Appendix D – Part 1

Defendants' Supplemental Prior Art Statement
'592 Patent
(TC808-TC947)

to

TimeBase's Memorandum in Support of Its Motion for Summary Judgment of No Invalidity

APPENDIX D

DEFENDANTS' SUPPLEMENTAL

PRIOR ART STATEMENT

'592 PATENT

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Claim 1: Subject to the Court's claim construction, and given Defendants' understanding of Plaintiff's incomplete contentions regarding the construction and application of the claims, the following references disclose, teach or render obvious the following elements of Claim 1:

(a) A computer-implemented system for publishing an electronic publication using text-based data:

- **Agosti 1991:**

  Agosti 1991 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Agosti 1991 discloses a computer-implemented database system for publishing text-based data such as legislative material and other legal texts. For example:

  - *See, e.g.*, "A Two-Level Hypertext Retrieval Model for Legal Data," at Title.
  - *See, e.g.*, "EXPLICIT is based on a two-level architecture which holds the two main parts of the informative resource managed by an information retrieval tool: the collection of documents and the indexing term structure," at 316.
  - *See, e.g.*, "The experimental prototype, called HyperLaw, manages a collection of full text legal documents and a vocabulary of indexing terms," at 317.
  - *See, e.g.*, "The collection is made of objects of the real world: in the common practice of information retrieval these objects are textual documents," at 318.
  - *See, e.g.*, "The system thus created, called HyperLaw, is an experimental tool for handling legal collections of full text and reference documents: law, case law, legal authority," at 321.
  - *See, e.g.*, "The document collection used includes norm texts (State, Regional, Provincial laws, etc.)," at 322.

- **Arnold-Moore 1994:**

  Arnold-Moore 1994 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Arnold-Moore 1994 discloses improvements to Computer Aided Legal Research systems, which publish various text-based data, including legislative materials. For example:

  - *See, e.g.*, "We discuss a data model for the storage, retrieval, and display of legislation in large database collections. Using free-text retrieval, the logical structure of SGML, and the browsing power of hypertext, arbitrary versions of statutes can be displayed, combining the traditional power of paper and current computer research tools," at Abstract.

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- *See, e.g.*, "Large-scale databases of legal texts were amongst the first applications to explore the possibilities of computer-aided information retrieval. These CALR (Computer Aided Legal Research) systems have improved markedly over the many years that they have been available to lawyers and legal researchers," at *iv*.

- **Arnold-Moore 1994-2:**

  Arnold-Moore 1994-2 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Arnold-Moore 1994-2 discloses a computer-implemented database system for publishing text-based data such as legislative material. For example:

  - *See, e.g.*, "A data model and query language for accessing structured documents expressed in SGML is presented," at THOM00196608.

  - *See, e.g.*, "A new class of document databases is emerging. These databases consist of large structured documents. Examples include databases of government legislation, maintenance manuals for systems as complex as aircraft carriers, and encyclopedia, and the documentation associated with a large software engineering project," at THOM00196608.

- **Arnold-Moore 1995:**

  Arnold-Moore 1995 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Arnold-Moore 1995 discloses a computer based publishing system using the SGML language for publishing legislative material. For example:

  - *See, e.g.*, "This paper proposes an architecture for a system which accepts Amending Acts expressed in SGML and produces a database of resulting versions of the Principle Acts, and describes its implementation," at Abstract.

  - *See, e.g.*, discussing "computer-aided legal research (CALR) systems," at 297.

- **Arnold-Moore 1997:**

  Arnold-Moore 1997 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Arnold-Moore 1997 discloses a computer-implemented database system for publishing text-based data such as legislative material. For example:

  - *See, e.g.*, "The Themis system is an integrated drafting environment for legislation," at 56.

  - *See, e.g.*, "The Themis system manages a library of legislation which is encoded in

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the Structured Generalized Markup Language (SGML)," at 58.

- **Arnold-Moore 1997-2:**

  Arnold-Moore 1997-2 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Arnold-Moore 1997-2 discloses the Themis system, which is a digital library for publishing text based data comprising legislation. For example:

  - *See, e.g.*, "We provide an overview of the Themis system, a commercial implementation of a digital library of legislation. Themis uses SGML to store legislation," at 175.

- **Bachman 1973:**

  Bachman 1973 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Bachman 1973 discloses a computer-implemented database system for publishing text-based data such as, for example, personnel files, airline reservations, and laboratory experiments. For example:

  - *See, e.g.*, "From this point, I want to begin the programmer's training as a full fledged navigator in an *n*-dimensional data space," at 654.

  - *See, e.g.*, "It involves all aspects of storing, retrieving, modifying, and deleting data in the files on personnel and production, airline reservations, or laboratory experiments – data which is used repeatedly and updated as new information becomes available," at 654.

- **Bentley 1979:**

  Bentley 1979 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Bentley 1979 discloses a computer-implemented database system for publishing various records. For example:

  - *See, e.g.*, "The study of data structure for facilitating rapid searching is a fascinating subject of both practical and theoretical interest," at 397.

  - *See, e.g.*, "In database terminology a file is a collection of records, each containing several attributes or keys," at 397.

  - *See, e.g.*, "In a geographic database of U.S. cities…," at 398.

  - *See, e.g.*, "To compile an honor list of older students…," at 398.

- **Campbell 1988:**

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Campbell 1988 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Campbell 1988 discloses a computer-implemented database system for publishing various records. For example:

- *See, e.g.*, "The Hypertext Abstract Machine (HAM) is a general-purpose, transaction-based, multi-user server for a hypertext storage system," at 856.
- *See, e.g.*, "The HAM stores all of the information it manages in graph, or databases, on a host machine's file systems," at 856.
- *See, e.g.*, "UNIX manual pages provide a convenient example of how the HAM can model Intermedia webs. The manual page for the mail command is used to create a small web of information. Each document (manual page) is represented as a HAM node," at 859-860.

- **Fay 1996:**

Fay 1996 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Fay 1996 discloses a computer based system for managing a number of complex versioned documents. For example:

- *See, e.g.*, "A system of managing a large number of complex versioned documents," at Abstract.

- **Haake 1992:**

Haake 1992 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Haake 1992 discloses a computer-implemented hypertext system for electronic authoring and publishing. For example:

- *See, e.g.*, "Publishing can be characterized as the incremental, cooperative production of documents. Therefore, support for the maintenance of the final and interim data is an ultimate demand. In general, versioning is considered an important issue in hypertext systems," at 43.

- **Horne 1997:**

Horne 1997 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Horne 1997 discloses a computer-implemented database system for publishing statutes. For example:

- *See, e.g.*, "Since the mid 1980s every statute and statutory instrument has been coded using SGML (the Standard Generalized Markup Language)," at 2.
- *See, e.g.*, "HMSO have a program called 'the Statute law Database.' This is an electronic version of Statutes in Force. It contains in SGML form the law as it was

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on a particular date in the 1980s together with all acts and statutory instruments which have come into force since that time," at 3.

- **Kim 1996:**

Kim 1996 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Kim 1996 discloses a computer-implemented database system for publishing various types of multimedia, including text-based data. For example:

- *See, e.g.*, "In this paper, we design a new hypermedia markup language using SGML and implement an object-oriented hypermedia system on top of the Postgres," at 496.
- *See, e.g.*, "Multimedia applications, such as digital libraries, electronic publishing, teleconferencing, and visualization, have already become engrained in our practice," at 496.
- *See, e.g.*, "Multimedia data basically concerns with semi-structured and complex data, such as text, audio, images and moving pictures," at 496.

- **Larson 1988:**

Larson 1988 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Larson 1988 discloses a variety of computer-implemented systems for publishing various types of multimedia, including text-based data. For example:

- *See, e.g.*, "This paper takes a more reasoned look at the nature and potential of hypertext and hypermedia developments, and considers their problems as well as their possibilities for large scale information systems. We will first present a conceptual model of hypertext and hypermedia systems without regard to implementation. The characteristics of some representative hypertext systems are then discussed. Finally, the major problems faced by hypertext systems, and some possible solutions based on research in information retrieval are suggested," at 195.

- **Lo 1995:**

Lo 1995 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Lo 1995 discloses a computer-implemented document management system for publishing text-based documents, including documents with multiple versions. For example:

- *See, e.g.*, "Links and versioning are two important aspects of document management," at 339.
- *See, e.g.*, "Links represent inherent associations of content and structure of texts," at

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339.

- *See, e.g.*, "Recently there is a growing interest and research focus on version control in hypertext systems, which certainly provides support to the domain of document management with link versioning," at 339.

- *See, e.g.*, "Furthermore, while the description of a document's structure is primarily applied in publication, database technology could also make use of this structural knowledge to enhance its management of documents," at 339.

- *See, e.g.*, "Currently a prototype that handles links and versioning of documents is being implemented on a Structured Information Manager (SIM), a document management database developed by Collaborative Information Technology Research Institute (CITRI), Melbourne," at 345.

- **Lo 1996:**

  Lo 1996 discloses "a computer-implemented system for publishing an electronic publication using text-based data." Specifically, Lo 1996 discloses a system for storing, managing, querying, and displaying multimedia data. For example:

  - *See, e.g.*, description of the requirements and capabilities of Document Management Systems, including "document formation, document storage, document discovery, document delivery and document removal," at 7, section 1.2.1.

- **Osterbye 1992:**

  Osterbye 1992 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Osterbye 1992 discloses a computer-implemented document management system for publishing text-based documents, such as systems used in museums, in instruction books, and for software development. For example:

  - *See, e.g.*, "This paper discusses issues related to providing version control in hypertext systems," at 33.

  - *See, e.g.*, "There are two main types of hypertext systems, those for browsing, and those for authoring. The former allow the user to browse through information provided by someone else, but not to add new information. These systems can be found at for instance, museums, or as instruction books. The latter type is typically used for development of products, such as the above mentioned hyperdocuments used at museums, or for e.g. software engineering," at 33.

  - *See, e.g.*, "The data model used in this paper is illustrated in figure 1. The top of the hierarchy is an entity which allows attributes to be attached to all entities," at 34.

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- **Povilus 1995:**

  Povilus 1995 discloses, teaches or renders obvious this claim for the reasons stated by the Patent Examiner in the Office Action of March 24, 2000 (incorporated herein by reference) and others.

- **Promenschenkel 1995:**

  Promenschenkel 1995 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Promenschenkel 1995 discloses a computer-implemented database system for publishing text-based documents. For example:

  - *See, e.g.*, "A new OCLC/IDI system designed to revolutionize the way documents, journals and magazines are created and distributed is being implemented at the Association for Computing Machinery (ACM)," at 1.

  - *See, e.g.*, "The ACLC/IDI System of Total Electronic Publishing Services (STEPS) … enables a totally electronic publishing process, from authoring to eventual distribution in print and electronic form," at 1.

- **Sacks-Davis 1994:**

  Sacks-Davis 1994 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Sacks-Davis 1994 discloses a computer-implemented database system for publishing text-based documents. For example:

  - *See, e.g.*, "Documents stored in a database system can have complex internal structure described by a language such as SGML," at THOM00198835.

  - *See, e.g.*, "The requirement for future systems will be to store complex documents such as journal articles, complete books or entire libraries. Such database systems need to provide much of the functionality associated with traditional database systems hitherto absent from text databases while maintaining the traditional functionality of text retrieval systems," at THOM00198835.

  - *See, e.g.*, "A typical library stores periodicals, dictionaries, encyclopedias, text books, and novels all in the one repository, and a text database should be able to replicate this behavior," at THOM00198837.

- **Sacks-Davis 1995:**

  Sacks-Davis 1995 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Sacks-Davis 1995 discloses a computer-implemented database system for publishing text-based documents. For

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example:

- *See, e.g.*, "Advanced database applications require facilities such as text indexing, image storage, and the ability to store data with a complex structure… In this paper we describe Atlas, a nested relational database system that has been designed for text-based applications," at 454.

- **Sciore 1991:**

  Sciore 1991 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Sciore 1991 discloses a computer-implemented database system for publishing text-based documents. For example:

  - *See, e.g.*, "Many database applications require the storage and manipulation of different versions of data objects," at 355.

  - *See, e.g.*, "There are three application areas for which versioning has become especially important: historical databases, CASE systems, and CAD databases," at 355.

  - *See, e.g.*, "Our results can be used by general-purpose database systems to provide high-level support for versioning; application systems (such as CASE tools) will be much easier to write. Moreover, our results increase the overall understanding of what versioning is all about. Consequently, it seems likely that our ideas can be mapped easily to post-relational and deductive systems," at 357.

- **Sciore 1994:**

  Sciore 1994 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Sciore 1994 discloses a computer implemented database system for publishing text based data, and discusses specific examples of bicycle designs and employment records. For example:

  - *See, e.g.*, "This article has been concerned with encoding the basic ideas of versioning and configuration management into a data model," at 104.

  - *See, e.g.*, "Many database applications require the storage and manipulation of different versions of data objects," at Abstract.

- **Stonebraker 1990:**

  Stonebraker 1990 discloses "a computer-implemented system for publishing an electronic publication using text-based data." Specifically, Stonebraker 1990 discloses a system for storing, managing, querying, and retrieving multimedia data. For example:

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- *See e.g.*, page 125, at Introduction.

- **Taylor 1994:**

  Taylor 1994 discloses "a computer-implemented system for publishing an electronic publication using text-based data." Specifically, Taylor 1994 discloses a system for storing, managing, querying, and displaying multimedia data. For example:

  - *See, e.g.*, "The work described here is part of a hypermedia research project . . . which aims to explore the potential of a semantic database approach to hypermedia architecture," at 239.

