BRITISH STANDARD

BS ISO 20775:2009

Information and documentation — Schema for holdings information

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INTERNATIONAL STANDARD

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Information and documentation — Schema for holdings information

Information et documentation — Schéma pour information sur les fonds de bibliothèque

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Foreword

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ISO 20775 was prepared by Technical Committee ISO/TC 46, *Information and documentation*, Subcommittee SC 4, *Technical interoperability*.

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Introduction

This schema for holdings information is designed to meet the requirements for delivering information about holdings of resources in repositories, libraries and related institutions in response to direct queries. This schema may also be applicable to the holdings of cultural institutions, such as museum objects. The information contained in this schema includes scope of holdings, availability, availability policy and conditions, and access rights. Reporting capability for historical usage information is a secondary, optional part of this schema.

This International Standard is designed to cover the holdings of all types of resources, physical and electronic, all types of resource format such as printed text, visual images, sound recordings, videos, electronic media and resources published or issued once, such as monographs or those published serially or in part.

This schema is primarily designed to be included in responses to queries. Two primary query types have been identified and targeted, based on availability (main focus) and historical usage. Simply put, the schema's main purpose is to answer the question “who has one or more copies of this resource or this group of resources, is it available now and to me and what are the conditions?”

Although this International Standard can be used for reporting holdings to a federated metadata repository such as a centralized union catalogue, metasearch database such as Google or centralized document repository, this is not its primary focus. The focus is for interactive exchange of a combination of stable and dynamic information. Reporting and harvesting convey only stable information and other schemas are already in use for this purpose such as MODS, MARC 21 Holdings, COPAC and ONIX. Most of these schemas include richer detail, especially in relation to serial holdings. For this same reason, this International Standard is not intended to contain the detail necessary to predict new serial issues and claim missing serial issues.

In a similar vein, this International Standard is not designed to populate link resolver databases, although it can be included in information sent to a resolver during a resolution process to declare known locations and ask for alternatives or more information about known locations. Resolvers also can employ this schema in information used to transfer information to another resolver.

How data is gathered and assembled to populate the holdings schema is also outside the scope of this International Standard. Data may be dispersed in several locations such as a union catalogue, local catalogue and a policy directory or repository. A variety of standards may be employed for this purpose including NCIP for local holdings, XACML and LDAP for policy, authentication and authorization information and SRU and Z39.50 for all types of searching and retrieval.

The holdings reported in this schema can relate to one or more bibliographic resources. As this schema is employed in a query response, the bibliographic resource or resources will be known, therefore detailed resource description is out of scope for this International Standard. This schema can be incorporated as a fragment within other XML bibliographic resource descriptions such as MODS.

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Information and documentation — Schema for holdings information

1 Scope

This International Standard specifies a schema designed to cover the holdings of all types of resources, physical and electronic, all types of resource format such as printed text, visual images, sound recordings, videos, electronic media and resources published or issued once such as monographs or those published serially or in part.

Though it is designed to be used as a schema in query responses, this International Standard does not specify a query and response (such as SRU, Z39.50 or Open Search) including search attributes and index definition.

This International Standard facilitates the interactive exchange of a combination of stable and dynamic information.

How data is gathered and assembled to populate the schema for holdings is outside the scope of this International Standard.

Detailed resource description is outside the scope of this International Standard as is also detailed information on serials designed for claiming missing issues.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4217, *Codes for the representation of currencies and funds*

ISO 8459, *Information and documentation — Classification of bibliographic data elements for use in data interchange*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply

3.1.1
access
ability to open and view an electronic resource including an electronic document and a database index

3.1.2
bibliographic resource
entity, either serial or non-serial, that forms the basis for a single resource description

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3.1.3
chronology
indication of the date of publication or date of issue of a component of a multi-part resource, distinguishing it from other components of the same resource

3.1.4
component
unique bibliographic part of a set, such as a volume of a serial or multi-volume work

