UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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CISCO SYSTEMS, INC. ("CISCO")

Petitioner

- vs. -

HEWLETT PACKARD ENTERPRISE DEVELOPMENT LP ("HP")

Patent Owner

U.S. Patent No. 8,478,799

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DECLARATION OF INGRID HSIEH-YEE, PHD,
UNDER 37 C.F.R. § 1.68

I, Ingrid Hsieh-Yee, Ph.D., do hereby declare as follows:

1.   I have been retained as an independent expert witness on behalf of Cisco Systems, Inc. ("Cisco") for an *Inter Partes* Review ("IPR") of U.S. Patent No. 8,478,799 ("the '799 patent").

2.   I am being compensated for my work in this matter at my accustomed hourly rate of $160.00. I am also being reimbursed for reasonable and customary expenses associated with my work and testimony in this investigation. My compensation is not contingent on the results of my study, the substance of my opinions, or the outcome of this matter.

3.   In the preparation of this declaration, I have reviewed the exhibits referenced below, each of these is a type of material that experts in my field would reasonably rely upon when forming their opinions:

(1)   Muthitacharoen, A., et al. ("Muthitacharoen"), 2002, "Ivy: A Read/Write Peer-to-Peer System," *Operating Systems Review 36*(SI), 31-44 – *Proceedings of the Fifth ACM Symposium on Operating Systems Design and Implementation (OSDI'02)*, OSR Special Issue, obtained from the George Washington University Library, **CSCO-1007**;

(2)   MARC Record Information for the journal, *Operating Systems Review,* available at the WRLC online catalog at http://catalog.wrlc.org/cgi-

bin/Pwebrecon.cgi?v2=2&ti=1,2&SEQ=20170807173321&PID=Zjc NMglWj6hdiUmx9nzgwd4&SID=1, accessed July 20, 2017, **CSCO-1042**;

(3)   Bibliographic Record Information for the journal, *Operating Systems Review,* available at the WRLC online catalog at http://catalog.wrlc.org/cgi-bin/Pwebrecon.cgi?v1=2&ti=1,2&=&=&=&=&PID=sp0gofZLch68Z ECvDIG2J8q&SEQ=20170807173315&SID=1, accessed July 20, 2017, 2017, **CSCO-1043**;

(4)   Dabek, F., et al. ("Dabek"), 2001, "Wide-area cooperative storage with CFS," *Operating Systems Review* 35(5), 202-215 – *SOSP '01 Proceedings of the 18th ACM Symposium on Operating Systems Principles*, obtained from the Library of Congress, **CSCO-1008**;

(5)   MARC Record Information for the journal, *Operating Systems Review,* available at the online catalog of the Library of Congress at https://catalog.loc.gov/vwebv/staffView?searchId=13511&recPointer =8&recCount=25&bibId=11244591, accessed July 31, 2017, **CSCO-1044**;

(6)   Bibliographic Record Information for the journal, *Operating Systems Review,* available at the online catalog of the Library of Congress at https://catalog.loc.gov/vwebv/holdingsInfo?searchId=13511&recPoint er=8&recCount=25&bibId=11244591, accessed July 31, 2017, **CSCO-1045**;

(7)   Dabek, F., et al. ("Dabek"), 2001, "Wide-area cooperative storage with CFS," *Proceedings of the 18th ACM Symposium on Operating*

Systems Principles (SOSO'01), obtained from a CD-ROM from the Auburn University Library, **CSCO-1051**;

(8)   Scans of *Proceedings of the 18th ACM Symposium on Operating Systems Principles (SOSO'01)*, obtained from a CD-ROM from the Auburn University Library, **CSCO-1046**;

(9)   MARC Record Information for *Proceedings of the 18th ACM Symposium on Operating Systems Principles (SOSO'01)* CD-ROM, available at the Auburn University Library online catalog at http://aubiecat.auburn.edu/vwebv/staffView?bibId=2000144, accessed July 28, 2017, **CSCO-1047**;

(10)   Bibliographic Record Information for *Proceedings of the 18th ACM Symposium on Operating Systems Principles (SOSO'01)* CD-ROM, available at the Auburn University Library online catalog at http://aubiecat.auburn.edu/vwebv/holdingsInfo?bibId=2000144, accessed July 28, 2017, **CSCO-1048**; and

(11)   Scan of CD-ROM and CD-ROM Case, *Proceedings of the 18th ACM Symposium on Operating Systems Principles (SOSO'01)* CD-ROM obtained from the Auburn University Library, **CSCO-1049**;

(12)   Marshall Kirk McKusick, et al., THE DESIGN AND IMPLEMENTATION OF THE FREEBSD OPERATING SYSTEM (2005), obtained from the Library of Congress, **CSCO-1011**;

(13)   MARC Record Information for THE DESIGN AND IMPLEMENTATION OF THE FREEBSD OPERATING SYSTEM (2005), available at the online catalog of the Library of Congress at https://catalog.loc.gov/vwebv/staffView?searchId=13576&recPointer

=1&recCount=25&bibId=13582959, accessed August 3, 2017, **CSCO-1057**;

(14)   Bibliographic Record Information for THE DESIGN AND IMPLEMENTATION OF THE FREEBSD OPERATING SYSTEM (2005), available at the online catalog of the Library of Congress at https://catalog.loc.gov/vwebv/holdingsInfo?searchId=13576&recCount=25&recPointer=1&bibId=13582959, accessed August 3, 2017, **CSCO-1058**;

(15)   Marshall Kirk McKusick, et al., The Design and Implementation of the FreeBSD Operating System (2005), obtained from the George Mason University Library, **CSCO-1059**;

(16)   MARC Record Information for THE DESIGN AND IMPLEMENTATION OF THE FREEBSD OPERATING SYSTEM (2005), available at the online catalog of the George Mason University Library at http://magik.gmu.edu/cgi-bin/Pwebrecon.cgi?BBRecID=1204012&v3=1&SEQ=20170809175612&PID=H7OyU1EwC5upI5Cw7BQjOQyTKw, accessed August 3, 2017, **CSCO-1060**; and

(17)   Bibliographic Record Information for THE DESIGN AND IMPLEMENTATION OF THE FREEBSD OPERATING SYSTEM (2005), available at the online catalog of the George Mason University Library at http://magik.gmu.edu/cgi-bin/Pwebrecon.cgi?BBID=1204012, accessed August 3, 2017, **CSCO-1061**.

4.   In forming the opinions expressed within this declaration, I have

considered:

(1)   The documents listed above;

(2)   The reference materials cited herein; and

(3)   My own academic background and professional experiences, as described below.

5.   My complete qualifications and professional experience are described in my curriculum vitae, a copy of which is attached as **Appendix A**. The following is a brief summary of my relevant qualifications and professional experience.

6.   I am currently a Professor in the Department of Library and Information Science at the Catholic University of America. I have experience working in an academic library, a medical library, and a legislative library and have been a professor for more than 25 years. I hold a Ph.D. in Library and Information Studies from the University of Wisconsin-Madison and a Masters in Library and Information Studies from the University of Wisconsin-Madison.

7.   I am an expert on library cataloging and classification and have published two books on this subject, *Organizing Audiovisual and Electronic Resources for Access*: *A Cataloging Guide* (2000, 2006). I teach a variety of courses, including "Cataloging and Classification," "Internet Searches and Web Design," "Advanced Cataloging and Classification," "Organization of Internet

Resources," "Advanced Information Retrieval and Analysis Strategies," and "Digital Content Creation and Management." My research interests cover cataloging and classification, information organization, metadata, information retrieval, information architecture, digital collections, scholarly communication, user interaction with information systems, and others.

8.   I am fully familiar with a library cataloging encoding standard known as the "Machine-Readable Cataloging" standard, also known as "MARC," which became the national standard for sharing bibliographic data in the United States by 1971 and the international standard by 1973. MARC is the primary communications protocol for the transfer and storage of bibliographic metadata in libraries. Experts in my field would reasonably rely upon MARC records when forming their opinions.

9.   A MARC record comprises several fields, each of which contains specific data about the work. Each field is identified by a standardized, unique, three-digit code corresponding to the type of data that follows. **Appendix B** is a true and correct copy of Parts 7 to 10 of "Understanding MARC Bibliographic" (http://www.loc.gov/marc/umb/) from the Library of Congress that explains commonly used MARC fields. For example, the personal author of the work is recorded in Field 100, the title is recorded in Field 245, publisher information is recorded in Field 260, and the physical volume and characteristics of a publication

are recorded in Field 300, and topical subjects are recorded in the 650 fields.

10. Online Computer Library Center (OCLC) is the largest bibliographic network of the world, with more than 380 million records and more than 16,900 member institutions (many of which are libraries of some type) from 122 countries. OCLC was created "to establish, maintain and operate a computerized library network and to promote the evolution of library use, of libraries themselves, and of librarianship, and to provide processes and products for the benefit of library users and libraries, including such objectives as increasing availability of library resources to individual library patrons and reducing the rate of rise of library per-unit costs, all for the fundamental public purpose of furthering ease of access to and use of the ever-expanding body of worldwide scientific, literary and educational knowledge and information."[1]

11. OCLC members can contribute original cataloging records in MARC to the system or derive cataloging records from existing records, an activity referred to as "copy cataloging". When an OCLC participating institution acquires a work, it can create an original MARC record for this work in OCLC's Connexion

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[1] Third Article, Amended Articles of Incorporation of OCLC Online Computer Library Center, Incorporated (available at http://www.oclc.org/en-US/membership/councils.html).

system (a system for catalogers to create and share MARC records), and the system will automatically generate a code for the date of record creation in the *yymmdd* format, and the creating library's OCLC symbol is recorded in subfield a of the 040 field. Once the MARC record is in Connexion, it becomes available to other OCLC members for adoption to their local online catalogs. The record—presented in a labeled format, not MARC—also becomes searchable and viewable on WorldCat, which is a web portal to more than 10,000 libraries worldwide.

12. Library online catalogs are based on MARC records that represent their collections and help the public understand what materials are publicly accessible in those libraries. Most libraries with online catalogs have made their catalogs freely available on the Web. These online catalogs offer user-friendly search interfaces, often in the form of a single search box, to support searching by author, title, subject, keywords and other data elements. They also offer features for users to narrow their search results by language, year, format, and other elements. Many libraries display MARC records on their online catalogs with labels for the data elements to help the public interpret MARC records. Many libraries also offer an option to display MARC records in MARC fields. For non-serial publications such as monographs, after a MARC record is created and made searchable on a library catalog, it is customary library practice to have the physical volume processed for public access soon after, usually within a week.

13. Libraries create MARC records for works they acquire, including books, serials, motion picture films, and publications in other formats. According to the glossary of the *RDA: Resource Description and Access* cataloging standard, a serial is "a resource issued in successive parts, usually having numbering, that has no predetermined conclusion (e.g., a periodical, a monographic series, a newspaper)." Because the publisher of a serial makes new issues of the serial available successively, a customary cataloging practice is to create one bibliographic record for the serial, and the MARC serial record typically provides information on the beginning date and frequency of the serial, not the dates of individual issues. In other words, libraries typically do not create MARC records for individual issues of a journal. Instead, they rely on a serial check-in system to track the receipt of new issues and communication with serial publishers. A common check-in practice is to date stamp a new issue when it arrives. This practice has become automated since the late 1990s, and libraries now vary in how they share the receipt date of a new journal issue with the public. Some libraries use a date stamp, some affix a label to indicate the receipt date, some pencil in the receipt date, and some do not provide the receipt date information to the public.

14. When libraries receive new issues of a periodical from a periodical publisher, because the MARC serial record for the periodical already exists, no MARC records are created for the new issues. Instead, it is standard library

practice to perform what is called a "serial check-in" for each received issue. The process usually takes less than an hour, and one of the steps involves placing a date stamp on the new issue to reflect the date the issue is checked in. After serial check-in, the new issue will be placed on the shelf with the previous issues of the periodical. After a new issue is checked in, the holdings information of the periodical is updated in the library's catalog so that users know which issues are available for request or access. Because information presented in periodicals often reflects latest discovery, a general practice of libraries is to make new issues of periodicals available for user access soon after they are checked in, usually within a week. Libraries with a public periodical room typically place new issues in the periodical room for easy user access.

15.   I used authoritative information systems such as WorldCat (http://www.worldcat.org) and the online catalogs at the Library of Congress (https://catalog.loc.gov) and the Washington Research Library Consortium (https://www.wrlc.org) to search for records. These records are identified and discussed in this declaration. Experts in the field would reasonably rely on the data described herein to form their opinions.

CSCO-1007

16.   **CSCO-1007** is a true and correct photocopy of portions of the Operating Systems Review Special Issue of Winter 2002 that contains Proceedings

of the *Fifth ACM Symposium on Operating Systems Design and Implementation* ("*OSDI'02*"), including Muthitacharoen that I made on July 22, 2017. When I was originally asked to prepare this declaration, I searched the Washington Research Library Consortium (WRLC) Catalog at https://catalog.wrlc.org/search/index.php for the "*Operating Systems Review"* journal, and the search results informed me that the George Washington University Library holds a special issue of Volume 36 that provides access to the paper version of proceedings of *OSDI'02*. I requested access to this special issue from the Shared Collections Facility of the Washington Research Library Consortium (WRLC) of which the George Washington University is a member.

17.   On July 20, 2017, I requested *OSDI'02* (in which Muthitacharoen is located) via the Washington Research Library Consortium (WRLC) loan service. I received OSDI'02 on July 22, 2017, and on July 22, 2017, made photocopies of Muthitacharoen (**CSCO-1007**) as well as the additional pages found in **CSCO-1007**.