  - *See, e.g.*, "The current media base is a collection of approximately 100 historical photographs of Pontypridd as well as some textual and oral histories," at 239.

- **Travis & Waldt:**

  Travis & Waldt discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Travis & Waldt disclose a computer based publishing system using the SGML language. For example:

  - *See, e.g.*, "This Chapter discusses the business issues and goals that drive an organization to implement a publishing system based on SGML, including technological changes in publishing systems and the opportunities they present to a system designer. Concepts of SGML, database publishing, and the goals of an SGML-based publishing system are discussed," at 3-4.

  - *See passim.*

- **Wilkinson 1998:**

  Wilkinson 1998 discloses "a computer-implemented system for publishing an electronic publication using text-based data." The entire Wilkinson 1998 reference discusses document management systems, and Chapter 5 discusses publication of electronic documents.

- **Wilson 1988:**

  Wilson 1988 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Wilson 1988 discloses a computer-implemented database system for publishing text-based documents, such as statutes. For example:

  - *See, e.g.*, "Justus is an information retrieval system for an integrated legal database…It runs under the hypertext system, Guide," at 27.

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- **Wilson 1990:**

  Wilson 1990 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Wilson 1990 discloses a computer-implemented database system for publishing text-based documents, including legal texts. For example:

  - *See, e.g.*, "The conversion was completed as part of the Justus project, which aims to provide an integrated hypertext law library containing diverse documents all of which have been converted by the Justus programs to hypertext documents," at 119.

- **Wilson 1992:**

  Wilson 1992 discloses "a computer-implemented system for publishing an electronic publication using-text based data." Specifically, Wilson 1992 discloses the computer-implemented Guide system for storing legal documents, including legislative materials. For example:

  - *See, e.g.*, "This paper looks at some common structures for legal documents and describes how these structures can be mapped automatically into the Guide hypertext system," at Abstract**.**

  - *See, e.g.*, "A version of Guide has been developed by Office Workstations Ltd. (OWL) to run on Macintoshes and IBM PC's," at 162.

- **The Pre-1997 Westlaw/Westmate System**:

  The Westlaw/Westmate system is a computer-implemented system for creating, processing, and publishing text-based legislation. For example:

  - *See., e.g.*, Wren 1994.

  - The Essential Guide 1996, at 3: "You can use WESTLAW to retrieve information from primary sources, such as cases and statutes from all 50 states and the District of Columbia, and from secondary sources, such as law reviews and treatises. You can seamlessly access Dow Jones News/Retrieval sources, including *The Wall Street Journal*, the same-day *New York Times* News Service and over 2,000 other sources. In addition, WESTLAW contains hundreds of databases from DIALOG, the world's largest online source of factual information. Subjects covered include business, current events, intellectual property, medicine, science and technology, and much

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more."

- **The Pre-1997 Premise System**:[1]

  The Premise system is a computer-implemented system for creating, processing, and publishing text-based legislation. For example:

  - *See., e.g.,* THOM00194621–23.
  - *See, e.g.*, Premise Publisher, at 2.

- **The Astoria System (pre-1997):**

  The Astoria System is "a computer-implemented system for creating, processing, and publishing text-based data." For example:

  - *See, e.g.*, Astoria 1997-1: "Astoria . . . is a powerful yet easy-to-use document component management system that provides the information repository and management infrastructure needed to help organizations capture critical business knowledge and distribute it more efficiently. . . . Astoria is ideally suited to applications where organizations capture, manage, reuse, and distribute business knowledge using multiple output methods: paper, CD-ROM, and the World Wide Web. . . . [A] commercial publisher . . . can make a single unit of information pay for itself many times over by republishing it in multiple documents and on multiple media." at THOM00211907.

- **The EnAct System** (previously known as Themis)**:**

  The EnAct system is a computer-implemented system for creating, processing, and publishing text-based legislation. For example:

  - *See., e.g.*, TSS 1994, "Drafting System with Automatic Consolidation," at 4-5 (text following the heading).
  - *See., e.g.*, Arnold-Moore 1997-2, at Abstract.
  - *See., e.g.*, TSS 1999.

- **The SCALEplus System:**

  The SCALEplus system is a computer-implemented system for creating, processing, and publishing text-based legislation. For example:

[1]Select "File/Library Maintenance/Install CD-ROM Book…" from menu to install the West's Annotated California Codes.

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- *See., e.g.,* Kerr 2000, Chapter 6.

- **The Documentum/Interleaf System[2]:**

  The Documentum/Interleaf system is a computer-implemented system for creating, processing, and publishing text-based documents. For example:

  - *See, e.g.,* Ovum Documentum 1996.

  - *See, e.g.,* Ovum Interleaf 1996.

- **The Core Materials on Legal Ethics System:**

  The Core Materials on Legal Ethics system is a computer-implemented system for creating, processing, and publishing text-based legal materials.

- **The Federal Rules of Civil Procedure System:**

  The Federal Rules of Civil Procedure system is a computer-implemented system for creating, processing, and publishing text-based legal materials.

- **The Law Desk NY System:**

  The Law Desk NY system is a computer-implemented system for creating, processing, and publishing text-based legal materials.

- **The Law Desk USCS System:**

  The Law Desk USCS system is a computer-implemented system for creating, processing, and publishing text-based legal materials.

- **The New Mexico Law System:**

  The New Mexico Law on Legal Ethics system is a computer-implemented system for creating, processing, and publishing text-based legal materials.

- **The NY Official Reports System:**

  The NY Official Reports system is a computer-implemented system for creating, processing, and publishing text-based legal materials.

[2] The term "Documentum/Interleaf System" is used herein to indicate a variety of interrelated systems that can be mixed and matched by customers. For example, this "system" could be (and indeed was) configured in a variety of ways by customers: *e.g.* Documentum/Leafconnect; Interleaf/RDM; Documentum/Accelera; Documentum/RightSite; Documentum standing alone, etc.

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• **The NY CLS Beta System:** The NY CLS Beta system is a computer-implemented system for creating, processing, and publishing text-based legal materials. • **The OnPoint System:** The OnPoint system is a computer-implemented system for creating, processing, and publishing text-based legal materials. • **The Social Security Plus System:** The Social Security Plus system is a computer-implemented system for creating, processing, and publishing text-based legal materials. • **The UCC System:** The UCC system is a computer-implemented system for creating, processing, and publishing text-based legal materials.
(b) a plurality of predefined portions of text-based data with each predefined portion being stored: • **Agosti 1991:** Agosti 1991 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Agosti 1991 discloses storing predefined portions consisting of legal documents such as legislative acts, or portions of such documents. For example: • *See, e.g.*, "The system thus created, called HyperLaw, is an experimental tool for handling legal collections of full text and reference documents: law, case law, legal authority," at 321. • *See, e.g.*, "Each node of the hypderdocument is an informative item consisting of the document representation, which follows the previously introduced structure, together with the text of the document. A complete document may be represented by a node or a set of nodes," at 318. • **Arnold-Moore 1994:** Arnold-Moore 1994 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Arnold-Moore 1994 discloses storing legislative acts, or predefined portions of legislative acts such as sections, which are referred to in the article alternatively as "elements," "nodes," and/or "atoms." For

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example:

- *See, e.g.*, "The problem of presentation is addressed by storing Acts … in SGML format … which would state that every act must contain sections, and each section must contain text. Each Act would them be encoded with tags which identify which text was included in each element," at *xii*.

- *See, e.g.*, "Contrast this with legislation where a single Act of Parliament might be broken down into many hundreds of numbered sections which in turn are broken into numbered sub-sections or paragraphs and sub-paragraphs. In larger Acts, these sections are grouped in chapters, parts, divisions and/or subdivisions each with a label and usually a heading or title. Within each Act and across all the legislation of a particular governing body, the use and nomenclature of each level of structure is consistent. To avoid confusion with these terms which have specific meaning in the context of legislation they are referred to collectively as *elements* of the document," at i.

- *See, e.g.*, "We propose to break each level into its constituent parts. The data level which is the structure containing the text we break into two parts: 1. The atoms – or smallest retrievable units which may be grouped by version, by document, or by time; 2. the version skeletons – which contain the structure of each version together with pointers to the atoms which they contain," at *xxi*.

- *See, e.g.*, "A particular SGML document can be thought of as a tree containing text only at its leaf nodes," at *xiii*.

- *See, e.g.*, "The simplest solution to this problem is to apply the amending Acts (either by hand or automatically) once to produce each consolidation, and to store each consolidation as well as the principal Act (and each of the amending Acts)," at *xvi*. *See also* Figure 1(b).

- *See, e.g.*, "An alternative to this, is not a strictly delta representation, but falls somewhere between that and the independent version storage scheme. By generalizing the results of Su and Chen for relational databases, we can treat SGML documents as trees of elements. Where successive consolidations do not change a particular element, we store a pruned tree with a stub marking that the element has not changed. The element can be retrieved from the previous consolidation. Where it has changed we represent the new element," at *xvii*.

- *See, e.g., xvii - xviii*.

- *See, e.g.*, "Alternatively the power of SGML can be applied to break the consolidation into pieces and store only the version skeletons and elements," at *xviii*.

- *See, e.*g., "we break each Act into atoms (in this case sections and schedules)," at

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xxii.

- **Arnold-Moore 1994-2:**

  Arnold-Moore 1994-2 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Arnold-Moore 1994-2 discloses storing predefined portions consisting of legal documents such as legislative acts, or portions of such documents. For example:

  - *See, e.g.*, "The model also gives flexibility to the implementor to retrieve whole documents and decompose them, retrieve atomic elements and recombine them, or pursue alternatives which retrieve the elements directly," at THOM00196608.

  - *See, e.g.*, "In this case, information is typically broken into small units," at THOM00196608.

  - *See, e.g.*, "The database should also allow for partial document retrieval. The whole of a government Act may be an inappropriate retrieval unit, if one is searching for a definition. There may be a number of relevant portions of a single document that are relevant, and yet the whole document may still be an inappropriate retrieval unit," at THOM00196608.

  - *See, e.g.*, "We chose elements as our base rather than whole documents as an SGML document is always an element, and using elements adds generality to the query without undue additional complexity allowing arbitrary node sizes instead of the traditional fixed node size," at THOM00196612.

- **Arnold-Moore 1995:**

  Arnold-Moore 1995 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Arnold-Moore 1995 discloses breaking legislative material into logical pieces, such as sections or paragraphs, for storage. For example:

  - *See, e.g.*, "[L]egislation has a complex structure which follows predefined rules. All Acts contain numbered sections. These sections can themselves contain subsections, paragraphs, subparagraphs, clauses, subclauses and definitions. In larger Acts these sections may be collected in a combination of chapters, parts, divisions and subdivisions. To avoid confusion with the specific meaning of these terms in legislation we collectively describe these as the elements of an Act," at 297.

  - *See, e.g.*, The structure of legislation allows for "retrieval by the content of particular elements and retrieval of elements at an arbitrary level," at 297.

- **Arnold-Moore 1997:**

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Arnold-Moore 1997 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Arnold-Moore 1997 discloses storing predefined portions consisting of portions of legislative acts. For example:

- *See, e.g.*, "The Fragments which make up the document are generated rather than simply being assembled or having the results of user queries inserted in particular places," at 58.

- *See, e.g.*, "The section elements contains the headnote, and text elements and two attributes, secno which is the number of the section, and id which is a unique identifier within that document for that section which encodes much of the context information about that element," at 58.

- **Arnold-Moore 1997-2:**

Arnold-Moore 1997-2 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Arnold-Moore 1997-2 discloses storing legislative acts, or predefined portions of legislative acts such as sections, which are referred to as elements." For example:

- *See, e.g.*, "Themis uses SGML to store legislation," at 175.

- *See, e.g.*, "In particular, the complex structure of legislation and different versions of a particular piece of legislation can be better supported," at 175.

- *See, e.g.*, "By contract, each category of legislation has a strictly defined structure, Statutes are broken into numbered sections (each of which may contain numbered subsections, paragraphs and subparagraphs) and schedules. These sections may be collected in parts, divisions or subdivisions," at 175.

- *See, e.g.*, "Digital legislation libraries need to reflect this independence by allowing the user to retrieve either individual elements (providing each element is a cohesive whole) or the whole Statute," at 176.

- *See, e.g.*, "A digital library which makes use of SGML can provide access to elements and not just whole documents," at 177.

- *See, e.g.*, "In the Themis system we have chosen to fragment documents at the section level for the body of the Statutes as all Statutes have a section (or equivalent), and in the tail, schedules and appendices are fragmented only if they contain Parts, an Annexure or a Code," at 177.

- **Bachman 1973:**

Bachman 1973 inherently discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Bachman 1973 discloses

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storing text-based data without specifying or limiting the size of the stored data. For example:

- *See, e.g.*, "From this point, I want to begin the programmer's training as a full fledged navigator in an n dimensional data space," at 654.
- *See, e.g.*, "It involves all aspects of storing, retrieving, modifying, and deleting data in the files on personnel and production, airline reservations, or laboratory experiments – data which is used repeatedly and updated as new information becomes available," at 654.

- **Bentley 1979:**

  Bentley 1979 inherently discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Bentley 1979 discloses storing text-based data without specifying or limiting the size of the stored data. For example:

  - *See, e.g.*, "In database terminology a file is a collection of records, each containing several attributes or keys," at 397.
  - *See, e.g.*, "In a geographic database of U.S. cities…," at 398.
  - *See, e.g.*, "To compile an honor list of older students…," at 398.