3.1.5
copy
tangible instance of a bibliographic resource or set, whether physical or electronic, comprising one or more pieces

3.1.6
enumeration
alpha-numeric identification of a component of a multi-part resource, such as a volume or issue

3.1.7
holdings
information that describes, analyses and controls copies associated with a bibliographic resource

3.1.8
piece
unit of a copy on which transactions can be made, such as a physical part that can be lent or reserved, or an electronic file that can be downloaded or accessed

3.1.9
set
collection of components of a bibliographic resource including multi-volume publications and resources published serially, often received by a subscription purchase

3.2 Abbreviated terms

Abbreviated term	Description	URL address
COPAC	COPAC Academic and National Library catalogue, U.K.	http://copac.ac.uk/
COUNTER	Counting Online Usage of NeTworked Electronic Resources	http://www.projectcounter.org/
DanBib	Danish Union Catalogue	http://www.danbib.dk/index.php?doc=english
DCB	Direct Consortia Borrowing	—
GBV	GBV Common Library Network of the German States Bremen, Hamburg, Mecklenburg-Vorpommern, Niedersachsen, Sachsen-Anhalt, Schleswig-Holstein, Thüringen and the Foundation of Prussian Cultural Heritage.	http://www.gbv.de/en/
ILL	Inter-library loan	—
LDAP	Lightweight directory access protocol IETC (Internet Engineering Task Force) RFC 4510	http://tools.ietf.org/html/rfc4510
MARC 21 Holdings	MARC 21 concise format for holdings data, Library of Congress	http://www.loc.gov/marc/holdings/
MODS	Metadata object description schema, Library of Congress	http://www.loc.gov/standards/mods//

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Abbreviated term	Description	URL address
NCIP	ANSI/NISO Z39.83-1 *Circulation Interchange — Part 1: Protocol (NCIP)*	http://www.niso.org/standards/
ONIX	ONIX for Books Product Information Message ONIX for serials in development	http://www.editeur.org/onix.html
OPAC	Online public access catalogue. A generic term used by libraries and makers of computer software for libraries	
OpenSearch	OpenSearch is a collection of simple formats for the sharing of search results.	http://www.opensearch.org/Specifications/OpenSearch/1.1#OpenSearch_description_document
OpenURL	ANSI/NISO Z39.88 *The OpenURL Framework for Context-Sensitive Services*	http://alcme.oclc.org/openurl/servlet/OAIHandler?verb=ListSets
OpenURL Request Transfer Message	OpenURL Request Transfer Message Community Profile	http://www.openurl.info/registry/docs/pro/info:ofi/pro:rtm-2007
SRU	Search Retrieve via URL, Library of Congress	http://www.loc.gov/standards/sru/
SUDOC	Système universitaire de documentation, ABES (Agence bibliographique de l'enseignement supérieur), France	http://www.sudoc.abes.fr/LNG=EN/
XACML	eXtensible Access Control Markup Language, OASIS standards organization	http://xml.coverpages.org/xacml.html
XML	Extensible Markup Language, W3C World Wide Web Consortium	http://www.w3.org/TR/2006/REC-xml11-20060816/
WorldCat	World network of library content and services, OCLC, Online Computer Library Center, Inc.	http://www.worldcat.org/

4 Detailed requirements

4.1 Discovery to delivery

4.1.1 General considerations

Resource discovery is nowadays dispersed as metadata about resources are available in multiple locations. It is no longer just via a library's OPAC, but also via internet search engines such as Google Scholar and Yahoo, collective repositories and emerging freely accessible public interfaces of union catalogues, e.g. WorldCat, Libraries Australia, SUDOC, GBV and Danbib just to name a few. Increasingly, not all data is held in any one place; resource description is more widely dispersed than detailed holdings information. Another trend is the increasing number of libraries choosing to make more comprehensive union catalogues the primary entry point offered to their collections. Thus descriptive information is increasingly separated from management information. As a consequence, discovery to delivery systems need a seamless way of gathering holdings information needed for delivery to accompany discovered resource metadata. To do this, there is a fundamental need for a standardized schema to include in a query response, containing holdings delivery and access information. Some of this information is dynamic in that it is likely to be different each time it is delivered. For example, loan policy is likely to be fairly stable whereas availability status is variable and needs to be up-to-date to be valuable. Even policy is not fully stable as the policy can vary for different groups of users, therefore data in relation to policy in a query response can be specific to a single request.

