

# Object versus Data Type Properties

NOTE: the following represents the direction taken by the LD4L Labs and LD4P Ontology Group in the development of bibliotek-o and may not be fully formed. This pattern document was used internally to define a direction and is shared with the intention of contextualizing a pattern found within the ontology; terms specified below may not fully align to the ontology as published. Further, discussion of BIBFRAME 2.0 may be out-of-date.

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## Table of Contents

[Table of Contents](#)

[Recommendation for Moving Forward with LD4All](#)

[General Recommendations](#)

[Other Patterns & Guidelines related to this Recommendation](#)

[Datatype Properties in BF2 versus LD4L-O](#)

[Discussion to date](#)

## Recommendation for Moving Forward with LD4All

### General Recommendations

- Use object properties where:
  - (1) The modeling warrants it - i.e., you have or could have something more to say about the object of the triple. Object properties with related classes allow for richer information capture and resource reuse.
  - (2) There is a (existing or potential) defined set of values (i.e., a controlled vocabulary).
- If you are not wanting to use object properties because:
  - there doesn't exist a controlled vocabulary, Class, or other at present for the object values (which could be many):
    - Create a controlled vocabulary in a new namespace.
    - This 'controlled vocabulary' could be supported by creating a new Class and then using:
      - Subclasses
      - Named Individuals
      - RDF instance data
  - there is difficult existing or legacy data:
    - You do not want to limit the modeling or richer capture of native RDF instance data because of past practices in legacy data.

- Follow the [Legacy Literals recommendation](#) by modeling according to what fits best the needs of native RDF instance data. Legacy data will be captured on a string value (see the recommendation for details about precisely how it is captured) for future normalization.
      - This allows a single query path to get what should be the same type of information, which is good RDF modeling practice **and** makes data normalization and cleaning efforts easier down the road.
    - there is incomplete existing or legacy data:
      - This follows the reasons for difficult existing or legacy data (above).
      - Then, instead of planning for normalization, you're just focused on enhancement (capturing further information or performing reconciliation).
- There are cases when a datatype property should genuinely be used. This is when there will be nothing else to say about the object of a triple statement. These include but are not limited to:
  - Encoded date values
  - Counts or other numeric values
  - A label literal
  - Unstructured text that should remain unstructured (transcriptions, specific note values, etc.)
  - Transcribed statements as literals that are specifically transcribed for a particular use case.

## Other Patterns & Guidelines related to this Recommendation

1. [Legacy Literals](#) (Unstructured legacy data)
2. [Notes and Annotations \(including a discussion of bf:Note\)](#)
3. Others as listed below.

## Datatype Properties in BF2 versus LD4L-O

What follows is a review of datatype properties currently in BIBFRAME v.2 that have been discussed with regards to making (or not) these into object properties. The related LD4All Sprint Group Recommendation or Discussion Status for the property is in the second column.

This is not an exhaustive list of datatype properties, and many of the discussions will link out to other patterns or topic areas currently queued for LD4All Alignment Group discussion.

<b>BIBFRAME v.2</b> Including openness of LC to changing from a datatype to an object property.	<b>LD4All Status</b> Including current recommendations from LD4All discussions on using these.
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<p>bf:acquisitionSource</p> <p><b>Datatype that could be object property.</b></p> <p><b>Label:</b> Source of acquisition</p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/acquisitionSource</p> <p><b>Definition:</b> "Information about an organization, etc., from which a resource may be obtained."</p> <p><b>Comment:</b> Used with Work or Instance</p> <p><b>Domain:</b> None</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Modified:</b> "2016-04-21 (New)"</p>	<p>ld4l:AcquisitionActivity bf:source foaf:Agent</p> <p>This should point to an organization or other type of entity resource, making it an Object Property.</p> <p>In LD4All recommendations, it is seen as part of an Activity resource, namely, the source of ld4l:AcquisitionActivity captured with bf:source pointing to a foaf:Agent instance (URI for the Agent - probably, Organization).</p>
<p>bf:acquisitionTerms</p> <p><b>Datatype that could be object property.</b></p> <p><b>Label:</b> Terms of acquisition</p> <p><b>Definition:</b> "Conditions under which the publisher, distributor, etc., will normally supply a resource, e.g., price of a resource." .</p> <p><b>Comment:</b> Used with Work or Instance</p> <p><b>Domain:</b> None</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/acquisitionTerms</p>	<p>ld4l Activity Pattern ...</p> <p>This could point to a variety of types of information. This supports making this an Object Property with a new Class for having all the related information in a more granular way (i.e. bf:AcquisitionTerms bf:price "data" ; bf:license [license URI?]; etc.)</p> <p><a href="#">LD4All will use a subclass of Activity to cover this needed Class.</a> The generated LD4L Activity class will contain properties according to what type of information is found/contained by this resource (e.g. price, license, format, deal, etc.)</p>
<p>bf:ascensionAndDeclination</p> <p><b>Datatype that is a placeholder for legacy literals.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/ascensionAndDeclination</p> <p><b>Domain:</b> bf:Cartographic</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "System for identifying the location of a celestial object in the sky</p>	<p>TBD</p> <p>This is an extremely lossy data property when looking at MARC21 to BIBFRAME v.2 conversion. It should be supported by creating the appropriate modeling of an ontology fragment that best serves capturing this information. The legacy literals data is then captured as best able as outlined in the <a href="#">legacy literals recommendation.</a></p>

<p>covered by the cartographic content of a resource using the angles of right ascension and declination." .</p> <p><b>Label:</b> "Cartographic ascension and declination"</p>	<p>LD4All is leaving the modeling work for this data to the Geospatial extension.</p>
<p>bf:awards</p> <p><b>Datatype that is an informal note property.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/awards</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Information on awards associated with the described resource." .</p> <p><b>Comment:</b> "Used with Work or Instance" .</p> <p><b>Label:</b> "Award note"</p>	<p>ld4l:Award &amp; ld4l:AwardReceipt</p> <p>This note contains information about an Award received by the resource described. This is an ideal candidate for improved modeling starting with BIBFRAME v.2 natively-created RDF, albeit the conversion of existing data will be hard.</p> <p>LD4All is considering following the <a href="#">Awards pattern</a>, which follows the <a href="#">VIVO Ontology</a> in its approach to Awards - it uses Object Properties with Classes ld4l:Award and ld4l:AwardReceipt. It also recommends following the <a href="#">Legacy Literals</a> recommendation when moving existing data to this Awards modeling construct.</p>
<p>bf:changeDate</p> <p><b>Datatype that should stay so.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/changeDate</p> <p><b>Domain:</b> bf:AdminMetadata</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Date or date and time on which the metadata was modified." .</p> <p><b>subPropertyOf:</b> bf:date</p> <p><b>Label:</b> Description change date</p>	<p>TBD</p> <p>Dates should be datatype properties, in particular using <a href="#">EDTF</a> encoding for capturing related information (approximate versus exact, date ranges, etc.) about the date in an standardized fashion.</p> <p>This is part of a forthcoming <a href="#">Administration Metadata recommendation</a>, where these properties are applied to BIBFRAME RDF instance data in a different fashion. It doesn't change using a datatype property (for LD4All, dct:terms:date) for date, but would change where this assertion would occur.</p>

