ANSI/NISO Z39.56-1996 (Version 2) **ISSN: 1041-5653**
(Revision of ANSI/NISO Z39.56-1991)

Serial Item and Contribution Identifier (SICI)

Abstract: This standard defines the requirements for providing in coded form an identifier for each item of a serial and each contribution contained in a serial.

An American National Standard
Developed by the
National Information Standards Organization

Approved August 14, 1996 by the
American National Standards Institute

Bethesda, Maryland, U.S.A.

Published by
NISO Press
4733 Bethesda Avenue, Suite 300
Bethesda, MD 20814

Printed in the United States of America

ISSN: 1041-5653 National Information Standards series
ISBN: 1-880124-28-9

♾ This paper meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).

Library of Congress Cataloging-in-Publication Data

National Information Standards Organization (U.S.)
Serial item and contribution identifier (SICI) / developed by the National Information Standards Organization : approved August 14, 1996 by the American National Standards Institute.
p. cm. — (National information standards series, ISSN 1041-5653)
"ANSI/NISO Z39.56-1996."
ISBN 1-880124-28-9 (alk. paper)
1. Serial publications—Bibliography—Methodology—Standards—United States. 2. Bibliographical citations—Standards—United States. I. American National Standards Institute. II. Title. III. Series.
Z6940.5.N38 1996 96-43631
025.3'432—DC20 CIP

Contents

(continued)

(Contents continued)

Appendixes

Figures

Tables

Foreword

(This foreword is not part of the American National Standard for Serial Item and Contribution Identifier (SICI), ANSI/NISO Z39.56-1996. It is included for information only.)

About This Standard

This Serial Item and Contribution Identifier (SICI) standard defines a variable length code that will provide unique identification of serial items (e.g., issues) and the contributions (e.g., articles) contained in a serial title.[1] The standard is intended primarily for use by those involved in the use or management of serial titles and their contributions. While the SICI code is intended to be applicable to both automated parsing and human-readable environments, it does not prescribe any specific machine-scannable symbology, nor does it prescribe a specific machine-readable interchange format for electronic transmission of the coded data.

As a prescriptive standard, Z39.56-1996 defines the requirements for constructing a compact SICI code that has a unique value for each unique bibliographic item.[2] Every effort has been made to specify requirements that can be applied to the vast majority of serials and can be used in the many different applications to which the code is appropriate.

The significant developments in this version of the SICI include:

- A means for identifying a SICI structure type. This clarifies the distinction between a code used to specify a Serial Item or a Contribution Identifier. In addition it provides a structure that can accommodate other uses such as the incorporation of private numbering systems (e.g., those used to track manuscripts prior to publication). Also, the structure provides an extensibility mechanism for future versions and applications of the standard.
- A method for indicating the medium used for distribution of serial items or contributions being identified (e.g., text on paper, microform, electronic).
- A way to specify a derivative part of the serial item (table of contents, index, etc.) or a contribution (e.g., abstract).
- No limit on word length in the construction of the Title Code. The Title Code has been expanded to a maximum of six characters and the rules for construction have been simplified and made more precise. The changes in the Title Code derivation algorithm should improve uniqueness of SICI codes for contributions.
- A change in the punctuation used to delimit data elements.
- A nomenclature for modeling the discussion of logically-bound pieces of the identifier. The standard now models the SICI code as a sequence of well-defined segments: item, contribution, and control. The Serial Item Identifier carries data only in the *Item* and *Control Segments* (the *Contribution Segment* is null); the Contribution Identifier uses all three. The standard has been reorganized to reflect this model.

---

[1] For the purposes of this standard *serial* is defined as a publication issued in successive parts at regular or irregular intervals, bearing numerical and/or chronological designation, and intended to be continued indefinitely. Serials include: periodicals, newspapers, annual works, reports, journals, proceedings, transactions and the like of societies and other corporate entities such as conferences, and numbered monographic series.

[2] While the SICI speaks of a "unique" value for each unique contribution, the reader should understand that theoretically two contributions can have identical SICI values. The design of the algorithms specified in this standard attempt to minimize the occurrence of this situation, and empirical tests indicate that duplicate SICI values occur roughly once per million contributions. The revision committee believes this is an acceptable balance between the conflicting design goals of uniqueness and compactness.

Background

This standard began in the Serials Industry Systems Advisory Committee (SISAC). From its inception, SISAC recognized that methods for increasing the efficiency with which data about serials could be entered into any system depended on a standard for identifying not only the serial items themselves, but their components. Therefore, in 1983, SISAC created a subcommittee to begin the development of such a standard. One of the SISAC subcommittee's first tasks was to submit a proposal to the National Information Standards Organization (NISO) to develop the SICI as a formal NISO standard. NISO approved the proposal and created Standards Committee CC to develop the standard that resulted in Z39.56-1991.

According to the normal standards revalidation and revision process, the 1991 standard would have been revisited in five years. However, in October of 1993, NISO convened a revision committee (Standards Committee AM) to address issues that had arisen as experience in implementation was gained and as changes in electronic publishing and dissemination of serials occurred. Over the ten years since the work had begun on the first version of the standard, the broad practical relevance of a unique serial item and contribution identifier code had become more evident. Electronic interlibrary loan had become a major activity among libraries and information centers worldwide, and an increasing amount of this activity derived from searches of existing bibliographic and abstracting and indexing (A&I) databases. Other important new requirements were emerging from the electronic full-text journal, newspaper, and other databases with millions of articles now available in electronic form. By now, major library and commercial systems serving specific user groups have been established to support computer-based electronic document search, query, delivery, and original publication. The SICI standard provides the first common link between the author's and publisher's original work, a citation, and the A&I databases, regardless of the format that the contribution takes (see Appendixes C and D).

Goals

The goals that guided the work of the first committee as stated in the foreword to the 1991 version of the standard, were:

- to limit the scope of the standard to a code for unique identification of serial items and contributions
- to cover the broadest possible range of serials; for example, scholarly, trade, and popular, as well as domestic and foreign, regardless of physical form
- to allow independent derivation of the SICI code from the actual serial or a citation to it, regardless of whether the serial is currently published and/or whether the publisher has placed the identifier on the serial
- to provide the briefest possible code consistent with unique identification
- to maintain consistency with and build upon other standards, such as the ISSN.

With these initial goals in mind, the present revision committee, in reviewing ANSI/NISO Z39.56-1991, expanded its objectives to include:

- the reevaluation of the use of mandatory and optional fields as related to date and title code
- the enrichment of the Contribution Segment of the string
- the expansion of the references supplied in the standard to include the sources of auxiliary information needed to construct the code
- the improved ability to compute and use SICIs from citations, a key requirement for interfile linkage, document supply, and rights management applications, which have taken on increased importance
- the assurance that the SICI standard complements the work of other standards

related to the identification of documents especially in a networked environment
- the interoperability among SICIs derived from multiple sources.

Comments on Z39.56-1991 vs. 1996 Versions

A conceptual model emerged from the revision committee's early discussion of the strengths and weaknesses of ANSI/NISO Z39.56-1991 based upon implementation experience and the broader set of functional requirements now evident. There are three natural sections to the code: (a) groups of elements that describe the serial item, (b) the contribution, and (c) other management features related to the SICI itself. This framework guided the discussions and decisions made to improve the standard.

The first area addressed by the committee was the disambiguation of the SICI structure. ANSI/NISO Z39.56-1991 had established two levels of coding:
- Serial Item Identifier — a unique code for the identification of an issue of a serial title
- Serial Contribution Identifier — by adding data elements to the code that identifies the Serial Item, a unique code is created for each contribution that appears in the serial, even if more than one contribution begins on a given page (e.g., newspapers).

ANSI/NISO Z39.56-1996 establishes a method for specifying the coding structure. This data element is referred to as the Code Structure Identifier (CSI). The CSI is a numeric code at a specified position in the SICI string that allows both humans and computer systems to determine the coding level. At present, three CSIs are defined: CSI-1 specifies the Serial Item, CSI-2 denotes a Contribution Identifier, and CSI-3 carries private identifiers, such as, but not limited to, the publisher-developed Publisher Item Identifier (PII) or the Copyright Clearance Center (CCC) Code. This explicit identification of coding structure also provides a path for future extensibility.

Another area addressed by the revision committee was the use of the SICI in active document delivery and table of contents services, which led to the perception that problems existed with the Title Code. While Z39.56-1991 required the use of the Title Code in only three instances, some implementations found it necessary to use Title Codes in all Contribution Identifiers. To improve the code's ability to uniquely identify contributions, other data elements have been added to the Control Segment. Also, the revision specifies format types (e.g., braille, microform, electronic, or print on paper); these are referred to as Medium Format Identifiers (MFI). The Derivative Part Identifier (DPI) is established as a data element for specifying a part of a serial item that is not a contribution *per se*, such as the table of contents for a serial item or the abstract of a contribution.

Although a unique and compact code was a primary goal of the original standard, the revision committee has left a certain amount of redundancy in the code (enumeration/chronology and location/title code) so that informed judgments can be made about the degree of similarity between two SICIs derived from different sources (see Appendix D). It should be noted that neither the original 1991 standard nor this revision specifies a code that is as short as possible subject to requirement for uniqueness. Both versions of the standard use punctuation to allow for easy visual parsing and machine recognition of the coding structure for the SICI being specified and its constituent segments. The SICI is robust enough to facilitate construction from multiple types of sources, yet is still short enough to allow for both unique identification and easy conversion into machine-scannable symbology (e.g., a bar code representation on the cover of an item). There is no length restriction on a SICI.[3]

[3] Committee members estimate the CSI-1 (Serial Item Identifier only) to average about 30 characters, while the CSI-2 (Serial Contribution Identifier) is about 45 characters.

Matching and Uniqueness of SICI Codes

The revision committee gave extensive consideration to the requirements of document supply, rights management, and interfile linking applications. The design requirements and properties that emerged from these deliberations underlie most changes in this standard.

It was recognized that the SICI — in particular the Serial Contribution Identifier — must be derivable from the issue of the serial in hand and any citations that might describe a contribution. Ideally, the best available source (the serial item itself) should be used to construct the title code, and, all available information should be included so the SICI is definitive and complete.