18.   **CSCO-1007** is a true and correct copy of *OSDI'02* that I made on July 22, 2017, while the volume was in my possession via the WRLC loan service. I obtained **CSCO-1007** by personally scanning the front matter (the front cover, the title page, the Operating Systems Review, the symposium organizers, and the table of contents) and the article "Ivy: A Read/Write Peer-to-Peer File System,"

found on pages 31-44 of the periodical.

  a. **WRLC– MARC Record**

19.   **CSCO-1042** is a true and correct copy of the MARC record for the *Operating Systems Review* journal whose volume 36 special issue of 2002 contains the *OSDI'02* issue (**CSCO-1007**) that I retrieved from the WRLC Online Catalog (http://catalog.wrlc.org). I personally identified and located this MARC record, which experts in my field would reasonably rely upon when forming their opinion.

20.   **CSCO-1043** is a true and correct copy of the Bibliographic record for the *Operating Systems Review* journal whose volume 36 special issue of 2002 contains the *OSDI'02* issue (**CSCO-1007**), that I retrieved from the WRLC Online Catalog (http://catalog.wrlc.org). I personally identified and located this Bibliographic Record Information, which experts in my field would reasonably rely upon when forming their opinion. **CSCO-1043** shows that the *OSDI'02* issue (**CSCO-1007**), which contains Muthitacharoen, is stored at the WRLC Center and can be requested via the WRLC loan service.

21.   Field 245 of the MARC record (**CSCO-1042**) and the title of the Bibliographic record (**CSCO-1043**) identify the publication title as "Operating systems review". Field 264 of the MARC record (**CSCO-1042**) and the published/created field of the Bibliographic record (**CSCO-1043**) show that

Operating Systems Review is published by ACM Special Interest Group on Operating Systems in New York, NY. The first six digits of Field 008 of the MARC record (**CSCO-1042**) inform me that the record for the journal was first entered into the OCLC Connexion in "750720" (*i.e*., July 20, 1975). The supplements field of the Bibliographic record (**CSCO-1043**) show that the George Washington University Library has the volume 36 special issue of 2002 ("Special Issue: v.36(2002:Win)"). Field 022 of the MARC record (**CSCO-1042**) and the International Standard Serial Number (ISSN) field of the Bibliographic record (**CSCO-1043**) inform me that the ISSN of the journal is "0163-5980". Field 321 shows that the publication frequency of this journal varied from 1969 to 2008. The second Field 321 of the MARC record (**CSCO-1042**) shows the journal was published three times per year since 2009. Field 310 of the MARC record (**CSCO-1042**) indicates the current publication frequency, since 2015, has been two to three times per year. Field 362 of the MARC record (**CSCO-1042**) and the publication history field of the Bibliographic record (**CSCO-1043**) inform me that the *Operating Systems Review* journal was first published in Dec. 1969. Field 780 of the MARC record (**CSCO-1042**) informs me that this journal's predecessor is "SIGOPS bulletin". Field 711 shows the Symposium on Operating Systems Design and Implementation (OSDI) is an additional access point for this journal, meaning users searching for the proceedings of this Symposium will retrieve this journal

record. Field 650 shows the subject of this journal as "Operating systems (Computers)," with subfield v indicating this publication is a periodical. Users interested in this topic treated in periodicals would be able to use this subject heading string to locate this journal. The MARC record (**CSCO-1042**) of the George Washington University Library makes the *Operating Systems Review* journal, including thee Winter 2002 special Issue (**CSCO-1007**), searchable in the WRLC catalog.

22.   Based on the information above, it is my opinion that the *Operating Systems Review* journal is a long running periodical that has been made available by the George Washington University Library in the WRLC catalog, meaning that anyone who was interested in the topic would be able to search for and access the *Operating Systems Review* journal.

b. **WRLC – Date Stamp**

23.   The interior title page of the *OSDI'02* issue in **CSCO-1007** bears a stamp of "CURRENT PERIODICALS The Gelman Library APR 03 2003 George Washington University Washington, DC 20052." The stamp has the appearance and distinctive characteristics of a typical check-in date stamp utilized by libraries to indicate the date a particular periodical issue was received by the library. As I noted above, it is ordinary and regular practice for a library, as part of its regularly conducted activity, to maintain intake records, including date stamping periodical

issues during the check-in process, and to make an issue of a periodical available to the public in the library shortly after the library receives and date stamps the issue for serial check-in, usually within a week. In this case, it is my understanding that the George Washington University Library, upon receiving the *OSDI'02* issue (**CSCO-1007**), date stamped it on April 3, 2003 (as shown in **CSCO-1007**), and, shortly thereafter, would have placed it with other recent issues of the periodical in the periodical room so as to make the issue findable and accessible to the public.

24.   Based on the date stamp placed on the interior title page in **CSCO-1007**, which has a date of April 3, 2003, and my understanding of the ordinary and customary check-in practices of libraries, it is my opinion that the *OSDI'02* issue (**CSCO-1007**) (and, therefore, Muthitacharoen included therein) was accessible through the George Washington University Library to the public shortly after being received, usually within a week, on April 3, 2003.

25.   In view of the foregoing, it is my opinion that the *Operating Systems Review* journal is a long standing publication with wide readership (beginning in 1969) and that the George Washington University Library received the *OSDI'02* issue of the *Operating Systems Review* journal, which includes a copy of the Muthitacharoen article (**CSCO-1007**), on April 3, 2003, and made it available to the public shortly thereafter.

26.   Actual usage of the Muthitacharoen article (**CSCO-1007**), which was

published in the *OSDI'02* issue of the *Operating Systems Review* journal, is reflected by articles that make reference to it. The article citation history provided by Google Scholar shows the Muthitacharoen article has been cited 585 times. Five citing articles are selected to demonstrate actual usage:

(1) Cuenca-Acuna, F. M., Peery, C., Martin, R. P., & Nguyen, T. D. (2003, June). Planetp: Using gossiping to build content addressable peer-to-peer information sharing communities. In High Performance Distributed Computing, 2003. Proceedings. 12th IEEE International Symposium on (pp. 236-246). IEEE. (http://ieeexplore.ieee.org/abstract/document/1210033/; as Reference #17);

(2) Goh, E. J., Shacham, H., Modadugu, N., & Boneh, D. (2003, February). SiRiUS: Securing Remote Untrusted Storage. In NDSS (Vol. 3, pp. 131-145). (http://www.isoc.org/isoc/conferences/ndss/03/proceedings/papers/9.pdf; as Reference #25);

(3) Kallahalla, M., Riedel, E., Swaminathan, R., Wang, Q., & Fu, K. (2003, March). Plutus: Scalable Secure File Sharing on Untrusted Storage. In Fast (Vol. 3, pp. 29-42). (https://www.usenix.org/legacy/events/fast03/tech/full_papers/ kallahalla/kallahalla.pdf; as Reference #36);

(4) Rhea, S. C., Eaton, P. R., Geels, D., Weatherspoon, H., Zhao, B. Y., & Kubiatowicz, J. (2003, March). Pond: The OceanStore Prototype. In FAST (Vol. 3, pp. 1-14).

(https://www.usenix.org/legacy/events/fast03/tech/rhea/rhea.pdf ;
as Reference #21); and

(5) Bhagwan, R., Tati, K., Cheng, Y., Savage, S., & Voelker, G. M. (2004, March). Total Recall: System Support for Automated Availability Management. In Nsdi (Vol. 4, pp. 25-25).

(https://www.usenix.org/legacy/publications/library/proceedings/nsdi04/tech/full_papers/bhagwan/bhagwan.pdf; as Reference #15).

27.   Taken together, the MARC record, the Bibliographic record, the date stamp, and the citations support my opinion that the Muthitacharoen article (**CSCO-1007**) was publicly accessible as early as February 2003 when the first citing paper was published or shortly after April 3, 2003 when the George Washington University Library received the winter 2002 special issue of the *Operating Systems Review* journal.

CSCO-1008

28.   **CSCO-1008** is a true and correct photocopy of Vol. 35, Number 5 (December 2001) of the *Operating Systems Review* journal, that publishes *Proceedings of the 18th ACM Symposium on Operating Principles (SOSP'01)*, which contains Dabek, that I made on July 31, 2017 during my personal visit to the Library of Congress. When I was originally asked to prepare this declaration, I accessed WorldCat for "Operating Systems Review" and identified the Library of Congress as one of the libraries that hold these conference proceedings. I then

searched the Library of Congress online catalog to confirm the holdings information. The search results informed me that the Library of Congress provides access to the paper version of *SOSP'01*.

29. **CSCO-1008** is a true and correct copy of SOSP'01 that I made on July 31, 2017, while the volume was in my possession at the Library of Congress. I obtained **CSCO-1008** by personally scanning the front matter (the front cover, the title page, the copyright page, the conference organizers, and the table of contents) and the article "Wide-area cooperative storage with CFS," found on pages 202-215 of the journal.

a. **Library of Congress – MARC Record**

30. **CSCO-1044** is a true and correct copy of the MARC record for the *Operating Systems Review* journal, which contains Dabek (**CSCO-1008**), that I retrieved from the online catalog of the Library of Congress after searching for the journal by its title "Operating Systems Review". I personally identified and located this record, which experts in my field would reasonably rely upon when forming their opinions.

31. **CSCO-1045** is a true and correct copy of a Bibliographic Record for the *Operating Systems Review* journal, which contains Dabek (**CSCO-1008**), that I retrieved from the online catalog of the Library of Congress, which experts in

my field would reasonably rely upon when forming their opinions. **CSCO-1045**

shows the holdings of this journal and indicates issues can be requested in the

Jefferson or Adams Building Reading Rooms of the Library of Congress.

32. Field 245 of the MARC record (**CSCO-1044**) and the main title of the

Bibliographic record (**CSCO-1045**) identify the publication title as "Operating

systems review". Field 260 of the MARC record (**CSCO-1044**) and the

published/created field of Bibliographic record (**CSCO-1045**) show that *SOSP'01*

is published by ACM Special Interest Group on Operating Systems in New York,

NY. The first six digits of Field 008 of the MARC record (**CSCO-1044**) inform me

that the record for the journal was first entered into the OCLC Connexion in

"750720" (*i.e.*, July 20, 1975). Field 022 of the MARC record (**CSCO-1044**) and

the International Standard Serial Number (ISSN) field of the Bibliographic record

(**CSCO-1045**) inform me that the ISSN of the journal is "0163-5980". Field 321

shows that the journal frequency of this periodical varied from 1969 to 2008. The

second Field 321 of the MARC record (**CSCO-1044**) shows the journal was

published three times per year since 2009. Field 310 of the MARC record (**CSCO-1044**) indicates the current publication frequency, since 2015, has been two to

three times per year. Field 362 of the MARC record (**CSCO-1044**) and the

publication history field of the Bibliographic record (**CSCO-1045**) inform me that

the *Operating Systems Review* journal was first published in Dec. 1969. Field 780

of the MARC record (**CSCO-1044**) informs me that this journal's predecessor is "SIGOPS bulletin". Field 711 informs me that Symposium on Operating Systems Design and Implementation (OSDI) is an additional access point for this journal. The MARC record of the Library of Congress makes the *Operating Systems Review* journal that contains Dabek (**CSCO-1008**) searchable on its library catalog.

33.   Based on the information above, it is my opinion that the *Operating Systems Review* journal that contains Dabek (**CSCO-1008**) is a long running periodical that has been made available by the Library of Congress, meaning that anyone who was interested in the topic would be able to search for and access the *Operating Systems Review* journal, which contains Dabek (**CSCO-1008**).

b.   **Library of Congress – Date Stamp**

34.   **CSCO-1008** is a true and correct photocopy of portions of Vol. 35, Number 5 (December 2001) of the *Operating Systems Review* journal, specifically, the *SOSP'01* issue that includes Dabek (**CSCO-1008**) that I made during my personal visit to the Library of Congress on July 31, 2017. **CSCO-1008** includes the front cover, the title page, the copyright page, the conference organizers, and the table of contents, and the article "Wide-area cooperative storage with CFS," found on pages 202-215 of the issue. When I was originally asked to prepare this declaration, I searched WorldCat for "Operating Systems Review" and identified the Library of Congress as one of the libraries that hold these conference

proceedings. I then searched the Library of Congress online catalog to confirm the holdings information

35.   The front cover of the *SOSP'01* issue in **CSCO-1008** bears a stamp of "LIBRARY OF CONGRESS COPYRIGHT OFFICE OCT 29 2001." The stamp has the appearance and distinctive characteristics of a typical check-in date stamp utilized by libraries to indicate the date a particular periodical issue was received by the library. As I noted above, it is ordinary and regular practice for a library, as part of its regularly conducted activity, to maintain intake records, including date stamping periodical issues during the check-in process, and to make an issue of a periodical available to the public in the library shortly after the library receives and date stamps the issue for serial check-in, usually within a week. In this case, it is my opinion that the Library of Congress, upon receiving *SOSP'01*, date stamped it on October 29, 2001 (as shown in **CSCO-1008**), and, shortly thereafter, would have placed it with other issues of the periodical in the periodical room so as to make the issue findable and accessible to the public.

36.   Based on the date stamp placed on the cover page in **CSCO-1008**, which has a date of October 29, 2001, and my understanding of the ordinary and customary check-in practices of libraries, it is my opinion that the *SOSP'01* issue (**CSCO-1008**) (and, therefore, Dabek included therein) was accessible at the Library of Congress to the public shortly after being received on October 29, 2001.

c. Auburn University – MARC Record

37. **CSCO-1051** is a true and correct copy of Dabek, found in Vol. 35, Number 5 (December 2001) of the *Operating Systems Review* journal that publishes the *Proceedings of the 18th ACM Symposium on Operating Systems Principles (SOSP'01)*, that I made on July 28, 2017 during my personal visit to the Catholic University of America Library. When I was originally asked to prepare this declaration, I accessed WorldCat for "Operating Systems Review." The search results informed me that the Auburn University Library provides access to the proceedings of *SOSP'01*.