- **Campbell 1988:**

  Campbell 1988 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Campbell 1988 discloses storing portions of documents, such as individual pages of a user manual. For example:

  - *See, e.g.*, "A node contains arbitrary data that can be stored as text or as fixed-length binary blocks," at 856.
  - *See, e.g.*, "UNIX manual pages provide a convenient example of how the HAM can model Intermedia webs. The manual page for the mail command is used to create a small web of information. Each document (manual page) is represented as a HAM node," at 859-60.

- **Fay 1996:**

  Fay 1996 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Fay 1996 discloses that documents are divided into subparts for purposes of storage. For example:

  - *See, e.g.*, "Each element of a document is associated with a data field. For example, one node of a tree may be a chapter, and contain textual data in the form of a chapter

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heading, a chapter introductory paragraph, a chapter abstract, etc., as well as "structural" data such as the identity of a parent (document), identity of children (sections), and connections to other places in other documents where the same language may also be used," at 1:25-32.

- **Haake 1992:**

Haake 1992 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Haake 1992 discloses a system that stores portions of text-based data. For example,

- *See, e.g.*, "SEPIA's basic hypertext objects are typed atomic nodes, typed composite nodes, and typed labeled links. Composite nodes contain an ordered set of references to other hypertext objects while atomic nodes contain data like text, graphics etc," at 44.

- **Horne 1997:**

Horne 1997 inherently discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Horne 1997 discloses storing text-based statutes without specifying or limiting the size of the stored data. For example:

- *See, e.g.*, "Since the mid 1980s every statute and statutory instrument has been coded using SGML (the Standard Generalized Markup Language)," at 2.

- *See, e.g.*, "HMSO have a program called 'the Statute law Database'. This is an electronic version of Statutes in Force. It contains in SGML form the law as it was on a particular date in the 1980s together with all acts and statutory instruments which have come into force since that time," at 3.

- **Kim 1996:**

Kim 1996 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Kim 1996 discloses storing "nodes" or "elements" of information that are sufficiently small to avoid storing redundant data. For example:

- *See, e.g.*, "Finally, our hypermedia system can provide database management system functions such as … version control of structured document components as separate objects," at 496.

- *See, e.g.*, "The identifier makes it possible not only to share hypermedia data between documents written in HOML but also to avoid redundant data and data fragmentation. As the Dexter Hypertext Reference Mode suggests, we distinguish

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nodes from links, i.e., a relation between hypermedia data," at 497.

- *See, e.g.*, "Fourthly, since a composite object can refer elements, i.e., atomic objects, the composite object provides a syntax for the synchronization of its reference elements," at 497.

- **Larson 1988:**

  Larson 1988 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Larson 1988 discloses storing portions of text-based data, including documents. For example:

  - *See, e.g.*, "A hypertext system is made up of a set of 'nodes' and 'links'. Nodes represent information sources in digital form. They may be segments of text . . . .," at 195.

- **Lo 1995:**

  Lo 1995 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Lo 1995 discloses storing text-based documents. For example:

  - *See, e.g.*, "Links and versioning are two important aspects of document management," at 339.

  - *See, e.g.*, "Links represent inherent associations of content and structure of texts," at 339.

  - *See, e.g.*, "Recently there is a growing interest and research focus on version control in hypertext systems, which certainly provides support to the domain of document management with link versioning," at 339.

  - *See, e.g.*, "The document database may never delete any committed document version," at 340.

  - *See, e.g.*, "Currently a prototype that handles links and versioning of documents is being implemented on a Structured Information Manager (SIM), a document management database developed by Collaborative Information Technology Research Institute (CITRI), Melbourne," at 345.

- **Lo 1996:**

  Lo 1996 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Lo 1996 discloses dividing documents into portions and storing the portions. For example:

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- *See, e.g.*, description of the requirements of Document Management Systems, including for example: "document formation, document storage, document discovery, document delivery and document removal," at 7, section 1.2.1.

- *See, e.g.*, "Hypertext is characterized by the notion of non-linear organization and presentation of textual information. The non-linearity is achieved by breaking down documents into a number of pages, which are then linked to each other in a network," at 23.

- *See, e.g.*, "Since structure can be recognized in documents, components such as chapters or sections can be recognized and hence be manipulated individually. The fragmentation model makes use of this advantage brought by the described structure to store only the modified components of a document when a new version of it is created," at 32, text following heading "The Fragmentation Model."

- *See, e.g.*, "Möller recognizes that structured documents can be partitioned into a number of smaller units (fragments), each of which may contain one specific information item," at 34.

- *See e.g.*, section 2.3.4, starting on page 44, entitled "SGML Document Fragmentation."

- **Osterbye 1992:**

  Osterbye 1992 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Osterbye 1992 discloses storing text-based documents as nodes in the disclosed system. For example:

  - *See, e.g.*, "Is it desirable to keep versions of the individual nodes and links, or do we only want to track entire 'hyperdocuments'?" at 33.

  - *See, e.g.*, "Nodes are entities which have contents, and are specialized into atomic nodes which do not contain other entities, and composites which do contain other entities," at 34.

  - *See, e.g.*, "In software engineering there are two levels of versioning. The lowest levels are the different modules that make up the programs. Each module can exist in several versions, and all the versions of a module is often referred to as a version group," at 34.

  - *See, e.g.*, "Nodes correspond to modules; notes will normally be short, e.g. sections or paragraphs rather than chapters, or routines rather than files," at 35.

  - *See, e.g.*, "The node is the basic entity for storing contents. We require all nodes to have an attribute for contents and a name. Nodes are versioned," at 38.

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- **Peltonen 1993:**

  Peltonen 1993 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Peltonen 1993 discloses storing portions of text-based data, including documents. For example:

  - *See, e.g.*, "*Documents* represent any data for design tools: drawings, manuals, bitmap images, etc. Originally we only used the concepts of a document and document version. However, our industrial partner turned out to require a considerably richer document structure. A document therefore includes a number of subdocuments, each subdocument has a number of subdocument versions, and each subdocument version has a number of representations," at 6.

  - *See, e.g.*, Figure 2.

  - *See, e.g.*, "Documents are composed of *subdocuments*. For instance, suppose a drawing comprises several sheets, each of which is manipulated as a separate file by the drawing tool. The sheets of the drawing as a whole form a single document, and each sheet is a subdocument. Subdocuments are also needed for a text document which includes figures made with a separate drawing program. The text file and the graphics files are stored in the database as separate subdocuments," at 7.

- **Povilus 1995:**

  Povilus 1995 discloses, teaches or renders obvious this claim for the reasons stated by the Patent Examiner in the Office Action of March 24, 2000 (incorporated herein by reference) and others.

- **Promenschenkel 1995:**

  Promenschenkel 1995 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Promenschenkel 1995 discloses storing components of documents which can later be compiled. For example:

  - *See, e.g.*, "This allows components to be stored, manipulated and eventually assembled automatically as a magazine, electronic journal, book or in virtually any other form chosen by the publishers," at 1.

  - *See, e.g.*, "STEPS automatically translates the articles into SGML and stores them in a BASISplus database using the BASIS SGML server," at 2.

- **Sacks-Davis 1994:**

  Sacks-Davis 1994 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Sacks-Davis 1994 discloses storing "elements" of information that can be combined to form a complete document. For

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example:

- *See, e.g.*, "The last possibility we consider is to use an element-based model designed specifically for SGML documents. While alternatives that rely on retrieving multiple tuples or objects must then combine the objects to give the full text of the element, and those retrieving whole documents must decompose documents to extract the elements, the element approach supports retrieval by element directly," at THOM00198841.

- *See, e.g.*, "It is also possible to index the atomic elements (objects or relations) and then define a join operation for text objects or relations that allows these results to be combined to access higher level elements, an approach applicable to either relational or object-based models," at THOM00198844.

- **Sacks-Davis 1995:**

  Sacks-Davis 1995 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Sacks-Davis 1995 discloses storing "fragments" or "nodes" of information that are smaller than an entire document. For example:

  - *See, e.g.*, "A hypertext node is represented by a record in the Hypertext table and consists of a node identifier, a reference to the associated document, the content of the node, and a nested table of links to related nodes," at 455.

  - *See, e.g.*, "Records are atomic; that is, they are always stored and retrieved as an indivisible unit," at 460.

  - *See, e.g.*, "Rather than store documents as monolithic objects in a database it is more efficient to represent documents as a set of smaller fragments, which can be connected by links," at 465.

  - *See, e.g.*, "Once the structure is determined, a document can be partitioned into fragments to be stored in a database system," at 465.

  - *See, e.g.*, "Since document parts, such as chapters or sections, are represented as subtrees within a document tree, the Hypertext table will typically contain an attribute identifying the parent of a node and another attribute identifying the sibling order of a node within a tree," at 465.

- **Sciore 1991:**

  Sciore 1991 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Sciore 1991 discloses storing predefined portions such as, for example, bicycle designs or employee records. For example:

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- *See, e.g.*, "Our results can be used by general-purpose database systems to provide high-level support for versioning; application systems (such as CASE tools) will be much easier to write. Moreover, our results increase the overall understanding of what versioning is all about. Consequently, it seems likely that our ideas can be mapped easily to post-relational and deductive systems," at 357.

- *See, e.g.*, "Each instance of a BicycleDesign models a design project, and has associated requirements, a sponsoring client, and a due date. Each instance of BicycleVersion models a particular version of a given design," at 358.

- *See, e.g.*, "Each EmployeeHistory object records a change to its associated employee," at 364.

- **Sciore 1994:**

  Sciore 1994 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Sciore 1994 discloses storing text based data such as bicycle designs or employment records, which are referred to in the article as "versions of an object." For example:

  - *See, e.g.*, "The schema declaration of Figure 1 illustrates the above concepts. Each instance of Bicycle models a CAD design project, and has an associated project name, client and due date. The type BicycleVersion models versions of a given bicycle design," at 81.

  - *See, e.g.*, "Figure 3 illustrates an historical database in EXTRA-V. This scheme has three conceptual types: Person, Employee, and Company. A version of a conceptual object denotes a pervious or current state of the object. Each time a versioned attribute changes, a new version is created corresponding to the new state," at 87.

  - *See, e.g.*, "Each Employee version contains the information about an employee during some time interval," at 87.

- **Stonebraker 1990:**

  Stonebraker 1990 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Stonebraker 1990 discloses a system for storing portions of text-based data. For example:

  - *See, e.g.*, 125, at Introduction (discussing storage of newspaper article and related multi-media information).

- **Taylor 1994:**

  Taylor 1994 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Taylor 1994 discloses a database and

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system for storing, querying, and displaying portions of text-based data. For example:

- *See, e.g.*, "The current media base is a collection of approximately 100 historical photographs of Pontypridd as well as some textual and oral histories," at 239.

- **Travis & Waldt:**

  Travis & Waldt discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Travis & Waldt discloses breaking documents into logical pieces for storage. For example:

  - *See, e.g.*, "Currently, the documents are stored in either complete document form, or as very large document fragments. Access to smaller document fragments concurrently by multiple authors could expedite editing speed and allow for easier reuse of information. Storing document information as logical elements, which may be very small portions of documents, will create a large number of units of information that will need to be managed. Again, the DBMS is designed to manage large numbers of smaller information elements," at 17.

  - *See, e.g.*, "In implementing an SGML database, the most important factor is to determine the level of granularity. That is, which objects should be tracked and managed as a single piece. Sometimes this is a chapter or section, but it could be as large as the entire book or as small as every element or word," at 110-111.

  - *See, e.g.*, "The key to successful entity management is to break a document into logical pieces, which can be managed independently, while maintaining their identity in a particular document or set of documents," at 185.

  - *See, e.g.*, "The most important factor when implementing an SGML-enabled database is to determine the level at which the document information will be split. This is usually called 'granularity', and each piece is called a 'grain' or 'atom' . . . . Grains are typically chapters or parts, but we have seen implementations where each paragraph is stored separately . . . . Setting the grain size too large may cause unnecessary data access overhead . . . . Setting the grain size too small causes problems, also," at 202–03.

  - *See, e.g.*, "Determining the proper level of granularity is largely a matter of how the data is structured, and what its purpose is in the enterprise," at 203.

  - *See, e.g.*, "Sometimes, the level of granularity is self-defining. A common way is to break by chapter or sub-chapter. It is the level at which the author is likely to work. In many situations, even if a book has several authors or maintainers, a chapter will be owned by a single person. By setting the grain size to this object, the database reflects what the users do naturally," at 203.

  - *See, e.g.*, "A database loader in an SGML-enabled system contains some kind of

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"atomizer" that breaks the source document into the grain-sized pieces mentioned above," at 204.

- **Wilkinson 1998:**

  Wilkinson 1998 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Wilkinson 1998 discloses dividing documents into portions and storing the portions. For example:

  - *See, e.g.*, "[E]ither documents or their components have to be stored. The key task in using components is to decide on how documents are to be partitioned into components. The advantage in storing components instead of whole documents is that useful fragments can be retrieved without incurring the cost of retrieving whole documents," at 100.

  - *See, e.g.* "Alternatively, documents can be regarded as sets of fragments that have properties including type, parents, and children," at 103.

- **Wilson 1988:**

  Wilson 1988 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Wilson 1988 discloses storing documents, such as legislation, as hypertext nodes. For example:

  - *See, e.g.*, "Justus automatically converts machine-readable versions of a variety of legal documents into hypertext documents for the Guide hypertext system," at 30.

  - *See, e.g.*, "In a hypertext system, texts are divided into segments, sometimes called nodes," at 32.