Depending on the information available to the constructor of the SICI code, a contribution might legitimately be identified by more than one SICI. All versions of the SICI should be constructed to the fullest extent possible from the data available.

The construction of SICI codes from citations that appear in bibliographies presents particular problems. Some citation formats omit the information necessary to provide full chronology or enumeration. The committee believes that, in general, by encoding the most complete information available, a unique SICI will almost always be produced. There are a few common citation formats that provide very limited data elements and as such will not produce a SICI code that is highly interoperable.

The matching of SICI codes in some applications may therefore require algorithms that are much more complex than simple string comparison, since they need to consider that some data elements within one or both of the SICI codes being matched may be omitted. This would be the case, for example, in document ordering applications where a patron-supplied SICI code (derived from a citation, for example) that omits various data elements might be matched against complete SICI codes derived from an A&I or full-text database (see Appendix D).

Integration with Other Standards

Because this standard is but one of many standards addressing serials, the revision committee has tried to ensure consistency with existing standards. Paramount among these is the standard identifier for serial titles, the International Standard Serial Number (ISSN). The SICI uses the ISSN to identify the serial itself, thus conforming to and exploiting the existing investment in NISO and international standards. In order to apply this standard a serial must have an ISSN. The ISSN is the only generally accepted standard identifier for serials and is widely and freely available from the ISSN Network and its component national and regional centers for the entire range of publications that this standard covers. For older serials published before the existence of the ISSN, and for current serials that do not have an ISSN, mechanisms are in place so that an ISSN assignment may be requested from appropriate authorities.[4]

The SICI model illustrates a hierarchy that progresses from the serial title through its individual items (issues) to the individual contributions (articles) published in them. In this sense, the Serial Item and Contribution Identifier is a logical extension of the ISSN to the items and individual contributions that make up a serial's hierarchical structure.

The revision committee has encouraged the accommodation of SICI use in other standards. For example, the SICI has been assigned the use value (1037) in the bib-1 attribute set of Z39.50-1995. Data elements required to support the construction and

[4] http://lcweb.loc.gov/ISSN

interchange of SICIs are being advocated in the development and revision work of other standards, i.e., citation standards. Electronic Data Interchange (EDI) environments (X12, and Edifact) also include the SICI as a data element.

The Internet Engineering Task Force (IETF) has been developing a very general Uniform Resource Identifier (URI) scheme for naming and accessing networked information resources. Within this framework both ISSNs and SICI codes (of all structures) are forms of what the IETF terms Uniform Resource Names (URNs). URNs are simply opaque identifiers that are assigned by a naming authority, plus identification of the naming authority itself. Details for the registry of naming authorities are still being worked out as of this writing, but it is expected that the SICI codes will be established within a naming authority and will be consistent with the URN scheme. There may be some problems with the character set permitted within the opaque identifier in the IETF's URN scheme, but the IETF work is not sufficiently mature at this point to resolve this question. If necessary, an encoding of SICI codes for use within URNs can be developed. Part of the validation of the IETF URN syntax will include a specification of the coding of so-called "legacy" naming systems, which will include the SICI.

Character Set Issues

Character sets presented several major problems for the revision committee. The rationale for some of the decisions made deserves discussion here. The SICI code makes use of a character set. It does not specify a coding for this character set. The task in this revision was to define the character set that could appear in a SICI, or by which a SICI can be encoded.

Logically, Unicode should resolve the character set question. However, the vast range of current application scenarios in which SICI codes are likely to be applied and the variety of transport mechanisms used to convey them require that SICI codes be expressible in the 7-bit ASCII character data. The Simple Mail Transport Protocol (SMTP), the most widely used in the Internet, carries the 7-bit ASCII character set. Therefore this is the most extensive character set that currently can be used for reliable transmission across the worldwide matrix of interlinked electronic mail systems. The SICI character set is selected from the character set supported by standard 7-bit ASCII. As the nature of the applications environment evolves, future revisions of the standard should revisit these choices, but we believe that the approach used here is most appropriate for today's environment.

Two data elements in the SICI are sensitive to the character set: the Title Code and the Enumeration. Titles of contributions can be in any language; further, they can also include a wide range of special typographic symbols such as mathematical notation or chemical formulas. Special typographic symbols are handled by substituting the English words that describe them; for example, an integral sign (∫) is replaced by the word "integral." For interoperability, it is necessary that one language be used, and English was chosen.

Alternate character sets, such as Japanese, Hebrew, or Cyrillic, are transliterated into the 7-bit ASCII character set using existing standards for transliteration, as are the extended 8-bit Latin alphabet coded character sets. These transliterations produce the required 7-bit ASCII Title Code.

Other Items of Note

With the expansion of data elements in the Control Segment (where the administrative elements reside) the role of the maintenance agency has expanded to include registration of codes for additional Code Structure Identifiers (CSI), Derivative Part Identifiers (DPI),

and Medium Format Identifiers (MFI) as needed between revisions of the standard.

The standard does not prescribe a physical location for presenting the SICI on issues of a serial, nor does it prescribe any machine-scannable symbology. For example, the SISAC Bar Code symbol described in *Serial Item Identification: Bar Code Symbol Implementation Guidelines* provides the physical requirement for specific applications.

The revision committee considered but made no changes to the computation of the Check Character.

The following compares version 1 and version 2 of this standard:

Item: *Forbes* January 1, 1996 vol. 157 no. 1.
SICI v1: 0015-6914(19960101)157:1;1-1
SICI v2: 0015-6914(19960101)157:1<>1.0.TX;2-V

Item: Hutheesing, Nikhil, "Keeping the seats warm" *Forbes* January 1, 1996 vol. 157 no. 1 p. 62.
SICI V1: 0015-6914(19960101)157:1L.62:KSW;1-8
SICI V2: 0015-6914(19960101)157:1<62:KTSW> 2.0.TX;2-F

This standard was processed and approved for submittal to ANSI by the National Information Standards Organization. It was balloted by the NISO Voting Members February 1, 1996 - April 30, 1996. It is scheduled to be reviewed in 2001. Suggestions for improving this standard are welcome. They should be sent to the National Information Standards Organization, 4733 Bethesda Avenue, Suite 300, Bethesda, MD 20814. NISO approval of this standard does not necessarily imply that all Voting Members voted for its approval. At the time it approved this standard, NISO had the following Voting Members:

NISO Voting Members

3M
Richard W. Lindahl
Robert L. Dreger (Alt)
Gerald G. Marsolek (Alt)

American Association of Law Libraries
Andrew Laurence

American Chemical Society
Robert S. Tannehill, Jr.
Leon R. Blauvelt (Alt)

American Library Association
Carlen Ruschoff

American Society for Information Science
Mark H. Needleman

American Society of Indexers
Patricia S. Kuhr
Marie Kascus (Alt)

American Theological Library Association
Myron B. Chace

Ameritech Library Services, Academic Division
John Kolman

Amoco Corporation
Randy R. Reddemann

Apple Computer, Inc.
Janet Vratney
Rita Brennan (Alt)

Armed Forces Medical Library
Diane Zehnpfennig
Beth Knapke (Alt)

Art Libraries Society of North America
Thomas E. Young
Penney DePas (Alt)

Association of Information and Dissemination Centers
Bruce H. Kiesel

Association for Information and Image Management
Judy Kilpatrick

Association of Jewish Libraries
Pearl Berger
David Gilner (Alt)

Association of Research Libraries
Duane E. Webster

Bell Laboratories
M.E. Brennan

CASPR, Inc.
Norman Kline
Brian Lomeli (Alt)

CARL Corporation
Ward Shaw

(continued)

NISO Voting Members (continued)

College Center for Library Automation
J. Richard Madaus
Ann Armbrister (Alt)

Data Research Associates, Inc.
Michael J. Mellinger
James Michael (Alt)

Data Research Users Group, Inc.
Beth F. Anderson

EBSCO Information Services
Sandra H. Hurd
Mary Beth Vanderpoorten (Alt)

Elsevier Science Incorporated
John Mancia
Norman Paskin (Alt)

The Faxon Company
Alan Nordman

Follett
D. Jeffrey Blumenthal
Michael Marchuck (Alt)

Gaylord Information Systems
James English
William Schickling (Alt)

GCA Research Institute
Christopher Ziener
Norman Scharpf (Alt)

Geac Computers, Inc.
Simon Kendall
B. J. Mitchell (Alt)

IBM Corporation
Tryg Ager

IEEE
Anthony J. Ferraro

Indiana Cooperative Library Services Authority
Millard Johnson
Janice Cox (Alt)

Information Access Company
Delores Meglio
Victoria Gray (Alt)

Innovative Interfaces
Gerald M. Kline
Sandra Westall (Alt)

Knight-Ridder Information, Inc.
Richard Boulderstone
David Loy (Alt)

Lexis-Nexis
Peter Ryall

Library Binding Institute
Sally Grauer

Library of Congress
Winston Tabb
Sally H. McCallum (Alt)

Medical Library Association
Katherine Hughes
Carla J. Funk (Alt)

MINITEX
Anita Anker Branin
William DeJohn (Alt)

Music Library Association
Lenore Coral
Geraldine Ostrove (Alt)

National Agricultural Library
Pamela Q. J. Andre
Gary K. McCone (Alt)

National Archives and Records Administration
Alan Calmes

National Federation of Abstracting and Information Services
John Schnepp

National Library of Medicine
Lois Ann Colaianni

OCLC, Inc.
Donald J. Muccino

OHIONET
Michael P. Butler
Greg Pronevitz (Alt)

OhioLINK
David Barber

PALINET
James E. Rush

Readmore Academic Services
Sandra J. Gurshman
Amira Aaron (Alt)

The Research Libraries Group
Wayne Davison
Kathy Bales (Alt)

R. R. Bowker
Emery Koltay

R.R. Donnelley & Sons, Co.
Sidney P. Marland III

SilverPlatter Information, Inc.
Peter Ciuffetti
Barbara Bishop (Alt)

Society of American Archivists
Lynn Lady Bellardo

Society for Technical Communication
Connie Bibus
Kevin Burns (Alt)

Special Libraries Association
Marjorie Hlava

SUNY/OCLC
Liz Lane

UMI
Blake Ratcliffe
Jim Tumolo (Alt)

U.S. Department of the Army, Headquarters
Paula E. Vincent

U.S. Department of Commerce, National Institute of Standards and Technology, Office of Information Services
Paul Vassallo
Jeff Harrison (Alt)

U.S. Department of Defense, Defense Technical Information Center
Gretchen A. Schlag
Claire Tozier (Alt)

(continued)

NISO Voting Members (continued)

U.S. Department of Energy, Office of Scientific and Technical Information
Mary Hall
Nancy Hardin (Alt)

U.S. National Commission on Libraries and Information Science
Peter R. Young

VTLS, Inc.
Vinod Chachra

West Publishing Company
Andy Desmond
Forrest Rhoads (Alt)

Winnebago Software
Bob Engen
Carol E. Blagsvedt (Alt)

H.W. Wilson Company
George I. Lewicky
Ann Case (Alt)

NISO Board of Directors

At the time NISO approved this standard, the following individuals served on its Board of Directors:

Michael J. McGill, Chairperson
University of Michigan Medical Center

Joel H. Baron, Vice-Chair/Chair-Elect
Dawson Holdings PLC

Michael J. Mellinger, Immediate Past Chairperson
Data Research Associates, Inc.