38. On July 22, 2017, I requested *SOSP'01* (in which Dabek is located) via the interlibrary loan service of the Catholic University of America. I received the CD-ROM version of *SOSP'01* owned by the Auburn University Library on July 28, 2017, and on July 28, 2017, printed copies of Dabek (**CSCO-1051**) as well as the additional pages found in **CSCO-1046**.

39. I have compared **CSCO-1008** and **CSCO-1051**, and I have found that both copies of Dabek found in each exhibit are identical.

40. **CSCO-1051** is a true and correct copy of Dabek that I made on July 28, 2017, while the CD-ROM was in my possession via the Catholic University of America inter-library loan service. I obtained **CSCO-1051** by personally opening

the file on the CD-ROM and printing the article "Wide-area cooperative storage with CFS". I also obtained **CSCO-1046** by personally opening the file on the CD-ROM and printing the front cover, the copyright page, message pages from the proceeding's chair and program chair, the symposium reviewers, the conference officers, the table of contents, and the author index.

41.   **CSCO-1047** is a true and correct copy of the MARC record for the CD-ROM that contains the *Proceedings of the 18th ACM Symposium on Operating Systems Principles*, which contains Dabek (**CSCO-1051**), that I retrieved from the online catalog of the Auburn University Library (http://aubiecat.auburn.edu) after searching for the publication by the title "symposium on operating systems principles." I personally identified and located this record, which experts in my field would reasonably rely upon when forming their opinions.

42.   **CSCO-1048** is a true and correct copy of the Bibliographic Record for the CD-ROM that contains the *Proceedings of the 18th ACM Symposium on Operating Systems Principles*, which contains Dabek (**CSCO-1051**), that I retrieved from the online catalog of the Auburn University Library (http://aubiecat.auburn.edu), which experts in my field would reasonably rely upon when forming their opinions. **CSCO-1048** shows the holdings of this publication and indicates that the CD-ROM can be located on the 4th Floor of the Auburn University Library.

43.   Field 245 of the MARC record (**CSCO-1047**) and the main title of the

Bibliographic Record (**CSCO-1048**) identify the title of the CD-ROM as the

"Proceedings of the 18th Symposium on Operating Systems Principles," taking

place October 21-24, 2001 at the Chateau Lake Louise, Banff, Alberta, Canada.

Field 246 shows the publication has a variant title "SOSP '01" meaning the CD-

ROM can be found in the library catalog by this variant title. Field 260 of the

MARC record (**CSCO-1047**) and the published/created field of Bibliographic

record (**CSCO-1048**) show that the CD-ROM is published by ACM (Association

for Computing Machinery) in New York, NY. The first six digits of Field 008 of

the MARC record (**CSCO-1047**) inform me that the record for the CD-ROM was

first entered into the OCLC Connexion in "011211" (*i.e.*, December 11, 2001) by

FHM, University of South Florida, Tampa, Florida, and used by the Auburn

University Library for copy cataloging. The MARC record of the Auburn

University Library makes the *Proceedings of the 18th Symposium on Operating*

Systems Principles on the CD-ROM searchable on its library catalog. Field 500 of

the MARC record (**CSCO-1047**) shows that the CD-ROM disc has a label: ACM

order number: 534011. Field 516 of the MARC record (**CSCO-1047**) shows that

the conference proceedings are presented in several formats--PDF, PostScript,

HTML, text files—to facilitate user access. The subject of the CD-ROM is

"Operating systems (Computers)," as recorded in Field 650 subfield a of the

MARC record (**CSCO-1047**). Any person searching for publications concerning computer operating systems could use the subject heading "Operating systems (Computers)" to find this CD-ROM for *Proceedings of the 18th Symposium on Operating Systems Principles (SOSP'01)*.

44.   **CSCO-1049** is a true and correct copy of the CD-ROM and CD-ROM cover of *SOSP'01* that I made on July 28, 2017, from the item borrowed from the Auburn University Library. The Auburn University Library catalogs the CD-ROM as a non-serial publication and assigns a call number to it. Field 090 of the MARC record (**CSCO-1047**) and the call number of the Bibliographic record (**CSCO-1048**) show that the local call number assigned to this CD-ROM is QA76.76.O63 A46 2001. The CD-ROM cover (**CSCO-1049**) shows that the CD-ROM that contains Dabek (**CSCO-1051**) also has the call number QA76.76.O63 A46 2001.

45.   Field 948, a local note, of the MARC record (**CSCO-1047**) shows that the CD-ROM was cataloged at the Auburn University Library on September 22, 2003. In my communication with a librarian at the Auburn University Library I learned that the CD-ROM was cataloged at the library on August 2, 2002, and the record was later revised on September 22, 2003. The Auburn University Library catalogs the CD-ROM as a non-serial publication. For non-serial publications such as monographs and CD-ROMs, after a MARC record is created and made searchable on a library catalog, it is customary library practice to have the physical

volume processed for public access soon after, usually within a week.

46.   Based on the cataloging date information obtained from the MARC record and the librarian at the Auburn University Library and my understanding of the ordinary and customary practice of libraries, it is my opinion that the CD-ROM that contains the Proceedings of the 18th ACM Symposium on Operating Systems Principles was publicly accessible soon after it was cataloged on Aug. 2, 2002, at the Auburn University Library.

47.   Actual usage of the Dabek article (**CSCO-1008** and **CSCO-1051**), which was published in Vol. 35, Num. 5 (December 2001) of *SOSP'01*, is reflected by articles that make reference to it. The article citation history provided by Google Scholar shows the Dabek article has been cited 2,214 times. Five citing articles are selected to demonstrate actual usage:

(1) Stoica, I., Morris, R., Karger, D., Kaashoek, M. F., & Balakrishnan, H. (2001). Chord: A scalable peer-to-peer lookup service for internet applications. ACM SIGCOMM Computer Communication Review, 31(4), 149-160. (http://dl.acm.org/citation.cfm?id=383071 ; as Reference #7);

(2) Rowstron, A., & Druschel, P. (2001, November). Pastry: Scalable, decentralized object location, and routing for large-scale peer-to-peer systems. In IFIP/ACM International Conference on Distributed Systems Platforms and Open Distributed Processing (pp. 329-350). Springer, Berlin, Heidelberg. (https://link.springer.com/chapter/10.1007/3-540-

45518-3_18 ; as Reference #9);

(3) Saroiu, S., Gummadi, P., & Gribble, S. (2002). Exploring the design space of distributed and peer-to-peer systems: Comparing the web, triad, and chord/cfs. Peer-to-Peer Systems, 214-224. (http://dl.acm.org/citation.cfm?id=687809&CFID=787749494&CFTOKEN=57929683 ; as Reference #2);

(4) Zhao, B., Duan, Y., Huang, L., Joseph, A., & Kubiatowicz, J. (2002). Brocade: Landmark routing on overlay networks. Peer-to-Peer Systems, 34-44. (http://dl.acm.org/citation.cfm?id=687804&CFID=787749494&CFTOKEN=57929683 ; as Reference #2); and

(5) Liben-Nowell, D., Balakrishnan, H., & Karger, D. (2002, July). Analysis of the evolution of peer-to-peer systems. In Proceedings of the twenty-first annual symposium on Principles of distributed computing (pp. 233-242). ACM. http://dl.acm.org/citation.cfm?id=571863&CFID=787749494&CFTOKEN=57929683 ; as Reference #2).

48. Therefore, it is my opinion that the Dabek article (**CSCO-1008** and **CSCO-1051**) was publicly accessible within a week after the issue was date stamped on October 29, 2001 at the Library of Congress, and no later than August 2, 2002 when it was cataloged as a non-serial publication at the Auburn University Library.

CSCO-1011

49. **CSCO-1011** is a true and correct photocopy of THE DESIGN AND IMPLEMENTATION OF THE FREEBSD OPERATING SYSTEM (2005) ("McKusick"), that I made on August 8, 2017 during my personal visit to the Library of Congress. When I was originally asked to prepare this declaration, I accessed WorldCat for "FreeBSD Operating System" and identified the Library of Congress as one of the libraries that hold this monograph. I then searched the Library of Congress online catalog to confirm the holdings information. The search results informed me that the Library of Congress provides access to McKusick.

50. **CSCO-1011** is a true and correct copy of portions of McKusick that I made on August 8, 2017, while the book was in my possession at the Library of Congress. I obtained **CSCO-1011** by personally scanning the front matter (the front cover, the title page, the copyright page, and the back cover) and select content pages from McKusick, specifically, pages xix-xxi, 3-11, 215-216, 240-245, 295-300, and 621, of the book.

a. Library of Congress – MARC Record

51. **CSCO-1057** is a true and correct copy of the MARC record for THE DESIGN AND IMPLEMENTATION OF THE FREEBSD OPERATING SYSTEM (2005) book (**CSCO-1011**) that I retrieved from the online catalog of the Library of Congress after searching for the book by searching for "FreeBSD Operating System." I personally identified and located this record, which experts in my field would

reasonably rely upon when forming their opinions.

52.   **CSCO-1058** is a true and correct copy of the Bibliographic record for THE DESIGN AND IMPLEMENTATION OF THE FREEBSD OPERATING SYSTEM (2005) book (**CSCO-1011**) that I retrieved from the online catalog of the Library of Congress, which experts in my field would reasonably rely upon when forming their opinions. **CSCO-1058** shows the holdings of this book and indicates it can be requested in the Jefferson or Adams Building Reading Rooms of the Library of Congress.

53.   Field 245 of the MARC record (**CSCO-1057**) and the title of the Bibliographic record (**CSCO-1058**) identify the book title as "The design and implementation of the FreeBSD operating system." Field 100 of the MARC record (**CSCO-1057**) and the personal name of the Bibliographic record (**CSCO-1058**) identify the book author as Marshall Kirk McKusick. Field 260 of the MARC record (**CSCO-1057**) and the published/created field of Bibliographic record (**CSCO-1058**) show that McKusick was published by Addison-Wesley in Boston in 2005. The first six digits of Field 008 of the MARC record (**CSCO-1057**) inform me that the record for the book was first entered into the OCLC Connexion in "040505" (*i.e.*, May 5, 2004). Field 050 of the MARC Record (**CSCO-1057**) and the LC classification field of the Bibliographic record (**CSCO-1058**) show that McKusick has Library of Congress call number of "QA76.76 .O63 M398745

2005." Field 906 of the MARC record (**CSCO-1057**) informs me that the record is an original, new record ("orignew") created via the "ecip" (Electronic Cataloging in Publication program). Field 955 of the MARC record (**CSCO-1057**) is a local note that indicates how the book moves through various units of the Library of Congress. It informs me that the cataloging record was part of the "CIP" (Cataloging in Publication) program whose standard practice is to create a bibliographic record for a book that has not yet been published. This is the reason why this cataloging record was created on May 5, 2004, prior to the 2005 publication date. Part of the CIP program requirements is that publishers will send books to the Library of Congress when books with CIP data are published. It is important to note that the first copy of McKusick was sent to the CIP unit (Cataloging in Publication) on November 23, 2004, and CIP sent it to BCCD (Binding and Collections Care) on November 26, 2004, getting it ready for user access. The MARC record of the Library of Congress makes the McKusick book (**CSCO-1011**) searchable on its library catalog.

54. Based on the information above, it is my opinion that THE DESIGN AND IMPLEMENTATION OF THE FREEBSD OPERATING SYSTEM (2005) book (**CSCO-1011**) is a book that has been made available by the Library of Congress, meaning that anyone who was interested in the topic would be able to search for and access McKusick.

b. Library of Congress – Date Stamp

55. The front cover of McKusick in **CSCO-1011** bears a stamp of "LIBRARY OF CONGRESS COPYRIGHT OFFICE SEP 15 2004" that indicates the date when the Copyright Office received the physical volume. Field 955 of the MARC record (**CSCO-1057**) shows that after the book was received and date stamped on September 15, 2004, the book was sent to the CIP unit on November 23, 2004, and CIP sent it to BCCD on November 26, 2004. After the book was sent to BCCD, it would have been ready for user access shortly thereafter.

56. Based on the date stamp placed on the cover page in **CSCO-1011**, which has a date of September 15, 2004, and my understanding of the ordinary and customary cataloging and processing practices of libraries, it is my opinion that McKusick (**CSCO-1011**) was accessible at the Library of Congress to the public shortly after being sent to BCCD on November 26, 2004.

c. George Mason University – MARC Record

57. CSCO-1059 is a true and correct copy of McKusick, THE DESIGN AND IMPLEMENTATION OF THE FREEBSD OPERATING SYSTEM (2005) book, that I made on August 8, 2017, after I obtained the book from the George Mason University Library through the WRLC loan service. When I was originally asked to prepare this declaration, I accessed WorldCat for "FreeBSD Operating System." The

search results informed me that the George Mason University Library provides access to McKusick, and that the book can be requested from the George Mason University Library.

58.   **CSCO-1059** is a true and correct copy of portions of McKusick that I made on August 8, 2017, while the book was in my possession via the WRLC loan service. I obtained **CSCO-1059** by personally scanning the front matter (the front cover, the title page, the copyright page, and the back cover) and select content pages from McKusick, specifically, pages xix-xxi, 3-11, 215-216, 240-245, 295-300, and 621, of the book.

59.   I have compared **CSCO-1011** and **CSCO-1059**, and I have found that both copies of McKusick are identical.

60.   **CSCO-1060** is a true and correct copy of the MARC record for McKusick (**CSCO-1059**) that I retrieved from the online catalog of the George Mason University Library (http://magik.gmu.edu) after searching for "FreeBSD Operating System." I personally identified and located this record, which experts in my field would reasonably rely upon when forming their opinions.

61.   **CSCO-1061** is a true and correct copy of the Bibliographic record for McKusick (**CSCO-1059**), that I retrieved from the online catalog of the George Mason University Library (http://magik.gmu.edu), which experts in my field

would reasonably rely upon when forming their opinions. **CSCO-1061** shows that McKusick is shelved at Fenwick Stacks at the George Mason University Library.