In the context of delivery, holdings responses need to provide sufficient, precise information regarding an individual copy or set of copies to indicate whether or not a delivery request would be successful. The

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holdings schema could provide information so that systems could narrow a result set to works where items were immediately available. Examples of the “motives” for requesting holdings availability information are:

— is there any copy available now at any branch? (single bibliographic resource)

— do you have an available copy in any edition? (group of related bibliographic resources)

— do you have a copy that is not restricted? (group of related bibliographic resources)

— can I please make a reservation for the next available copy regardless of edition and what is the queue status? (group of related bibliographic resources)

— I (requester) live on a different continent; for me, is it possible to borrow or access an electronic copy, or can you digitize it for me, or can you provide a reference look-up service for me?

As previously stated, the query part of discovery is out of scope for this schema. The query might or might not include user attributes that would allow a server to respond with user specific policy and availability information.

4.1.2 Relation to existing standards

This schema is intended as a more comprehensive and better defined alternative to the OPAC schema defined within ISO 23950 and the associated ANSI/NISO Z39.50 holdings schema that has not been widely implemented. There is one other schema in current use that partially fulfils this need, namely NCIP (ANSI/NISO Z39.83-1), however this schema can only provide information for a single copy and not for a group of copies of one or multiple resources. This schema has been derived from the ANSI/NISO Z39.50 holdings schema, updated to:

— ensure that the schema is adequately understood by providing detailed element definitions, in accordance with ISO 8459 as much as possible;

— provide a clear scope statement with use cases;

— reduce the complexity of the schema by

  — reducing from seven levels to one (B1-4; C1-3), clearly indicating optional and mandatory elements,

  — removing the distinction between B and C level views. This can be achieved by allowing optional summary level information in all cases,

  — reducing unnecessary hierarchies in the structure,

  — removing elements that are not in common use;

— allow the schema to be used as a stand-alone schema with some resource identification and description (minimum information such as an ISBN or other international identifier, a DOI®[1)] or an URL) or as a fragment within other schemas, e.g. as a MODS extension;

— simplify the element names, as closely as possible in accordance with ISO 8459.

This schema is designed to be used as a fragment in other schemas. It is being included as the structure for the “possible suppliers” element of the NISO OpenURL Request Transfer Message.

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4.2 Respond to holdings usage queries

4.2.1 General

NOTE This role for the schema is seen as emerging and is included as an option within this International Standard.

Increasingly, discovery systems want to provide evaluative information to their users that can be used in manipulating result sets. This information consists of

— historic circulation information,

— when a copy or group of copies was last borrowed or accessed,

— how many times in a given period a copy or group of copies has been circulated or accessed,

— when a physical copy was last located (with RFID systems becoming increasingly used, this kind of stocktake information is more readily available and recent).

Holdings usage information is also useful to managers of collections for acquisitions, digitization, weeding and relocation decisions. It can also provide information on the effect of provision of a digital copy on the usage of physical copies.

Examples of the “motives” for requesting holdings usage information are as follows.

— Is this copy or group of copies widely used? (If so, I will purchase a copy for my collection.)

— Has this copy or group of copies been used recently? (If so, I will purchase or digitize it, otherwise not, despite it being popular once.)

— If this copy or group of copies has not been widely used, or recently used in another collection, I will retire mine to central storage (or discard).

— To be able to sort my result set by relevance with the most popular items first.