Patricia R. Harris, Executive Director
National Information Standards Organization

Directors Representing Libraries

Nolan F. Pope
University of Wisconsin - Madison

Clifford Lynch
University of California

Lennie Stovel
Research Libraries Group

Directors Representing Information Services

Howard Turtle
West Publishing Company

John Kolman
Ameritech Library Services, Academic Division

Vinod Chachra
VTLS, Inc.

Directors Representing Publishing

Marjorie Hlava
Access Innovations, Inc.

Robert C. Badger
Springer-Verlag NY, Inc.

Elizabeth Bole Eddison
Inmagic, Inc.

Standards Committee AM

The following individuals served on Standards Committee AM which revised this standard:

Frederick Schwartz, Committee Chairperson 1994-95
The Faxon Co.

Julia Blixrud, Committee Chairperson 1996
CAPCON Library Network

Peter Ciuffetti
SilverPlatter Information, Inc.

Allen Dean
Copyright Clearance Center

Tina Feick
Blackwell's Periodical Division

Peter Foppen
Kluwer Academic Publishers Group

Mary Jackson
Association of Research Libraries

Ted Koppel
The UnCover Company

Clifford Lynch
University of California, Division of Library Automation

Susan Malawski
John Wiley & Sons, Inc.

Mark Needleman, NISO Standards Development Committee Representative
University of California, Division of Library Automation

Cecilia Preston
Editor

Linda Richter
Minnesota State University System - MSUS/PALS

George Wright IV
Product Identification & Processing Systems, Inc.

ANSI/NISO Z39.56-1996 is dedicated to the memory of Fritz Schwartz, Committee Chairperson 1994-95. The revision committee thanks NISO Voting Members and others interested in the progress of this standard for the comments that contributed to the enrichment of this document.

Serial Item and Contribution Identifier

1. Introduction

1.1 Purpose

ANSI/NISO Z39.56-1996 defines the requirements for a variable length code that uniquely identifies serial items (e.g., issues) and each contribution (e.g., article) contained in a serial. The acronym SICI stands for Serial Item and Contribution Identifier and is used in this standard to refer to the code itself.

1.2 Scope

This standard defines the Serial Item and Contribution Identifier (SICI) for use with serial publications in all formats. For the purposes of this standard a serial is defined as a publication issued in successive parts at regular or irregular intervals, bearing numerical and/or chronological designation, and intended to be continued indefinitely.

The SICI is intended to be created and used by those members of the bibliographic community engaged in the functions associated with the management of serials and the contributions they contain, functions such as ordering, accessioning, claiming, royalty collection, rights management, online retrieval, database linking, and document delivery. Appendix C contains scenarios describing the use of the SICI in some of these functions.

Identifiers constructed according to this standard are used within a wide variety of applications: Electronic Data Interchange (EDI), Serials Industry Systems Advisory Committee (SISAC) bar codes, Z39.50 queries, Uniform Resource Names (URNs), electronic mail, and human transcription in print. This standard does not define any specific transport system or means of implementation.

1.3 Principles and Guidelines

Implementation of this standard particularly by publishers and distributors of information about both the serial items and contributions will ensure that the coded information that uniquely describes these items and contributions is readily available.

The SICI uses the International Standard Serial Number (ISSN) to identify the serial title. Therefore, in order to use this standard in the construction of an item or contribution identifier for material published in the serial, the serial must have been assigned an ISSN.

In recognition of the large installed base of serial titles, contributions, and derived works (e.g., abstracting and indexing) databases, no data elements outside those normally associated with such works are introduced into this standard.

1.4 The Structural Model for Identifiers

The SICI is a combination of defined segments, all of which are required. These segments are:

- *Item Segment,* the data elements needed to describe the serial item (ISSN, Chronology, Enumeration).
- *Contribution Segment,* the data elements needed to identify contributions within an item (Location, Title Code, and other numbering schemes in a specific instance of the SICI).
- *Control Segment,* the data elements needed to record those administrative elements that determine the validity, version, and format of the code representation. This is the most important segment of the SICI. Interpretation and processing are determined by the Control Segment.

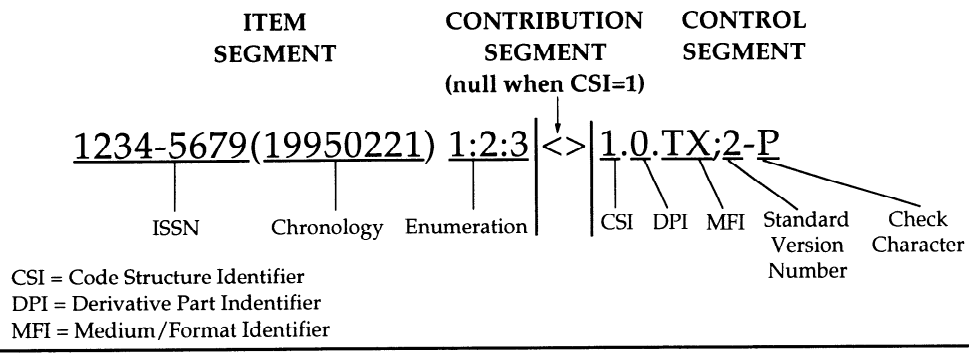
1.4.1 Code Structure Identifier in Control Segment

In the Control Segment, a Code Structure Identifier (CSI) specifies the data elements that should be present in the other segments.

1.4.1.1 Code Structure Identifier-1 (CSI-1)

The Code Structure Identifier-1 (CSI-1) identifies a serial item (issue). This SICI includes the Item Segment, a null Contribution Segment, and the Control Segment (Figure 1). The examples that follow are valid SICI structures but do not contain authentic data.

Figure 1: Example of a CSI-1



1.4.1.2 Code Structure Identifier-2 (CSI-2)

The Code Structure Identifier -2 (CSI-2) specifies a contribution (article) within a serial item. In this structure, a Contribution Segment contains the Location (e.g., page) and/or Title Code associated with that contribution (Figure 2).

Figure 2: Example of a CSI-2

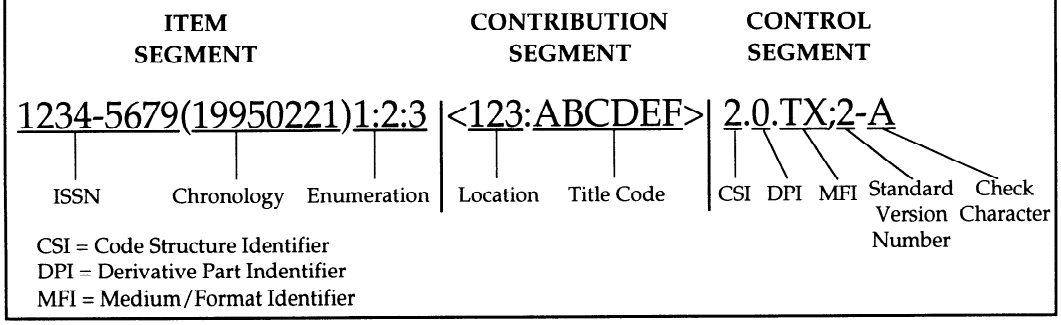
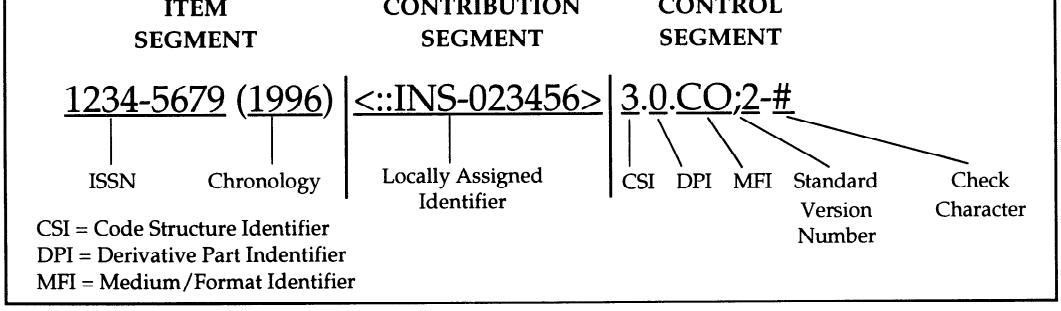


Figure 3: Example of a CSI-3



1.4.1.3 Code Structure Identifier-3 (CSI-3)

The Code Structure Identifier -3 (CSI-3) identifies the use of locally assigned contribution identifiers. The Contribution Segment is expanded to include a third data element, the locally assigned (private) identifier. This third data element follows the Location and Title Code and is delimited from the Title Code by a colon (:). The other data elements in the segment (Location and Title Code) are optional. It is recommended that these data elements and those from the Item Segment (Chronology and Enumeration) be included when available. Figure 3 is an example of suggested minimal coding for a proprietary number assigned to a contribution (023456) in a serial that will appear online (CO) in 1996. INS in Figure 3 refers to the name of a locally assigned identifier called Internal Numbering Scheme.

2. Referenced Standards

This standard is intended for use in conjunction with the following standards. When these standards are superseded by a revision approved by the American National Standards Institute, consult the revision.