62.   Field 245 of the MARC record (**CSCO-1060**) and the title of the Bibliographic record (**CSCO-1061**) identify the title of McKusick as "The design and implementation of the FreeBSD operating system." Field 260 of the MARC record (**CSCO-1060**) and the published/created field of the Bibliographic record (**CSCO-1061**) show that McKusick is published by Addison-Wesley in Boston in 2005. The first six digits of Field 008 of the MARC record (**CSCO-1060**) inform me that the record for the book was first entered into the OCLC Connexion in "040505" (*i.e.*, May 5, 2004). Field 040 subfield a of the MARC record (**CSCO-1060**) indicates that the Library of Congress ("DLC") is the organization that first created this record. Field 040 subfield d of the MARC record (**CSCO-1060**) indicates that the George Mason University Library ("VGM") used the original record from the Library of Congress for copy cataloging. Field 005 of the MARC record (**CSCO-1060**) shows that the George Mason University Library modified the MARC record on "20050808" (*i.e.*, August 8, 2005), indicating the date when McKusick was added to George Mason's collection. This information is confirmed by a librarian of the University. Field 049 of the MARC record (**CSCO-1060**) shows that the George Mason University Library holds McKusick.

63.   Based on Field 005 of the George Mason MARC record (**CSCO-**

1060), which has a date of "20050808" (*i.e.*, August 8, 2005), and my understanding of the ordinary and customary cataloging practices of libraries, it is my opinion that McKusick (**CSCO-1059**) was accessible at the George Mason University Library to the public shortly after August 8, 2005.

64.   Therefore, it is my opinion that McKusick (**CSCO-1011** and **CSCO-1059**) was publicly accessible soon after November 26, 2004 at the Library of Congress, and soon after August 8, 2005 at the George Mason University Library.

CONCLUSION

65.   In signing this declaration, I recognize that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case. If cross-examination is required of me, I will appear.

66.   I hereby declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Date: _8-10-2017_   Executed: _Ingrid Hsieh-Yee_

Ingrid Hsieh-Yee, Ph.D.

APPENDIX A

Ingrid Hsieh-Yee
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Catholic University of America
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Education

Ph.D. Library and Information Studies, University of Wisconsin-Madison
     Minors: Sociology and Psychology

M.A. Library and Information Studies, University of Wisconsin-Madison.

M.A. Comparative Literature, University of Wisconsin-Madison.

B.A. Foreign Languages and Literature, National Taiwan University.

Work Experience

Professor, School/Dept. of Library and Information Science, Catholic University of America,
     2004- (Assistant Professor, 1990-1996; Associate Professor, 1997-2004)

Co-Chair, Dept. of Library and Information Science, Catholic University of America, June 2015-
     August 2016.

Acting Dean, School of Library and Information Science, Catholic University of America,
     January 2010-June 2012.

Cataloger, Dept. of Legislative Reference Library, Annapolis, Maryland, 1989-1990.

Lecturer, School of Library and Information Studies, University of Wisconsin-Madison, 1988.

Teaching Assistant, School of Library and Information Studies, University of Wisconsin-
     Madison, 1986-1988.

Cataloger, Health Sciences Library, University of Wisconsin-Madison, 1984-1986.

Areas of Teaching and Research Interests

Information Organization and Access; Metadata; Cataloging & Classification; Information
Architecture; Information Retrieval; Digital Collections; Scholarly Communication; Information

Behavior; Health Informatics; Human Computer Interaction; Usability Studies

Grants & Honors

Cultural Heritage Information Management Project. IMLS grant. Amount: $498,741. Period: Aug. 2012 to July 2015. Co-PI with Dr. Youngok Choi.

D.C. Health Information Technology (HIT4): Building Capacity & Providing Access in Our Nation's Capital. Dept. of Labor H2B Training Grant. Grant amount: $4,175,500. Grant period: Nov. 2011 to Dec. 2015. Partner with the Metropolitan School of Professional Studies of the Catholic University of America, Children's National Medical Center, D.C. Department of Employment Services, Holy Cross Hospital, Howard University, Center for Urban Progress, Providence Hospital, and Sibley Memorial Hospital.

Capital Health Careers Project. Department of Labor Healthcare Sector and Other High Growth and Emerging Industries Grant. Grant amount: $4,953,999. Grant period: March 2010 – February 2013. Awarded to a group of healthcare organizations and educational institutions in Washington, D.C. Providence Health Foundation of Providence Hospital (Lead institution). Part of the grant supported the development of a Master's degree program in Information Technology with a concentration in Health Information Technology offered by the School of Library and Information Science.

The Washington D.C. School Librarians Project. IMLS grant. Grant amount: $412,660. Grant period: Aug. 2007 – June 2011. The School partnered with the District of Columbia Public Schools (DCPS) and the District of Columbia Library Association to educate and mentor school media specialists for the DCPS system. PI, Jan. 2010 to June 2011.

SIG Member of the Year, American Society for Information Science and Technology (2009).

Most Outstanding Paper of *OCLC Systems & Services* (2001).

ALISE Research Grant (2001).

Most Outstanding Paper of *OCLC Systems & Services* (2000).

Research Grant from ERIC (1999-2000).

Best Research Paper Award; Association for Library and Information Science Education (1998).

Research Grants, Catholic University of America. 1991, 1992, 1993, 1996, 1998, 1999, 2004, 2005, 2006, 2007, 2013-14.

Cooperative Faculty Research Grant, Consortium of Universities in the Washington Metropolitan Area (1993-1994).

Cooperative Research Grant, Council on Library Resources (1993-1994).

Journal of the American Society for Information Science Best Paper Award (1993).

ASIS/ISI Information Science Doctoral Dissertation Scholarship (1989).

HEA Title IIB Fellowship (Dept. of Education) (1989)

Chinese-American Librarians Association Scholarship (1987).

Beta Phi Mu (1985).

Vilas Fellowship, University of Wisconsin-Madison. 1984

Publications

Choi, Y., and Hsieh-Yee, I. (2010). Finding Images in an OPAC: Analysis of User Queries, Subject Headings, and Description Notes. *Canadian Journal of Information and Library Science,* 34(3): 271 – 295.

Hsieh-Yee, I. (2008). Educating Cataloging Professionals in a Changing Information Environment. *Journal of Education for Library and Information Science,* 46(2): 93-106.

Vellucci, S. L., Hsieh-Yee, I., and Moen, W.E. (2007). The Metadata Education and Research Information Commons (MERIC): A Collaborative Teaching and Research Initiative. *Education for Information,* 25(3&4): 169-178.

NISO Framework for Guidelines for Building Good Digital Collections. 3rd ed. Baltimore, MD: National Information Standards Organization, 2007. Also available online: http://www.niso.org/framework/framework3.pdf (NISO Working Group members: Priscilla Caplan (chair), Grace Agnew, Murtha Baca, Tony Gill, Carl Fleischhauer, Ingrid Hsieh-Yee, Jill Koelling, and Christie Stephenson.)

Choi, Y., Hsieh-Yee, I., and Kules, B. (2007). Retrieval Effectiveness of TOC and LCSH. *Proceedings of the Joint Conference on Digital Libraries,* pp. 233-234.

Vellucci, S., and Hsieh-Yee, I. (2007). They Didn't Teach Me That in Library School! Building a Digital Teaching Commons to Enhance Metadata Teaching, Learning and Research. *Proceedings of the National Conference of the Association of College and Research Libraries, Baltimore, MD,* pp. 26-31.

Mitchell, Vanessa, and Ingrid Hsieh-Yee. (2007). Converting Ulrich's Subject Headings to FAST Headings: A Feasibility Study. *Cataloging & Classification Quarterly,* 45(1): 59-85.

Hsieh-Yee, I., Tang, R., and Zhang, S. (2007). User Perceptions of a Federated Search System. *IEEE Technical Committee on Digital Libraries Bulletin,* Summer 3(2) (URL = http://www.ieee-tcdl.org).

Tang, R., Hsieh-Yee, I., and Zhang, S. (2007). User Perceptions of MetaLib Combined Search: An Investigation of How Users Make Sense of Federated Searching." *Internet Reference Services Quarterly,* 12(12): 211-236.

Hsieh-Yee, I., Tang, R., and Zhang, S. (2006). User Perceptions of a Federated Search System. *Proceedings of the Joint Conference on Digital Libraries, June 11-15, 2006, Chapel Hill,* p. 338.

Hsieh-Yee, I. (2006). *Organizing Audiovisual and Electronic Resources for Access: A Cataloging Guide.* 2nd ed. Westport, Conn.: Libraries Unlimited.

NISO A Framework of Guidance for Building Good Digital Collections. 2nd ed. Bethesda, MD: National Information Standards Organization, 2004. Framework Advisory Group: Grace Agnew, Liz Bishoff, Priscilla Caplan (Chair), Rebecca Gunther and Ingrid Hsieh-Yee.

Hsieh-Yee, I. (2004). Cataloging and Metadata Education in North American LIS Programs. *Library Resources & Technical Services,* 48(1): 59-68.

Hsieh-Yee, I. (2004). Cataloging and Metadata Education. In Gary E. Gorman (Ed.), *International Yearbook of Library and Information Management 2003: Metadata Applications and Management,* (pp.204-234). London: Facet Publishing.

Yee, P. L., Hsieh-Yee, I., Pierce, G.R., Grome, R., and Schantz, L. (2004). Self-Evaluative Intrusive Thoughts Impede Successful Searching on the Internet. *Computers in Human Behavior,* 20(1): 85-101.

Hsieh-Yee, I. (2003). Cataloging and Metadata Education: A Proposal for Preparing Cataloging Professionals of the 21st Century. A report submitted to the ALCTS-Education Task Force in response to Action Item 5.1 of the *Bibliographic control of Web Resources: A Library of Congress Action Plan.* Approved by the Association for Library Collections and Technical Services. Web version available since April 2003 at http://lcweb.loc.gov/catdir/bibcontrol/CatalogingandMetadataEducation.pdf.

Hsieh-Yee, I. (2002). Cataloging and Metadata Education: Asserting a Central Role in Information Organization. *Cataloging & Classification Quarterly* 34(½): 203-222.

Hsieh-Yee, I., and Smith, M. (2001). The CORC Experience: Survey of Founding Libraries, Part I. *OCLC Systems & Services,* 17: 133-140. (Received "The Most Outstanding Paper of OCLC Systems & Services in 2001" award.)

Hsieh-Yee, I., and Smith, M. (2001). The CORC Experience: Survey of Founding Libraries, Part II, Automated Tools and Usage. *OCLC Systems & Services,* 17: 166-177. (Received "The Most Outstanding Paper of OCLC Systems & Services in 2001" award.)

Hsieh-Yee, I. (2001). ERIC User Services: Changes and Evaluation for the Future. *Government Information Quarterly,* 18: 31-42.

Hsieh-Yee, Ingrid. (2001). Research on Web Search Behavior. *Library and Information Science Research,* 23: 167-185.

Logan, E., and Hsieh-Yee, I. (2001). Library and Information Science Education in the Nineties. *Annual Review of Information Science and Technology,* 35: 425-477.

Hsieh-Yee, I. (Ed.) (2001). *Library and Information Science Research,* 23 (2). A special issue in honor of the retirement of Douglas L. Zweizig.

Hsieh-Yee, I. (2000). *ERIC User Services: Evaluation in a Decentralized Environment.* Washington, D.C.: Dept. of Education.

Hsieh-Yee, Ingrid. (2000). *Organizing Audiovisual and Electronic Resources for Access: A Cataloging Guide.* Littleton, CO: Libraries Unlimited.

Hsieh-Yee, I. (2000). Organizing Internet Resources: Teaching Cataloging Standards and Beyond. *OCLC Systems & Services,* 16: 130-143. (Received "The Most Outstanding Paper of OCLC Systems & Services in 2000" award.)

Hsieh-Yee, I. (1998). The Retrieval Power of Selected Search Engines: How Well Do They Address General Reference Questions and Subject Questions? *Reference Librarian,* 60: 27-47.

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Hsieh-Yee, I. (1996). Modifying Cataloging Practice and OCLC Infrastructure for Effective Organization of Internet Resources. In *Proceedings of the OCLC Internet Cataloging Colloquium*. [Online]. Available: http://www.oclc.org/oclc/man/colloq/hsieh.htm

Hsieh-Yee, I. (1996). Student Use of Online Catalogs and Other Information Channels. *College & Research Libraries*, 57: 161-175.

Hsieh-Yee, I. (1995). Ten entries in James S. C. Hu (Ed.), *Encyclopedia of Library & Information Science*, 913, 1028-29, 1036, 1037, 1145-46, 1514, 1575, 1763-64, 2216-27, 2378-79. Taipei, Taiwan: Sino-American Publishing. (Topics include "Advanced Technology/Libraries," "Information Ethics," "Instruction on Cataloging and Classification," "Instruction on Reference Services.")

Hsieh-Yee, I. (1993). Effects of Search Experience and Subject Knowledge on Online Search Behavior: Measuring the Search Tactics of Novice and Experienced Searchers. *Journal of the American Society for Information Science*, 44: 161-174. (Received the 1993 Best JASIS Paper Award.)

Presentations

Hsieh-Yee, I. (February, 2017) *Research Data Management: New Competencies and Opportunities for Information Professionals*. Selected for presentation at the 9th Bridging the Spectrum Symposium, Washington, D.C.

Hsieh-Yee, I. and Lawton, P. (February, 2017) *Enhancing Catholic Portal Searches with User Terms and LCSH*. Selected for presentation at the 9th Bridging the Spectrum Symposium, Washington, D.C.

Hsieh-Yee, I. (2016, October) *Visualizing Data for Information*. Presented at the 2016 Virginia Library Association Conference, Hot Springs, VA.

Hsieh-Yee, I. (2016, August) *Religious Materials Toolbox for Archivists: Solutions to Problems Facing the Profession*. Presented at Archives * Records 2016, Atlanta, GA.