  - *See, e.g.*, "The text of a statute is particularly amendable to representation in a hypertext system because it is already highly structured," at 32.

  - *See, e.g.*, "Each subsection label provided by the legal draftsmen is automatically converted by Justus into a node name or, in Guide terms, a definition button," at 32.

- **Wilson 1990:**

  Wilson 1990 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Wilson 1990 discloses storing legal documents as hypertext nodes. For example:

  - *See, e.g.*, "The conversion was completed as part of the Justus project, which aims to provide an integrated hypertext law library containing diverse documents all of which have been converted by the Justus programs to hypertext documents," at

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119.

- *See, e.g.*, "In directed graph systems, the text is divided into segments called nodes: in principle any node in the system should be accessible from any other node," at 123.
- *See, e.g.*, "the lowest level node is a single sentence," at 123.
- *See, e.g.*, "The definition file is the full text of the law reports segmented into labeled nodes…The nodes correspond with the basic components of a law report described above," at 124.

- **Wilson 1992:**

Wilson 1992 discloses "a plurality of predefined portions of text-based data with each predefined portion being stored." Specifically, Wilson 1992 discloses storing legislative acts, or predefined portions of legislative acts such as sections. For example:

- *See, e.g.*, "An Act of Parliament may be divided into parts, sections, subsections, and paragraphs; a schedule, into subschedules, paragraphs and subparagraphs. An act must have at least one subsection; a schedule at least one paragraph. Hence, the text is already divided into segments…the text segments are the basic units of information, or lowest level nodes, of the hypertext system," at 161.
- *See, e.g.*, "The Industrial Relations Act itself is a node that consists of the general description of the Act, nine Part nodes, and eight Schedule nodes," at 162.

- **The Pre-1997 Westlaw/Westmate System**:

The Westlaw/Westmate system contained predefined portions of text-based data. For example:

- *See, e.g.*, DataBasics 1993, at doc no. 79858–59 ("United States Code Annotated"): "A document is an annotated or unannotated section of USCA."
- *See, e.g.*, www.westlaw.com: any annual statutory database prior to 1998.
- *See, e.g.*, Westlaw DB 1991, at 18–21 (disclosing the TEXT file containing predefined portions of text-based data).
- *See, e.g.*, Wren 1994, at 109–11, 141–42 (discussing statutory sections being searchable on Westlaw).
- The Essential Guide 1996, at 136 (showing that the text-based data within WESTLAW is stored as statutory sections)

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- **The Pre-1997 Premise System**:

  The Premise system contained predefined portions of text-based data. For example:

  - *See, e.g.,*Premise Software & Statutes: "Browse" the "Document List" in the CA-STAT-AN1 database within the Premise software to view the portions of legislation associated with the Premise system.

- **The Astoria System (pre-1997):**

  The Astoria System contained predefined portions of text-based data. For example:

  - *See, e.g.*, Astoria 1997-1: "Astoria lets users navigate through the document depository and view documents down to the individual components that comprise them." at THOM00211907.

  - *See, e.g.*, XSoft Astoria: "Astoria deals with the concept of 'document components.' A document component is a piece that is designed to be maintained as a unit, whether this be at the volume or book level, or at some finer granular point, such as paragraph or list." (THOM00198652)

- **The EnAct System** (previously known as Themis)**:**

  The EnAct system stores portions of text-based data. For example:

  - *See, e.g.*, Arnold-Moore 1997-2: "In the *Themis* system we have chosen to fragment documents at the section level . . . . By using SGML to store the Statutes, we can automate the process of fragmenting large documents and only present to the user the part of the document that the user requests," at 177–78:

  - *See,e.g.*,http://web.archive.org/web/19990430002036/www.thelaw.tas.gov.au/background.html: "All legislation in the database is broken up into a number of fragments (ie. one fragment per Section or Schedule)."

- **The SCALEplus System:**

  The SCALEplus system stores portions of text-based data. *See, e.g.*:

  - Kerr 2000: "The standard unit of retrieval for legislation is a section of an Act or a regulation in Regulations . . . and for caselaw is the entire case. Users are able to modify the searchable scope of these retrieved documents," at 11-13, ¶ 490.

  - SCALEplus Secrets, at 2: "SCALEplus has lots of information that is huge, particularly legislation. SCALEplus data is formatted in HTML which is common to all World Wide Web applications but is ideally suited for one or a few pages—to view a document you have to wait for the browser to load it (often over a modem).

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Because of this the decision was made to turn each piece of legislation into a number of HTML files, each file being a section of that Legislation. When a results list is returned from SCALEplus what you see are the HTML files that have been found that match your search. For Legislation this will be a section of an Act; for Caselaw an individual case." • **The Documentum/Interleaf System:** The Documentum/Interleaf system stores portions of text-based data. For example: • *See, e.g.,* Ovum Interleaf 1996, at 256–57: Interleaf provides support for compound documents, wherein documents are broken into components. • *See, e.g.,* Ovum Documentum 1996, at 210–212: Documentum provides support for compound documents, wherein documents are broken into components. For example: "Similarly, Documentum can be integrated with SGML parsers for importing SGML documents: using the parser, a large SGML document is turned into a set of compound documents, based on the internal document structure defined by the Document Type Definition," at 210–212. • **The Core Materials on Legal Ethics System:** The Core Materials on Legal Ethics system contained predefined portions of text-based data. • **The Federal Rules of Civil Procedure System:** The Federal Rules of Civil Procedure system contained predefined portions of text-based data. • **The Law Desk NY System:** The Law Desk NY system contained predefined portions of text-based data. • **The Law Desk USCS System:** The Law Desk USCS system contained predefined portions of text-based data. • **The New Mexico Law System:** The New Mexico Law on Legal Ethics system contained predefined portions of text-based data. • **The NY Official Reports System:** The NY Official Reports system contained predefined portions of text-based data.

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• **The NY CLS Beta System:** The NY CLS Beta system contained predefined portions of text-based data. • **The OnPoint System:** The OnPoint system contained predefined portions of text-based data. • **The Social Security Plus System:** The Social Security Plus system contained predefined portions of text-based data. • **The UCC System:** The UCC system contained predefined portions of text-based data.
(c) at least one predefined portion being modified and stored: • **Agosti 1991:** Agosti 1991 discloses "at least one predefined portion being modified and stored." Specifically, Agosti 1991 discloses that the stored nodes can be changed and new nodes stored. Agosti 1991 further notes that this capability facilitates the storage of legal materials which evolves over time, such as statutory material. For example: • *See, e.g.*, "This means, for example, that the insertion of a new descriptive term in the hyperconcept does not imply any modification of the hyperdocument; in the same way, insertion of a new document doesn't entail any variation in the hypderconcept," at 320. • *See, e.g.*, "The model allows insertion and removal of single items of information maintaining the integrity of reference within the two level structure," at 320. • *See, e.g.*, "When the object is inserted in the network it becomes a node of the structure," at 320. • *See, e.g.*, "The system thus created, called HyperLaw, is an experimental tool for handling legal collections of full text and reference documents: law, case law, legal authority," at 321. • *See, e.g.*, "It is in fact possible to insert new information items into the hypertext network of the system loading them in from an external source file…This function is particularly important in the handling of a set of information which evolves in time," at 324.

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- **Arnold-Moore 1994:**

  Arnold-Moore 1994 discloses "at least one predefined portion being modified and stored." Specifically, Arnold-Moore 1994 discusses the fact that legislation can be frequently amended and that one option for storing this information is to create and store consolidations. A consolidation consist of the original (or base) statute together with all of the changes made by the amending act. For example:

  - *See, e.g.*, "The other important characteristic of a legislation is that its content can change with the passage of time. Sections (or indeed larger units) can be added, removed, or altered. A principal Act is created when a new body of law is reduced to legislation creating a new Act where no other existed, or where a large scale restructuring of existing legislation is made creating a new Act (or group of Acts) which completely replaces a previous Act or group of Acts. In between amending Acts are passed which make alterations to the principal Acts, sometimes changing the wording of one or two section, at other times replacing the whole sections or removing or inserting whole parts or chapters," at *v*.

  - *See, e.g.*, "The simplest solution to this problem is to apply the amending Acts (either by hand or automatically) once to produce each consolidation, and to store each consolidation as well as the principal Act (and each of the amending Acts)," at *xvi*.

  - *See, e.g.*, *xvii - xviii*.

  - *See, e.g.*, "each unchanged atom will be represented only once . . .; where an atom is altered a new atom is inserted in the database with the alterations performed," at *xviii*.

- **Arnold-Moore 1994-2:**

  Arnold-Moore 1994-2 discloses "at least one predefined portion being modified and stored." Specifically, Arnold-Moore 1994-2 discloses that multiple versions of legislative material can be stored. For example:

  - *See, e.g.*, "This will, for example, allow a software engineering document that is the right version to be retrieved," at THOM00196608.

- **Arnold-Moore 1995:**

  Arnold-Moore 1995 discloses "at least one predefined portion being modified and stored." Specifically, Arnold-Moore 1995 discloses storing consolidations of original legislation with subsequent amendments. For example:

  - *See, e.g.*, "The second and more important for the purposes of this paper is that its content can change with the passage of time. Sections (or indeed larger and smaller

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elements) can be added, removed or altered," at 297.

- *See, e.g.*, "The Australian legislators … have adopted the textual style of amendment where amendments require words to be omitted and others inserted," at 298.

- *See, e.g.*, "The ideal would be for law libraries to have a copy of the relevant consolidation in which the appropriate amendments are pasted for every different version of an Act," at 298.

- *See, e.g.*, "There is great potential for CALR systems not only to present legislation in a format familiar to lawyers (like that of the paper consolidation) but to present it as it would have appeared at any arbitrary point in time with annotations available with the text. The problems of how to store these various versions in electronic databases are discussed at length elsewhere," at 298.

- *See, e.g.*, "a text processing module which produces new consolidations from the structured representation of actions and existing versions of the Principal Act," at 299.

- **Arnold-Moore 1997:**

  Arnold-Moore 1997 discloses "at least one predefined portion being modified and stored." Specifically, Arnold-Moore 1997 discloses that storing consolidated versions of legislative amendments, which constitute modified versions of stored principal acts. For example:

  - *See, e.g.*, "A consolidation (or reprint) of a Principal Act is that Act as amended at a particular time," at 56.

  - *See, e.g.*, "An ideal drafting tool would present the drafter with the appropriate consolidation of the target of the amendment (see Figure 1) and allow him or her to mark amendments on that consolidation (see Figure 2)," at 57.

  - *See, e.g.*, "There are 6 basic types of amendment, omitting text, inserting text, replacing text, omitting a whole element, inserting a whole element, or replacing a whole element," at 58.

  - *See, e.g.*, "To do this, and RTF to SGML converter … is then applied to the document to produce two separate SGML representations. The strike-through and underline is used to generate two parallel trees representing the structure of the document, one before all of the changes and one after the changes have been applied," at 59.

- **Arnold-Moore 1997-2:**

  Arnold-Moore 1997-2 discloses "at least one predefined portion being modified and

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stored." Specifically, Arnold-Moore 1997-2 discusses the fact that legislation can be frequently amended and that one option for storing this information is to create and store point-in-time versions of the legislation. For example:

- *See, e.g.*, "Themis also allows access to different versions of legislation by specifying a point-in-time at which the law is required," at 175.
- *See, e.g.*, "In particular, the complex structure of legislation and different versions of a particular piece of legislation can be better supported," at 175.
- *See, e.g.*, "The other important distinguishing characteristic of legislation is that its content can change with the passage of time," at 176.
- *See, e.g.*, "Ideally a library, paper or digital, would provide ever possible consolidation of every piece of legislation," at 176.
- *See, e.g.*, "The following section 3 introduces a system which addresses these needs…The problem of handling multiple versions of legislation is addressed in section 6," at 176.
- *See, e.g.*, "The simplest solution is to apply the amending Statutes (either manually or automatically) once to produce each consolidation, and to store each consolidation as well as the principal Statute (and each of the amending Statutes)," at 179.
- *See, e.g.*, "That means that when a section is modified, only the fragment containing that section needs to be updated, not the whole document," at 179.

- **Bachman 1973:**

Bachman 1973 discloses "at least one predefined portion being modified and stored." Specifically, Bachman 1973 discloses storing modified and updated versions of the stored text-based data. For example:

- *See, e.g.*, "It involves all aspects of storing, retrieving, modifying, and deleting data in the files on personnel and production, airline reservations, or laboratory experiments – data which is used repeatedly and updated as new information becomes available," at 654.
- *See, e.g.*, "The second activity of database management is to update, which includes the original storage of data, its repeated modification as things change, and ultimately, its deletion from the system when the data is no longer needed," at 655.
- *See, e.g.*, "The hiring of a new employee would cause a new record to be stored. Reducing available stock would cause an inventory record to be modified. Cancelling an airline reservation would cause a record to be deleted. All of these are

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recorded and updated in anticipation of future inquiries," at 655.

- **Bentley 1979:**

  Bentley 1979 discloses "at least one predefined portion being modified and stored." Specifically, Bentley 1979 discloses dynamic storage structures which can be used to store updated versions of the stored data. For example:

  - *See, e.g.*, "In many applications one may desire various utility operations on data structures, such as insertion and deletion," at 398.

  - *See, e.g.*, "Many applications, however, require dynamic structures, in which insertion and deletions can be made," at 407.