<p>bf:classificationPortion</p> <p><b>Datatype with ‘too many possible values to have any use as an object property’.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/classificationPortion</p> <p><b>Domain:</b> bf:Classification</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Classification number (single class number or beginning number of a span) that indicates the subject by applying a formal system of coding and organizing resources." .</p> <p><b>Label:</b> "Classification number"</p>	<p>bf:classificationPortion</p> <p>This is a property LD4All will be largely recommending to use as found in BIBFRAME.</p> <p>There is a <a href="#">Classification Recommendation document</a> to recommend future exploration if and how one could improve the Classification information captured through use of Object Properties and Classes. This is an area for future exploration, not a current recommendation for change.</p>
<p>bf:code</p> <p><b>Datatype with ‘too many possible values to have any use as an object property’.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/code</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "String of characters that serves as a code representing information." .</p> <p><b>Comment:</b> "Used with Unspecified"</p> <p><b>Label:</b> "Code"</p>	<p>TBD</p> <p><a href="#">There is uncertainty in the LD4All Sprint Group</a> around how this property would be used.</p> <p>If this is primarily a way to capture MARC21 fixed field codes, it is probably recommended to review the various codes and determine if those shouldn't have MARC code to URI (bf:Work or bf:Instance subclasses most likely, but other Classes involved) conversion mapping.</p>
<p>bf:coordinates</p> <p><b>Datatype that is a placeholder for legacy literals.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/coordinates</p> <p><b>Domain:</b> bf:Cartographic</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Mathematical system for identifying the area covered by the cartographic content of a resource, expressed either by means of longitude and latitude on the surface of planets or by the</p>	<p>TBD</p> <p>This is an extremely lossy data property when looking at MARC21 to BIBFRAME v.2 conversion. It should be supported by creating the appropriate modeling of an ontology fragment that best serves capturing this information (which would be an Object Property and needed Classes). The legacy literals data is then captured as best able in that fragment through the use of rdfs:label and rdfs:comment. See the <a href="#">legacy literals recommendation</a>.</p>

<p>angles of right ascension and declination for celestial cartographic content." .  <b>Label:</b> "Cartographic coordinates"</p>	<p>LD4All is leaving the modeling work for this data to the Geospatial extension.</p>
<p>bf:copyrightDate  <b>Datatype that should stay so.</b>  <b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/copyrightDate">http://id.loc.gov/ontologies/bibframe/copyrightDate</a>  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Date associated with a claim of protection under copyright or a similar regime." .  <b>subPropertyOf:</b> bf:date  <b>Comment:</b> "Used with Work or Instance" .  <b>Label:</b> "Copyright date"</p>	<p>ld4l:CopyrightActivity dcterms:date literal  Dates should be datatype properties, in particular using <a href="#">EDTF</a> encoding for capturing related information (approximate versus exact, date ranges, etc.) about the date in an standardized fashion.    LD4All will use a subclass of ld4l:Activity called ld4l:CopyrightActivity. The ld4l:CopyrightActivity class will contain properties according to what type of information is found/contained by this resource, including date.</p>
<p>bf:contentAccessibility  <b>Datatype that could be object property.</b>  <b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/contentAccessibility">http://id.loc.gov/ontologies/bibframe/contentAccessibility</a>  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Information that assists those with a sensory impairment for greater understanding of content, e.g., captions." .  <b>Comment:</b> "Used with Work or Instance" .  <b>Label:</b> "Content accessibility note" .</p>	<p>ld4l:hasAccessibility  ld4l:Accessibility    The LD4All Sprint Group recommendation is to make this an Object Property with related Class (and subclasses). This is to manage being able to say more about the accessibility feature or hazard present in the resource. Read more on the <a href="#">Content Accessibility Sprint Recommendation Document</a>.</p>
<p>bf:count  <b>Datatype that should stay so.</b>  <b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/count">http://id.loc.gov/ontologies/bibframe/count</a>  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Number associated with a measure of units, such as the number of units and/or subunits making up a resource." .</p>	<p>bf:count  LD4All Sprint Group recommendation is to use this property as found in BIBFRAME, and to keep it as a datatype property. In some circumstances this data would be modeled using the recommendation in the <a href="#">Dimensions Recommendation</a>.</p>

<p><b>Comment:</b> "Used with Unspecified" .  <b>Label:</b> "Number of units"</p>	
<p>bf:creationDate</p> <p><b>Datatype that should stay so.</b>  <b>URI:</b>  http://id.loc.gov/ontologies/bibframe/creationDate</p> <p><b>Domain:</b> bf:AdminMetadata  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Date or date and time on which the original metadata first created." .  <b>subPropertyOf:</b> bf:date  <b>Label:</b> "Description creation date"</p>	<p>dcterms:date</p> <p>This is part of a forthcoming <a href="#">Administration Metadata recommendation</a>, where these properties are applied to BIBFRAME RDF instance data in a different fashion. In that context, this would very likely stay a datatype property that relates an <a href="#">EDTF</a>-encoded date to the Administrative Metadata activity.</p>
<p>bf:credits</p> <p><b>Datatype that is an informal note property.</b>  <b>URI:</b>  http://id.loc.gov/ontologies/bibframe/credits</p> <p><b>Range:</b> rdfs:Literal  <b>Definition:</b> "Information in note form of credits for persons or organizations who have participated in the creation and/or production of the resource." .  <b>Comment:</b> "Used with Work or Instance" .  <b>Label:</b> "Credits note"</p>	<p>ld41:Activity rdfs:label</p> <p>It is uncertain if this property is a note property because the legacy literal data is hard to parse into more granularly modeled instance data, or if it is information that should remain a note.</p> <p>The current LD4All Sprint Group recommendation is to capture this information using the appropriate ld41:Activity pattern, then to assert the legacy data onto the ld41:Activity instance following the <a href="#">Legacy Literals recommendation</a>.</p> <p>We might reconsider this information as a different type of note (especially if it is meant to contain multiple agents in one literal, instead of being a place for legacy data yet to be parsed) following the <a href="#">Notes and Annotations Recommendation</a> - namely, making an oa:Motivation named individual of ld41:Credits.</p>
<p>bf:custodialHistory</p> <p><b>Datatype that could be object property.</b></p>	<p>TBD</p> <p>This is being reviewed for better handling as part of the <a href="#">Activities Recommendation</a>.</p>