ANSI/NISO Z39.9-1992, International Standard Serial Numbering (ISSN).

ISO 3297:1986, Documentation — International Standard Serial Numbering (ISSN).

ANSI X3.4-1986, American National Standard for Information Systems — Coded Character Sets — 7-Bit American National Standard Code for Information Interchange (7-bit ASCII).

3. Definitions

Article—See **Contribution**.

Check Character—An alphanumeric character calculated from the SICI string, used to ensure consistency or validity of the SICI when it is recorded or transported across applications. (See Section 6.2.5.)

Chronology—The date(s) on the work used by the publisher to identify the individual bibliographic unit of a serial, i.e., the cover date.

Code Structure Identifier (CSI) — A code used to distinguish the type of SICI being constructed. (See Section 6.2.1.)

Contribution—A published item, normally identified by a title and one or more authors, that constitutes an intellectually separable part of a publication. A contribution could be an article, paper, story (as in a newspaper), column, editorial, letter to the editor, meeting calendar, news item, obituary, erratum, book review, etc.

Contribution Identifier — The term used to refer collectively to the combination of code segments (Item, Contribution, and Control) that represent a specific contribution to a serial.

Contribution Segment — The set of data elements that are used to identify a specific contribution to a serial. These are the Location at which the contribution begins, and the Title Code, and locally assigned identifiers. (See Section 1.4 and Section 6.4.)

Control Segment — The set of data elements that define the structure and use of the code. It is administrative in nature. (See Section 1.4 and Section 6.2.)

Cover date—This is the date as it appears on the cover of the item. It is the date most prominently stated by typography or location, often appearing on the cover, spine, and/or title page. It is the date most often appearing in conjunction with the title or with the enumeration. It is the date by which most users would expect to request the publication.

CSI — See **Code Structure Identifier.**

Data element—A distinguishable, defined unit of information.

Date of coverage—See **Cover date.**

Derivative Part Identifier (DPI) — A code used in the Control Segment that denotes an integral part of a published item or contribution, such as the table of contents of a print journal or the abstract of an article. (See Section 6.2.2.).

Enumeration—The non-chronological scheme used by the publisher on the bibliographic unit to identify the individual bibliographic units of a serial and to show the relationship of a bibliographic unit to the serial as a whole.

Index — A systematic guide to the contents contained in, or concepts derived from, any work or group of works. It comprises a series of entries arranged in alphabetical, chronological, numerical, or other chosen order, such as subject, and with references or indicators to show where each indexed item or concept is located.

International Standard Serial Number (ISSN) — A number that provides for the unique identification of a serial publication. It is assigned to a serial's title. The ISSN appears as two groups of four characters separated by a hyphen. A unique one-to-one correspondence exists between each assigned ISSN and the serial title to which it is registered; once registered, an ISSN is not reassigned (ANSI Z39.9-1992).

Issue — See **Item.**

Item — A unit of publication containing one or more contributions, usually under a title, as a part of a serial.

Item Identifier — The term used to refer collectively to those segments (Item and Control) that represent a specific item in a serial. The Contribution Segment is also required, but null.

Item Segment — The set of data elements that are used to identify a specific item in a serial. Those elements are the ISSN, Enumeration, and Chronology. (See Section 1.4 and Section 6.3.)

Location — The numbering of the pages, or equivalent units, of an item. In non-print media, the location could be, for example, frame number, screen number, reel number, etc.

Medium / Format Identifier (MFI)— A two-letter alphabetic code used to indicate the form that an item takes (e.g., TB = braille, CO = online (remote), TX = printed text). (See Section 6.2.3.)

Numbering — See **Enumeration.**

Pagination — See **Location.**

Segment — A portion of the Serial Item and Contribution Identifier comprising a set of related data elements.

Serial Item Identifier — See **Item Identifier.**

Standard Version Number — Identifies the version of this standard used in creating the SICI. (See Section 6.2.4.)

Supplement — An additional publication of a serial, closely connected in subject matter and issued by the same publisher, but made up as a separate entity. A supplement usually complements items already published by bringing up to date or otherwise continuing the original. A supplement may carry its own enumeration and chronology and may be treated as a separate serial title with its own ISSN, or it may be an integral part of the parent publication with no separate ISSN.

Title — The identifying name given to a contribution within a specific item. Note: The title of a serial does not appear in the Serial Item and Contribution Identifier.

Title Code — A data element within the Contribution Identifier that, together with the location number at which the contribution begins, uniquely identifies the contribution.

4. Character Sets

For character sets, transcribe alphabetic characters as they appear on the item. Encode alphabetic characters in upper case. Months and seasons are converted to a numeric value (see Table 6). Transliterate non-roman characters to roman script, using the appropriate ANSI transliteration standards, or, if no ANSI standard is available, the ISO transliteration standards (see Appendix E).

Table 1 lists the only characters that are used in the construction of the SICI. These characters are a subset of the 7-bit ASCII character set and can be reliably used across various network and electronic mail systems.

Table 1: Characters used to construct a SICI Code

0 - 9	digits zero - nine	$	dollar sign	+	plus sign
A - Z	capital A - Z	=	equals	?	question mark
&	ampersand	!	exclamation mark	"	quotation mark
'	apostrophe	>	right angle bracket	;	semicolon
*	asterisk	-	hyphen (minus)	/	slash
\	backslash	<	left angle bracket	^	spacing circumflex
}	closing curly bracket	#	number sign	`	spacing grave
)	closing parenthesis	{	opening curly bracket	~	spacing tilde
]	closing square bracket	(	opening parenthesis	_	spacing underscore
:	colon	[	opening square bracket	|	vertical bar (fill)
,	comma	%	percent sign		
@	commercial at	.	period (decimal point)		

Individual data elements may impose additional constraints on allowable characters as illustrated in Table 2.

Table 2: Legal character usage by data element for SICIs

Data element	Length	Character type		Other permitted characters (see Table 1)
		A-Z	0-9	
ISSN	9		x	hyphen, X
Chronology	variable		x	parentheses, slash
Enumeration	variable	x	x	colon, slash, plus, and asterisk
Location	variable	x	x	any except colon or angle brackets
Title Code	1-6	x	x	see section 6.4.2
Local Number	variable		x	any except colon or angle brackets
CSI	1		x	none
DPI	1		x	none
MFI	2	x		none
Standard Version Number	1		x	none
Self-Check Character	1	x	x	number sign

5. Punctuation

Punctuation marks are used throughout this standard as essential delimiters in the identification of data elements in the SICI. The minimum punctuation used in the SICI includes (a) the hyphen (in the ISSN) and right and left parentheses (in the Chronology) in the Item Segment, (b) the left and right angle brackets to delimit the Contribution Segment, and (c) two periods (one each after the CSI and DPI), a semicolon (following the MFI), and a hyphen (preceding the Standard Version Number) in the Control Segment.

Table 3 identifies and describes the uses for the punctuation as specified in this standard.

Table 3: Use of punctuation in a SICI

Symbol	Name	Purpose and example
-	hyphen	In the ISSN, separates the first four digits from the last four characters: 0066-4200(1990)25<>1.0.TX;2-S ▲ Precedes the check character in Control Segment: 0066-4200(1990)25<>1.0.TX;2-S ▲
/	slash	A connector that forms a single entity as in combined chronology or combined enumeration: 0095-4403(199502/03)21:3<>1.0.TX;2-Z ▲
:	colon	Separates multiple levels of enumeration: 1064-3923(199505)6:5<>1.0.TX;2-U ▲ Serves as the delimiter between the Location indicator and the Title Code in the Contribution Segment: 1064-3923(199505)6:5<26:MTW>2.0.TX;2-2 ▲
.	period (decimal point)	Used as a delimiter in the Control Segment to separate the CSI from DPI and DPI from MFI: 1064-3923(199505)6:5<>1.0.TX;2-U ▲▲
()	parentheses	Encloses the Chronology: 1064-3923(199505)6:5<>1.0.TX;2-U ▲ ▲ Consecutive left and right parentheses are used to separate the enumeration from the ISSN when there is no Chronology: 0277-786X( )364<123:COIPDA>2.0.TX;2-S ▲▲
+	plus sign	Specifies a supplement to an issue or volume in enumeration: 0015-6914(19950605)+<>1.0.TX;2-8 ▲
*	asterisk	Specifies an index to an issue or volume in enumeration: 0018-9219(1985)73*<>1.0.TX;2-6 ▲
<>	angle bracket	The left and right angle brackets delimit the Item Segment from the Contribution Segment and the Contribution Segment from the Control Segment: 0066-4200(1990)25<263:IATIR>2.0.TX;2-A ▲ ▲ A set of empty angle brackets indicates that no contribution is present: 0095-4403(199312/199401)20:2<>1.0.TX;2-U ▲▲
;	semicolon	Precedes the Standard Version Number in the Control Segment: 0095-4403(199312/199401)20:2<>1.0.TX;2-U ▲

6. Segments and Data Elements

6.1 Overview of Data Elements and Segments

The SICI code is composed of three segments: Item, Contribution, and Control. This section will define the usage and format of the data elements within the context of the three segments. Data element requirements are shown in Table 4. For clarity, all examples are a combination of standard bibliographic citations and full SICIs, so that the reader may see how the data elements interrelate. Boldface type has been used in the examples to highlight that portion of the code under discussion.

The interrelationship among the three segment types is crucial to constructing and parsing the SICI string. *All* segment types and the delimiters that define them *must* appear in a SICI string even when the content of a given segment type is empty.

The Control Segment is administrative in function. By using assigned codes, it identifies the version of the standard used in creating the SICI, and includes a check character for verification of the integrity of the SICI.

The Item Segment describes and identifies the specific serial item by enumeration and/or date and is the foundation upon which the Contribution Segment is based.

The Contribution Segment identifies a specific intellectual contribution within an item by using location and/or title data.

6.2 Control Segment

All SICI codes must have a Control Segment that includes each data element listed in the subsections of Section 6.2. Although the Control Segment is located at the end of the SICI code, it is discussed first because it contains the data elements that control the interpretation of many aspects of the code.