Hsieh-Yee, I. and Lawton, P. (2016, March) *Enhancing Retrieval of Catholic Materials with LCSH Knowledge Structure*. Presented at the 2016 Catholic Library Association Conference, San Diego, CA.

Fagan-Fry, J. and Hsieh-Yee, I. (2016, February) *Approaches to Digital Scholarship at Top Universities around the World: Scholarly Publishing in the Digital Age*. Presented at the 8th Bridging the Spectrum Symposium, Washington, D.C.

Hsieh-Yee and Fagan-Fry, J. (2016, January) *Innovative Services for Digital Scholarship at Top 100 Research Libraries of the World.* Poster presented at the 2016 Annual Conference of the Association for Library and Information Science Education, Boston, Mass.

Hsieh-Yee, I. and Lawton, P. (2015, June). *Crowdsourcing terms for CRRA portal themes.* Poster presented at the third CRRA symposium and annual meeting, Bringing the created toward the Creator: Liturgical art and design since Vatican II. Catholic Theological Union, Chicago, Illinois.

Hsieh-Yee, I. and Lawton, P. (2015, February). *Crowdsourcing terms for thematic exploration in the Catholic Portal.* Poster presented at the 7th Annual Bridging the Spectrum Symposium, Washington, D.C.

Hsieh-Yee, I., James, R., and Fagan-Fry, J. (2015, February). *Support for digital scholarship at top university libraries of the world.* Poster presented at the 7th Annual Bridging the Spectrum Symposium, Washington, D.C.

Hsieh-Yee, I., Zhang, S., Lin, K., and Cherry, S. (2015, February). *Thus said the end users: Summon experience and support for research workflows.* Poster presented at the 7th Annual Bridging the Spectrum Symposium, Washington, D.C.

Yontz, E., Hsieh-Yee, I., & Houston, S. (2015, February). *Healthy Heroes Summer Reading Club: Developing healthy youth at public libraries.* 11th Annual Jean Mills Health Symposium, Greenville, North Carolina.

Yontz, E., Hsieh-Yee, I., and Houston, S. (2015, January). *Healthy youth and libraries: A pilot study.* Association for Library & Information Science Education (ALISE) Annual Conference, Chicago, Illinois.

Hsieh-Yee, I. (2014, May). *Linking CRRA resources to portal themes via authority files.* Presented at the Catholic Research Resources Alliance 2014 Membership Meeting, Marquette, WI.

Hsieh-Yee, I. (2014, April). *Enhancing subject access to CRRA resources.* Presented at the 2014 Catholic Library Association Conference, Pittsburgh, PA.

Hsieh-Yee, I. (2014, January). *Health Information Technology Program: Educational entrepreneurship in action.* Presented at the 2014 annual Conference of the Association for Library and Information Science Education, Philadelphia, PA

Hsieh-Yee, I., Zhang, S., Lin, K., and Cherry, S. (2014, January). *Discovering information through Summon: An analysis of user search strategies and search success.* Paper presented at the 6th Bridging the Spectrum Symposium, Washington, D.C.

Hsieh-Yee, I. (2012, December). *National Digital Stewardship Alliance and SLIS at CUA: An Educational Partnership.* Paper presented at Best Practices Exchange: Acquiring, Preserving, and Providing Access to Government Information in the Digital Era, Annapolis, MD

Choi, Y. and Hsieh-Yee, I. (2010, January). *Finding Images in an OPAC: Analysis of User Queries, Subject Headings, and Description Notes.* Paper presented at 2nd Annual Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.

Hsieh-Yee, I. and Coogan, J. (2010, January). *Google Scholar vs. Academic Search Premier: What Libraries and Searchers Need to Know.* Paper presented at 2nd Annual Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.

Hsieh-Yee, I. (2009, November). *Information Science Education: An LIS School's Perspective.* Paper presented at Annual Meeting of the American Society for Information Science and Technology, Vancouver, British Columbia, Canada.

Hsieh-Yee, I., Menard, E., Ya-Ning Chen, A., Shu-Jiun Chen, S., Kalfatovic, M. R., Wisser. K. M. (2009, November). *Information Organization in Libraries, Archives and Museums: Converging Practices and Collaboration Opportunities.* Presented at Annual Meeting of the American Society for Information Science and Technology, Vancouver, British Columbia, Canada. (Organizer and moderator of this panel.)

Hsieh-Yee, I. and Coogan, J. (2009, July). *Catching up to Google Scholar: The Retrieval Power of Academic Search Premier and Google Scholar.* Poster presented at American Library Association Conference, Chicago, Illinois.

Hsieh-Yee, I., with the CUA Scholarly Communications Project Team. (2009, January). *Digital Scholarship@CUA: Developing an Institutional Repository for CUA.* Poster presented at 1st Annual Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.

Wise, M., Cylke, K., and Hsieh-Yee, I. (2009, January). *Digital Talking Books: Meeting the Needs of the Blind and the Handicapped.* Paper presented at the Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.

Hsieh-Yee, I. (2009, January). *User Expectations of MERIC.* Presented at the Information Organization Competencies for the 21st Century Discussion Session of the 2009 Conference of the Association for Library and Information Science Education, Denver, Colorado.

Choi, Y., and Hsieh-Yee, I. (2008, November). *Subject Access for Images in an OPAC.* Annual Meeting of the American Society for Information Science and Technology, Columbus, Ohio. (Also co-organized a panel on Retrieving and Using Visual Resources: Challenges and Opportunities for Research and Education.)

Hsieh-Yee, I. (2008, June). *Educating Cataloging Professionals in a Changing Information Environment.* National Taiwan University, Taipei, Taiwan.

Vellucci, S. L., Moen, W.E., Hsieh-Yee, I., Marson, B., and Wisser, K. (2008, January) *Building a Metadata Education and Research Community through MERIC (Metadata Education and Research Information Commons): Demo and Stakeholder Input.* A panel presented at the 2008 Conference of the Association for Library and Information Science Education, Philadelphia, Pennsylvania.

Hsieh-Yee, I., Choi,Y. and Kules, B. (2007, October). *Searching for Books and Images in OPAC: Effects of LCSH, TOC and Subject Domains.* A poster presented at the American Society for Information Science and Technology Annual Meeting, Milwaukee, Wisconsin.

Hsieh-Yee, I. and Coogan, J. (2007, August) *Google Scholar vs. Academic Search Premier: A Comparative Analysis.* Presented to the Faculty and Staff of the University of the District of Columbia.

Hsieh-Yee, I. and Coogan, J. (2007, June). *Google Scholar vs. Academic Search Premier: A Comparative Analysis.* Presented to the Washington Research Library Consortium Community, Catholic University of America, Washington, D.C.

Hsieh-Yee, I., Choi, Y., and Kules, B.. (2007, June). *What Users Need for Subject Access: Table of Contents or Subject Headings?* A poster presented at the 2007 American Library Association Annual Conference, Washington, D.C., June 2007.

Choi, Y., Hsieh-Yee, I., and Kules, B. (2007, June). *Retrieval Effectiveness of TOC and LCSH.* A paper presented at the Joint Conference on Digital Libraries 2007, Vancouver, Canada.

Vellucci, S. L., Hsieh-Yee, I., and Moen, W.E. (2007, May). *If We Build It, Will They Come? Building a Community of Practice for Metadata Stakeholders.*   A poster presented at the Rutgers University Research Day, Bridgeton, New Jersey.

Hsieh-Yee, I. (2007, May). *Federated Searching: User Experience & Perceptions.* International Conference on Information Organization & Retrieval, National Taiwan University, Taipei, Taiwan.

Hsieh-Yee, I. (2007, May). *Search Performance of Google Scholar and Academic Search Premier.* International Conference on Information Organization & Retrieval, National Taiwan University, Taipei, Taiwan.

Hsieh-Yee, I. (2007, May) *MERIC: Building a Digital Commons for Metadata Education & Research.* International Conference on Information Organization & Retrieval, National Taiwan University, Taipei, Taiwan.

Hsieh-Yee, I., and Coogan, J. (2007, March/April). *A Comparative Analysis of Google Scholar and Academic Search Premier.* Poster presented at the Association of College & Research Libraries 13th National Conference, Baltimore, Maryland.

Vellucci, S. L. and Hsieh-Yee, I. (2007, March/April) *They Didn't Teach Me That in Library School! Building a Digital Teaching Commons to Enhance Metadata Teaching, Learning and Research.* On-site presentation and Webcast by Elluminate. A contributed paper presented at the Association of College & Research Libraries 13th National Conference, Baltimore, Maryland. The acceptance rate for contributed paper was 20%. This paper was one of 10 conference papers chosen for live webcast during the conference.

Moen, W., Hsieh-Yee, I. and Vellucci, S.L. (2007, January) *A DSpace Foundation for a Teaching & Research Commons: The Metadata Education and Research Information Commons.* A poster session presented at the Open Repositories Conference 2007, San Antonio, Texas.

Tang, R., Hsieh-Yee, I., and Zhang, S. (2006, November) *User Perception of MetaLib Combined Search.* Paper presented at the Annual Meeting of the American Society for Information Science and Technology, Austin, Texas, Nov. 2006.

Hsieh-Yee, I. (2006, November). *Federated Searching: User Perceptions, System Design, and Library Instructions.* Paper presented at the Annual Meeting of the American Society for Information Science and Technology, Austin, Texas. (Panel organizer, moderator, presenter).

Hsieh-Yee, I. (2006, November). *Building a Digital Teaching Commons to Enhance Teaching and Learning: The MERIC Experience and Challenges.* Paper presented at the Annual Meeting of the American Society for Information Science and Technology, Austin, Texas. (Panel organizer, moderator, presenter)

Hsieh-Yee, I. (2006, September). *Search Performance of Google Scholar and Academic Search Premier.* Paper presented at the ERIC Publishers Meeting, Washington, D.C.

Hsieh-Yee, I., Zhang, S., and Rong Tang, R. (2006, June). *User Perceptions of a Federated Search System.* Poster presented at Joint Conference on Digital Libraries, Chapel Hill, North Carolina.

Hsieh-Yee, I. and Zhang, S. (2006, June). *Preparing Users for Federated Search: Implications of a MetaLib User Perceptions Study.* Paper presented at the 2006 Ex Libris User Groups of North America Conference, Knoxville, Tennessee.

Hsieh-Yee, I. (2006, January). *MERIC Organizations and Navigation.* Paper presented at the 2006 ALISE Annual Conference, San Antonio, Texas.

Hsieh-Yee, I. (2006, January). *Metadata and Cataloging Education: Recommended Competencies.* Paper presented at the 2006 ALISE Annual Conference, San Antonio, Texas.

Hsieh-Yee, I. (2005, November). *Digital Library Evaluation: Progress & Next Steps.* Presentation at the Annual Meeting of the American Society for Information Science & Technology, Charlotte, North Carolina.

Hsieh-Yee, I. (2005, August). *Providing Access to Digital Content: Issues for DL Managers.* Presentation at MDK12 Digital Library Steering Committee Meeting, Columbia, Maryland.

Hsieh-Yee, I. (2005, April). *Enhancing Teaching and Learning: The Role of School Library Media Specialists.* Presentation at Meeting of the Baltimore County Public School System School Media Specialists, Baltimore, Maryland.

Hsieh-Yee, I. (2005, January). *Subject Access and Users: Insights & Inspirations from Marcia J. Bates.* Paper presented at the Historical Perspectives SIG, 2005 Conference of the Association for Library and Information Science Education, Boston, Massachusetts.

Hsieh-Yee, I. (2005, January). *Electronic Resource Management: Practice, Employer Expectations, & CE Interests.* Paper presented at Technical Services Education SIG, 2005 Conference of the Association for Library and Information Science Education, Boston, Massachusetts.

Hsieh-Yee, I. (2004, October). *Library Professionals for the Digital Age: Competencies & Preparation.* Paper presented at Bibliographic Access Management Team meeting, Library of Congress, Washington, D.C.

Hsieh-Yee, I. (2004, January). *Cataloging and metadata expertise for the digital era.* Presented at Preparing 21st Century Cataloging and Metadata Professionals: A Workshop for Educators and Trainers, San Diego and sponsored by ALCTS, ALISE, LC, and OCLC.

Hsieh-Yee, I. (2004, January). *Educating catalogers for the digital era.* Paper presented at the Technical Services SIG, 2004 Conference of the Association for Library and Information Science Education, San Diego.

Hsieh-Yee, I. (2003, July). *Cataloging Education for the 21st Century.* A presentation at the Library of Congress, Washington, D.C.

Hsieh-Yee, I. (2002, January) *Metadata Education and Research Priorities: A Delphi Study of Metadata Experts.* Presentation at the 2002 Conference of the Association for Library and Information Science Education, New Orleans.

Hsieh-Yee, I. (2001, November). *A Delphi Study of Metadata: Preliminary Findings.* Poster session at the 2001 Annual Meeting of the American Society for Information Science & Technology, Washington, D.C.

Hsieh-Yee, I. (2001, June). *Resources on Asian American Children: Analysis of Retrieval by Search Engines and WorldCat.* Presentation at the National Conference on Asian Pacific American Librarians, San Francisco.

Hsieh-Yee, I. (2001, January). *Delphi Study on Metadata: Project Design.* Presentation at Research Awards Session, Association for Library & Information Science Education, Washington, D.C.

Hsieh-Yee, I. (2000, May). *Web Search Behavior Research: Progress and Implications.* Presentation at the Symposium on Evaluating Library and Information Science Research, University of Wisconsin-Madison, Madison, Wisconsin.

Hsieh-Yee, I. (2000, March). *ERIC User Services: Evaluation in a Decentralized Environment.* Presentation at the National ERIC Joint Directors/Technical Meeting, Arlington, Virginia.

Hsieh-Yee, I. (2000, January). *Enhancing Learning with Web Technology.* Presentation at Faculty Conversations, Catholic University of America, Washington, D.C.