<p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/custodialHistory</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Information about the provenance, such as origin, ownership and custodial history (chain of custody), of a resource." .</p> <p><b>Comment:</b> "Used with Work, Instance or Item"</p> <p><b>Label:</b> Custodial history</p>	<p>Namely, instead of using a datatype property, have this information captured through the use of <code>ld41:OwnershipActivity</code> or <code>ld41:CustodialActivity</code> resources that have dates and agents (among other information) for ownership. These resources would be asserted directly on the appropriate Item instead of related directly to each other.</p>
<p>bf:date</p> <p><b>Datatype that should stay so.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/date</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Date designation associated with a resource or element of description, such as date of title variation; year a degree was awarded; date associated with the publication, printing, distribution, issue, release or production of a resource. May be date typed." .</p> <p><b>Comment:</b> "Used with Unspecified" .</p> <p><b>Label:</b> "Date"</p>	<p>dcterms:date</p> <p>Dates should be datatype properties, in particular using <a href="#">EDTF</a> encoding for capturing related information (approximate versus exact, date ranges, etc.) about the date in a standardized fashion.</p> <p>The generic <code>dcterms:date</code> is recommended for use. The literal value for the date is recommended to use EDTF encoding. LD4All recommends asserted <code>dcterms:date</code> on subclasses of <code>ld41:Activity</code> to indicate the kind of date (as well as other information) captured.</p>
<p>bf:degree</p> <p><b>Datatype that could be object property.</b></p> <p><b>Label:</b> Degree</p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/degree</p> <p><b>Definition:</b> "Degree for which author was a candidate."</p> <p><b>Domain:</b> bf:Dissertation</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Modified:</b> "2016-04-21 (New)"</p>	<p>ld41:AcademicDegree &amp; ld41:DegreeReceipt</p> <p>This note contains information about an Academic Degree received by the resource described. This is an ideal candidate for improved modeling starting with BIBFRAME v.2 natively-created RDF, albeit the conversion of existing data will be hard.</p> <p>LD4All is recommending following the <a href="#">Degrees pattern</a>, which follows the <a href="#">VIVO Ontology</a> in its approach to Academic Degrees - it uses Object Properties with Classes <code>ld41:AcademicDegree</code> and <code>ld41:DegreeReceipt</code>. It also recommends</p>

	<p>following the <a href="#">Legacy Literals</a> recommendation when moving existing data to this Degrees modeling construct.</p>
<p>bf:derivedFrom</p> <p><b>Datatype that could be object property.</b></p> <p><b>Label:</b> Source metadata</p> <p><b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/derivedFrom">http://id.loc.gov/ontologies/bibframe/derivedFrom</a></p> <p><b>Definition:</b> "Link to the metadata that was the source of the data."</p> <p><b>Domain:</b> bf:AdminMetadata</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Modified:</b> "2016-04-21 (New)"</p>	<p>TBD</p> <p>This is part of a forthcoming <a href="#">Administration Metadata recommendation</a>, where these properties are applied to BIBFRAME RDF instance data in a different fashion. In that context, this would very likely become an Object Property that links datasets or named graph resources together through a derivation/conversion property, TBD.</p>
<p>bf:dimensions</p> <p><b>Datatype that is a placeholder for legacy literals.</b></p> <p><b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/dimensions">http://id.loc.gov/ontologies/bibframe/dimensions</a></p> <p><b>Domain:</b> bf:Instance</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Measurements of the carrier or carriers and/or the container of a resource." .</p> <p><b>Label:</b> "Dimensions"</p>	<p>ld4l:hasDimension ld4l:Dimension</p> <p>This is being reviewed as part of the <a href="#">Dimensions Recommendation work</a> - in particular, looking for external ontologies to reuse. See also the <a href="#">legacy literals recommendation</a> which should guide the capturing of existing, problematic legacy data.</p> <p>In case of failure to identify an appropriate external vocabulary, LD4L-O will define a ld4l:hasDimension property with range ld4l:Dimension, which allows assertion of more granular data such as ld4l:height, ld4l:width, ld4l:length, bf:count (already exists), bf:unit (already exists), etc.</p>
<p>bf:duration</p> <p><b>Datatype that should stay so.</b></p> <p><b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/duration">http://id.loc.gov/ontologies/bibframe/duration</a></p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Information about the playing time, running time, etc. of a resource." .</p>	<p>ld4l:dimension ld4l:Dimension ...</p> <p>This is being reviewed as part of the <a href="#">Dimensions Recommendation work</a> - in particular, looking for external ontologies to reuse. See also the <a href="#">legacy literals</a></p>

<p><b>Comment:</b> "Used with Work or Instance" .  <b>Label:</b> "Duration"</p>	<p><a href="#">recommendation</a> which should guide the capturing of existing, problematic legacy data.</p> <p>In case of failure to identify an appropriate external vocabulary, LD4L-O will define a <code>ld41:hasDimension</code> property with range <code>ld41:Dimension</code>, which allows assertion of more granular data such as <code>ld41:height</code>, <code>ld41:width</code>, <code>ld41:length</code>, <code>bf:count</code> (already exists), <code>bf:unit</code> (already exists), etc.</p>
<p><code>bf:edition</code></p> <p><b>Datatype with ‘too many possible values to have any use as an object property’.</b>  <b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/edition">http://id.loc.gov/ontologies/bibframe/edition</a>  <b>Domain:</b> <code>bf:Classification</code>  <b>Range:</b> <code>rdfs:Literal</code>  <b>Definition:</b> "Edition of the classification scheme, such as full, abridged or a number, when a classification scheme designates editions." .  <b>Label:</b> "Classification scheme edition"</p>	<p><code>bf:edition</code> (generic)</p> <p>This is a property LD4All will be largely recommending to use as found in BIBFRAME. There is a <a href="#">Classification Recommendation document</a> to recommend future exploration if and how one could improve the Classification information captured through use of Object Properties and Classes. This is an area for future exploration, not a current recommendation for change.</p> <p>There is confusion over the use of <code>bf:edition</code> property specifically for <code>bf:Classification</code> instead of creating a more general <code>bf:edition</code> property (that could capture also the edition information detailed below).</p>
<p><code>bf:editionEnumeration</code></p> <p><b>Datatype with ‘too many possible values to have any use as an object property’.</b>  <b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/editionEnumeration">http://id.loc.gov/ontologies/bibframe/editionEnumeration</a>  <b>Domain:</b> <code>bf:Instance</code>  <b>Range:</b> <code>rdfs:Literal</code>  <b>Definition:</b> "Enumeration of the edition;</p>	<p><code>bf:edition</code> (generic)</p> <p>Keeping this as a datatype property makes sense to the LD4All Sprint Group.</p> <p>There is a recommendation to collapse this with <code>bf:edition</code>, which is currently specified for use with <code>bf:Classification</code>. This would make <code>bf:edition</code> a generic, datatype property for capturing edition information.</p>