Table 4: Data element requirements by segment and CSI type

Segment	Data Element	CSI-1	CSI-2	CSI-3
Item	ISSN	Required	Required	Required
	Chronology	Required	Required	as available
	Enumeration	Required	Required	as available
Contribution	Location	Never	Required	as available
	Title Code	Never	Required	as available
	Local Number	Never	Never	Required
Control	CSI	Required	Required	Required
	DPI	Required	Required	Required
	MFI	Required	Required	Required
	Version #	Required	Required	Required
	Check Character	Required	Required	Required

6.2.1 Code Structure Identifier (CSI)

The Code Structure Identifier specifies the code type as a Serial Item Identifier, Serial Contribution Identifier, or other. The Code Structure Identifiers currently defined are: 1, 2, or 3, with the designations defined as follows:

CSI-1: Designates the Serial Item Identifier for a serial item that has been published.

Item: *Library Journal* Vol. 120 no. 5. March 15, 1995.
SICI: 0363-0277(19950315)120:5<>**1**.0.TX;2-V

CSI-2: Indicates the encoding of the Serial Contribution Identifier.

Item: Peters, Paul Evan. "Information Age Avatars" *Library Journal* Vol. 120 no. 5. March 15, 1995. p. 32.
SICI: 0363-0277(19950315)120:5<32:IAA>**2**.0.TX;2-0

CSI-3: Allows for (a) alternative numbering schemes used by publishers during a serial's editorial process prior to the publication of a contribution and (b) the inclusion of other internal control numbering schemes.

Item: Cronin, Blaise and Kara Overfelt. "Postscript on Program Rankings" *JASIS* 47:2 February 1996. p. 173.
SICI: 0002-8231(199602)47:2<173:POPR:CCC-020173-04>**3**.0.TX;2-E

6.2.2 Derivative Part Identifier (DPI)

The Derivative Part Identifier (DPI) provides a method for the designation of an identifiable component part of the serial item that is not a contribution, or an identifiable component part of a contribution.

The DPI codes currently defined are:

0 **Serial item or contribution** (e.g., this is used as a place holder when identifying the specified serial item itself or a complete contribution)

Item: *JASIS* 45:10 (Dec. 1994).
SICI: 0002-8231(199412)45:10<>1.**0**.TX;2-P

1 **Table of contents** for a specified serial item or contribution

Item: *JASIS* 45:10 (Dec. 1994).
SICI: 0002-8231(199412)45:10<>1.**1**.TX;2-M

2 **Index** from a specified serial item or contribution (see also Section 6.3.4 for further discussion of indexes)

Item: *JASIS* 45:10 (Dec. 1994).
SICI: 0002-8231(199412)45:10<>1.**2**.TX;2-J

3 **Abstract** for a contribution or a serial item

Item: Lynch, Clifford A. "The Integrity of Digital Information; Mechanics and Definitional Issues." *JASIS* 45:10 (Dec. 1994) p. 737-44.
SICI: 0002-8231(199412)45:10<737:TIODIM>2.**3**.TX;2-M

6.2.3 Medium / Format Identifier (MFI)

The Medium/Format Identifier allows for distinctions to be made among a variety of presentation formats in which the serial and/or contribution may have been published.

Table 5 shows the codes to be used. These codes were developed and are used by the ISSN Network in ISSN bibliographic records. The code TX is to be used if the publication exists in a single text on paper format. The codes TH, TS, and TL are to be used when further differentiation is required.

Item: The Lion and the Unicorn Volume 20 Number 1 June 1996.
SICI (Printed text) 0147-2593(199606)20:1<>1.0.**TX**;2-5
SICI (Online) 1080-6563(199606)20:1<>1.0.**CO**;2-O

Table 5: Medium / Format codes

Code	Medium	Code	Medium
TX	Printed text	CO	Online (remote)
TL	Printed text, looseleaf	HE	Microfiche
TH	Printed text, hardbound	HD	Microfilm
TS	Printed text, softcover	SC	Sound recording
TB	Braille	VX	Video recording
CD	Computer-readable optical media (CD-ROM)	ZN	Multiple physical forms
CF	Computer-readable magnetic disk media	ZU	Physical form unknown
CT	Computer-readable magnetic tape media	ZZ	Other physical form

6.2.4 Standard Version Number

The Standard Version Number identifies the version of the standard used in creating the SICI. It is preceded by a semicolon (;) and followed by a hyphen (-). The standard carries the version number in a prominent position on the title page. This revision (ANSI/NISO Z39.56-1996) is version 2. ANSI/NISO Z39.56-1991 is referred to as version 1.

By setting the Version Number apart from other data elements in this manner, both humans and machines will be able to quickly identify the version of the standard in use. Use of the Version Number provides flexibility should substantive changes to existing data elements become necessary.

6.2.5 Check Character

The Check Character is calculated by applying the Modulus 37 algorithm to the characters in the SICI. Procedures for the calculation of the Modulus 37 Check Character are given in Appendix A.

6.2.6 Summary of the Control Segment

The Control Segment is always the last segment in the SICI. It is administrative in nature and is separated from the Contribution Segment by the right angle bracket (>). The lengths of the data elements in the Control Segment currently are as follows: CSI is one (1), DPI one (1), MFI two (2), Standard Version Number one (1) and Check Character one (1). This standard does not fix the lengths of these data elements so that additional codes may be added as needed by the maintenance agency. Parsing of the Control Segment should be through the use of delimiters and not by the length of the data elements. The following is an example of a complete Control Segment:

Item: *The Atlantic Monthly* 176:1 (July 1945).
SICI: 0160-6506(194507)176:1<>**1.0.HD;2-F**

6.3 Item Segment

The Item Segment identifies characteristics of the serial item and always appears first in the SICI code. This segment requires the ISSN. The Chronology and/or Enumeration are to be included if available (see Table 4). Using the most complete data will significantly increase the likelihood of interoperability across applications.

6.3.1 ISSN

The International Standard Serial Number (ISSN) is used as the unique identification number for a serial publication on which the Serial Item Identifier and the Contribution Identifier are based. All SICIs must have an ISSN.

Item: *De Proverb* v2#1, 1996.
SICI: **1323-4633**(1996)2:1<>1.0.CO;2-8

6.3.2 Chronology

Chronology identifies a specific date, i.e., the cover date, for an item of a serial title. The Chronology is enclosed in parentheses, and must always be given when present.

Item: Buckland, M.K.; Butler, M.H.; Norgard, B.A.; Plaunt, C. "OASIS: a front-end for prototyping catalog enhancements" *Library Hi Tech*, 1992, vol. 10, (no.4):7-22.
SICI: 0737-8831(**1992**)10:4<7:OAFFPC>2.0.TX;2-K

An absence of chronology is represented by an empty set of parentheses ().

Item: "Characteristic of InSb Photovoltaic Detectors at 77 K and Below" *Proceedings of SPIE — the International Society for Optical Engineers*, v. 364, p. 123.
SICI: 0277-786X()364<123:COIPDA>2.0.TX;2-S

6.3.2.1 Date Used

The cover date that appears on the individual item is to be used to construct the Chronology. If multiple dates appear on the item, select the date(s) of coverage.

6.3.2.2 Chronology Format

All dates are recorded numerically in the format YYYYMMDD (YYYY=Year, MM=Month, DD=Day). Only the applicable levels are used. For example, if there is no day, month, or season given, only the year is recorded. The Chronology shall be enclosed in parentheses. If no chronology is given, empty parentheses shall be used to separate the ISSN from the enumeration.

Table 6: Chronology codes

Months		Seasons	Quarters
01 = January	07 = July	21 = Spring	31 = First quarter
02 = February	08 = August	22 = Summer	32 = Second quarter
03 = March	09 = September	23 = Fall	33 = Third quarter
04 = April	10 = October	24 = Winter	34 = Fourth quarter
05 = May	11 = November		
06 = June	12 = December		

Examples:

Item: *Yeats Annual* #12 1996.
SICI: 0278-7688(**1996**)12<>1.0.CO;2-I

Item: *SIGMod Record* v21 no. 2 June 1992.
SICI: 0163-5808(**199206**)21:2<>1.0.TX;2-Z

Item: *Goldmine* v21#8 issue 384 4/18/95.
SICI: 1055-2685(**19950418**)21:8<>1.0.TX;2-P

Item: *EJAP: The Electronic Journal of Analytic Philosophy* Spring 1996 #4.
SICI: 1071-5800(**199621**)4<>1.0.CO;2-T

Item: *IEEE Personal Communications* vol. 1 #3 Third Quarter 1994.
SICI: 1070-9916(**199433**)1:3<>1.0.TX;2-I

6.3.2.3 Combined Chronology

If a serial carries combined chronology in any level of the chronology (as in multiple years, range of months, etc.), the first and last elements, separated by a slash, shall be recorded.

Item: *American Libraries* June/July 1996 vol.27:2.
SICI: 0002-9769(**199606/07**)27:6<>1.0.TX;2-1

Item: *ASIS Bulletin* Dec/Jan 1994 vol. 20:2.
SICI: 0095-4403(**199312/199401**)20:2<>1.0.TX;2-U

6.3.2.4 Calendar Used

When one calendar scheme is presented with the publication (regardless of presentation medium), that scheme shall be used as the basis for recording chronology data. If more than one calendar scheme is present and one is the Gregorian scheme, the Gregorian shall be used. If the Gregorian scheme is not present, then use the first calendar scheme cited as the basis for recording chronology. In all cases, the months and seasons are converted to a numeric value relative to the calendar scheme used.

6.3.3 Enumeration

The Enumeration identifies a specific issue of a serial title. Use the designation that appears on the item (e.g., volume and issue numbers) to construct the enumeration portion of the Item Segment.

Sequence the Enumeration according to the publisher's usage on the piece, with the highest, most inclusive level of the enumeration scheme recorded first. Record as many levels as available. Each level of enumeration is separated from the next lower level of enumeration by a colon (:).

Item: *Report of the National Research Institute for Earth Science and Disaster Prevention* no. 55 March 1995.
SICI: 0916-6564(199503)**55**<>1.0.TX;2-G

Item: *The Public-Access Computer Systems Review* Volume 7, Number 4 (1996).
SICI: 1048-6542(1996)**7:4**<>1.0.CO;2-W

Item: *Journal of Cellular Biochemistry* 1995 Dec; 131 (6 Pt 2).
SICI: 0730-2312(199512)**131:6:2**<>1.0.TX;2-K

All numeric information shall be converted to arabic numbers.