— To compare my statistics on the use of this electronic resource with the usage of the same resource in other collections.

— What is the circulation for all copies of a work for a comparable period before and since a digital copy became available?

— Holdings usage information is all dynamic, in that it can vary each time the information is provided and needs to be current to be valuable.

Note that there are many differences in the practice of collecting historical information about holdings usage. Many libraries avoid collecting the information as their systems only collect information at a transaction level that potentially endangers user confidentiality. They may collect information for selected borrowers only, e.g. housebound users. Some systems collect usage statistics by piece, independent of user or borrower and some systems have a means of neutralizing user identification within historical transactions.

4.2.2 Relation to existing standards

There is no known schema currently in common use that fulfils this requirement to respond to online queries for both physical and electronic resources. Reporting standards exist, such as ANSI/NISO Z39.7 and COUNTER.

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5 Schema outline

5.1 General observations

This schema focuses on needs of responses to holdings delivery and usage queries, combining both static and dynamic information. (It is important to re-iterate here that the actual query, its search attributes and indexes are out of scope.)

At the top level, there may be multiple holding structures for a resource or group of resources. A new instance of “holding” is made for each different “institutionIdentifier”. The schema at the top level is shown in Figure 1.

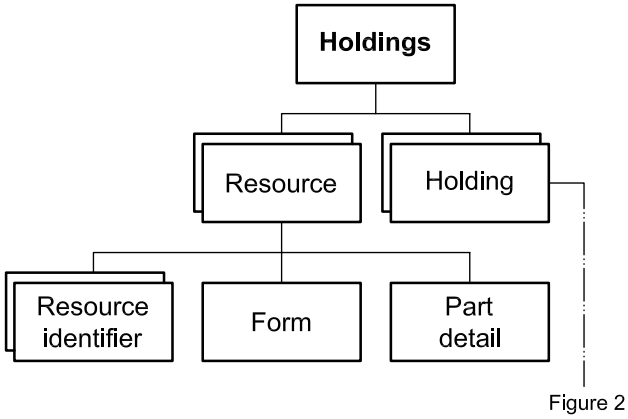

Figure 1 — Holdings

5.2 Resource

The “resource” is repeatable so that the associated holdings in “holding” may relate to a single bibliographic resource or to a group of resources. The element of commonality for the group may vary. For example the group could comprise:

— a serial representing multiple issues published over a given time period or an open-ended time period;

— all expressions and manifestations of a work, e.g. all different translations, all different editions;

— a group of resources retrieved by a search and represented as a result set.

The “resource” is optional as the schema may be embedded within another schema already containing bibliographic information.

The “resource” block may simply identify a resource or group of resources with an identifier or pointer such as a URL. It may optionally include information about the “form” of the resource and “partDetail”.

When “resource” is repeated, representing more than one bibliographic resource, the resources are regarded as interchangeable, i.e. connected by “or”, and the “copiesSummary” block collates information for all copies related to all resources.

5.3 Holding

5.3.1 General

Figure 2 shows the top level elements of Holding.

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The “holding” is mandatory and repeatable. For each separate institution a separate “holding” instance is required. “holding” consists of information about the holding institution and its addresses plus three other information blocks:

— “holdingSimple” or “holdingStuctured”;

— “summaryPolicy”; and

— optionally “summaryHistory”.