<p>usually transcribed." .  <b>Label:</b> "Edition enumeration"</p>	
<p>bf:editionStatement  <b>Datatype that is an informal note property.</b>  <b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/editionStatement">http://id.loc.gov/ontologies/bibframe/editionStatement</a>  <b>Domain:</b> bf:Instance  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Information identifying the edition or version of the resource and associated statements of responsibility for the edition; usually transcribed." .  <b>Label:</b> "Edition statement"</p>	<p>bf:editionStatement  Keeping this as a datatype property makes sense to the LD4All Sprint Group, and to keep distinct from bf:editionEnumeration if indeed different (from examples given, it appears so). Relating this in some way with bf:responsibilityStatement seems appropriate, but is out of scope of this recommendation document.</p>
<p>bf:ensembleType  <b>Datatype that is a placeholder for legacy literals.</b>  <b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/ensembleType">http://id.loc.gov/ontologies/bibframe/ensembleType</a>  <b>Domain:</b> bf:MusicEnsemble  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Specific type of ensemble, such as orchestra, band, guitar ensemble." .  <b>Label:</b> "Ensemble type"</p>	<p>TBD  This is being handled by the Performed Music Extension.  In general, any datatype property with *Type in the label, however, is an ideal candidate for becoming an object property (with the types becoming subclasses or named individuals of a new Class).</p>
<p>bf:equinox  <b>Datatype that is a placeholder for legacy literals.</b>  <b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/equinox">http://id.loc.gov/ontologies/bibframe/equinox</a>  <b>Domain:</b> bf:Cartographic  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "One of two points of intersection of the ecliptic and the celestial equator, occupied by the sun when its declination is 0</p>	<p>TBD  LD4All is leaving the modeling work for this data to the Geospatial extension.</p>

<p>degrees." .  <b>Label:</b> "Cartographic equinox"</p>	
<p>bf:exclusionGRing  <b>Datatype that is a placeholder for legacy literals.</b>  <b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/exclusionGRing">http://id.loc.gov/ontologies/bibframe/exclusionGRing</a>  <b>Domain:</b> bf:Cartographic  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Coordinate pairs that identify the closed non-intersecting boundary of the area contained within the G-polygon outer ring that is excluded." .  <b>Label:</b> "Cartographic G ring area excluded"</p>	<p>TBD  LD4All is leaving the modeling work for this data to the Geospatial extension.</p>
<p>bf:firstIssue  <b>Datatype that should stay so.</b>  <b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/firstIssue">http://id.loc.gov/ontologies/bibframe/firstIssue</a>  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Beginning date of a resource and/or the sequential designations." .  <b>Comment:</b> "Used with Work or Instance" .  <b>Label:</b> "Multipart first issue"</p>	<p>Work Relationships (Object Properties)  This is a clear case for where an Object Property should be used, as it would link a Series title (bf:Work resource) to an Issue (another bf:Work resource). It falls into the work proposed by the <a href="#">LD4All Sprint Group Recommendation Document for handling Series, Serials and Complex Objects</a>.</p>
<p>bf:generationDate  <b>Datatype that should stay so.</b>  <b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/generationDate">http://id.loc.gov/ontologies/bibframe/generationDate</a>  <b>Domain:</b> bf:AdminMetadata  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Date of conversion of the metadata from another format." .  <b>subPropertyOf:</b> bf:date  <b>Label:</b> "Date generated"</p>	<p>TBD  Dates should be datatype properties, in particular using <a href="#">EDTF</a> encoding for capturing related information (approximate versus exact, date ranges, etc.) about the date in a standardized fashion.  This is part of a forthcoming <a href="#">Administration Metadata recommendation</a>, where these properties are applied to BIBFRAME RDF instance data in a different fashion. It doesn't change using datatype properties for date,</p>

	but would change where this assertion would occur.
<p>bf:geographicCoverage</p> <p><b>Datatype that could be object property.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/geographicCoverage</p> <p><b>Domain:</b> bf:Work</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Geographic coverage of the content of the resource." .</p> <p><b>Label:</b> "Geographic coverage"</p>	<p>ld4l:geographicCoverage</p> <p>This should be an Object Property, with prov:Location or bf:Place as the range. See the <a href="#">legacy literals recommendation</a> for the handling of existing data in the conversion process.</p>
<p>bf:hierarchicalLevel</p> <p><b>Datatype that needs for evaluation.</b></p> <p><b>Label:</b> Hierarchical level of material</p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/hierarchicalLevel</p> <p><b>Definition:</b> "Hierarchical position of the described materials relative to other material from the same source."</p> <p><b>Domain:</b> bf:Arrangement</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Modified:</b> "2016-04-21 (New)"</p>	<p>TBD</p> <p>The proposed usage of this property is unclear - could be modeling archival collections, general collection-level records, table of contents type levels, or other.</p> <p>This seems an ideal candidate to become an Object Property in the future, as the use cases given could be reflected in Work - Work relationships, or Part - Whole relationships, or other. This will rest on discussions occurring around question for LC from the LD4All Sprint Group.</p>
<p>bf:historyOfWork</p> <p><b>Datatype that is an informal note property.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/historyOfWork</p> <p><b>Domain:</b> bf:Work</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Information about the history of a Work." .</p> <p><b>Label:</b> "History of the work"</p>	<p>TBD</p> <p>This is a property for which the LD4All Sprint Group asked the Library of Congress for further examples.</p> <p>LD4All Sprint Group recommendations for this particular property is dependent on that response.</p>