Item: *The Library* (Sixth Series) XVI:4 (Dec. 1994).
SICI: 0024-2160(199412)**6:16:4**<>1.0.TX;2-T

Alphabetic data used as enumeration designations shall be transcribed as they appear on the piece, and converted to uppercase.

Item: IFIP Transactions A (Computer Science and Technology) A:7 (1992).
SICI: 0926-5473(1992)**A:7**<>1.0.TX;2-7

Omit any punctuation that occurs in enumeration.

Item: *Institute of Electronics, Information and Communication Engineers. Transactions A*, March 1994, vol. J77-A, (no.3).
SICI: 0913-5707(199403)**J77A:3**<>1.0.TX;2-6

6.3.3.1 Combined Numbering

When a serial carries combined enumeration in any level of the Enumeration, as in a double volume, double issue, etc., the first and last designators, separated by a slash, shall be recorded.

Item: *Serials Librarian* Spring/Summer 1990, v17 n3-4.
SICI: 0361-526X(199021/22)17:**3/4**<>1.0.TX;2-P

When a serial carries alternative schemes of enumeration such as a scheme of continuously incrementing item numbers in addition to a regular scheme of enumeration (e.g., volume and issue number), the regular numbering scheme is used as the Serial Item Enumeration data element. When only a continuous numbering scheme is used, then the continuous number scheme is used.

Item: *Goldmine* vol. 21 no.13 (issue 389) June 23, 1995.
SICI: 1055-2685(19950623)**21:13**<>1.0.TX;2-I

6.3.4 Supplements and Indexes

In the coding of supplements and indexes a distinction is made between those that are supplied (i.e., bound) with a serial and those that are provided separately but retain the ISSN of the serial. Supplements and indexes that are part of the item are treated as Serial Contributions, and are discussed in Section 6.4.3. Supplements and indexes that are provided separately are treated as Serial Items and are discussed in this section.

6.3.4.1 Supplements

A supplement that is issued separately is denoted by a plus sign (+) as the last data element in the Enumeration. Whenever the plus sign (+) is used, the SICI identifies a supplement that is issued separately and the DPI is 0.

Item: "Company Directory." *Training* [Marketplace Directory supplement], v.21, no. 8 (Aug. 1984) [Part 2 mailed with Aug. issue.], p. 1.
SICI: 0095-5892(198408)**21:8+**<1:CD>2.0.TX;2-O

Frequently, no enumeration is present on the serial supplement.

Item: *People* September 10, 1995, Supplement. [Issued upon the death of Jerry Garcia].
SICI: 0093-7673(19950910)+<>1.0.TX;2-R

Item: Daly, James "A Match Made in Heaven" *Forbes ASAP* June 5, 1995 p. 27. [Note: *Forbes ASAP* is a supplement to *Forbes.*]
SICI: 0015-6914(19950605)+<27:AMMIH>2.0.TX;2-I

If a supplement is published and distributed (i.e., bound) with the serial item, it is coded as a contribution. See Section 6.4.3.

6.3.4.2 Indexes

An index that is issued separately but carries no separate enumeration is denoted by an asterisk (*) as the last data element in the Enumeration.

Item: Annual Index/Abstracts of SAE Technical Papers -1990.
SICI: 0096-736X(1990)*<>1.0.HE;2-3

If an index is bound with the serial item or contained within a contribution it is coded as a DPI for index. See Sections 6.2.2 and 6.4.3.

When an index is published as a numbered item within the regular numbering scheme of a serial the index is treated as a Serial Item with a CSI=1. See also Section 6.4.3.

Item: Index to volume 43 (1985) of the *Journal of the Physical Society of Japan*, 43:13 (1985).
SICI: 0031-9015(1985)**43:13**<>1.0.TX;2-M

6.3.5 Summary of Item Segment Format

The Item Segment is always the first segment in the SICI. It identifies the Serial Item and is delimited from the Contribution Segment by the left angle bracket (<). The Item Segment at minimum must contain an ISSN. All available chronology and enumeration information must be used.

Item: *Bulletin of the American Society for Information Science* 21:3, February/March 1995.
SICI: **0095-4403(199502/03)21:3**<>1.0.TX;2-Z

Item: *ARACHNET Electronic Journal of Virtual Culture* v1n05 July 29, 1993.
SICI: **1068-5723(19930729)1:5**<>1.0.CO;2-6

The + and * indicators for supplements and indexes are not to be used to provide a supplementary descriptive function, but to refer to separately published/bound works.

6.4 Contribution Segment

The Contribution Segment contains those data elements by which the contribution can be identified: location within a Serial Item and a Title Code. This segment also provides for the encoding of local (private) numbering schemes, such as Adonis, PII, and CCC. These local identifiers may also be used by publishers to track a contribution internally prior to publication.

6.4.1 Location

The Location is the first data element in the Contribution Segment. This data element indicates the initial site (page number, frame number, etc.) of the contribution as it appears in the item. The Location may contain both numeric and alphabetic characters. If no location is given, it may be interpolated from other location designations such as page numbers.

Item: Needleman, Mark. "Computing Resources for an Online Catalog - 10 Years Later." *Information Technology and Libraries*, 1992 Jun, v11n2:168-172.
SICI: 0730-9295(199206)11:2<**168**:CRFAOC>2.0.TX;2-#

The location numbers are recorded as they appear on the item. Roman numerals shall **not** be converted to arabic numbers, but should be uppercase.

Item: "Revelation from Fruit Flies" *Chronicle of Higher Education.* Vol. XLI no. 37 (May 26, 1995) p. A8.
SICI: 0009-5982(19950526)41:37<**A8**:RFFF>2.0.TX;2-3

Item: "National Archives Fax-on-Demand Service" *IRLIST*, Vol. XII, No. 13 Issue 250 (April 3, 1995) p. III.C.1.
SICI: 1064-6965(19950403)12:13<**III.C.1**:NAFS>2.0.CO;2-7

Location may be null for contributions published electronically (i.e., only the Title Code might be used to locate a specific contribution).

Item: Caldwell, Bo. "Fourteen" *Ploughshares* Fall 1996.
SICI: 0048-4474(199623)<**:F**>2.0.CO;2-T

Locations may be in the sequence of issue or volume. If the volume number appears with the location, only the location is recorded here.

Item: Trentmann, S.M.; et al. "Alternative to ^{35}S as a label for the Differential Display of Eukaryotic Messenger RNA" *Science* vol. 267, 24 February 1995, p. 1186.
SICI: 0036-8075(19950224)267<**1186**:AT3AAL>2.0.TX;2-W

6.4.2 Title Code

The Title Code is constructed from the title of a contribution using the following rules:

1. Subject to the rules given in 2 and 3 below, use any and all title words without attempting to distinguish titles from subtitles.

   Item: "Quality: Theory and Practice." *AT&T Technical Journal*, 65: 2, (Mar.-Apr. 1986), p.4.
   SICI: 8756-2324(198603/04)65:2<4:**QTAP**>2.0.TX;2-I

   Do not use authorship or other related information as part of the title, except when an author's name is given within the title.

2. A word is any character string delimited by spaces. Internal punctuation is part of the character string and does not signify the end of the character string (i.e., hyphenated words or contractions are treated as one word). Select the first six words (character strings) in the title or, if there are fewer than six, all the words. Use rule 3 to select one character from each of these character strings to form the Title Code.

   Item: "L'Anogie Perdue: la Metaphysique Sur les Chemins de la Science de Descartes a Kant." *Archives de Philosophie* Supplement to v. 46 cahier 3 (juil.-sept. 1983) p. 1.
   SICI: 0003-9632(198307/09)46:3+<1:**LPLMSL**>2.0.TX;2-I

   Item: Tessler, F.N., "A.D.A.M.: The Inside Story." *Macworld* v12 no. 3 (March 1995) p. 81.
   SICI: 0741-8647(199503)12:3<81:**ATIS**>2.0.TX;2-G

   Item: Fryer, B., "ABC FlowCharter 4.0 Charts New Territory." PC World v13 no.3 (March 1995) p. 18.
   SICI: 0899-1847(199503)13:3<18:**AF4CNT**>2.0.TX;2-7

   Item: "Library Programs Face $34.7 Million in Rescissions" *ALAWON* v.4 no.14 (Feb. 23, 1995) p. 1.
   SICI: 1069-7799(19950223)4:14<1:**LPF$MI**>2.0.CO;2-Q

3. Examine the first character in the character string. If the first character is one of the characters allowed in a SICI Title Code, (see Table 1) select it. Convert lowercase letters to uppercase.

   Item: Blixrud, Julia C. "ISSN in the CONSER Database," *CONSER*, no. 19 (June 1990), pp. 6-7.
   SICI 0163-8610(199006)19<6:**IITCD**>2.0.TX;2-L

   Item: Tritch, Teresa. "The $150 Billion Tax Cheats." *Money* 4/1995 Vol. 24 no. 4. pp. 118.
   SICI: 0149-4953(199504)24:4<118:**T$BTC**>2.0.TX;2-J

If the character is not one of the characters allowed in a SICI Title Code, apply the following rules to determine the appropriate character:

(a) If in a language other than English, transliterate the word and take the first character of the transliterated word.

(b) Substitute the English word(s) describing a symbol for that symbol, e.g., "integral" for ∫. (Do not include an initial article in this substitution, i.e., "integral" not "the integral")

(c) If it is unclear whether the word is in a foreign character set or a symbol, treat the word as a symbol and spell out the symbol.

Item: Fueter, R. "Die Functionentheorie der Differentialgleichungen Λμ = 0 und ΛΛμ =0 mut Vier Reallen Variablen." *Comment. Math. Helv.* 7 (1934-35), 307-330.
SICI: 0010-2571(1934/1935)7<307:**DFDDD=**>2.0.TX;2-P

Note: Although some symbols like Λμ become multiple words (delta mu) after substitution according to rule 3(b), only the first letter "D" is selected since each character string selected in rule 2 contributes exactly one character to the Title Code. The = is used as is because it is preceded by a space and it is an allowable character from Table 1.

(d) Sequences of roman numerals appearing in a title as individual words are treated as alphabetic characters, not numerals.