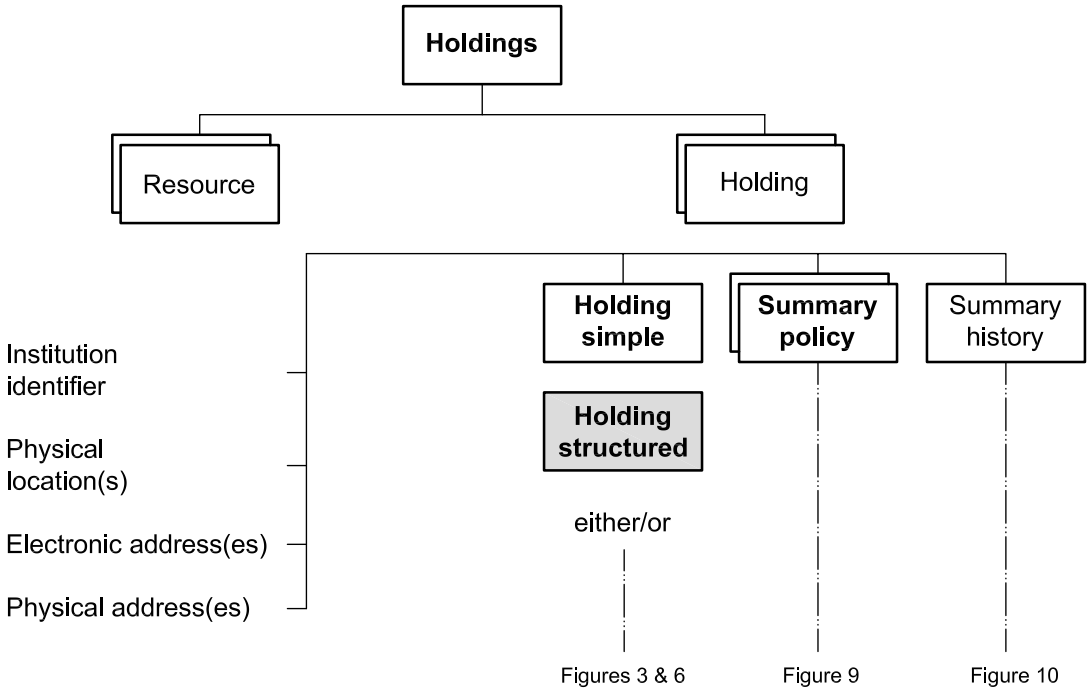

Figure 2 — Holding

Under “holding”, the element “institutionIdentifier” is mandatory together with an instance of either “holdingSimple” or “holdingStructured”. The choice of the appropriate rendition of holdings (simple or structured) rests with the server responding to the query. The reason for this is that one resource may be held as a unit at one institution but as multiple parts at another, or a requester may believe a request to be for a single part whereas it is actually a multiple-part resource. By replying with “holdingStructured” a server is indicating that there are multiple parts that are not equivalent and that therefore the copies may not be interchangeable from a particular user's viewpoint. Such a response could be viewed by the querying system as a suggestion to narrow a request.

The “holdingSimple”, “holdingStructured”, “summaryPolicy” and “summaryHistory” all contain information that summarizes copy information for the ensemble of copies and pieces that relate to the resource or resources, or in the case of the schema being a fragment within another schema, the copies relate to bibliographic resources described elsewhere in the larger schema.

5.3.2 The holding institution

This group of elements (“institutionIdentifier”, “physicalLocation”, “physicalAddress” and “electronicAddress”) contains simple identification and address detail about an institution holding one or more copies of the resource or group of resources. Multiple addresses are possible and they may be free format or inherit a structure from another specification, e.g. from NCIP.

5.3.3 Holding simple and holding structured

There are two separate blocks “holdingSimple” and “holdingStructured”. One of the two separate blocks is required; more than one block is not allowed. The two blocks summarize holdings in different ways. The

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simple version is appropriate where the pieces are *interchangeable*, at least in the context of a particular query. Monographs, monographic works, and fully cited serial articles would typically use the simple version. The structured version is appropriate where there are different components forming a set, each component having different content from other components in the set. Therefore, it is necessary to represent this structure and a summary can only be given at component level. Unlike “holdingSimple”, every piece reported is *not interchangeable* within the context of a particular query. Therefore for “holdingSimple”, it is relevant to give an indication of availability of the pieces in general, i.e. “at least one of the group is or is not available”, but for “holdingStructured” it is only relevant for each individual component. To summarize holdings at a set level, the reserved set label “all sets” may be used.