<p>bf:immediateAcquisition</p> <p><b>Datatype that could be object property.</b></p> <p><b>Label:</b> Immediate acquisition</p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/immediateAcquisition</p> <p><b>Definition:</b> "Information about the circumstances, e.g., source, date, method, under which the resource was directly acquired."</p> <p><b>Domain:</b> bf:Item</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Modified:</b> "2016-04-21 (New)"</p>	<p>ld4l:AcquisitionActivity ...</p> <p>This property points to a note that has a variety of information in it about the acquisition of a resource by a particular library. This leans toward using an object property and related Class minted for the sake of capturing more granularly the information about the acquisition.</p> <p>In LD4All recommendations, it is seen as information captured on an instance of ld4l:Activity, namely, the assertions to be made on ld4l:AcquisitionActivity. Dates and sources, agents would capture the relevant information around the idea "directly required". See the <a href="#">Activity Recommendation document</a> for more information.</p>
<p>bf:instrumentalType</p> <p><b>Datatype that is a placeholder for legacy literals.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/instrumentalType</p> <p><b>Domain:</b> bf:MusicInstrument</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Specific role of instrument, such as alternate, doubling, solo, ensemble." .</p> <p><b>Label:</b> "Instrument role"</p>	<p>TBD</p> <p>This is being handled by the Performed Music Extension.</p> <p>In general, any datatype property with *Type in the label, however, is an ideal candidate for becoming an Object Property (with the types becoming subclasses, named individuals, or other of a new Class).</p>
<p>bf:itemPortion</p> <p><b>Datatype that is a placeholder for legacy literals.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/itemPortion</p> <p><b>Domain:</b> bf:Classification</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Number attached to a classification string that indicates a particular</p>	<p>bf:itemPortion</p> <p>This is a property LD4All will be largely recommending to use as found in BIBFRAME.</p> <p>There is a <a href="#">Classification Recommendation document</a> to recommend future exploration if and how one could improve the Classification information captured through use of Object Properties and Classes. This is an area for</p>

<p>item." .  <b>Label:</b> "Classification item number"</p>	<p>future exploration, not a current recommendation for change.</p>
<p>bf:lastIssue  <b>Datatype that should stay so.</b>  <b>URI:</b>  http://id.loc.gov/ontologies/bibframe/lastIssue  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Ending date of a resource and/or the sequential designations." .  <b>Comment:</b> "Used with Work or Instance" .  <b>Label:</b> "Multipart last issue"</p>	<p>Work Relationships (Object Properties)  This is a clear case for where an Object Property should be used, as it would link a Series title (a bf:Work instance) to an Issue (another bf:Work instance). It falls into the work proposed by the <a href="#">LD4All Sprint Group Recommendation Document for handling Series, Serials and Complex Objects</a>.</p>
<p>bf:legalDate  <b>Datatype that should stay so.</b>  <b>URI:</b>  http://id.loc.gov/ontologies/bibframe/legalDate  <b>Domain:</b> bf:Work  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Date of legal work, or promulgation of a law, or signing of a treaty." .  <b>subPropertyOf:</b> bf:date  <b>Label:</b> "Date of legal work"</p>	<p>ld4l:EnactmentActivity dcterms:date literal  Dates should be datatype properties, in particular using <a href="#">EDTF</a> encoding for capturing related information (approximate or exact, date ranges, etc.) about the date in a standardized fashion.  LD4All recommends using a subclass of Activity called ld4l:EnactmentActivity. The ld4l:EnactmentActivity instance will contain properties according to what type of information is found/contained by this resource, including date (captured through use of dcterms:date). There could be further subclasses for particular types of legal activities.</p>
<p>bf:mainTitle  <b>Datatype with ‘too many possible values to have any use as an object property’.</b>  <b>URI:</b>  http://id.loc.gov/ontologies/bibframe/mainTitle  <b>Domain:</b> bf:Title  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Title being addressed. Possible</p>	<p>madsrdf:MainTitleElement  LD4All Sprint Group recommendation is to follow the <a href="#">LD4L-O approach to Titles</a>, which uses MADS/RDF. This makes all Title portions into classes linked by object properties, so they can be ordered by a rank property; different title portions can have different language types; other information specific to a portion of a title can be asserted. If LC is reluctant to use MADS/RDF terms,</p>

<p>title component." .  <b>Label:</b> "Main title"</p>	<p>the recommendation is to define a parallel set of terms in the BIBFRAME namespace.</p>
<p>bf:musicKey  <b>Datatype that is a placeholder for legacy literals.</b>  <b>URI:</b>  http://id.loc.gov/ontologies/bibframe/musicKey  <b>Domain:</b> bf:Work  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Pitch and mode for music." .  <b>Label:</b> "Music key"</p>	<p>TBD  This is being handled by the Performed Music Extension.</p>
<p>bf:musicOpusNumber  <b>Datatype that is a placeholder for legacy literals.</b>  <b>URI:</b>  http://id.loc.gov/ontologies/bibframe/musicOpusNumber  <b>Domain:</b> bf:Work  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Numeric designation of a musical work assigned by a composer, publisher, or a musicologist." .  <b>Label:</b> "Music opus number"</p>	<p>TBD  This is being handled by the Performed Music Extension.  Depending on the recommendations of that extension group, this could be an ideal candidate for following a pattern similar or parallel to the <a href="#">Identifiers pattern</a>.</p>
<p>bf:musicSerialNumber  <b>Datatype that is a placeholder for legacy literals.</b>  <b>URI:</b>  http://id.loc.gov/ontologies/bibframe/musicSerialNumber  <b>Domain:</b> bf:Work  <b>Range:</b> rdfs:Literal  <b>Definition:</b> "Numeric designation for musical works consecutively numbered in music reference sources." .  <b>Label:</b> "Music serial number"</p>	<p>TBD  This is being handled by the Performed Music Extension.  Depending on the recommendations of that extension group, this could be an ideal candidate for following a pattern similar or parallel to the <a href="#">Identifiers pattern</a>.</p>

<p>bf:musicThematicNumber</p> <p><b>Datatype that is a placeholder for legacy literals.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/musicThematicNumber</p> <p><b>Domain:</b> bf:Work</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Numeric designation for a musical work as found in a thematic index for the composer." .</p> <p><b>Label:</b> "Music thematic number"</p>	<p>TBD</p> <p>This is being handled by the Performed Music Extension.</p> <p>Depending on the recommendations of that extension group, this could be an ideal candidate for following a pattern similar or parallel to the <a href="#">Identifiers pattern</a> or the <a href="#">Classification pattern</a>.</p>
<p>bf:natureOfContent (datatype, informal note properties)</p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/natureOfContent</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Characterization that epitomizes the primary content of a resource, e.g., field recording of birdsong; combined time series analysis and graph plotting system." .</p> <p><b>Comment:</b> "Used with Work or Instance" .</p> <p><b>Label:</b> "Content nature"</p>	<p>Id4l:NatureOfContent (Named Individual of oa:Motivation)</p> <p>This property should remain as a datatype property if used with bf:Note.</p> <p>However, the LD4All Sprint Group recommendation is to use Open Annotations for capturing Notes, as this allows better modeling options as described in the <a href="#">Notes and Annotations Recommendation Document</a>. This would then use an oa:Motivation Named Individual of Id4l:NatureOfContent to indicate the type of note/annotation captured.</p>
<p>bf:noteType</p> <p><b>Datatype that only can be a datatype.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/noteType</p> <p><b>Domain:</b> bf:Note</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Type of note." .</p> <p><b>Label:</b> "Note type"</p>	<p>oa:Motivation Named Individuals</p> <p>In general, any datatype property with *Type in the label is an ideal candidate for becoming an Object Property (with the types becoming subclasses, named individuals, or other of a new Class).</p> <p>However, the LD4All Sprint Group recommendation is to use Open Annotations for capturing Notes, as this allows better modeling options as described in the <a href="#">Notes and Annotations Recommendation</a></p>