- **Campbell 1988:**

  Campbell 1988 discloses "at least one predefined portion being modified and stored." Specifically, Campbell 1988 discloses storing modified and updated versions of the stored data, or nodes. For example:

  - *See, e.g.*, "A node contains arbitrary data that can be stored as text or as fixed-length binary blocks. A node can be classified as archived, nonarchived, or append-only. When an archived node is updated, a new version of the node is created using the new contents. Previous versions of an archived node can be retrieved. When a nonarchived node is updated, the previous contents are replaced by the new contents. When an append-only node is updated, the new contents are appended to the previous contents," at 856-57.

  - *See, e.g.*, "The version history for a HAM object is updated each time that object is modified. Because each access to an object contains a version time, previous versions of objects can be viewed," at 857.

  - *See, e.g.*, "Change operations modify data associated with an existing object. A change operation takes an object index, a version time, and object-dependent data and returns a version time. The object index specifies the unique identifier for the object being modified. The returned version time represents the time the object was modified," at 857.

- **Fay 1996:**

  Fay 1996 discloses "at least one predefined portion being modified and stored." Specifically, Fay 1996 discloses that users frequently modify and store portions of text-based data. For example:

  - *See, e.g.*, "Each element usually is represented by a number of dated versions, and as the document is updated, the latest version is added to the list of versions for that

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element, or node," at 2:14–16.

- **Haake 1992:**

  Haake 1992 discloses "at least one predefined portion being modified and stored." Specifically, Haake 1992 discloses a system that stores portions of text-based data. For example:

  - *See, e.g.*, "The states of a versioned object are called versions and are represented by individual nodes, links, or composites," and "The freeze operation is an explicit operation that saves the state of the version. The state of an atomic node comprises its content and attributes, the state of a link is defined by two references to other hypertext objects and the link attributes . . . . Thus, versions referenced by links and composites also belong to the state of the link or composite," at 46.

- **Horne 1997:**

  Horne 1997 discloses "at least one predefined portion being modified and stored." Specifically, Horne 1997 discloses storing modified and updated versions of the stored statutes. For example:

  - *See, e.g.*, "But both the printed and internet versions of the Acts are static, that is to say, they do not show any amendments that have been made by later legislation," at 1.

  - *See, e.g.*, "In the past this problem was to some extent dealt with by the official printed series called Statutes in Force. This series of volumes suffered from the disadvantage that it took a great deal of time for each particular title to be produced," at 1.

  - *See, e.g.*, "HMSO have a program called 'the Statute Law Database'. This is an electronic version of Statutes in Force. It contains in SGML form the law as it was on a particular date in the 1980s together with all acts and statutory instruments which have come into force since that time," at 3.

- **Kim 1996:**

  Kim 1996 discloses "at least one predefined portion being modified and stored." Specifically, Kim 1996 discloses that multiple versions of the stored multimedia can be stored. For example:

  - *See, e.g.*, "Finally, our hypermedia system can provide database management system functions such as … version control of structured document components as separate objects," at 496.

  - *See, e.g.*, "Fourthly, we design a version control mechanism that distinguishes

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versionable objects and non-versionable objects," at 496.

- *See, e.g.*, "Thirdly, an object is classified into versionable object or a non-versionable object," at 497.

- *See, e.g.*, "Versioning is essential to hypermedia system in order to keep track of changes to the hypermedia network," at 498.

- **Larson 1988:**

  Larson 1988 discloses "at least one predefined portion being modified and stored." Specifically, Larson 1988 discloses that the stored nodes can be changed and versions will be stored. For example:

  - *See, e.g.*, "Neptune (like the Xanadu system) retains all versions of a document and permits links to be formed between any two points in a document or between documents," at 196.

  - *See, e.g.*, "The indexes supported in Telesophy include a keyword index (providing Boolean and proximity searching), a 'temporal index' that permits selection by the time an IU was created, and a 'spatial index' that 'places items in an N-dimensional space based on their attributes, then allows the space to be searched," at 197.

- **Lo 1995:**

  Lo 1995 discloses "at least one predefined portion being modified and stored." Specifically, Lo 1995 discloses that multiple versions of the stored text-based data can be stored. For example:

  - *See, e.g.*, "Versioning is essential to history-keeping of a document. It allows evolutionary information and states of this document to be captured so that future references are possible," at 339.

  - *See, e.g.*, "The document database may only carry out modification to a committed document's content by creating a new version of it," at 340.

- **Lo 1996:**

  Lo 1996 discloses "at least one predefined portion being modified and stored." Specifically, Lo 1996 discloses versioning, including the storage of modified portions. For example:

  - *See, e.g.*, "Another important aspect in the basic service layer is versioning. . . . Supporting versioning, however, is not as simple as just storing several versions of the same document in the database," at 10, section 1.2.2 (Managing Functions).

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- *See, e.g.*, "one of the major problems tackled in this thesis is to decide to which version a link would connect should the destination exist in more than one version," at 9, section 1.3.

- *See, e.g.*, "Any changes made to a committed document will introduce a new version of the document . . . . Once this new version is approved and thereby committed, any further changes will similarly cause the creation of further versions of documents," at 27, under the heading "Committing Versions of Documents."

- *See, e.g.*, text following headings "Multiple-Versions-Multiple-Trees" and "Multiple-Versions-Single-Tree," at 31.

- *See, e.g.*, "Since structure can be recognized in documents, components such as chapters or sections can be recognized and hence be manipulated individually. The fragmentation model makes use of this advantage brought by the described structure to store only the modified components of a document when a new version of it is created," at 32, text following heading "The Fragmentation Model."

- *See, e.g.*, "Each time a committed document is modified and a new version created, the system distinguishes and stores only the fragments that are being modified," at 33.

- *See, e.g.*, section 2.3.4, starting on page 44, entitled "SGML Document Fragmentation."

- *See, e.g,*. text following heading "Hyperlinks," beginning on page 53.

- **Osterbye 1992:**

  Osterbye 1992 discloses "at least one predefined portion being modified and stored." Specifically, Osterbye 1992 discloses that multiple versions of the stored text-based data can be stored. For example:

  - *See, e.g.*, "This paper discusses issues related to providing version control in hypertext systems," at 33.

  - *See, e.g.*, "In such systems the very nature of production makes the hypertext evolve over time," at 33.

  - *See, e.g.*, "Version control is the discipline of controlling and tracking the evolution of a product over time," at 33.

  - *See, e.g.*, "If an element is versioned, a specific version represents a state in the development," at 33.

  - *See, e.g.*, "Each module can exist in several versions, and all the versions of a

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module is often referred to as a version group," at 34.

- *See, e.g.*, "The node is the basic entity for storing contents. We require all nodes to have an attribute for contents and a name. Nodes are versioned," at 38.

- *See, e.g.*, "While it is possible to explicitly create new versions of individual nodes, a new-version command is available at the context level," at 39.

- **Peltonen 1993:**

  Peltonen 1993 discloses "at least one predefined portion being modified and stored." Specifically, Peltonen 1993 discloses that the stored nodes can be changed and versions will be stored. For example:

  - *See, e.g.*, "*Documents* represent any data for design tools: drawings, manuals, bitmap images, etc. Originally we only used the concepts of a document and document version. However, our industrial partner turned out to require a considerably richer document structure. A document therefore includes a number of subdocuments, each subdocument has a number of subdocument versions, and each subdocument version has a number of representations," at 6.

  - *See, e.g.*, Figure 2.

  - *See, e.g.*, "When a new document version is created, the version is made to include the same subdocument versions as the parent document version. Only when a user modifies a particular subdocument for the first time in the child document version, the system creates a new subdocument version, and includes it in the child document version," at 8.

- **Povilus 1995:**

  Povilus 1995 discloses, teaches or renders obvious this claim for the reasons stated by the Patent Examiner in the Office Action of March 24, 2000 (incorporated herein by reference) and others.

- **Promenschenkel 1995:**

  Promenschenkel 1995 discloses "at least one predefined portion being modified and stored." Specifically, Promenschenkel 1995 discloses that multiple versions of the text-based data can be stored. For example:

  - *See, e.g.*, "The STEPS systems is designed to take a document through the publishing process from author's draft to finished print version," at 1.

- **Sacks-Davis 1995:**

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Sacks-Davis 1995 discloses "at least one predefined portion being modified and stored." Specifically, Sacks-Davis 1995 discloses that multiple versions of the text-based data can be stored. For example:

- *See, e.g.*, "For data modification requests, it checks that the new record satisfies all validation constraints defined on the table, such as key constraints," at 460.

- *See, e.g.*, "The index manager can be supplied with a new record to insert, an old and new version of a record that has been updated, or an existing record to delete," at 460.

- **Sciore 1991:**

Sciore 1991 discloses "at least one predefined portion being modified and stored." Specifically, Sciore 1991 discloses that multiple versions of the text-based data can be stored. For example:

- *See, e.g.*, "We often call the generic object the design object, and the associated version object its versions," at 358.

- *See, e.g.*, "For example, one version might be the result of a bug fix. Creating a revision of a previous version. Another might be the result of an alternative design decision," at 359.

- **Sciore 1994:**

Sciore 1994 discloses "at least one predefined portion being modified and stored." Specifically, Sciore 1994 discloses creating and storing new versions of existing text based data as they are created. For example:

- *See, e.g.*, "Each time a versioned attribute changes, a new version is created corresponding to the new state," at 87.

- *See, e.g.*, "Many database applications require the storage and manipulation of different versions of data objects," at Abstract.

- **Stonebraker 1990:**

Stonebraker 1990 discloses "at least one predefined portion being modified and stored." Specifically, Stonebraker 1990 discloses the no-overwrite nature of POSTGRES, which stores a new copy of the portion each time the portion is modified. For example:

- *See generally, e.g.*, discussion of the no-overwrite feature of POSTGRES, and saying "the old record remains in the database whenever an update occurs" and "[t]he second benefit of a no-overwrite storage manager is the possibility of *time travel*" and "[t]his storage manager should be contrasted with a conventional one

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where the previous record is overwritten with a new one," at 137, section IV.A.

- **Taylor 1994:**

  Taylor 1994 discloses "at least one predefined portion being modified and stored." Specifically, Taylor 1994 discloses a database and system for storing, querying, and displaying portions of text-based data as they evolve over time. For example:

  - *See, e.g.*, "The geographical schema models four editions of the Ordnance Survey maps between 1880 to 1994," at 239.

  - *See, e.g.*, "The temporal schema ranges from 1755 . . . to 1994," at 239.

- **Travis & Waldt:**

  Travis & Waldt discloses "at least one predefined portion being modified and stored." Specifically, Travis & Waldt disclose the need to store versions of text-based data that is periodically updated. For example:

  - *See, e.g.*, "When a version is created, all deltas that have been applied to the original document are applied, and a complete document is stored as the new version," at 187.

  - *See, e.g.*, Case Studies, especially pages 379 and 395.

  - *See, e.g.*, "Many of these documents must be updated periodically through the life of the aircraft to reflect improvements implemented after leaving the aircraft (DAC still provides supporting documentation for its DC-3, a fifty-nine year old aircraft). In addition, DAC must retain a highly accurate and comprehensive history of original and revised publications to support internal and FAA (Federal Aviation Administration) requirements," at 395.

- **Wilkinson 1998:**

  Wilkinson 1998 discloses "at least one predefined portion being modified and stored." Specifically, Wilkinson 1998 discloses dividing documents into portions and storing the portions and amended portions. For example:

  - *See, e.g.*, "When multiple versions of a document are stored in a system, it is clear that there is great potential for redundancy. . . . The granularity of the redundancy can be reduced by fragmenting the documents. This can be done by breaking the document into lines or by using more sophisticated structural encoding to identify logical units in the document. This approach is typically used in hypertext systems, where larger documents are usually fragmented for viewing purposes anyway. If whole versions or version histories are required, these can be reconstructed from the

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fragment versions," at 103.

- *See, e.g.*, "Alternatively, documents can be regarded as sets of fragments that have properties including type, parents, and children," at 103.

- **Wilson 1988:**

  Wilson 1988 discloses "at least one predefined portion being modified and stored." Specifically, Wilson 1988 discloses that multiple versions of the text-based data can be stored. For example:

  - *See, e.g.*, "This list can be inverted so that later legislation that amends or clarifies an earlier act may be accessed directly from the act," at 27.

  - *See, e.g.*, 28.

  - *See, e.g.*, "Hypertext resolves the difficulties of a single printed version; it can maintain many versions of a single subsection," at 35.

  - *See, e.g.*, "By selecting the button (BEFORE 5 JULY 1973), we can see the text of Section 167(2)(a) before it was amended: figure 9," at 35.

- **Wilson 1992:**

  Wilson 1992 discloses "at least one predefined portion being modified and stored." Specifically, Wilson 1992 discusses the fact that legislation can be frequently amended and that the Guide system can accommodate storing multiple versions of legislative material. For example:

  - *See, e.g.*, "Lawyers often need multiple versions of the same text. Some statutes are subject to frequent amendment. Earlier versions may still be needed for cases brought under early legislation, for legal research or for a proper understanding of contemporary cases…Local buttons are an ideal mechanism for multiple versions. An electronic system makes it easier to store the name of the amending author and the date of the amendment where these are required. Figure 12 shows a section of the Industrial Relations Act 1971 with local buttons for an earlier version. Figure 13 shows the button expanded," at 179-180.

- **The Pre-1997 Westlaw/Westmate System**:

  The Westlaw/Westmate system contained modified predefined portions of text-based data. For example:

  - *See, e.g.*, DataBasics 1993, at doc no. 79858–59 ("United States Code Annotated"): Disclosing Westlaw's USCAYY databases: "United States Code Annotated 19YY*

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(YY is the last two digits of a year, e.g., 90 for 1990").