Item: "Boyz II Men, Adam jockeys for no. 1" *Billboard* Vol. 107, no. 18 (May 6, 1995) p. 94.
SICI: 0006-2510(19950506)107:18<94:**BIMAJF**>2.0.TX;2-F

6.4.3 Supplements and Indexes

A supplement published and distributed (i.e., bound) with the serial item is coded as a contribution.

Item: Mondale, Walter F., "Strengthening Bilateral Ties" *Forbes* (1/1/96) 157:1 p.S-5.
SICI: 0015-6914(19960101)157:1<**S-5:SBT**>2.0.TX;2-L

Note: This article appears in a supplement on trade with Japan bound within this issue of *Forbes*. Note the absence of the plus (+) sign. (See also Section 6.3.4.1.)

If an index is bound with the serial item or contained within a contribution, it is coded as a DPI for index. See also Section 6.2.2

Item: Index to Volume 45, *JASIS* V45 no.10 December 1994.
SICI: 0002-8231(199412)45:10<>1.**2**.TX;2-J

Item: Index to the supplement bound with *Forbes* (1/1/96) 157:1 p. S-4.
SICI: 0015-6914(19960101)157:1<S-4>2.**2**.TX;2-R

When the index is published as a numbered item within the regular numbering scheme the item is treated as a Serial Item with a CSI=1. (See Section 6.3.4.)

6.4.4 Locally Assigned Number for Use in CSI-3

This data element allows for alternative numbering schemes used primarily by publishers during the editorial process or by organizations such as the Copyright Clearance Center for their identifiers. It applies only to a contribution. This data element is separated from the Title Code by a colon (:) and is the last item in the Contribution Segment. When a locally assigned number is present the CSI equals 3. For example:

The Copyright Clearance Center identifier.

Item: Gold, Jon D.; "An Electronic Publishing Model for Academic Publishers" *JASIS* Vol. 45 no.10, December 1994 p. 760.
SICI: 0002-8231(199412)45:10<760:AEPMFA**:CCC-0002-8231/94/1000760-05**>**3**.0.TX;2-D

The Publisher Item Identifier (PII).[1]

Item: [Contribution number 403]. Dev. Brain Res., 1996.
SICI: 0165-3806(1996)<::**PII-S1065-3806(96)000403-8**>**3**.0.TX;2-6

There may be instances where the Locally Assigned Number is a database record identification number.

Item: Anderson, Greg. "Mens et Manus at Work: The Distributed Library Initiative at MIT" *Library Hi Tech*; v.11 n1 p83-94 1993. [citation from ERIC accessed via Dialog®]
SICI: 0737-8831(1993)11:1<94:MEMAWT:**ERIC-EJ462869**>**3**.0.TX;2-8

The CSI-3 must include an ISSN in the Item Segment and a Control Segment. As other data elements become available they should be incorporated into the appropriate segments. Using the PII example above, when the editor/publisher determines that the contribution number 403 is to be published in a specific issue, the SICI will include the Chronology, Enumeration, Location, and Title Code as applicable.

6.4.5 Summary of Contribution Segment Format

The Contribution Segment combined with the Item Segment (Section 6.3) and the Control Segment (Section 6.2) make up the Contribution Identifier. The Contribution Segment is used to identify the starting location of the contribution within the specified item and the Title Code that further distinguishes that contribution. The Contribution Segment is delimited from the Item Segment and the Control Segment by a pair of angle brackets (<>). Within the Contribution Segment the Location is separated from the Title Code by a colon. When using a CSI-3 a second colon is used to introduce the locally assigned number.

Item: Foster, C.L.; McKay, S.C.; Schwartz, F.C.; "The Subscription Agent and the Integrated Library Systems Vendor - a Marriage Made in Heaven" Serial Librarian Spring/Summer 1990. v17, n3-4: 187-189.
SICI: 0361-526X(199021/22)17:3/4<**187:TSAATI**>2.0.TX;2-G

Item: Bjørner, Susanne. "Who Are These Independent Information Brokers?" *Bulletin of the American Society for Information Science* February/March 1995 Vol. 21 no. 3 pp. 12.
SICI: 0095-4403(199502/03)21:3<**12:WATIIB**>2.0.TX;2-J

7. Maintenance Agency

The maintenance agency designated in Appendix B shall review suggestions for new data elements, interpret the rules prescribed by this standard, and maintain a listing of inquiries and responses that may be used for potential future enhancement of this standard. The registration of new data elements and values for the Medium/Format Identifier (MFI) and Derivative Part Identifier (DPI) also will be maintained by the agency. Questions concerning the implementation of this standard and requests for information should be sent to the maintenance agency.

[1]As described in "Publisher Item Identifier as a means of document identification." http://www.elsevier.nl.

APPENDIX A
Calculation of the Modulus 37 Check Character

(This appendix is not part of the American National Standard for Serial Item and Contribution Identifier (SICI), ANSI/NISO Z39.56-1996. It is included for information only.)

The use of a check character helps to guard against errors resulting from improper data transcription. The check digit used in the Serial Item and Contribution Identifier is calculated on a Modulus 37 basis as indicated in Table A-1.

Table A-1: Check Character values

Char/Value	Char/Value	Char/Value	Char/Value	Char/Value	Char/Value	Char/Value
0 = 0	5 = 5	A = 10	F = 15	K = 20	P = 25	V = 31
1 = 1	6 = 6	B = 11	G = 16	L = 21	Q = 26	W = 32
2 = 2	7 = 7	C = 12	H = 17	M = 22	R = 27	X = 33
3 = 3	8 = 8	D = 13	I = 18	N = 23	S = 28	Y= 34
4 = 4	9 = 9	E = 14	J = 19	O = 24	T = 29	Z = 35
					U = 30	# = 36

The modulus value obtained by the check character calculation will be substituted for the corresponding number or capital letter. The value "36" will be represented by the symbol "#" (pound sign). All punctuation characters are included in the check character calculation (Table A-2).

Table A-2: Example of Check Character calculation

Step	Example: 0066-4200(1990)25<>1.0.TX;2-
1. Use Table A-1, Check Character Values, to assign numeric values to each character in the human-readable string.	[0][0][6][6][-][4][2][0][0] [(][1][9][9][0][)][2][5][<][>] [1][.][0][.][29][33][;][2][-]
2. Replace all remaining, non-alphabetic characters (e.g., punctuation marks) in the human-readable string with the numeric value of 36	[0][0][6][6][36][4][2][0][0] [36][1][9][9][0][36][2][5][36][36] [1][36][0][36][29][33][36][2][36]
3. Starting from the right-most position of the new all-numeric string, sum all of the odd position values. The right-most position (i.e., position 1) will always be the hyphen (value 36) that directly precedes the check character	[0][0][6][6][36][4][2][0][0] [36][1][9][9][0][36][2][5][36][36] [1][36][0][36][29][33][36][2][36] 36+36+29+0+1+36+2+0+9+36+0+4+6+0=195
4. Multiply the sum obtained in step 3, by three.	195 x 3 = 585
5. Sum the remaining values in the original string (the even position numbers) with the result of step 4.	0+6+36+2+0+1+9+36+5+36+36+36+33+2 = 238 Then 238 + 585 = 823
6. Integer divide the result of step 5 by 37	823 / 37 = 22 remainder 9
7. Subtract the integer remainder from 37. The result is the modulus 37 check character value. If the division has a remainder of zero, the zero (0) is the check character.	37 - 9 = 28
8. Use Table A-1, Check Character Values, to match the remainder value to the appropriate check character: Numeric, Alpha (uppercase) or pound sign (#).	28 = S
9. Final SICI string	0066-4200(1990)25<>1.0.TX;2-S

APPENDIX B
Designation of Maintenance Agency

(This appendix is not part of the American National Standard for Serial Item and Contribution Identifier (SICI), ANSI/NISO Z39.56-1996. It is included for information only.)

Maintenance Agency Administered by CARL Corporation

The functions assigned to the maintenance agency as specified in Section 7 will be administered by CARL Corporation. Questions concerning the implementation of this standard and requests for information should be sent to:

CARL Corporation
3801 E. Florida Avenue, Suite 300
Denver, CO 80210

Phone: 303-758-3030
Fax: 303-758-0606

APPENDIX C
Usage Scenarios

(This appendix is not part of the American National Standard for Serial Item and Contribution Identifier (SICI), ANSI/NISO Z39.56-1996. It is included for information only.)

Abstracting and Indexing (A&I) Databases/Services

A SICI code can be used by A&I services as data (a) stored directly in the database records provided by A&I database suppliers or (b) constructed dynamically based on data stored in database records loaded from the original data providers. This SICI code, either displayed to the end user or hidden behind the scenes, could be used by the A&I service when a user requests a copy of the associated document. The SICI could be used either by the A&I service itself to supply a document, or it could be passed along to a third party supplier if the A&I service is not able to supply the requested document.

Document Delivery Services

A SICI code can be one of the identifying elements sent to a Document Delivery service provider to identify the document desired. This transmission could be automatic by another online system in which the user had identified the document, or it could be done manually by the end user.

Library Reserve Rooms

In academic settings when sets of selected readings are placed in separate areas or delivered throughout separate systems, the SICI can be used as a data collection element. It could also be used as the link between items and retrieval systems.

Rights Management Agencies

SICI codes could be used to track requests for permission to use items or contributions and as reporting elements between rights holders and rights management agencies.

Serial Check-In

In automated serial check-in systems, a SICI code for specific serial issues only can be used for check-in. This would require that the SICI code work as an integral part of the serial check-in module.

Serials Claiming

A SICI code can be one of the identifying elements sent to a serial vendor to identify a missing volume or issue being claimed. This transmission could be automatic if the SICI code worked as an integral part of the serial check-in module, or it could be created manually by the end user.

APPENDIX D
SICIs for Various Citations of the Same Article

(This appendix is not part of the American National Standard for Serial Item and Contribution Identifier (SICI), ANSI/NISO Z39.56-1996. It is included for information only.)