	<p><a href="#">Document</a>. This would then use an <code>oa:Motivation</code> Named Individuals to indicate the type of note/annotation captured.</p>
<p><code>bf:organization</code></p> <p><b>Datatype that could be object property.</b></p> <p><b>Label:</b> Organization of material</p> <p><b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/organization">http://id.loc.gov/ontologies/bibframe/organization</a></p> <p><b>Definition:</b> "Manner in which the resource is divided into smaller units."</p> <p><b>Domain:</b> <code>bf:Arrangement</code></p> <p><b>Range:</b> <code>rdfs:Literal</code></p> <p><b>Modified:</b> "2016-04-21 (New)"</p>	<p>TBD</p> <p>The proposed usage of this property is unclear - could be modeling archival collections, general collection-level records, table of contents type levels, or other.</p> <p>This seems an ideal candidate to become an Object Property in the future, as the use cases given could be reflected in Work - Work relationships, or Part - Whole relationships, or other. This will rest on discussions occurring around question for LC from the LD4All Sprint Group.</p>
<p><code>bf:originDate</code></p> <p><b>Datatype that should stay so.</b></p> <p><b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/originDate">http://id.loc.gov/ontologies/bibframe/originDate</a></p> <p><b>Domain:</b> <code>bf:Work</code></p> <p><b>Range:</b> <code>rdfs:Literal</code></p> <p><b>Definition:</b> "Date or date range associated with the creation of a Work." .</p> <p><b>subPropertyOf:</b> <code>bf:date</code></p> <p><b>Label:</b> "Associated title date"</p>	<p><code>ld41:CreationActivity</code> <code>dcterms:date literal</code></p> <p>Dates should be datatype properties, in particular using <a href="#">EDTF</a> encoding for capturing related information (approximate or exact, date ranges, etc.) about the date in a standardized fashion.</p> <p>LD4All recommends using a subclass of Activity called <code>ld41:CreationActivity</code>. The <code>ld41:CreationActivity</code> instance will contain properties according to what type of information is found/contained by this resource, including date (captured through use of <code>dcterms:date</code>).</p>
<p><code>bf:outerGRing</code></p> <p><b>Datatype that is a placeholder for legacy literals.</b></p> <p><b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/outerGRing">http://id.loc.gov/ontologies/bibframe/outerGRing</a></p> <p><b>Domain:</b> <code>bf:Cartographic</code></p> <p><b>Range:</b> <code>rdfs:Literal</code></p>	<p>TBD</p> <p>LD4All is leaving the modeling work for this data to the Geospatial extension.</p>

<p><b>Definition:</b> "Coordinate pairs that identify the closed non-intersecting boundary of the area covered." .</p> <p><b>Label:</b> "Cartographic outer G ring area covered"</p>	
<p>bf:part</p> <p><b>Datatype that could be object property.</b></p> <p><b>URI:</b> <a href="http://id.loc.gov/ontologies/bibframe/part">http://id.loc.gov/ontologies/bibframe/part</a></p> <p><b>Range:</b> <code>rdfs:Literal</code></p> <p><b>Definition:</b> "Part of a resource to which information applies." .</p> <p><b>Comment:</b> "Used with Unspecified" .</p> <p><b>Label:</b> Part</p>	<p>Work Relationships (Object Properties)</p> <p>This is a clear case for where an Object Property should be used, as it would link one <code>bf:Work</code> resource to parts that ultimately constitute other <code>bf:Work</code> (or other Classes) resources. It falls into the work proposed by the <a href="#">LD4All Sprint Group Recommendation Document for handling Series, Serials and Complex Objects</a>.</p>
<p>bf:partName</p> <p><b>Datatype with ‘too many possible values to have any use as an object property’.</b></p> <p><b>URI:</b> <a href="http://id.loc.gov/ontologies/bibframe/partName">http://id.loc.gov/ontologies/bibframe/partName</a></p> <p><b>Domain:</b> <code>bf:Title</code></p> <p><b>Range:</b> <code>rdfs:Literal</code></p> <p><b>Definition:</b> "Part or section name of a title. Possible title component." .</p> <p><b>Label:</b> "Part title"</p>	<p>madsrdf:PartNameElement</p> <p>LD4All Sprint Group recommendation is to follow the <a href="#">LD4L-O approach to Titles</a>, which uses MADSRDF. This makes all Title portions into Classes linked by object properties, so they can be put in order by ranking properties, as well as different language assertions supported.</p>
<p>bf:partNumber</p> <p><b>Datatype with ‘too many possible values to have any use as an object property’.</b></p> <p><b>URI:</b> <a href="http://id.loc.gov/ontologies/bibframe/partNumber">http://id.loc.gov/ontologies/bibframe/partNumber</a></p> <p><b>Domain:</b> <code>bf:Title</code></p> <p><b>Range:</b> <code>rdfs:Literal</code></p> <p><b>Definition:</b> "Part or section enumeration of a</p>	<p>madsrdf:PartNumberElement</p> <p>LD4All Sprint Group recommendation is to follow the <a href="#">LD4L-O approach to Titles</a>, which uses MADSRDF. This makes all Title portions into Classes linked by object properties, so they can be put in order by ranking properties, as well as different language assertions supported.</p>

