf:temporalCoverage, and add a class for

bf:TemporalCoverage)

The creators of BF originally made this a literal, probably because of a seeming lack of a controlled vocabulary. Such vocabularies do exist however, at least in part (e.g., FAST, Wikidata), and BF should allow for their use while still permitting use of strings.

3. New property "isAdminMetadataFor"

The property bf:adminMetadata allows one to link an un-nested Administrative Metadata to Work, Instance and Item templates, however the inverse property does not exist in BF. In order to support Work/Instance/Item URIs within the Administrative Metadata Graph, the Task Group recommends the creation of a new BF property "isAdminMetadataFor".

4. New property "hasAuthority"

If PCC adopts the alternative bf:Contribution template, a property that provides a link to an authority record is necessary. The existing property "identifiedBy" is a possibility, but it is primarily aimed at actual identifiers, rather than records. BF would also need to remove the range of bf:Identifer (which might be good to do anyway). An alternative would be to create a new property, or pair of properties, bf:hasAuthority and its inverse bf:AuthorityFor to use specifically with authority records.

Recommendations for Updating & Maintaining PCC Templates

Maintenance of the LD4P profiles has been managed as a github project by a reduced number of members of the LD4 Profiles Affinity Group, now represented on the TG. Within that workflow, users of LD4P templates create a Github issue requesting an enhancement or reporting a template issue. Based on this experience, the TG defines the following tasks involved on the maintenance of the PCC resource templates:

- Review and prioritization of requests for updates to the templates coming from the PCC Sinopia community
- Evaluation, prioritization and communication of Sinopia updates based on the PCC Sinopia community needs
- Evaluation, prioritization and communication of new vocabulary additions to the QA service based on the PCC Sinopia community needs
- Evaluation, prioritization and communication of BIBFRAME updates based on the PCC Sinopia community needs
- Communication with development team
- Participate in testing of updates and changes to Sinopia templates, user interface, etc.

- Communication with the PCC Sinopia community regarding template enhancements and issues

Ideally, these tasks should be assigned to people familiar not only with template development and PCC policies, but also aware of the potential ramifications of significant changes to the templates, such as broken workflows (e.g. Sinopia BF2MARC converter) and data loss.

The most obvious group to manage this, is the soon-to-be MAPs Task Group, and we suggest that it be made part of the TG's charge for now. Maintenance is a long term commitment, however, and thus not best handled by a group that is intended to have a finite term. We recommend that the MAPs Task Group be charged with deciding how a more permanent maintenance group might fit into the PCC structure.

For general communication, many communication channels--a wiki, a separate affinity group, etc.--have been suggested by the [Task Group to Support Expansion of PCC Cataloging in Sinopia](#), any of which could serve well. If an Affinity Group is formed, however, it will need to be in close contact with the existing Profiles, Serials, and Art and Rare Materials Affinity groups, all of whom have worked with profiles/templates in Sinopia for some time.

PCC also should identify a platform for funneling requests coming from the PCC Sinopia community regarding the templates. Such a platform could also serve for storage and maintenance of the templates outside of Sinopia, both as backup for security purposes and as an archive to provide access to earlier versions.

Other Recommendations for PCC

1. Test the Templates before Making Any Changes

   The TG highly recommends PCC to allow enough time for the cataloging community to test the PCC templates before engaging in any updating task. Practical knowledge of cataloging in Sinopia is absolutely necessary in understanding ramifications of updates. The TG also recommends the development of a version control strategy (however mild) before major changes to the templates are done.

2. Develop Record Conversion Requirements for Records converted to MARC from BIBFRAME

   The conversion requirements for MARC records derived from Sinopia BIBFRAME records were developed primarily for internal use by Stanford and currently only works with the LD4P Monograph templates. PCC will need to create its own requirements for converted records and share them with the community.

3. Explore interoperability with SHARE-VDE data model

It was beyond the charge of this TG to discuss a model for integrating SHARE-VDE converted PCC data into Sinopia cataloging workflows. Nonetheless, this is a relevant discussion that can have ramifications in the modeling of the PCC Sinopia resource templates. The TG recommends PoCo to explore interoperability with the SHARE-VDE data model in order to assure that PCC cataloging workflows in Sinopia are fully supported.

4. Develop specific PCC guidelines for Administrative Metadata

As indicated, above (Modelling Issues-Administrative Metadata), the TG has tested various modeling approaches for Administrative Metadata without conclusive results thus far. The TG recommends PoCo to develop general guidelines on using the template, as well as specific guidelines for the use of Administrative Metadata according to different workflows, including:

   a. the creation of a new PCC description
   b. the modification of an existing PCC description
   c. the upgrade of a non-PCC description to make it PCC.

5. Develop specific PCC guidelines for workflows and the re-use of Metadata

Guidelines for sharing metadata within a collaborative linked data environment are not well-developed, and PCC members should start exploring the issues and possible solutions as they start experimenting with Sinopia. Some already expressed questions include:

   a. How to re-use metadata in another institution's institutional space within Sinopia. PCC has its own space, so this is an important question for upgrading existing descriptions in other institutional spaces to PCC-level and for those institutions to make use of PCC descriptions for local use

   b. How the PCC wants to re-use metadata from sources outside Sinopia, e.g., SHARE-VDE, Discogs, LC Hubs, etc.? Is it okay to simply link to those resources, as we might do currently with LC Hubs (our only choice at this time), and/or do we need to import the data into the Sinopia environment (as we can do in a template-defined way with Discogs, or through a search of SHARE-VDE)