Hsieh-Yee, I. (2000, January). *From Surrogates to Objects: CUA's Approaches to Organizing Electronic Resources.* Paper presentation at the Annual Conference of the Association for Library and Information Science Education, San Antonio, Texas.

Yee, P., and Hsieh-Yee, I. (1997, November). *Individual Differences in Search Behavior on the WWW.* A poster session presented at the 38th Annual Meeting of the Psychonomic Society, Philadelphia, Pennsylvania.

Hsieh-Yee, I. (1997, April). *Research + Marketing + Preparation = Job!* Presented at the "Workshop on Resume and Interview Techniques," Special Libraries Association, Student Chapter, Catholic University of America, Washington, D.C.

Hsieh-Yee, I. (1997, February). *Creating CyberCatalogers: Education and Training.* Presentation at ALA's Midwinter Meeting, Washington, D.C.

Hsieh-Yee, I. (1997, February). *Search Tactics of Web Users in Searching for Texts, Graphics, Known Items and Subjects: A Search Simulation Study.* Presented at the Conference of the Association for Library and Information Science Education, Washington, D.C.

Hsieh-Yee, Ingrid. "Beginning Your Special Library/Information Center Career." Presented at SLA's "Career Day," Jan. 11, 1997, Catholic University of America.

Hsieh-Yee, I. (1996, September). *The Roles of Library and Information Scientists in Managing Electronic Information.* Presentation at Hamilton College, Clinton, New York.

Hsieh-Yee, I. (1996, May). *The Future of Cataloging as a Profession.* Presented at "The Cataloging Forum, Library of Congress, Washington, D.C.

Hsieh-Yee, I. (1994, October). *The Impact of the Internet on OPACs.* Presented at the Third Workshop on User Interfaces for OPACs, Library of Congress, Washington, D.C.

Reports

Hsieh-Yee, I., with Knowledge Management Competencies and Performance Action Group of the Federal Knowledge Management Initiative. "From Knowledge Management Competencies to Improved Organizational Performance." April 9, 2009.

Hsieh-Yee, I., with Knowledge Practices Action Group of the Federal Knowledge Management Initiative. "KM Practice in Government Agencies: Findings and Recommendations." April 9, 2009.

Hsieh-Yee, I. "Delphi Study on Metadata." 2001. Three quarterly reports submitted to the Association for Library and Information Science Education.

Hsieh-Yee, I. "College Students' Information Channels: Patterns of Use and Possible Factors in Channel Selection." 1995. Submitted to the Catholic University of America.

Hsieh-Yee, I. "The Information-Seeking Patterns of Scholars and Their Use of an Online Information System." 1994. Submitted to the Council on Library Resources.

Book Reviews

Review of *The Measurement and Evaluation of Library Services,* by Sharon L. Baker and F. Wilfrid Lancaster. *Information Processing and Management* 30 (1994): 450-52.

Review of *Subject Access to Films and Videos, by Sheila S. Intner and William E. Studwell; and Cataloging Unpublished Nonprint Materials,* by Verna Urbanski with Bao Chu Chang and Bernard L. Karon. *Information Processing and Management* 30 (1994): 449-50.

Review of *Automated Information Retrieval in Libraries: A Management Handbook,* by Vicki Anders. *Journal of Library and Information Science* 19 (1993): 98-100.

Review of *Full Text Databases,* by Carol Tenopir and Jung Soon Ro. *Information Processing and Management* 28 (1992): 667-68.

Review of *Descriptive Cataloging for the AACR2R And USMARC: A How-to-Do It Workbook*, by Larry Millsap and Terry Ellen Ferl. *Information Processing and Management* 28 (1992): 809-11.

Review of *MARC Manual: Understanding and Using MARC Records*, by Deborah J. Byrne. *Information Processing and Management* 28 (1992): 537-38.

Service

Professional Associations and Societies

- Library of Congress. RDA Training Program for the Profession. Co-authored with Tim Carlton. 2013-2014.
- 2014 Digital Preservation Outreach & Education Survey. Contributed to the design of the survey, 2014.
- National Digital Stewardship Alliance. Outreach Committee. 2011-2014.
- National Digital Stewardship Residency Program. Advisory Group, 2012-2013.
- FEDLINK Health Information Technology Advisory Council, 2011-2015.
- 2012 Joint Conference on Digital Libraries. Program Planning Committee, Pre-Conference Proposals Review Committee, 2012
- Catholic Research Resources Alliance. Five-Year Strategic Plan Task Force, 2011-2012
- Institute of Museum and Library Services. Grant reviewer. 2004, 2005, 2010.

- Association for Library and Information Science Education.
  * ALISE Bodan Wynar Research Paper Award Committee, 2015, 2016, 2017
  * ALISE Eugene Garfield Dissertation Award Competition, Jury, 2013, 2014
  * ALISE Research Grant Competition Committee. Chair, 2012
  * Pratt-Severn Faculty Innovation Award. Chair, 2009, 2010
  * ALISE Doctoral Poster Jury, 2012
  * "Information Organization Competencies for the 21st Century" Discussion session leader. 2009 Conference of the Association for Library and Information Science Education.
  * Assisted Technical Services SIG Convener in organizing a program, ""Building a Metadata Education and Research Community through MERIC (Metadata Education and Research Information Commons): Demo and Stakeholder Input" for the 2008 ALISE conference.
  * Association for Library Collections and Technical Services/Association for Library and Information Science Education (ALCTS/ALISE) Metadata Education and Research Information Center (MERIC) Advisory Board, Co-Chair (with Sherry Vellucci), 2005-2007. Chair, 2008-2009 (leading the effort to build MERIC, a repository and collaborative space for metadata educators, practitioners, and researchers)
  * Technical Services SIG, Convener, 2004-2005. Organized a program on "Electronic Resources Management: Current Practices, Employer Expectations, and Teaching Strategies" for the 2005 conference in Boston, Massachusetts.

* Technical Services SIG, Convener, 2003-2004. Organized a program on "Organizing Information with Metadata: Desired Competencies and Teaching Innovations" for the 2004 conference.
* Technical Services SIG, Convener, 1999-2000. Organized a program on "Teaching the Organization of Electronic Resources" for the 2000 conference.
* Curriculum SIG, Co-convener (with Sibyl Moses), 1996-97. Organized a program on "Government Information Policy" for the 1997 conference.

- American Society for Information Science & Technology.
  * Reviewer, Conference program panel submissions and poster submissions, 2005, 2006, 2007, 2009, 2011, 2012, 2013, 2014, 2015, 2016, 2017
  * Nomination Committee, 2009-2011
  * Information Science Education Special Interest Group. American Society for Information Science and Technology. Chair-Elect, 2007-2008. Chair 2008-2009.
  * Committee on Information Science Education. 1999-2006.
  * Committee on Information Science Education. Organizing Committee for an orientation program for students at ASIS annual meetings, 1999-2001
  * Committee on Information Science Education. Sub-committee on Student Welfare (focusing on issues related to master's education), 1998-2001
  * SIG ED. Organizing Committee for the "Seminar on Research and Career Development" for junior researchers. 1995-96 (chair), 1997-2001
  * ISI Doctoral Dissertation Proposal Scholarship Jury, 1997; 2001, 2002
  * Pratt-Severn Best Student Research Paper Award Jury. Chair. 1997
  * 1998 Midyear Meeting (referee of contributed papers), 1997
  * Organizer and moderator of the ASIS Doctoral Forum and the Doctoral Research Seminar 1994-1995
  * SIG Human Computer Interaction. Chair-Elect, Chair, 1993-1995
  * Doctoral Forum Award Jury, 1995
  * Best Student Paper Award Jury, 1995

- American Library Association.
  * Committee on Accreditation, External Review Panelist, 2009- (site visiting team 2013-2014; site visiting team 2016-2017)
  * Association for Library Collections and Technical Services Task Force on Competencies and Education for a Career in Cataloging, member, 2008-2009
  * Facilitator for "What They Don't Teach in Library School: Competencies, Education and Employer Expectations for a Career in Cataloging," an Association for Library Collections and Technical Services Preconference, June 22, 2007 in Washington, D.C. Also a local liaison for bringing this program to the Catholic University of America.
  * Facilitator for a discussion on "Effect of Electronic Resources on Technical Services" at ALA's Midwinter Meeting held in Feb. 1997 in Washington, D.C.
  * International Relations Committee, Subcommittee Task Force for IFLA and China, 1994-1997

- Virginia Association of School Librarians. Scholarships and Awards Committee. 2010-2012

- Federal Knowledge Management Initiative, Knowledge Management Practices Action Group. Member. 2009 (leading the effort to build a knowledge management repository)
- Federal Knowledge Management Initiative, Knowledge Management Competencies & Learning Action Group. Member. 2009 (developing an action plan for helping government knowledge workers and government agencies to develop knowledge management competencies)
- National Center for Education Statistics. Technical Review Panel. 2008.
- External evaluator for a case of promotion to full professorship. University of Tennessee. 2008.
- National Information Standards Organization (NISO). Advisory Board, Revision of "IMLS Framework of Guidance for Building Good Digital Collections," 2004, 2007.
- Library of Congress, Bibliographic Control of Web Resources: A Library of Congress Action Plan. Principal Investigator of Action Item 5.1, focusing on cataloging and metadata education for students and new librarians, 2002-2003. (worked with the Association for Library Collections and Technical Services, Education Task Force)

- Chinese American Librarians Association
  * Chinese American Librarians Association Outstanding Library Leadership Award in Memory of Dr. Margaret Chang Fung, Award Committee, 2016-
  * Achievement Award Jury, 2000-2001
  * CALA Goal 2000 Task Force, 1997
  * Scholarship Committee, 1995, 1996-1997 (chair)
  * Board of Directors, 1994-1997
  * Publication Committee, 1993-1995
  * International Relations Committee, 1993-1996

- Sailor^{SM} Assessment Advisory Group (An impact study of Sailor, Maryland's Public Information Network), 1995

- Editorial boards
  Journal of Library and Information Science. Editorial Board, 2012-
  Chinese American Librarians Association, *Occasional Papers Series*. Editorial Board, 2009-2016.
  Library Quarterly. Editorial Board, 2003-2008
  Bulletin of the Medical Library Association, 1994-97
  Newsletter editor for the Chinese American Librarians Association, 1989-92

- Referee for the following journals
  Information Processing and Management
  Journal of Digital Information
  Journal of Education for Library and Information Science
  Journal of Information Science

Journal of Library & Information Science
Journal of Library Metadata
Journal of the American Society for Information Science & Technology
Library and Information Science Research
Library Quarterly

- Expert reviewer, "Digital Library" course, Evaluation module, University of North Carolina, Chapel Hill, 2007-2008.
- Expert reviewer, "Information Organization" course, University of Michigan, Ann Arbor. 2007.

Catholic University of America

- School of Arts & Sciences, Committee on Appointments and Promotions, 2015-2019
- School of Arts & Sciences, Academic Council, 2015-2016.
- School of Arts & Sciences, Ordinary Professor Group, 2013-
- President's Administrative Council, 2010-2012
- Deans' Council, 2010-2012
- Academic Leadership Group, 2010-2012
- Academic Senate, 2003-2012
- Academic Senate, Committee on Committees and Rules, 2009-2012
- Academic Senate, Committee on Appointments and Promotions, 2005-2008
- Graduate Board, 2010-2012
- CUA Scholarly Communication Project Team, Member (2007), Chair, 2008-2009
- Academic Senate Library Committee, Interim Chair (2007), Member, 2008-2012
- Doctoral Dissertation Defense Committee, Chair, Dept. of Education, 2014, 2015
- Doctoral Dissertation Defense Committee, Chair, School of Nursing, 2006, 2008
- Dean Search Committee, 1992-1994, 1998-1999, 2002-2003, 2006-2007
- Fulbright Review Panel, 2006
- Academic Senate Committee on Computing, 1995-2003
- CUA Service Learning Advisory Board, 2001-2002
- CUA Faculty Conversations on Enhancing Teaching and Learning through Technology, Planning Group, 1999-2001
- CUA Initiative on Technology and Teaching, 1998-2001

Dept. of Library and Information Science

- Accreditation presentation, Chair, June 2015-August 2016
- Interim Co-Chair, June 2015-August 2016.
- Appointments and Promotions Committee, 1991-
- Blended Learning Committee, spring 2016-
- Colloquium and Symposium Planning Committee, fall 2016-
- Scholarship Committee, fall 2016-

- Technology Committee, fall 2016-
- Comprehensive examination editor, 2016-2017
- LIS Advisory Board, 2015-2016 (chair); fall 2016 (member)
- Committee on Planning and Assessment, 2015-2016 (chair)
- Admissions Committee, 2007-2009, Chair 2010-2012, Member 2013-2015
- Senior Faculty Committee, 2014-2016.
- Accreditation Steering Committee, 2014-2016 (Chair, 2015-2016)
- Accreditation Students Standard Committee, co-chair, 2014-2016
- Accreditation Mission, Goals, and Objectives Standard Committee, co-chair, 2014-2016
- Accreditation Curriculum Standard, member 2014-2-16
- Accreditation Administration and Finance Standard, member 2014-2016
- Cultural Heritage Information Management Project (IMLS-funded), Co-PI, 2012-2015
- Cultural Heritage Information Management Forum (scheduled for June 2015), Co-Organizer, 2013-2015
- Health Information Technology Interim Review Committee, 2015 (chair)
- Health Sciences Librarianship Advisory Group, 2015- (chair)
- Comprehensive examination editors, 2013-2014, 2016-2017
- National Digital Stewardship Alliance liaison, 2011-2014
- Advisory Board, Chair 2010-2012
- Academic Honesty Committee, Chair, 2008-2012
- Blended Learning Committee, 2010-2012
- Colloquium Committee, 2010-2012
- Comprehensive Examination Administration, 2010-2012
- Cultural Heritage Information Management Advisory Committee, 2010-2012 (chair), 2013-
- Curriculum Committee, 1991-2003, 2007-2009, Chair 2010-2012, member 2013-
- Curriculum Subcommittee on Comprehensive Examination, Chair 2009-2012
- Health Information Technology Advisory Board, Chair 2010-2012. Member 2013-
- Health Sciences Advisory Committee, 2009, Chair 2010-2012. Member 2013-
- HIT Expert Forum, Chair 2012. Member 2013-
- Health Information Technology Student Group Advisor, 2011-2012
- State Council for Higher Education of Virginia, SLIS Representative, 2010-2012
- Symposium Planning Committee, 2010-2012
- Website Management Team, Chair, 2010-2012
- Urban School Librarianship Project (IMLS-Funded), PI, 2007-2011 (chair, 2010-11)
- Failing Grades Committee, 1995-1997 (chair), 2000-2001 (chair), 2004-2005 (chair), 2007 (chair)-2011
- Faculty Search Committee, 1994-1998, 2002-2004, 2006 (chair), Fall 2007-2009, Chair fall 2009-2012
- Recruitment Committee, Chair 2010-2012
- Strategic Planning Committee, Chair 2010-2012
- Technology Committee, 2010-2012
- Accreditation Advisory Committee, 2007-2009