<p>title. Possible title component." .  <b>Label:</b> "Part number"</p>	
<p>bf:pattern  <b>Datatype that could be object property.</b>  <b>Label:</b> Arrangement of material  <b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/pattern">http://id.loc.gov/ontologies/bibframe/pattern</a>  <b>Definition:</b> "Pattern of arrangement of materials within a unit."  <b>Domain:</b> bf:Arrangement  <b>Range:</b> rdfs:Literal  <b>Modified:</b> "2016-04-21 (New)"</p>	<p>TBD  The proposed usage of this property is unclear - could be modeling archival collections, general collection-level records, table of contents type levels, or other.    This will rest on discussions occurring around question for LC from the LD4All Sprint Group.</p>
<p>bf:physicalLocation  <b>Datatype that could be object property.</b>  <b>Label:</b> Storing or shelving location  <b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/physicalLocation">http://id.loc.gov/ontologies/bibframe/physicalLocation</a>  <b>Definition:</b> "Location in the holding agency where the item is shelved or stored."  <b>Domain:</b> bf:Item  <b>Range:</b> rdfs:Literal  <b>Modified:</b> "2016-04-21 (New)"</p>	<p>ld4l:atLocation prov:Location  This seems a clear candidate for being an object property, as it is pointing to a resource that should be some Location entity. Note that prov:Location does not limit the definition of 'location' to geographic, hence its recommended use by the LD4All Sprint Group (in place of bf:Place).</p>
<p>bf:preferredCitation  <b>Datatype that could be object property.</b>  <b>Label:</b> Preferred citation  <b>URI:</b>  <a href="http://id.loc.gov/ontologies/bibframe/preferredCitation">http://id.loc.gov/ontologies/bibframe/preferredCitation</a>  <b>Definition:</b> "Citation to the resource preferred by its custodian of the resource."  <b>Comment:</b> Used with Work or Instance  <b>Range:</b> rdfs:Literal  <b>Modified:</b> "2016-04-21 (New)"</p>	<p>bf:preferredCitation  Use as found in BIBFRAME v.2, which currently makes this a datatype property.</p>

<p>bf:projection</p> <p><b>Datatype that is a placeholder for legacy literals.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/projection</p> <p><b>Domain:</b> bf:Cartographic</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Method or system used to represent the surface of the earth or of a celestial sphere on a plane." .</p> <p><b>Label:</b> "Cartographic projection"</p>	<p>TBD</p> <p>LD4All is leaving the modeling work for this data to the Geospatial extension.</p>
<p>bf:provisionActivityStatement</p> <p><b>Datatype that is an informal note property.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/provisionActivityStatement</p> <p><b>Domain:</b> bf:Instance</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Statement relating to providers of a resource; usually transcribed." .</p> <p><b>Label:</b> "Provider statement"</p>	<p>ld4l:Activity ld4l:statement literal</p> <p>The value captured here should be a literal, as it is a transcribed value leveraged in part for resource identification.</p> <p><a href="#">However, the LD4All Sprint Group recommendation is to use ld4l:Activity instead of bf:ProvisionActivity</a>, and this statement would be asserted on the particular, related ld4l:Activity instance.</p>
<p>bf:qualifier</p> <p><b>Datatype with ‘too many possible values to have any use as an object property’.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/qualifier</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Qualifier of information, such as an addition to a title to make it unique or qualifying information associated with an identifier." .</p> <p><b>Comment:</b> "Used with Unspecified" .</p> <p><b>Label:</b> "Qualifier"</p>	<p>bf:qualifier</p> <p>Use as found in BIBFRAME2, which means as a datatype property.</p> <p>Generally, in LD4All Sprint Group recommendations, the proposed usage of bf:qualifier by the Library of Congress is ignored, as for titles and identifiers, different approaches for capturing “qualifying information” are followed. See the related <a href="#">Titles</a> and <a href="#">Identifiers</a> recommendation documents for more information.</p>

<p>bf:responsibilityStatement</p> <p><b>Datatype that is an informal note property.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/responsibilityStatement</p> <p><b>Domain:</b> bf:Instance</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Statement relating to any persons, families, or corporate bodies responsible for the creation of, or contributing to the content of a resource; usually transcribed." .</p> <p><b>Label:</b> "Creative responsibility statement"</p>	<p>bf:responsibilityStatement</p> <p>Use as found in BIBFRAME2, which means as a datatype property asserted on an bf:Instance.</p>
<p>bf:role</p> <p><b>Datatype that only can be a datatype.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/role</p> <p><b>Domain:</b> bf:Contribution</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Specific role of agent." .</p> <p><b>Label:</b> "Agent role"</p>	<p>ld4l:Activity subclasses</p> <p>The use of subclasses of ld4l:Activity captures the related bf:role information, which has been a heavily discussed property regardless in LD4All Alignment calls so far (with arguments for it being used both as an object and a datatype property). See the <a href="#">Activity Recommendation Document</a> for further information.</p>
<p>bf:scale</p> <p><b>Datatype that is a placeholder for legacy literals.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/scale</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Ratio of the dimensions of a form contained or embodied in a resource to the dimensions of the entity it represents, e.g., for images or cartographic resources." .</p> <p><b>Comment:</b> "Used with Work or Instance" .</p> <p><b>Label:</b> "Scale"</p>	<p>TBD</p> <p>LD4All is leaving the modeling work for this data to the Geospatial extension, the Moving Images extension, and the A/V extension.</p>

<p>bf:schedulePart</p> <p><b>Datatype that should stay so.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/schedulePart</p> <p><b>Domain:</b> bf:Classification</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Designates whether the classification number is from the standard or optional part of a schedule or table." .</p> <p><b>Label:</b> "Classification designation"</p>	<p>bf:schedulePart</p> <p>This is a property LD4All will be largely recommending to use as found in BIBFRAME.</p> <p>There is a <a href="#">Classification Recommendation document</a> to recommend future exploration if and how one could improve the Classification information captured through use of Object Properties and Classes. This is an area for future exploration, not a current recommendation for change.</p>
<p>bf:seriesEnumeration</p> <p><b>Datatype that is an informal note property.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/seriesEnumeration</p> <p><b>Domain:</b> bf:Instance</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Series enumeration of the resource; usually transcribed." .</p> <p><b>Label:</b> "Series enumeration"</p>	<p>TBD</p> <p>The value captured here should be a literal, as it is a numeric value attached to a particular issuance or series title. Where this information is asserted may be different in the LD4All recommendation, however.</p> <p>It falls into the work proposed by the <a href="#">LD4All Sprint Group Recommendation Document for handling Series, Serials and Complex Objects</a>.</p>
<p>bf:seriesStatement</p> <p><b>Datatype that is an informal note property.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/seriesStatement</p> <p><b>Domain:</b> bf:Instance</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Statement of the series the resource is in; usually transcribed; includes the ISSN if applicable." .</p> <p><b>Label:</b> "Series statement"</p>	<p>TBD</p> <p>The value captured here should be a literal, as it is a transcribed value leveraged in part for resource identification. However, where to assert this information, or if a transcribed statement value akin in function to bf:responsibilityStatement, is under discussion.</p> <p>It falls into the work proposed by the <a href="#">LD4All Sprint Group Recommendation Document for handling Series, Serials and Complex Objects</a>.</p>