- *See, e.g.,*www.westlaw.com, California Statutes Annotated Database from 1996 (CA-STAN96), CA BUS & PROF § 28 (two versions: one active and one as amended).

- The Essential Guide 1996, at 131: "WESTLAW contains the current version and historical versions of the *United States Code Annotated* and the current version and historical versions of statutes for all 50 states. To display the current version of a cited statute while viewing its Shepard's result, type **fi**."

- **The Pre-1997 Premise System**:

  The Premise system contained modified predefined portions of text-based data. For example:

  - *See, e.g.,* "Browse" the "Document List" in the CA-STAT-AN1 database within the Premise software to view the modified portions of legislation associated with the Premise system, including Bus. & Prof. Code § 2003 to see both a predefined portion and a modified predefined portion of the same statutory section.

- **The Astoria System (pre-1997):**

  The Astoria System contained modified predefined portions of text-based data. For example:

  - *See, e.g.*, XSoft Astoria: "Astoria deals with the concept of 'document components.' A document component is a piece that is designed to be maintained as a unit, whether this be at the volume or book level, or at some finer granular point, such as paragraph or list," at THOM00198652.

  - *See, e.g.*, Astoria 1997-1: "Astoria can apply revision information to only the components that change during an editing session. Astoria detects and maintains revision history at the component level, not just at the document level. . . Astoria stores versioning information in an efficient format, and past versions are always available for republishing or for providing an audit trail," at THOM00211908.

  - *See, e.g.*, XSoft: "Because of its sophisticated integration with SGML editors, Astoria maintains revision information on individual elements, and past versions are always available," at THOM00198648.

- **The EnAct System** (previously known as Themis)**:**

  The EnAct system stores modified portions of text-based data. For example:

  - *See, e.g.*, Arnold-Moore 1997-2, at 179 (text following the heading: "Managing

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Versions in *Themis*"), and in particular: "Since *Themis* already fragments large documents for other reasons, the obvious solution was to move the versioning ganularity [sic] down to the fragment level. The *Themis* systems stores [sic] a table of contents directly and each fragment separately, indexing each fragment. That means that when a section is modified, only the fragment containing that section needs to be updated, not the whole document. . . . For fast query response, *Themis* does not make use of deltas either in the index or in the storage of the documents."

- *See,e.g.,*http://web.archive.org/web/19990430002036/www.thelaw.tas.gov.au/background.html: "Each fragment contains the dates for which that piece of legislation is in force. When legislation is amended, the system automatically builds new versions of fragments which are affected by amendments and keeps the old ones for historical reference. Consolidations are generated by joining together the fragments relevant at a particular point-in-time."

- **The SCALEplus System:**

  The SCALEplus system stores modified portions of text-based data. For example:

  - *See,e.g.*, Kerr 2000, "The *Historical* database[] contain[s] copies of legislation as they appeared at certain date[s]," at 6-4, ¶ 178. *See also* 6-8, 196.

- **The Documentum/Interleaf System:**

  The Documentum/Interleaf system allows users to modify portions of documents and then store the modified portions. For example:

  - *See, e.g.*, Ovum Interleaf 1996, at 260–61: Interleaf provides versioning capabilities when users modify documents.

  - *See, e.g.*, Ovum Documentum 1996, at 218–219: Documentum provides versioning capabilities when users modify documents.

- **The Federal Rules of Civil Procedure System:**

  The Federal Rules of Civil Procedure system contained modified predefined portions of text-based data.

- **The Law Desk NY System:**

  The Law Desk NY system contained modified predefined portions of text-based data.

- **The Law Desk USCS System:**

  The Law Desk USCS system contained modified predefined portions of text-based data.

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• **The New Mexico Law System:** The New Mexico Law on Legal Ethics system contained modified predefined portions of text-based data. • **The NY CLS Beta System:** The NY CLS Beta system contained modified predefined portions of text-based data. • **The OnPoint System:** The OnPoint system contained modified predefined portions of text-based data.
(d) a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means: • **Agosti 1991:** Agosti 1991 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Agosti 1991 discloses links between stored text-based documents. For example: • *See, e.g.*, "The representation of an object at this level is made by means of: connections to documents which are related to it…connections to the auxiliary data items," at 318. • *See, e.g.*, "The collection of document objects is organised at the first level of the architecture as a 'hyperdocument', that is in the form of a lattice structure," at 318. • *See, e.g.*, "The hyperdocument is made up of a network of structural links combined with the network of reference links…This means that the user may choose to follow along one path or another even in consideration of the direction of the references present within the semantic units," at 318. • *See, e.g.*, "The model supports navigability through the document collection. Due to the fact that specific cross-references are often present between the documents of the collection, the system must explicitly be able to support navigability through these connections," at 318. • *See, e.g.*, "Each of the two levels of the system's architecture represents a distinct network of nodes and links," at 319. • *See, e.g.*, "The model supports navigation between the two levels by means of the navigability function. In this way it is at all times possible to pass from the

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hyperdocument to the hyperconcept and back again," at 320.

- *See, e.g.*, "By clicking the mouse button the object pointed is activated, i.e. the system receives the order to move in the direction indicated and to present the pertaining information or to execute the requisite function," at 322.

- *See, e.g.*, "It is possible to shift directly from any point in the hypertext network to other hyperdocuments by making use of the links existing between them," at 322.

- *See, e.g.*, "The nodes included within the single documents contains a function which allows all the links which bind that single document to the others to be displayed," at 323.

- **Arnold-Moore 1994:**

Arnold-Moore 1994 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Arnold-Moore 1994 discloses both static links and dynamic links which can be inserted into the stored text-based data, consisting of both statutory sections ("predefined portions") and amended statutory sections ("modified predefined portions") as discussed above. For example:

- *See, e.g.*, "In this context hypertext would allow the note to be visible to the user only after they have selected (usually by pointing and clicking a mouse) a 'button' which is displayed with the text on the screen. Each separate unit of text which is presented on the screen is termed a *node*. The interrelated nodes and the links between them together form *hypertext*," at *vii*.

- *See, e.*g., "Hypertext allows the user to do exactly that. It's applicability to the legal domain and particularly statutes is widely recognized," at *vii.*

- *See, e.g.*, "The functionality of a hypertext database should also be supported. These include tracing links and queries based on the existence of links," at *ix*.

- *See generally, e.g., x - xii.*

- *See generally, e.g., xvii - xix.*

- *See, e.g.*, "Within a versioned hypertext, two kinds of links are possible: 1. static links – which refer to a specific version or part of a version; 2. dynamic links – which refer to the latest version or part or, more generally, to the version at a corresponding time," at *xx*

- *See, e.g.*, "Whether links should be in-line (appearing explicitly in the text) or stored

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in a separate link table seems dependent on the intended application," at *xx*.

- **Arnold-Moore 1994-2:**

  Arnold-Moore 1994-2 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Arnold-Moore 1994-2 discloses links between stored text-based documents. For example:

  - *See, e.g.*, "This information is explored by browsing, rather than querying, however we may view the traversal of a link as another kind of query," at THOM00196608.
  - *See, e.g.*, "Finally, we will certainly wish to follow any hypertext links that are provided," at THOM00196608.
  - *See, e.g.*, "When versioning hypertext, links can either be static or dynamic," at THOM00196611.

- **Arnold-Moore 1995:**

  Arnold-Moore 1995 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Arnold-Moore 1995 discloses encoding links between sections in legislation using SGML. For example:

  - *See, e.g.*, "Tools which aid the management of legislation have been described elsewhere including … the use of a knowledge based system to construct links between related sections in legislation," at 297.
  - *See, e.g.*, "The text database system needs to manage multiple versions of a single document and to manage highly structured documents. We have chosen to use the Structured Information Manager (SIM)…SIM stores documents in the Standard Generalized Markup Language (SGML)," at 299.

- **Arnold-Moore 1997-2:**

  Arnold-Moore 1997-2 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Arnold-Moore 1997-2 discloses use of SGML to great links between stored pieces of legislation. For example:

  - *See, e.g.*, "Themis uses SGML to store legislation," at 175.

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- *See, e.g.*, "Legislation has been described as providing a cross-reference network," at 179.

- *See, e.g.*, "Hypertext allows the user to do exactly that. It's applicability to the legal domain and particularly statutes is widely recognized," at 179.

- *See, e.g.*, "This text needs to be associated with the intended target element. For example the reference to 'section 135' (See Figure 3) will need to be associated with the element which has a section number of '135' (See Figure 5) in the target document," at 181.

- *See, e.g.*, "Thus all links in Themis are dynamic rather than static," at 181.

- **Bachman 1973:**

  Bachman 1973 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Bachman 1973 discloses links that permit movement to the next or previous stored document, or from an attribute to a document described by that attribute. For example:

  - *See, e.g.*, "He can start at the beginning of the database, or at any known record, and sequentially access the 'next' record in the database until he reaches a record of interest or reaches the end," at 656.

  - *See, e.g.*, "He can enter the database with a database key that provides direct access to the physical location of a record," at 656.

- **Campbell 1988:**

  Campbell 1988 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Campbell 1988 discloses links between each node. For example:

  - *See, e.g.*, "Nodes are related by links. A link defines a relationship between a source node and a destination node and can be followed in either direction. A cross-context link relates two nodes in different contexts and is useful for sharing data between two contexts. The generality provided by link attributes allows application writers to define their own notions of link types or link end-point attachment schemes," at 857.

  - *See, e.g.*, "Guide uses buttons – special areas on a screen – to represent links in a document between the information the screen and related information. When a button is selected, by clicking the mouse, Guide follows the link to display the related information. Replacement buttons replace the button icon displayed on the

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screen with the information associated with that button," at 858.

- *See, e.g.*, "The various button relationships are modeled as links," at 858.
- *See, e.g.*, "Figure 2 shows an example of a note button. The Document Browser contains the text being examined; the icon within the browser represents the note button. The Note Browser contains the note associated with the note button," at 858.
- *See, e.g.*, "Therefore, the other end of the link representing the button can point to the entire node that contains the button's information," at 858.

- **Elmasri 1990:**

  Elmasri discloses links between time-based versions of information. For example:

  - *See, e.g.*, "However, numerous past versions of the object may also exist. These versions of an object are linked to the current version and may be recovered through the use of various known techniques . . . " at Summary of the Invention.

- **Fay 1996:**

  Fay 1996 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Fay 1996 discloses that there are attributes associated with the text-based information. For example:

  - *See, e.g.*, "The locking unit also contains the links that connect the tree elements within the locking unit, so that if the locking unit contains a section and three paragraphs, the links joining these elements will be within the locking unit, but links of these same paragraphs to other documents will not be within the locking unit," at 2:29–34.

- **Horne 1997:**

  Horne 1997 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Horne 1997 discloses links between each stored statutory document. For example:

  - *See, e.g.*, "But markup could go further. It could give the dates on which the amendments were made, the dates on which they took effect, and the names of the Acts or SI which had made them, and the user's program could use this markup to display a statute as it was on a particular date chosen by the user and could offer hypertext cross-references to the amending legislation," at 3.

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- *See, e.g.*, "HMSO have a program called 'the Statute Law Database'. This is an electronic version of Statutes in Force. It contains in SGML form the law as it was on a particular date in the 1980s together with all acts and statutory instruments which have come into force since that time. All of these are linked together," at 3.

- **Kim 1996:**

  Kim 1996 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Kim 1996 discloses encoding links between stored multimedia. For example:

  - *See, e.g.*, "Meanwhile, hypermedia data relate multimedia data by linking them together, and permit users to browse related parts through links," at 496.

  - *See, e.g.*, "Besides, HOML defines virtual objects and dynamic link objects, which can decide a link destination with a query result in run time," at 497.

  - *See, e.g.*, "The anchor element specifies the source or the destination of a link. Since there can be many anchor elements in a text element, each anchor element should have a unique identifier," at 497.

  - *See, e.g.*, "The link element specifies a relation between a source object and a destination object through navigation. According to the number of destination objects, there are single links, multi-destination links and dynamic links," at 498.

- **Larson 1988:**

  Larson 1988 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Larson 1988 discloses links between stored text-based documents. For example:

  - *See, e.g.*, "A hypertext system is made up of a set of 'nodes' and 'links'. . . . Links are associative connections between nodes. They may represent a variety of associative connections, including citations, quotations, or similarity of content. They may also represent a hierarchic structuring of the nodes," at 195.

- **Lo 1995:**

  Lo 1995 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Lo 1995 discloses using both static and dynamic links between stored documents. For example:

  - *See, e.g.*, "Links and versioning are two important aspects of document

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management," at 339.

- *See, e.g.*, "This paper thus attempts to describe a specific set of link versioning behaviors to provide a platform to explore the various issues of link versioning," at 339.

- *See, e.g.*, "Links represent inherent associations of content and structure of texts. Efficient management of links allows convenient cross referencing in information browsing," at 339.

- *See, e.g.*, "Link sources and destinations can be defined by SGML tags," at 339.

- *See, e.g.*, "intra-version link: both the source and the destination of the link are located in the same version, eg the ink ab; intra-version link: both the source and the destination of the link are located in the same document, but different versions, eg the link ef; inter-document link: both the source and the destination of the link are located in different documents, eg the link ed," at 340.

- *See, e.g.*, "An intra-version link is static in nature," at 340.

- *See, e.g.*, "In contrast to intra-version links, inter-document links are dynamic in nature, tending towards switching or augmenting destination references whenever new versions are created in which their destinations are duplicated," at 341.

- *See, e.g.*, "The first method is the traditional method (also employed by SGML) of referencing locations with unique identification. The second method attempts to manage links as objects, each with an identification itself," at 342.