Table D-1: SICIs for various citations of the same article

Reference for an article in:	Citation as it appears to user	SICI
Science	C.T. Caskey, A. Pizzuti, Y.-H. Fu, R.G. Fenwick Jr., and others. Science 256, 784 (1992).	0036-8075(1992)256<784>2.0.TX;2-Z
Science Citation Index CD-ROM	Caskey-CT Pizzuti-A Fu-YH Fenwick-RG Nelson-DL Triplet Repeat Mutations in Human-Disease (English) => ARTICLE SCIENCE Vol 256 Iss 5058 pp 784-789 (HT235)	0036-8075(1992)256:5058<784:TRMIHD>2.0.TX;2-R
Biological Abstracts 1992 Entries 23926-35100	28159, CASKEY, C. THOMAS*, ANTONIO PIZZUTI, YING-HUI FU, RAYMOND G. FENWICK, Jr., and DAVID L. NELSON. (Inst. Molecular Genetics, Baylor Coll. Med. Houston, Tex. 77030.) SCIENCE (WASHINGTON D C)256(5058):784-788. 1992. Triplet repeat mutations in human disease	0036-8075(1992)256:5058<784:TRMIHD>2.0.TX;2-R
Medline via Melvyl	Caskey, C. Thomas; Pizzuti, Antonio; Fu, Ying-Hui; Fenwick, Raymond G., Jr.; and others. Triplet repeat mutations in human disease. (Biotech Special Report: Molecular Advances) Science v256, n5058 (May 8, 1992):784 (6 pages)	0036-8075(19920508)256:5058<784:TRMIHD>2.0.TX;2-P
DIALOG(R)File 154: MEDLINE(R) (c) format only 1995 Knight-Ridder Info. All rts reserv.	08133195 92271195 Triplet repeat mutations in human disease. Caskey CT; Pizzuti A; Fu YH; Fenwick RG Jr; Nelson DL Institute for Molecular Genetics, Baylor College of Medicine, Houston, TX 77030. Science (UNITED STATES) May 8 1992, 256 (5058) p784-9, ISSN 0036-8075	0036-8075(19920508)256:5058<784:TRMIHD>2.0.TX;2-P
Magazine Index via Melvyl	Caskey, C. Thomas; Pizzuti, Antonio; Fu, Ying-Hui; Fenwick, Raymond G., Jr.; and others. Triplet repeat mutations in human disease. (Biotech Special Report: Molecular Advances) Science v256, n5058 (May 8, 1992):784 (6 pages)	0036-8075(19920508)256:5058<784:TRMIHD>2.0.TX;2-P
DIALOG(R)File 47: Magazine Database(TM) (C) 1995 INFORMATION ACCESS CO. All rts reserv.	03717661 SUPPLIER NUMBER: 12182784 (USE FORMAT 7 OR 9 FOR FULL TEXT) Triplet repeat mutations in human disease. (Biotech Special Report: Molecular Advances) Caskey, C. Thomas; Pizzuti, Antonio; Fu, Ying-Hui; Fenwick, Raymond G., Jr.; Nelson, David L. Science, v256, n5058, p784(6) May 8, 1992 CODEN: SCIEAS ISSN: 0036-8075 LANGUAGE: ENGLISH	0036-8075(19920508)256:5058<784:TRMIHD>2.0.TX;2-P

(continued)

(Appendix D, continued)

Reference for an article in:	Citation as it appears to user	SICI
Current Contents via Melvyl	CASKEY CT; PIZZUTI A; FU YH; FENWICK RG; and others. TRIPLET REPEAT MUTATIONS IN HUMAN DISEASE. SCIENCE, 1992 MAY 8, V256 N5058:784-789.	0036-8075(19920508)256:5058<784:TRMIHD>2.0.TX;2-P
DIALOG(R) File 440: Current Contents Search(R) (c) 1995 Inst for Sci Info. All rts reserv.	03648487 Genuine Article#: HT235 Number of References: 56 Title: TRIPLET REPEAT MUTATIONS IN HUMAN DISEASE Author(s): CASKEY CT; PIZZUTI A; FU YH; FENWICK RG; NELSON DL Corporate Source: BAYLOR COLL MED,INST MOLEC GENET/HOUSTON//TX/77030 (Reprint); BAYLOR COLL MED,HOWARD HUGHES MED INST/HOUSTON//TX/77030; BAYLOR COLL MED,CTR HUMAN GENOME/HOUSTON//TX/77030 Journal: SCIENCE, 1992, V256, N5058 (MAY 8), P784-789	0036-8075(19920508)256:5058<784:TRMIHD>2.0.TX;2-P
UnCover	AUTHOR(s): Caskey, C.T. Pizzuti, A. Fu, Y.-H. TITLE(s): Triplet Repeat Mutations in Human Disease. In: Science. MAY 08 1992 v 256 n 5058 Page: 784	0036-8075(19920508)256:5058<784:TRMIHD>2.0.TX;2-P
FirstSearch via Melvyl	| AUTHOR: Caskey, C. T.; Pizzuti, A.; Fu, Y. - H.; Fenwick, R. G.; Nelson, D. L. | TITLE: Triplet Repeat Mutations in Human Disease. | JOURNAL NAME: Science. | VOL, ISSUE: Volume 256, Number 5058 | PAGES: 784-788 | PUB DATE: May 08 | YEAR: 1992 | TYPE: Article | ISSN: 0036-8075	0036-8075(19920508)256:5058<784:TRMIHD>2.0.TX;2-P

APPENDIX E
Related Standards and References

(This appendix is not part of the American National Standard for Serial Item and Contribution Identifier (SICI), ANSI/NISO Z39.56-1996. It is included for information only.)

Standards that relate to the tracking of serials are abundant. The referenced standards cited in Section 2 are required to construct the SICI codes. In this appendix, Secondary Standards and References cites documents which, although not required to construct the SICI, have had an impact on the development of the code. Other Standards and References provides an annotated list of materials that may be needed to meet the encoding requirements of the SICI, such as the references to the transliteration standards.

When American National Standards cited below are superseded by a revision, the revision shall apply.

Secondary Standards and References

ANSI Z39.44-1986 *Serials Holdings Statements.*
This standard defines requirements for the identification, recording, and display within data areas of holdings information about bibliographic units of a serial held by a reporting institution.

SISAC, *Serial Item Identification: Bar Code Symbol Implementation Guidelines.* 2nd ed. February 1992.
These guidelines present and explain the equivalent "machine-readable" SISAC Symbol: a specific, standardized base code representation of the item-level section of the SICI designed for use primarily (but not exclusively) for issue identification in automated serials check-in systems. The SISAC Symbol comprises both a Code 128 bar code derived from the SICI, and the fundamental Serial Item Identifier portion of the SICI code shown below the bar code.

Sollins, Karen and Larry Masinter. *Functional Requirements for Uniform Resource Names* [online]. Internet Engineering Task Force, Network Working Group. Request for Comments: 1737, December 1994. [cited August 22, 1995] Available from Internet: <URL:ftp//ds.internic.net/rfc/rfc.1737.txt>
This document outlines a minimum set of functional requirements for the Internet resource identifier referred to as Uniform Resource Names (URNs). These are used for the identification of resources; other aspects of the Internet information architecture address methods for locating the resource.

Other Standards and References

ANSI/NISO Z39.47-1993, *Extended Latin Alphabet Coded Character Set for Bibliographic Use.*

ANSI/NISO Z39.64-1989 (R1995), *East Asian Character Code for Bibliographic Use.*

ISO 9:1995(E), *Information and documentation — Transliteration of Cyrillic characters into Latin characters — Slavic and Non-Slavic languages.*

ISO 233:1984(E), *Documentation — Transliteration of Arabic characters into Latin characters.*

ISO 233 - 2: 1993(E), *Documentation — Transliteration of Arabic characters into Latin characters. — Part 2: Simplified transliteration.*

ISO 259:1984(E), *Documentation — Transliteration of Hebrew characters into Latin characters.*

ISO 259-2: 1994(E), *Information and documentation — Transliteration of Hebrew characters into Latin characters — Part 2: Simplified transliteration.*

ISO/R 843: 1968(E), *International system for the transliteration of Greek characters into Latin characters.*

ISO 3602:1989(E), *Documentation — Romanization of Japanese (kana script).*

ISO 7098:1991(E), *Information and Documentation — Romanization of Chinese.*

ISO 8859 *Information Processing - 8-bit single-byte coded graphic character sets.* Consists of ten parts. Each part specifies a set of up to 191 graphic characters and the coded representation of each of these characters by means of a single 8-bit byte. The use of control functions for the coded representation of composite characters is prohibited by ISO 8859. Each set is intended for use for a group of languages. This set of graphic characters is suitable for use in a version of an 8-bit code according to ISO 2022 or ISO 4873.

ISO 8859-1:1987(E), *Latin alphabet no. 1.* For use with at least: Danish, Dutch, English, Faeroes, Finnish, French, German, Icelandic, Irish, Italian, Norwegian, Portuguese, Spanish, and Swedish.

ISO 8859-2:1987(E), *Latin alphabet no. 2.* For use with at least: Albanian, Croatian, Czech, English, German, Hungarian, Polish, Romanian, Serbian, Slovak, and Slovene.

ISO 8859-3:1988(E), *Latin alphabet no. 3.* For use with at least Afrikaans, Catalan, Dutch, English, Esperanto, German, Italian, Maltese, Spanish, and Turkish.

ISO 8859-4:1988(E), *Latin alphabet no. 4.* For use with at least Danish, English, Estonian, Finnish, German, Greenlandic, Lappish, Latvian, Lithuanian, Swedish, and Norwegian.

ISO/IEC 8859-5:1988(E), *Latin/Cyrillic.* For use with at least Bulgarian, Belorussian, Croatian, English, Macedonian, Russian, Serbian, and Ukrainian.

ISO 8859-6:1987(E), *Latin/Arabic alphabet.*

ISO 8859-7:1987(E), *Latin/Greek alphabet.* Is suitable for multiple language applications involving Latin and Greek Scripts.

ISO 8859-8:1988(E), *Latin/Hebrew alphabet.*

ISO 8859-9:1989(E), *Latin alphabet no. 5.* For use with at least: Danish, Dutch, English, Finnish, French, German, Irish, Italian, Norwegian, Portuguese, Spanish, Swedish, and Turkish.

ISO 8859-10:1992(E), *Latin alphabet no. 6.* For use with at least: Danish, English, Estonian, Finnish, German, Greenlandic, Icelandic, Sami (Lappish), Latvian, Lithuanian, Norwegian, Faroese, and Swedish.