It is the responding server that determines whether “holdingSimple” or “holdingStructured” is appropriate. This is because data may be held differently on each database. For example, the request may be for *Lord of the Rings* that is held in multiple parts in one collection, so the response is Structured but as a single volume in another collection, so the response is Simple. If a collection has it both in parts and in a single volume and wants to report on all copies, then Structured is appropriate.

5.3.4 Holding — Simple

5.3.4.1 Top level structure

Figure 3 shows the top level structure of Holding simple and the detail of its child element, Copies summary.

For monograph resources, the “holdingSimple” block provides summary information including counts of copies and an indication of the earliest date any one copy can be made available, how many are available and the purposes for which they may be available (loan, copy, reference look-up, etc.). The length of the reservation queue for the ensemble of the copies may be given, accommodating the fact that reservation queues are more frequently held at title level rather than copy level; the first available of a group of identical copies will satisfy the request.

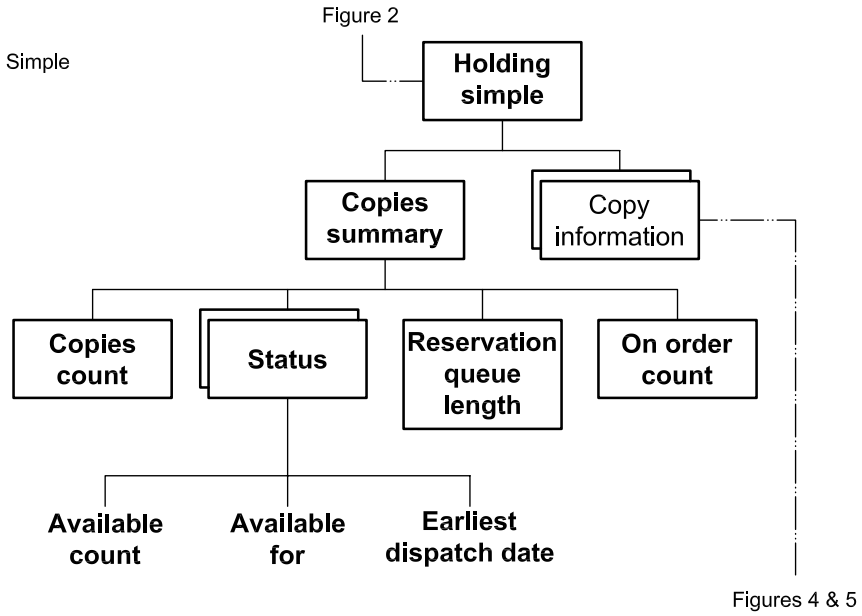

Figure 3 — Holding — Simple

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5.3.4.2 Copy information

Figure 4 illustrates Copy information (child element of Holdings simple) and its child elements with the exception of availability information.

The “copyInformation” includes relatively stable information, namely identifiers of the copy and its resource, location information, value and precision information (“form” and “enumerationAndChronology”). The “availabilityInformation” block contains dynamic data. The copy “identifier” is repeatable to accommodate such multiple identifiers as barcodes and accession numbers. The “resourceIdentifier” serves to indicate to which resource of a group of resources the copy belongs. Detail includes “form” (text, microform, video, jpg, etc.), “monetaryValuation”, “sublocation”, “shelfLocater” (or call number or shelf mark), “electronicLocator” (URI or URL), “note” and “enumerationAndChronology”. The “sublocation” is repeatable in the case of electronic copies where multiple locations may share access rights and “electronicLocator” is repeatable to cater for a resource being available in multiple places, e.g. via different aggregators. “enumerationAndChronology” is repeatable to cater for the relatively few cases of multi-part publications having parallel enumeration sequences.