- *See, e.g.*, "Conceptually this method specifies unique identifiers (Ids) for referent elements (destinations); and directional links can be established by making references (Ref) from the reference elements (sources) to the referent elements' identifiers," at 342.

- **Lo 1996:**

  Lo 1996 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Lo 1996 discloses links and markups language, with the text including links encoded with markup language. For example:

  - *See, e.g.*, "Link support is a facility provided by the basic service layer. Managing links is a direct support of non-linearity of documents as mentioned in Section 1.1. Link support is a prerequisite to information retrieval by browsing. It is also particularly important in depicting the dependence relationships between various documents, if such relationships need to be maintained and utilized . . . ," at 9,

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section 1.2.2 (Managing Functions).

- *See, e.g.*, "Links and versioning are two important aspects of document management. Efficient management of links allows convenient cross referencing in information browsing," at 11, section 1.3.

- *See, e.g.*, "In particular, SGML structures can be utilized to implement links," at 12, section 1.4.

- *See, e.g.*, section 2.1, starting on page 15, entitled "Linking."

- *See, e.g.*, section 2.3.2, starting on page 39, entitled "SGML Support for Linking."

- *See, e.g.*, figure 2.5, page 41.

- **Osterbye 1992:**

  Osterbye 1992 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Osterbye 1992 discloses using links between stored nodes. For example:

  - *See, e.g.*, "Links are one-to-one, and can be anchored to nodes in both ends," at 34.

  - *See, e.g.*, "The link is an entity that relates a source node to a destination node (or subtypes of nodes)," at 38.

- **Povilus 1995:**

  Povilus 1995 discloses, teaches or renders obvious this claim for the reasons stated by the Patent Examiner in the Office Action of March 24, 2000 (incorporated herein by reference) and others.

- **Promenschenkel 1995:**

  Promenschenkel 1995 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Promenschenkel 1995 discloses encoding links between stored documents using hypertext. For example:

  - *See, e.g.*, "It can also convert SGML documents into other forms such as HyperText Markup Language (HTML) for use on the World Wide Web," at 2.

- **Sacks-Davis 1994:**

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Sacks-Davis 1994 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Sacks-Davis 1994 discloses encoding links between stored documents using hypertext. For example:

- *See, e.g.*, "SGML can be used to support advanced presentation modes such as hypertext," at THOM00198835.
- *See, e.g.*, "Access by SGML attributes is a commonly used method for supporting hypertext links," at THOM00198839.

- **Sacks-Davis 1995:**

Sacks-Davis 1995 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Sacks-Davis 1995 discloses encoding links between stored documents using hypertext. For example:

- *See, e.g.*, "In addition to atomic attributes and structured attributes, Atlas supports reference attributes. A reference is a tuple comprising the global key of a record or nested record. In the hypertext example, bidirectional links between documents and their associated nodes are maintained using reference attributes, so that in table Hypertext, attribute doc has values from the domain of the key of the Document table, namely, attribute doc_id," at 456.
- *See, e.g.*, "Rather than store documents as monolithic objects in a database it is more efficient to represent documents as a set of smaller fragments, which can be connected by links. Links allow users to browse documents by following the original document structure, and to discover knowledge by browsing fragments in the other documents. This is the basic paradigm underlying hypertext systems," at 465.

- **Sciore 1991:**

Sciore 1991 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Sciore 1991 discloses encoding stored documents with "pointers" to other stored documents. For example:

- *See, e.g.*, "Typically, refinement is implemented by including the scheme of T1 in each T2-object, and extension is implemented by storing a pointer to a T1-ojbect in each T2-object," at 357.

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- **Stonebraker 1990:**

  Stonebraker 1990 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Stonebraker 1990 discloses that every record in the POSTGRES database contains a linking means. For example:

  - *See e.g.*, "Because POSTGRES gives each record a unique identifier (OID), it is possible to use the identifier for one record as a data item in a second record. Using optionally definable indexes on OID's it is then possible to navigate from one record to the next by running one query per navigation step," at 126.

- **Taylor 1994:**

  Taylor 1994 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Taylor 1994 discloses links between entities. For example:

  - *See, e.g.*, "We had adopted a schema based upon binary relations (BR) . . . . A binary relationship is a relationship between two entities," at 239.

- **Travis & Waldt:**

  Travis & Waldt discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Travis & Waldt discloses hypertext links to other parts of a document or to other documents. For example:

  - *See, e.g.*, "HTML provides a simple means to place hypertext links in your document. These links can point to locations in your own document, to other documents at your side, or even to documents at other sites around the world," at 56.

  - *See, e.g.*, 241–42 (defining ID, IDREF, IDREFS).

  - *See, e.g.*, "In modern terms these [cross-references] are called hyperlinks . . . . In SGML, we usually use an empty element to indicate a link to some other part of the document. The ID and IDREF declared values for attribute definition lists are used to assure uniqueness (in the case of ID) and valid reference (in the case of IDREF) within the document," at 293–95.

  - *See, e.g.*, "Another example is a cross-reference. Consider the requirement to create a link to an on-line database containing legal citations. The name of the citation must be rendered on the screen in a different color and underlined, which informs the

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user that the item is associated with an external link. Either of the following approaches will work…," at 306.

- **Wilkinson 1998:**

  Wilkinson 1998 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Wilkinson 1998 discloses navigation by links. For example:

  - *See, e.g.*, section 5.8, beginning on page 95 (describing navigation by linking).
  - *See, e.g.*, 98–99 (discussing the issues with versioning of links in a versioned document management system).

- **Wilson 1988:**

  Wilson 1988 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Wilson 1988 discloses encoding links between stored documents using hypertext. For example:

  - *See, e.g.*, "Justus automatically highlights inter-statute references and intra-statute references. When a user selects a reference, the text corresponding with that reference is displayed," at 27.
  - *See, e.g.*, "Terms that are defined within the interpretation section of the statute are also highlighted through the statute; the definition can be displayed on request," at 27.

- **Wilson 1990:**

  Wilson 1990 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Wilson 1990 discloses encoding links between stored documents using hypertext. For example:

  - *See, e.g.*, "In directed graph systems, the text is divided into segments called nodes: in principle any node in the system should be accessible from any other node," at 123.
  - *See, e.g.*, "Each node in a hypertext system has a label or name or, in Guide, a definition button. This label can be used as a link icon or, in Guide, a usage button or a glossary button, any number of times throughout the text. When a link icon or

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button (definition, usage or glossary) appears on the display it is highlighted in some way: in Guide, by using bold type face or by underlining. It can be selected using a pointed device such as a mouse. When this happens the hypertext system finds and displays the text associated with that icon or button," at 123.

- **Wilson 1992:**

  Wilson 1992 discloses "a plurality of linking means of a markup language, each predefined portion of said text-based data and said at least one modified predefined portion of text-based data being encoded with at least one linking means." Specifically, Wilson 1992 discloses both hypertext links or "buttons" that link between versions of legislative material. Wilson 1992 also discloses automatic recognition of citations within text-based data which can then be replaced with hypertext links. For example:

  - *See, e.g.*, "Local buttons are an ideal mechanism for multiple versions. An electronic system makes it easier to store the name of the amending author and the date of the amendment where these are required. Figure 12 shows a section of the Industrial Relations Act 1971 with local buttons for an earlier version. Figure 13 shows the button expanded," at 179-180.

  - *See, e.*g., "Explicit location references in the text to other nodes, either within the same document or in other documents, can be automatically converted to hypertext links," at 170.

- **The Pre-1997 Westlaw/Westmate System**:

  The Westlaw/Westmate system included linking means of a markup language. For example:

  - *See, e.g.*, DataBasics 1993, at doc no. 79858–59 ("United States Code Annotated": Disclosing "Update" and "Docs in Sequence" navigation features).

  - *See, e.g.*, www.westlaw.com, California Statutes Annotated Database from 1996 (CA-STAN96), CA BUS & PROF § 28 (two versions: one active and one as amended).

  - *See, e.g.*, www.westlaw.com, California Statutes Annotated Database from 1996 (CA-STAN96), CA BUS & PROF § 2 (showing linking means within statutory portion).

  - *See, e.g.*, AMPEX § 2.

  - The Essential Guide 1996, at 15: "Jump is the feature on WESTLAW that lets you move instantly from one location to another. To use Jump, simply press **Tab** until your cursor reaches the Jump marker (> or ►), then press **Enter**. If you use a mouse,

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you can position the cursor on the Jump marker and click or double-click."

- *See generally* The Essential Guide 1996, at Chapter "5.4 Jump"
- The Essential Guide 1996, at 136, showing a statutory section, including some of the fields within a statute, as well as a link to a related case.
- The Essential Guide 1996, at 154, showing a link from a law review article to a case.

- **The Pre-1997 Premise System**:

  The Premise system included linking means of a markup language. For example:

  - *See, e.g.*, Premise Software & Statutes: "Browse" the "Document List" in the CA-STAT-AN1 database within the Premise software, including Bus. & Prof. Code §§ 2 & 26, which contain links to other sections and cases.
  - *See, e.g.*, Premise Publisher, at 3 ("By marking your original source documents, you can add embedded references to create links, which allow you to jump directly to other documents, images, PREMISE electronic books, applications or WESTLAW . . . ."); 11 (defining "Hypertext Link" as "A section of text that refers to a related piece of text . . . or an object. The related information is the target of the reference."); 30 (explaining "References and Target Points"); 49 (showing means for linking in PREMISE); 156–61 (describing how to add links to documents).

- **The Astoria System (pre-1997):**

  The Astoria System allowed users to use a markup language and to add links to documents. For example:

  - *See, e.g.*, Astoria 1997-1: "Astoria Link Clusters allow users to link components in hypertext fashion within and between documents. Through Link Clusters, users can identify associations—for instance, topical relationships—between related components without changing the location of the component. This allows Astoria users to organize related information so they can reference and update it more quickly," at THOM00211908.
  - *See, e.g.*, XSoft: "LINKS: Users can connect elements to other elements in hypertext fashion within and between documents using links. The links let workers create non-linear paths of relationship through the database," at THOM00198648-49.
  - *See, e.g.*, XSoft Astoria: "Astoria has complete version control capabilities. . . . The result is a version control module that is consistent with an SGML environment," at THOM00198652.

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- *See, e.g.*, XSoft Premiers Astoria: "Astoria is fully integrated with the XSoft InContext SGML Editor," at THOM00211913. "Astoria is particularly well-suited to working with structured documents based on the Standardized Generalized Markup Language (SGML), making the management of those documents significantly easier and more productive," at THOM00211914. "[I]t builds on the value of SGML with document management capabilities such as version control, revision tracking and component re-use," at THOM00211914.

- *See,e.g.*, XSoft: "Astoria is an object-oriented document production component management system that enable users to easily find, use, share and manage SGML documents and their components, as well as unstructured documents. . . .Because Astoria works directly with SGML elements using an object-oriented database, it can provide unprecedented control over SGML documents as well as unstructured information by allowing fine-grained access and version control," THOM00198647.

- **The EnAct System** (previously known as Themis)**:**

  The EnAct system uses a markup language, including links. For example:

  - *See, e.g.*, Arnold-Moore 1997-2, at 179 (text following the heading: "Cross References"), and in particular: "The *Themis* system uses SGML tags to identify both internal and external cross references (typically identified in the user interface by a shaded background). Each target element has an identifier (unique within that document) in the tag which can then be included in the tag of the source of the reference. . . . These tags—in combination with an SGML display which supports hypertext—allow users to navigate from the text of the reference (See Figure 3) to the fragment which contains the element to which the reference refers (See Figure 5). The identifier from the source tag is used to construct a query which retrieves the appropriate fragment from the database."

  - *See, e.g.*, http://web.archive.org/web/19990430002036/www.thelaw.tas.gov.au/background.html: "advanced searching and browsing capabilities with all cross-references and amendment history information stored as electronic hyperlinks."

- **The Documentum/Interleaf System:**

  The Documentum/Interleaf system allows users to use a markup language and to add links to documents. For example:

  - *See, e.g.*, Consleg 1996, "SGML is used as the representation format for the storage of acts," at 301. Interleaf allows users to utilize the SGML markup language.

  - *See, e.g.*, Ovum Interleaf 1996, "Creation of document objects is done via design templates, which define where document objects are stored and the relationship

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between these objects and other objects," at 254. Interleaf allows links.

- *See, e.g.,* RightSite 1996, at 218–219. RightSite provides the ability to include links in documents.

- **The Core Materials on Legal Ethics System:**

  The Core Materials on Legal Ethics system included linking means of a markup language.

- **The Federal Rules of Civil Procedure System:**

  The Federal Rules of Civil Procedure system included linking means of a markup language.

- **The Law Desk NY System:**

  The Law Desk NY system included linking means of a markup language.

- **The Law Desk USCS System:**

  The Law Desk USCS system included linking means of a markup language.

- **The New Mexico Law System:**

  The New Mexico Law on Legal Ethics system included linking means of a markup language.

- **The NY Official Reports System:**

  The NY Official Reports system included linking means of a markup language.

- **The NY CLS Beta System:**

  The NY CLS Beta system included linking means of a markup language.

- **The OnPoint System:**

  The OnPoint system included linking means of a markup language.

- **The Social Security Plus System:**

  The Social Security Plus system included linking means of a markup language.