- Accreditation Coordinating Committee, 2007-2009
- Accreditation Steering Committee, 2007-2009
- SLIS Advisory Group, 2007-2009
- Accreditation Curriculum Standard Committee, Co-chair, 2007-2009
- Accreditation Faculty Standard Committee, Co-chair, 2007-2009
- LSC 551 Information Organization Review Team, Co-chair, 2008-2009, 2015-2016.
- Curriculum Subcommittee on Portfolios, 2009
- LSC 555 Information Systems in Libraries and Information Centers Review Team, contributor, 2008-2009
- Redesign of LSC 730 Use and Users of Libraries and Information. 2009-
- Development of a metadata institute that was taught as LSC 715 Organization of Internet Resources in 2008. The institute is being revised and will be offered in 2010 under a new course title.
- Development of lesson plans, assignments, and evaluation rubrics for LSC 606, Cataloging and Classification, for the School's NCATE accreditation. 2008
- Howard and Mathilde Rovelstad Scholarship Committee, Chair, 2004-2007
- Assistant Dean Search Committee, Chair, Fall 2007
- Liaison to the Association for Library Collections and Technical Services to bring its preconference program, Cataloging Education and Employer Expectations, to CUA during the 2007 American Library Association Annual Meeting in Washington, D.C.
- Organizer of the colloquium presentation and reception for Tamar Sadeh of Ex Libris on PRIMO June 2007
- Practicum review and design (work with potential supervisors, such as the American Indian Museum internship description revision) 2006-
- Comprehensive examinations (edits, proctoring, and grading), 1990-
- SLIS Web site redesign: Comments and suggestions. Fall 2007
- Conducted surveys of current students and alumni in preparation for the 2005 re-accreditation, 2004-2005
- Student advisement, 1990-
- Technology Committee, 1992-1999 (chair, 1996-1998), 2002-2003 (member)
- Colloquia Committee 1997-1999, 2002-2003.
- Advisor of the CUA Student Chapter of the American Society for Information Science and Technology, 2002-2003
- Visiting Professor Search Committee, 1999, 2000, 2001
- Leader, Participation in the CORC experiment, 1999-2000
- Advisor of the Special Libraries Association Student Chapter, 1993-1999; the group was recognized for outstanding leadership by SLA in 1999.
- COA planning Committee, Task Force on Electronic Presentation of SLIS Reports (team leader) 1997-1998
- COA Planning Committee, Subcommittee on Technology 1996-1998
- NLM practicum coordinator, 1997-1998
- Computer Literacy Workshops: Assisted with the development and evaluation of the workshops, 1996-1998
- Leader, Participation in the InterCat project, 1995-1997

APPENDIX B

Library of Congress >> MARC >> Understanding MARC

MARC 21 Reference Materials

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Part VII:

A Summary of Commonly Used MARC 21 Fields

This is a summary of the MARC 21 tags used most frequently by libraries in entering their own bibliographic records. For full listings of all MARC 21 tags, indicators, and subfield codes, see *MARC 21 Format for Bibliographic Data*.

In the explanations on these pages:

Tags -- The tags (3-digit numbers) are followed by the names of the fields they represent. In this summary, and in the *MARC 21 Format for Bibliographic Data*, if a tag can appear more than once in one bibliographic record, it is labeled repeatable (R). If it can only be used once, it is labeled non-repeatable (NR). For example, a catalog record can have several subjects, so the tags for subject added entries (6XX) are labeled repeatable (R).

Indicators -- The use of indicators is explained in fields where they are used. Indicators are one-digit numbers. Beginning with the 010 field, in every field -- following the tag -- are two character positions, one for Indicator 1 and one for Indicator 2. The indicators are not actually defined in all fields, however. And it is possible that a 2nd indicator will be used, while the 1st indicator remains undefined (or vice versa). When an indicator is undefined, the character position will be represented by the character # (for blank space).

Subfield codes -- All the data in each field (beginning with the 010 field) is divided into subfields, each of which is preceded by a delimiter-subfield code combination. The most common subfield codes used with each tag are shown. Each subfield code is preceded by the character $, signifying a delimiter. The name of the subfield follows the code.

In general, every field MUST have a subfield 'a' (**$a**). One exception that is often seen is in Field 020 (ISBN), when the ISBN information (subfield **$a**) is unavailable but the price (subfield **$c**) is known. Some subfields are repeatable. In this summary, repeatability is noted for only the more common repeatable subfields.

Examples: Examples follow the explanation for each field. For clarity, one space has

been placed between the tag and the first indicator, one space has been placed between the second indicator and the first delimiter- subfield code, and one space has been inserted between the delimiter-subfield code and the subfield data.

010 Library of Congress Control Number -- (LCCN)
(NR, or Not Repeatable

> *Indicators undefined.*
> *Subfield used most often:*
> **$a** -- Library of Congress control number

```
     Example:      010 ##   $a ###86000988#
```

020 International Standard Book Number -- (ISBN)
(R, or Repeatable)

> *Indicators undefined.*
> *Subfields used most often:*
> **$a** -- International Standard Book Number
> **$c** -- Terms of availability (often a price)
> **$z** -- Cancelled/invalid ISBN (R)

```
     Example:      020 ##   $a 0877547637
```

040 Cataloging source -- (NR)

> *Indicators undefined.*
> *Subfields used most often:*
> **$a** -- Original cataloging agency
> **$c** -- Transcribing agency
> **$d** -- Modifying agency (R)

```
     Example:      040 ## $a DLC
                          $c DLC
                          $d gwhs
```

100 Main entry -- Personal name -- (primary author)
(NR; there can be only one main entry)

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Indicator 1: Type of personal name entry element
        0 -- Forename
        1 -- Surname (this is the most common form)
        3 -- Family name
Indicator 2 undefined.
        Indicator 2 became obsolete in 1990. Older records may display 0 or 1
Subfields used most often:
        $a -- Personal name
        $b -- Numeration
        $c -- Titles and other words associated with a name (R)
        $q -- Fuller form of name
        $d -- Dates associated with a name (generally, year of birth)

```
   Example:      100 1# $a Gregory, Ruth W.
                        $q (Ruth Wilhelme),
                        $d 1910-
```

130 Main entry -- Uniform title -- (NR)

Indicator 1: Nonfiling characters
        0-9 -- Number of nonfiling characters present (for initial articles, including
        spaces)
Indicator 2 undefined.
        Indicator 2 became obsolete in 1990. (See 100 above.)
Subfields used most often:
        $a -- Uniform title
        $p -- Name of part/section of a work (R)
        $l -- Language of a work
        $s -- Version
        $f -- Date of a work

```
   Example:      130 0# $a Bible.
                        $p O.T.
                        $p Psalms.
```

240 Uniform title (NR)

Indicator 1: Uniform title printed or displayed
        0 -- Not printed or displayed
        1 -- Printed or displayed (most common)
Indicator 2: Nonfiling characters

0-9 -- Number of nonfiling characters present (for initial articles, including spaces)

Subfields used most often:

$a -- Uniform title

$l -- Language of a work

$f -- Date of a work

```
Example:    240 10 $a Ile mystérieuse.
                   $l English.
                   $f 1978
```

245 Title Statement (NR)

Indicator 1: Title added entry

(Should the title be indexed as a title added entry?)

0 -- No title added entry

(indicates a title main entry; i.e. no author is given)

1 -- Title added entry

(the proper indicator when an author given in 1XX; the most common situation)

Indicator 2: Nonfiling characters

0-9 -- Number of nonfiling characters present, including spaces; usually set at zero, except when the title begins with an article; e.g., for *The robe*, the second indicator would be set to 4. The letters *T*, *h*, *e*, and the space following them are then ignored in alphabetizing titles. The record will be automatically filed under "*r*" -- for *Robe*.

Subfields used most often:

$a --   Title proper

$h --   Medium (often used for non-book media)

$p --   Name of part/section of a work (R)

$b --   Reminder of title (subtitles, etc.)

$c --   Remainder of title page transcription/Statement of responsibility

```
Example:    245 14 $a The DNA story :
                   $b a documentary history of gene
                      cloning /
                   $c James D. Watson, John Tooze.
```

246 Varying form of title (R)

Indicator 1: Note/title added entry controller
  1 -- Note, title added entry
  3 -- No note, title added entry
Indicator 2: Type of title
  # -- No information provided
  0 -- Portion of title
  1 -- Parallel title
  4 -- Cover title
  8 -- Spine title
Subfield used most often:
  $a -- Title proper

```
    Example:     246 3# $a Four corners power review
```

250 Edition statement (NR)

Indicators undefined.
Subfield used most often:
  $a -- Edition statement

```
    Example:     250 ## $a 6th ed.
```

260 Publication, distribution, etc. (Imprint) (R)

Indicator 1: Sequence of publishing statements
  # -- No information provided
Indicator 2: Undefined
Subfields used most often:
  $a -- Place of publication, distribution, etc. (R)
  $b -- Name of publisher, distributor, etc. (R)
  $c -- Date of publication, distribution, etc. (R)

```
    Example:     260 ## $a New York :
                     $b Chelsea House,
                     $c 1986.
```

300 Physical description (R)

Indicators undefined.
Subfields used most often:
> **$a** -- Extent (number of pages) (R)
> **$b** -- Other physical details (usually illustration information)
> **$c** -- Dimensions (cm.) (R)
> **$e** -- Accompanying material (for example, "teacher's guide" or "manual")

```
Example:      300 ## $a 139 p. :
                      $b ill. ;
                      $c 24 cm.
```

440 Series statement / Added entry--Title

This field was made obsolete in 2008 to simplify the series statement. See 490 and 830.

490 Series statement (No added entry is traced from field) (R)

Indicator 1: Specifies whether series is traced (whether an 8XX tag is also present)
> 0 -- Series not traced
> 1 -- Series traced (8XX is in record)

Indicator 2 undefined.
Subfield used most often:
> **$a** -- Series statement (R)
> **$v** -- Volume number (R)

```
Example:      490 1# $a Colonial American craftsmen
```

500 General note (R)

Indicators undefined.
Subfield used most often:
> **$a** -- General note (Used when no specialized note field has been defined for the information. Examples: Notes regarding the index; the source of the title; variations in title; descriptions of the nature, form, or scope of the item.)

```
Example:      500 ##  $a Includes index.
```

504 Bibliography, etc. note (R)

Indicators undefined.
Subfield used most often:
    $a -- Bibliography, etc. note

```
    Example:     504 ## $a Includes bibliographical
                            references.
```

505 Formatted contents note (R)

Indicator 1: Type of contents note
    0 -- Complete contents
    1 -- Incomplete contents (used with multivolume set when some volumes are
    not yet published)
    2 -- Partial contents
Indicator 2: Level of content designation
    # -- Basic
Subfield used most often:
    $a -- Formatted contents note

```
    Example:     505 0# $a Pride and prejudice -- Emma
                            -- Northanger Abbey.
```

520 Summary, etc. note (R)

Indicator 1: Display constant controller
    # -- Summary
    1 -- Review
    2 -- Scope and content
    3 -- Abstract
Indicator 2 undefined
Subfields used most often
    $a -- Summary, abstract, or annotation
    $b -- Expansion of summary note

```
    Example:     520 ## $a This basic guide to parliamentary
                            procedure tells how to conduct
                            and participate in a meeting
                            properly.
```

600 Subject added entry -- Personal name (R)

Indicator 1: Type of personal name entry element
  0 -- Forename
  1 -- Surname (this is the most common form)
  3 -- Family name

Indicator 2: Subject heading system/thesaurus (identifies the specific list or file which was used)
  0 -- Library of Congress Subject Headings
  1 -- LC subject headings for children's literature
  2 -- Medical Subject Headings
  3 -- National Agricultural Library subject authority file
  4 -- Source not specified
  5 -- Canadian Subject Headings
  6 -- Répertoire de vedettes-matière
  7 -- Source specified in subfield $2

(Note regarding Sears subject headings: The MARC 21 format does not provide an assigned indicator for Sears subject headings. Therefore, an indicator of 7 is used, and the MARC defined code "sears" is placed in subfield $2.)

Subfields used most often:
  $a -- Personal name (surname and forename)
  $b -- Numeration
  $c -- Titles and other words associated with a name (R)
  $q -- Fuller form of name
  $d -- Dates associated with a name (generally, year of birth)
  $t -- Title of a work
  $v -- Form subdivision (R)
  $x -- General subdivision (R)
  $y -- Chronological subdivision (R)
  $z -- Geographic subdivision (R)
  $2 -- Source of heading or term (used with 2nd indicator of 7)

```
Example:      600 10 $a Shakespeare, William,
                     $d 1564-1616
                     $x Comedies
                     $x Stage history.
```

```
Example:      600 10 $a Shakespeare, William,
                     $d 1564-1616
                     $x Knowledge
```

```
                              $z Rome
                              $v Congresses.
```

Notice that subfields $v, $x, and $z in the 600 field are repeatable. Subfields $v, $x, $y, and $z do not have to be in alphabetical order. They will be in the order prescribed by the instructions given by the subject heading system.