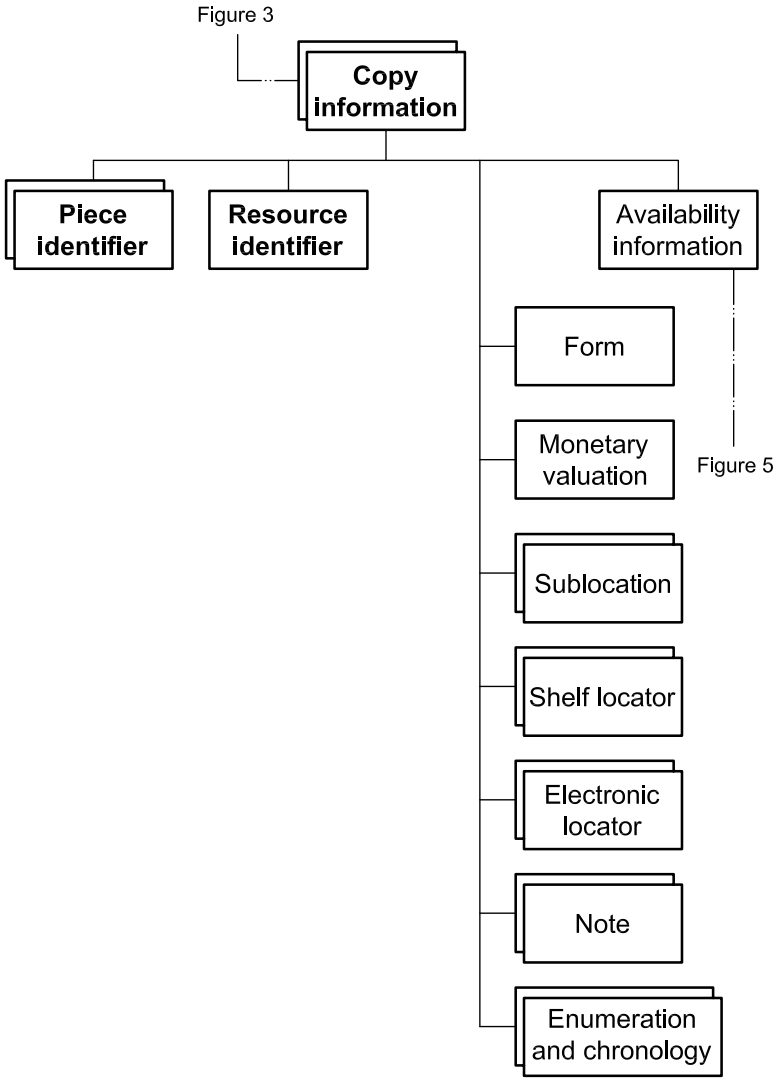

Figure 4 — Copy information

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Figure 5 shows Availability information and its detail (child element of Copy information).

The “availabilityInformation” includes stable information comprising “policy”, “feeInformation” and “reservationPolicy”. It also includes dynamic information comprising “status” and “reservationQueue”.