<p>bf:spanEnd</p> <p><b>Datatype with ‘too many possible values to have any use as an object property’.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/spanEnd</p> <p><b>Domain:</b> bf:Classification</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Ending number of classification number span." .</p> <p><b>Label:</b> "Classification number span end"</p>	<p>bf:spanEnd</p> <p>This is a property LD4All will be largely recommending to use as found in BIBFRAME.</p> <p>There is a <a href="#">Classification Recommendation document</a> to recommend future exploration if and how one could improve the Classification information captured through use of Object Properties and Classes. This is an area for future exploration, not a current recommendation for change.</p>
<p>bf:subseriesEnumeration</p> <p><b>Datatype that is an informal note property.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/subseriesEnumeration</p> <p><b>Domain:</b> bf:Instance</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Subseries enumeration of the resource; usually transcribed." .</p> <p><b>Label:</b> "Subseries enumeration"</p>	<p>Do not use</p> <p>This falls into the work proposed by the <a href="#">LD4All Sprint Group Recommendation Document for handling Series, Serials and Complex Objects</a>. The issue is not with the datatype properties, but indicating subseries (information that should be derived from Series to Series relationships).</p>
<p>bf:subseriesStatement</p> <p><b>Datatype that is an informal note property.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/subseriesStatement</p> <p><b>Domain:</b> bf:Instance</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Statement of the subseries the resource is in; usually transcribed; includes the ISSN if applicable." .</p> <p><b>Label:</b> "Subseries statement"</p>	<p>Do not use</p> <p>This falls into the work proposed by the <a href="#">LD4All Sprint Group Recommendation Document for handling Series, Serials and Complex Objects</a>. The issue is not with the datatype properties, but indicating subseries (information that should be derived from Series to Series relationships).</p>

<p>bf:systemRequirements</p> <p><b>Datatype that is an informal note property.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/systemRequirements</p> <p><b>Domain:</b> bf:Instance</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Equipment or system requirements beyond what is normal and obvious for the type of carrier or type of file, such as make and model of equipment or hardware, operating system, amount of memory, programming language, other necessary software, any plug-ins or peripherals required to play, view, or run the resource, etc." .</p> <p><b>Label:</b> "Equipment or system requirements"</p>	<p>ld41:SystemRequirements (Named Individual of oa:Motivation)</p> <p>This property should remain as a datatype property if used with bf:Note.</p> <p>However, the LD4All Sprint Group recommendation is to use Open Annotations for capturing Notes, as this allows better modeling options as described in the <a href="#">Notes and Annotations Recommendation Document</a>. This would then use an oa:Motivation Named Individual of ld41:SystemRequirements to indicate the type of note/annotation captured.</p>
<p>bf:table</p> <p><b>Datatype with ‘too many possible values to have any use as an object property’.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/table</p> <p><b>Domain:</b> bf:Classification</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Number of the table from which the classification number in a subdivision entry is taken, e.g., a DDC table." .</p> <p><b>Label:</b> "Classification table identification"</p>	<p>bf:table</p> <p>This is a property LD4All will be largely recommending to use as found in BIBFRAME.</p> <p>There is a <a href="#">Classification Recommendation document</a> to recommend future exploration if and how one could improve the Classification information captured through use of Object Properties and Classes. This is an area for future exploration, not a current recommendation for change.</p>
<p>bf:tableSeq</p> <p><b>Datatype with ‘too many possible values to have any use as an object property’.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/tableSeq</p> <p><b>Domain:</b> bf:Classification</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Sequence number or other</p>	<p>bf:tableSeq</p> <p>This is a property LD4All will be largely recommending to use as found in BIBFRAME.</p> <p>There is a <a href="#">Classification Recommendation document</a> to recommend future exploration if and how one could improve the Classification information captured through use of Object</p>

<p>identifier for an internal classification sub arrangement or add in a classification scheme." .</p> <p><b>Label:</b> "Classification table sequence number"</p>	<p>Properties and Classes. This is an area for future exploration, not a current recommendation for change.</p>
<p>bf:temporalCoverage</p> <p><b>Datatype that could be object property.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/temporalCoverage</p> <p><b>Domain:</b> bf:Work</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Time period coverage of the content of the resource." .</p> <p><b>Label:</b> "Temporal coverage"</p>	<p>ld4l:temporalCoverage</p> <p>This should be an Object Property, with bf:Temporal as the range. See the <a href="#">legacy literals recommendation</a> for the handling of existing data in the conversion process.</p>
<p>bf:variantType</p> <p><b>Datatype that only can be a datatype.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/variantType</p> <p><b>Domain:</b> bf:VariantTitle</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Type of title variation, e.g., acronym, cover, spine, earlier, later, series version." .</p> <p><b>Label:</b> "Variant title type"</p>	<p>madsrdf:Title subclasses in LD4L</p> <p>LD4All Sprint Group recommendation is to follow the <a href="#">LD4L-O approach to Titles</a>, which uses MADSRDF. This makes all Title portions into Classes linked by Object Properties, so they can be put in order by ranking properties, as well as different language assertions supported.</p> <p>In general, any datatype property with *Type in the label, however, is an ideal candidate for becoming an Object Property (with the types becoming subclasses, named individuals, or other of a new Class).</p>
<p>bf:voiceType</p> <p><b>Datatype that is a placeholder for legacy literals.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/voiceType</p> <p><b>Domain:</b> bf:MusicVoice</p> <p><b>Range:</b> rdfs:Literal</p>	<p>TBD</p> <p>This is being handled by the Performed Music Extension.</p> <p>In general, any datatype property with *Type in the label, however, is an ideal candidate for becoming an Object Property (with the types becoming subclasses, named individuals, or other of a new Class).</p>

<p><b>Definition:</b> "Specific type of voice group, such as chorus, solo." .</p> <p><b>Label:</b> "Type of voice"</p>	
<p>bf:version</p> <p><b>Datatype with ‘too many possible values to have any use as an object property’.</b></p> <p><b>URI:</b> http://id.loc.gov/ontologies/bibframe/version</p> <p><b>Domain:</b> bf:Work</p> <p><b>Range:</b> rdfs:Literal</p> <p><b>Definition:</b> "Term or terms that identify works such as arranged for music, vulgate for religious work, etc." .</p> <p><b>Label:</b> Version</p>	<p>TBD</p> <p>This seems an ideal candidate to become an object property in the future, as the use cases given could be reflected in Work - Work relationships, or Part - Whole relationships, or other.</p> <p>The exact object properties used will rest on work occurring around RDA ontology alignment within BIBFRAME, particular on <a href="#">Relations</a>.</p>