610 Subject added entry -- Corporate name (R)

> *Indicator 1:* Type of corporate name entry element
> > 0 -- Inverted name (not used with AACR2)
> > 1 -- Jurisdiction name
> > 2 -- Name in direct order
> *Indicator 2:* Subject heading system/thesaurus.
> > See indicator 2 under 600
> *Subfields used most often:*
> > **$a** -- Corporate name or jurisdiction name as entry element
> > **$b** -- Subordinate unit (R)
> > **$v** -- Form subdivision (R)
> > **$x** -- General subdivision (R)
> > **$y** -- Chronological subdivision (R)
> > **$z** -- Geographic subdivision (R)
> > **$2** -- Source of heading or term (used with 2nd indicator of 7)

```
      Example:      610 10 $a United States.
                           $b Army Air Forces
                           $v Biography.
```

650 Subject added entry -- Topical term (Most subject headings fit here.) (R)

> *Indicator 1:* Level of subject
> > # -- No information provided
> *Indicator 2:* Subject heading system/thesaurus
> (identifies the specific list or file which was used)
> > 0 -- Library of Congress Subject Headings
> > 1 -- LC subject headings for children's literature
> > 2 -- Medical Subject Headings
> > 3 -- National Agricultural Library subject authority file
> > 4 -- Source not specified
> > 5 -- Canadian Subject Headings
> > 6 -- Répertoire de vedettes-matière
> > 7 -- Source specified in subfield $2

Note regarding Sears subject headings: The MARC 21 format does not provide an assigned indicator for Sears subject headings. Therefore, an indicator of 7 is used, and the MARC defined code "sears" is placed in subfield $2.)

Subfields used most often:
　　　　$a -- Topical term
　　　　$v -- Form subdivision (R)
　　　　$x -- General subdivision (R)
　　　　$y -- Chronological subdivision (R)
　　　　$z -- Geographic subdivision (R)
　　　　$2 -- Source of heading or term used with 2nd indicator of 7)

```
     Example:     650 #0 $a Theater
                         $z United States
                         $v Biography
                         $v Dictionaries.
```

Notice that subfields $v, $x, and $z in the 650 field are repeatable. Subfields $v, $x, $y, and $z do not have to be in alphabetical order. They will be in the order prescribed by the instructions given by the subject heading system.

651 Subject added entry -- Geographic name (R)

Indicator 1: undefined.
Indicator 2: Subject heading system/thesaurus.
　　　　See indicator 2 under 600
Subfields used most often:
　　　　$a -- Geographic name
　　　　$v -- Form subdivision (R)
　　　　$x -- General subdivision (R)
　　　　$y -- Chronological subdivision (R)
　　　　$z -- Geographic subdivision (R)
　　　　$2 -- Source of heading or term (used with 2nd indicator of 7)

```
     Example:     651 #0 $a United States
                         $x History
                         $v Chronology.
```

Notice that subfields $v, $x, and $z in the 651 field are repeatable. Subfields $v, $x, $y, and $z do not have to be in alphabetical order. They will be in the order prescribed by the instructions given by the subject heading system.

700 Added entry -- Personal name (R)

Indicator 1: Type of personal name entry element
     0 -- Forename
     1 -- Surname (this is the most common form)
     3 -- Family name
Indicator 2: Type of added entry
     # -- No information provided (most common; co-authors, editors, etc.)
     2 -- Analytical entry (The values for Indicator 2 changed in 1994 with Format Integration, and older records may display additional values. An analytical entry involves an author/title of an item contained in a work.)
Subfields used most often:
     $a -- Personal name
     $b -- Numeration
     $c -- Titles and other words associated with a name (R)
     $q -- Fuller form of name
     $d -- Dates associated with a name (generally, year of birth)
     $e -- Relator term (such as ill.) (R)
     $4 -- Relator code (R)

```
Example:     700 1# $a Baldridge, Letitia.
```

710 Added entry -- Corporate name (R)

Indicator 1: Type of corporate name entry element
     0 -- Inverted name (not used with AACR2)
     1 -- Jurisdiction name
     2 -- Name in direct order
Indicator 2: Type of added entry.
     See Indicator 2 under 700
     # -- No information provided
     2 -- Analytical entry
Subfields used most often:
     $a -- Corporate name or jurisdiction name as entry element
     $b -- Subordinate unit (R)

```
Example:     710 2# $a Sunburst Communications (Firm)
```

740 Added entry -- Uncontrolled related/analytical title (R)

Indicator 1: Nonfiling characters

0-9 -- Number of nonfiling characters present (for initial articles, including spaces)

Indicator 2: Type of added entry. See Indicator 2 under 700

-- No information provided

2 -- Analytical entry

(This field was redefined in 1994 with Format Integration. Prior to 1994, the field was also used for variant titles, such as a different wording on a spine title. In records created since Format Integration, those variant tiles appear in a 246 field.)

Subfield used most often:

$a -- Title

```
Example:      740 02 $a Uncle Vanya.
```

800 Series added entry -- Personal name (R)

Indicator 1: Type of personal name entry element

0 -- Forename

1 -- Surname

3 -- Family name

Indicator 2 undefined.

Subfields used most often:

$a -- Personal name

$b -- Numeration

$c -- Titles and other words associated with a name (R)

$q -- Fuller form of name

$d -- Dates associated with a name (generally, year of birth)

$t -- Title of a work (the series)

$v -- Volume number

```
Example:      800 1# $a Fisher, Leonard Everett.
                     $t Colonial American craftsmen.
```

830 Series added entry -- Uniform title (R)

Indicator 1 undefined.

Indicator 2: Nonfiling characters

0-9 -- Number of nonfiling characters present (for initial articles, including spaces)

Subfield used most often:

$a -- Uniform title

$v -- Volume number

Example: 830 #0 $a Railroads of America (Macmillan)

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Part VIII:

A List of Other Fields
Often Seen in MARC Records

001	Control number
003	Control number identifier
005	Date and time of latest transaction
006	Fixed-length data elements -- additional material characteristics
007	Physical description fixed field
008	Fixed length data elements (See Part X)
022	International Standard Serial Number (ISSN)
037	Source of acquisition
041	Language code
043	Geographic area code
050	Library of Congress call number
060	National Library of Medicine call number
082	Dewey Decimal classification number (the one recommended by the Library of Congress; locally-assigned call numbers may appear elsewhere)
110	Main entry -- Corporate name (less frequent under AACR2 rules)
256	Computer file characteristics
263	Projected publication date (indicates a CIP -- Cataloging in Publication -- record)
306	Playing time
508	Creation/production credits note
510	Citation/references note (review sources)
511	Participant or performer note
521	Target audience note (first indicator: 0 = reading grade level, 1 = interest age level, 2 = interest grade level, 3 = special audience characteristics, 4 = motivation interest level)
530	Additional physical form available note
538	System details note
586	Awards note
656	Index term -- Occupation
730	Added entry -- Uniform title
852	Location

856   Electronic location and access
9XX   Reserved for local use. (They are used by vendors, systems, or individual
         libraries to exchange additional data)

Part IX:

The Leader

There are 24 positions in the Leader, numbered from 00 to 23. For fuller explanation, see the *MARC 21 Format for Bibliographic Data.*

00-04   Record length (calculated by the computer for each record)
05   Record status
         a = increase in encoding level
         c = corrected or revised
         d = deleted
         n = new
         p = increase in encoding from prepublication (previous CIP)
06   Type of record
         a = language material
         c = printed music
         d = manuscript music
         e = cartographic material
         f = manuscript cartographic material
         g = projected medium
         i = nonmusical sound recording
         j = musical sound recording
         k = 2-dimensional nonprojectable graphic
         m = computer file
         o = kit
         p = mixed materials
         r = 3-dimensional artifact or naturally occurring object
         t = manuscript language material
07   Bibliographic level
         a = monographic component part
         b = serial component part
         c = collection
         d = subunit
         i = integrating resource
         m = monograph/item
         s = serial
08   Type of control
         # = no specified type
         a = archival

09   Character coding scheme
            # = MARC-8
            a = UCS/Unicode
10   Indicator count (always "2")
11   Subfield code count (always "2")
12-16   Base address of data (calculated by the computer for each record)
17   Encoding level
            # = full level
            1 = full level, material not examined
            2 = less-than-full level, material not examined
            3 = abbreviated level
            4 = core level
            5 = partial (preliminary) level
            7 = minimal level
            8 = prepublication level (CIP)
            u = unknown
            z = not applicable
18   Descriptive cataloging form
            # = non-ISBD
            a = AACR2
            i = ISBD
            u = unknown
19   Multipart resource record level
            # = Not specified or not applicable
            a = Set
            b = Part with independent title
            c = Part with dependent title
20   Length of the length-of-field portion (always "4")
21   Length of the starting-character-position portion (always "5")
22   Length of the implementation-defined portion (always "0")
23   Undefined (always "0")

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Part X:

Field 008 for Books

Field 008 is used for Fixed Length Data Elements ("Fixed Field Codes"). There are 40 character positions in field 008, numbered from 00-39. Undefined positions must contain either a blank (#) or a fill character (|). Positions 00-17 and 35-39 are defined the same way for all media.

The information shown here for positions 18-34 applies only to books. For explanation of all the positions below and for positions 18-34 for other media, see the *MARC 21 Format for Bibliographic Data.*

Note that field 008 has no indicators or subfield codes.

00-05	Date entered on file (YYMMDD), where Y=year, M=month, and D=day
06	Type of date/publication status:

b = no dates given; B.C. date involved
e = detailed date
s = single known date/probable date
m = multiple dates
r = reprint/reissue date (Date 1) and original date (Date 2)
n = dates unknown
q = questionable date
t = publication date and copyright date
| = no attempt to code

07-10	Date 1/beginning date of publication
11-14	Date 2/ending date of publication

Date fields contain the year(s) of publication. The type of date(s) in these elements are specified in fixed field element 06: Type of date/publication status. (For further details, see the field 008 description in the *MARC 21 Format for Bibliographic Data*.)

15-17	Place of publication, production, or execution

For example:
pk# = Pakistan
cau = California (US)

(For a full list of codes used in these positions, see the *MARC Code List for Countries*.)

18-21	Illustrations (up to 4 codes):

\# = no illustrations
a = illustrations
b = maps
c = portraits
d = charts
e = plans
f = plates
g = music
h = facsimiles
i = coats of arms
j = genealogical tables
k = forms
l = samples
m = phonodisc, phonowire, etc.
o = photographs
p = illuminations
| = no attempt to code

22	Target audience:

\# = unknown or not specified

```
        a  =  preschool
        b  =  primary
        c  =  pre-adolescent
        d  =  adolescent
        e  =  adult
        f  =  specialized
        g  =  general
        j  =  juvenile
        |  =  no attempt to code
23      Form of item:
        #  =  none of the following
        a  =  microfilm
        b  =  microfiche
        c  =  microopaque
        d  =  large print
        f  =  braille
        r  =  regular print reproduction
        s  =  electronic
        |  =  no attempt to code
24-27   Nature of contents (up to 4):
        #  =  no specified nature of contents
        a  =  abstracts/summaries
        b  =  bibliographies (is one or contains one)
        c  =  catalogs
        d  =  dictionaries
        e  =  encyclopedias
        f  =  handbooks
        g  =  legal articles
        i  =  indexes
        j  =  patent document
        k  =  discographies
        l  =  legislation
        m  =  theses
        n  =  surveys of literature
        o  =  reviews
        p  =  programmed texts
        q  =  filmographies
        r  =  directories
        s  =  statistics
        t  =  technical reports
        u  =  standards/specifications
        v  =  legal cases and notes
        w  =  law reports and digests
        z  =  treaties
        |  =  no attempt to code
28      Government publication:
        #  =  not a government publication
```

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i   =   international intergovernmental
f   =   federal/national
a   =   autonomous or semi-autonomous component
s   =   state, provincial, territorial, dependent, etc.
m =   multistate
c   =   multilocal
l   =   local
z   =   other type of government publication
o   =   government publication -- level undetermined
u   =   unknown if item is government publication
| =   no attempt to code

29   Conference publication:
0   =   not a conference publication
1   =   conference publication
| =   no attempt to code

30   Festschrift:
0   =   not a festschrift
1   =   festschrift
| =   no attempt to code

31   Index:
0   =   no index
1   =   index present
| =   no attempt to code

32   Undefined (since 1990) (Earlier records may contain the values 0 or 1)
=   Undefined
| =   no attempt to code

33   Literary form:
0   =   not fiction (not further specified)
1   =   fiction (not further specified)
c   =   comic strips
d   =   dramas
e   =   essays
f   =   novels
h   =   humor, satires, etc.
i   =   letters
j   =   short stories
m =   mixed forms
p   =   poetry
s   =   speeches
u   =   unknown
| =   no attempt to code

34   Biography:
=   no biographical material
a   =   autobiography
b   =   individual biography
c   =   collective biography
d   =   contains biographical information

| | = no attempt to code

35-37   Language:

A three-letter code. For example: eng fre ger spa rus ita

(For a full list of codes used in these positions, see the *MARC Code List for Languages*.)

38   Modified record:
         # = not modified
         x = missing characters (because of characters unavailable in MARC character
             set)
         s = shortened
         d = "dashed-on" information omitted
         r = completely romanized/printed cards in script
         o = completely romanized/printed cards romanized
         | = no attempt to code
39   Cataloging source:
         # = national bibliographic agency
         c = cooperative cataloging program
         d = other sources
         u = unknown
         | = no attempt to code

Library of Congress
Library of Congress Help Desk (10/27/2009)