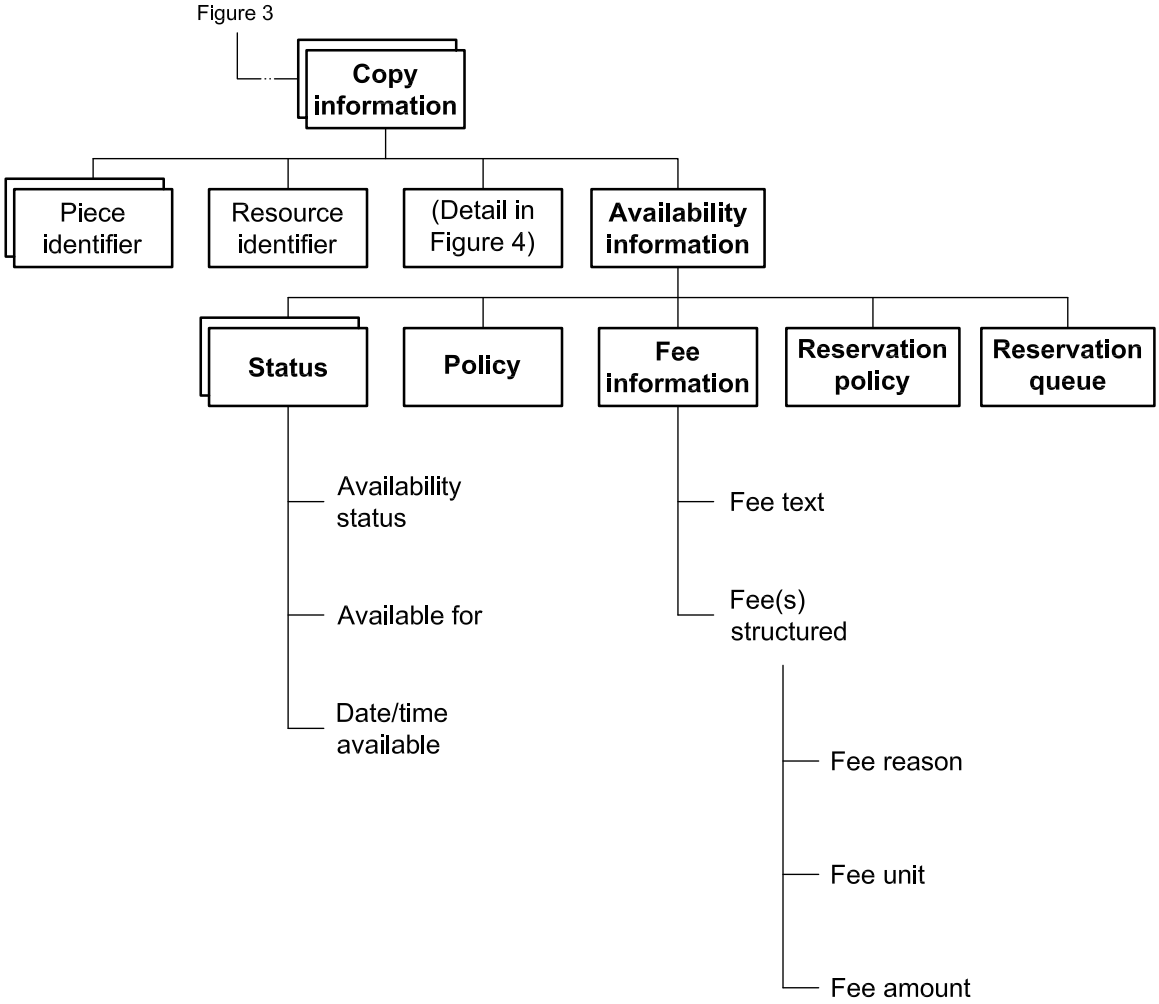

Figure 5 — Copy information availability

5.3.5 Holding — Structured

Figure 6 illustrates the top level of Holding structured (child of Holding).

The “holdingStructured” differs quite importantly from the “holdingSimple” due to the fact that the copies are not interchangeable in the context of a particular query. For example, someone wanting volume 3 of a multi-part work will not be satisfied with volume 2. The discrete copies are grouped into repeatable instances of “set” and there is no summary availability. For example, there is no provision for reservation queue length as reservations are not made at the set level, they are made at the individual copy level.

There is a block of information relating to the sets held, including descriptive information comprising “label” (identification of the set), “form”, location within an institution (“sublocation” and “shelfLocator”), summaries of any gaps in the set (“completeness”) and the enumeration and chronological ranges held (“enumerationAndChronology”), “retention” (how long parts are kept and when they are discarded), “resourceIdentifier” and pointers to available online sets (“electronicLocator” used in combination with “sublocation”). The information about individual copies related to the set is recorded in the “component” block which is repeatable.

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