- **The UCC System:**

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The UCC system included linking means of a markup language.
(e) a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data: • **Agosti 1991:** Agosti 1991 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Agosti 1991 discloses a lattice network of text-based documents that are managed by an index of attributes about those documents, such as date, title, author, etc. For example: • *See, e.g.*, "EXPLICIT is based on a two-level architecture which holds the two main parts of the informative resource managed by an information retrieval tool: the collection of documents and the indexing term structure. The term structure is managed as a schema of concepts which can be used by the final user as a frame of reference in the query formulation process," at 316. • *See, e.g.*, "The experimental prototype, called HyperLaw, manages a collection of full text legal documents and a vocabulary of indexing terms…," at 317. • *See, e.g.*, "The EXPLICIT hypertext retrieval model is based on a two-level architecture, which holds the two main parts of a database managed by an information retrieval system: the collection of documents, and the auxiliary data. By the term auxiliary data we mean the data describing the document information contents," at 317. • *See, e.g.*, "The collection of document objects is organised at the first level of the architecture as a 'hyperdocument', that is in the form of a lattice structure. Each node of the hyperdocument is an informative item consisting of the document representation, which follows the previously introduced structure, together with the text of the document," at 318. • *See, e.g.*, "a set of structured data which represents the different deterministic properties of the object (e.g., date of publication, title, list of authors, etc.)," at 318. • *See, e.g.*, "Objects of the second level result from the application of the classification abstraction mechanism to the objects of the first level; they denote concepts which are variously interrelated, for example through a classification hierarchy," at 319. • *See, e.g.*, "Being a document generally indexed by more than just one single term, a document object proves to be an instance of various different term classes," at 319. • *See, e.g.*, "Each of the two levels of the system's architecture represents a distinct

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network of nodes and links," at 319.

- *See, e.g.*, "The model supports navigation between the two levels by means of the navigability function. In this way it is at all times possible to pass from the hyperdocument to the hyperconcept and back again," at 320.

- *See, e.g.*, "When the object is inserted in the network it becomes a node of the structure. The data which the object contains are modeled as property values of the object and become, when inserted, actual node attributes. Some node attributes can be, for example, name, node type (e.g. legal authority documents, law documents, auxiliary data items), or the link type," at 320.

- *See, e.g.*, "Such a tool has been specifically designed for a personal computer environment, which is generally distinguished for its handling capabilities with document collections being not too extensive in dimensions but often of a non-homogeneous nature," at 321.

- *See, e.g.*, "It is possible to shift directly from any point of the hypertext network to other hyperdocuments by making use of the links existing between them," at 322.

- **Anwar 1996:**

  Anwar 1996 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing" information. For example:

  - *See, e.g.*, "The present invention also provides a user interface and data management system that allow a user to more efficiently visualize, display, manipulate, and analyze multidimensional data," at Summary of the Invention.

  - *See, e.g.*, "The inventor has found that a new multi-dimensional display and manipulation system can be implemented on a computer or in a computer memory that allow a user to display, manipulate and analyze large data structures that have many different levels and types of data," at Detailed Description of the Invention.

- **Arnold-Moore 1994:**

  Arnold-Moore 1994 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Arnold Moore 1994 discloses the attribute of effective data, as well as other keys relating to the content of the text based data. Arnold Moore 1994 explicitly discloses that these attributes can be used as part of a "multi-dimensional access structure[]." For example:

  - *See, e.g.*, "Alternatively multi-dimensional access structures can be used to index

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simultaneously on time and other keys (in this case content)," at *xvi*.

- *See, e.g.*, "Content and structural indexing can be done on each version," at *xvi*.

- **Arnold-Moore 1994-2:**

Arnold-Moore 1994-2 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Arnold-Moore 1994-2 discloses encoding stored legislative material with attributes and then using attributes to access the stored documents. For example:

- *See, e.g.*, "The language, Structured Generalized Query Language (SGQL), allows efficient access to the content, structure and attributes of documents at any level within their structure," at THOM00196608.

- *See, e.g.*, "Queries might specify that certain attributes have particular values, but have concentrated on matching against the content of the document," at THOM00196608.

- *See, e.g.*, "These databases will need to be searched by attribute," at THOM00196608.

- *See, e.g.*, "SGML describes a tagging scheme and a metagrammar for describing the structure of documents," at THOM00196609.

- *See, e.g.*, "One can associate typed information with particular SGML elements by using attributes which appear in the text within the begin tag," at THOM00196609.

- *See, e.g.*, "Thus, we may have associated with each document, or element of a document, a set of attributes that we shall call features, to distinguish them from the attributes defined by the grammar that describes the SGML document class," at THOM00196609.

- *See, e.g.*, "In order to construct a conceptual model of the database system we consider the database to be a list of ELF's (ELements with Features) where an ELF is: a complete SGML element … a list of features associated with that element," at THOM00196611.

- **Arnold-Moore 1995:**

Arnold-Moore 1995 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Arnold-Moore 1995 discloses storing multiple attributes such as source of the

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amendment and effective date. For example:

- *See, e.g.*, "The representation must capture particular features of each amendment including "the (Source) element which makes the amendment…the Time at which the amendment is to commence," at 299.

- *See, e.g.*, "Since most authorized versions of Acts have the date of commencement as a footnote to the title page, it seems reasonable to expect this date to appear in the SGML encoding of the amending Act," at 301.

- **Arnold-Moore 1997:**

Arnold-Moore 1997 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Arnold-Moore 1997 discloses encoding stored legislative material with attributes and then using attributes to manage the stored documents. For example:

- *See, e.g.*, "Particular instances of the document are marked with tags which show the structure. Each tag can have attributes attached," at 58.

- *See, e.g.*, "The section element contains the headnote, and text elements and two attributes, secno which is the number of the section, and id which is a unique identifier within that document for that section which encodes much of the context information about that element," at 58.

- **Arnold-Moore 1997-2:**

Arnold-Moore 1997-2 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Arnold-Moore 1997-2 discloses encoding stored legislation with attributes such as effective dates. Arnold-Moore 1997-2 also discloses various schemes for storing and interconnecting the stored legislation. For example:

- *See, e.g.*, "Logical structure is identified by tags which appear interspersed with the text in an SGML document," at 177.

- *See, e.g.*, "Each fragment or table of contents has a valid start and end time associated with it. We then use an inverted-file index to give access to the fragments by content. As described for whole documents, we then filter results using the time information to collect just the fragments which are valid at the specified time defaulting to the current date (See Figure 1)," at 179.

- *See, e.g.*, "Schemes which rely only on the structure of the document and do not make use of the attributes of the SGML elements produce references that must be

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changed when the structure of the target document changes," at 181.

- *See, e.g.*, "The Themis system uses SGML tags to identify both internal and external cross-references (typically identified in the user interface by a shaded background). Each target element has an identifier (unique within that document) in the tag which can then be included in the tag of the source of the reference," at 181.

- *See, e.g.*, 180 (Figure 4).

- **Bachman 1973:**

Bachman 1973 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Bachman 1973 discloses encoding stored text-based data with attributes to create an n-dimensional space. For example:

- *See, e.g.*, "Start with the value of the primary data key, of the record of interest, and pass each record in the file through core memory until the desired record, or one with a higher key, is found. (A primary data key is a field within a record which makes that a record unique within the file.) Social security numbers, purchase order numbers, insurance policy numbers, bank account numbers are all primary data keys. Almost without exception, they are synthetic attributes specifically designed and created for the purpose of uniqueness. Natural attributes, e.g. names of people and places, dates, time, and quantities, are not assuredly unique and thus cannot be used," at 654.

- *See, e.g.*, "From this point, I want to begin the programmer's training as a full fledged navigator in an *n*-dimensional data space," at 654.

- *See, e.g.*, "In addition to a record's primary key, it is frequently desirable to be ale to retrieve records on the basis of the value of some other fields. For example, it may be desirable, in planning ten-year awards, to select all the employee records with the 'year-of-hire' field value equal to 1964. Such access is retrieval by secondary data key. The actual number of records to be retrieved by a secondary key is unpredictable and may vary from zero to possibly include the entire file. By contract, a primary data key will retrieve a maximum of one record," at 654.

- *See, e.g.*, "With the advent of retrieval on secondary data keys, the previously one-dimensional data space received additional dimensions equal to the number of fields in the record," at 655.

- *See, e.g.*, "My proposition today is that it is time for the application programmer to abandon the memory-centered view, and to accept the challenge and opportunity of navigation with an n-dimensional data space. The software systems needed to support such capabilities exist today and are becoming increasingly available," at

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657-58.

- **Bentley 1979:**

  Bentley 1979 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Bentley 1979 discloses encoding multiple attributes into the stored data to create a k-dimensional space. For example:

  - *See, e.g.*, "This subject area, which is often called 'multikey searching,' 'multidimensional searching,' or 'multiple attribute retrieval,' has been the focus of a great deal of research in the past few years," at 397.

  - *See, e.g.*, "In database terminology a file is a collection of records, each containing several attributes or keys," at 397.

  - *See, e.g.*, "This problem can also be cast in geometric terms by regarding the record attributes as coordinates and the k values for each record as representing a point in a k-dimensional coordinate space. The file of records them becomes a point set in k-space," at 397.

- **Campbell 1988:**

  Campbell 1988 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Campbell 1988 discloses encoding stored data with multiple attributes that are then used to manage the data. For example:

  - *See, e.g.*, "The HAM storage model is based on five objects: graphs, contexts, nodes, links, and attributes. The HAM maintains history for these objects, allows selective access through a filtering mechanism, and can allow for access restrictions through a data security mechanism," at 856.

  - *See, e.g.*, "Attributes can be attached to the contexts, nodes, or links. Attribute values can be strings, integers, floating-point numbers, or user-defined types. Attribute/value pairs give semantics to HAM objects. They can represent application-specific properties of objects or contain information that further describes an object. Attributes are also used in the predicates that are part of the HAM filters," at 857.

  - *See, e.g.*, "The HAM provides a filtering mechanism that allows subsets of HAM objects to be extracted from large graphs. Filters allow the user to specify visibility predicates, which are expressions relating attributes and their values. HAM filters only return objects that satisfy the predicates. Filters also allow the user to specify a

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version time so that earlier versions of a graph can be examined," at 857.

- **Elmasri 1990:**

  Elmasri discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing" information. Specifically, Elmasri discloses attributes representing effective time intervals. For example:

  - *See, e.g.*, "Although the interval-based search problem is similar in many respects to the k-dimensional spatial search problem, the various methods proposed for the k-dimensional special search . . . are not suitable for the time dimension," at Background of the Invention.

  - *See, e.g.*, "In addition to the regular record attributes, A_i, each record will have an interval attribute, valid_time, consisting of two subattributes, t_s (valid start time), and t_e (valid end time)," at Summary of the Invention.

- **Fay 1996:**

  Fay 1996 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing" information. Specifically, Fay 1996 discloses that there are attributes associated with the text-based information. For example:

  - *See, e.g.*, "[T]he imported document instance would contain document, chapter, section, etc., objects having their own attributes and connected according to the structure implied by the descriptive markup," at 3:35–40.

- **Haake 1992:**

  Haake 1992 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Haake 1992 discloses many attributes that organize the portions and amended portions of information. For example,

  - *See, e.g.*, "SEPIA's basic hypertext objects are typed atomic nodes, typed composite nodes, and typed labeled links. Composite nodes contain an ordered set of references to other hypertext objects while atomic nodes contain data like text, graphics etc. All hypertext objects are equipped with attributes holding information like names of nodes or labels of links," at 43.

  - *See, e.g.*, "CHS offers nodes, links, and composites that can be equipped with application-defined attributes. Objects can be accessed by their attribute values using the query language of the underlying database system of CHS," at 46.

  - *See, e.g.*, "CHS maintains object histories. It stores the creation time and the author

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of each node, link, composite, and attribute and records each update to these objects with time and author information in an update history," at 46.

- *See, e.g.,* "Next to an internal mob [multi-versioned object] identifier and the version set, CoVer maintains for a mod optional application-defined and application-supplied state-independent attributes (e.g. an elaborated description, project management information such as the name of a responsible person). The attributes carried by the versions represent the state-dependent characteristics of a specific version of a versioned object," at 46.

- **Hansen 1993:**

Hansen 1993 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing" information. For example:

- *See, e.g.,* The patent discloses "a method for information representation and retrieval within a general-purpose digital computer. Information of all simple types is represented as points along dimensions, and compound information types are represented as the intersection of two or more dimensions in a multidimensional data space," at Abstract.

- *See, e.g.,* "In the method of the present invention, all information entities are treated as points along multidimensional lines," at Brief Description of the Invention.

- **Horne 1997:**

Horne 1997 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Horne 1997 discloses using SGML to encode multiple attributes such as date, effective date, and act name into the stored statutes. For example:

- *See, e.g.,* "SGML markup consists of tags in angle brackets," at 2.

- *See, e.g.,* "But markup could go further. It could give the dates on which the amendments were made, the dates on which they took effect, and the names of the Acts or SI which had made them, and the user's program could use this markup to display a statute as it was on a particular date chosen by the user and could offer hypertext cross-references to the amending legislation," at 3.

- **Kim 1996:**

Kim 1996 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Kim 1996 discloses encoding stored multimedia with attributes and then using attributes to access

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the stored documents. For example:

- *See, e.g.*, "Second, since we apply an object-oriented paradigm to modeling hypermedia data and links, we can inherit the properties and methods of the object-oriented model," at 496.
- *See, e.g.*, "Secondly, we apply an object-oriented approach to modeling hypermedia data as objects," at 496.
- *See, e.g.*, "SGML provides a syntax flexible enough to describe the logical structure of documents," at 497.
- *See, e.g.*, "From now on, we will call our markup language HOML (Hypermedia Object Modeling Language). HOML is an SGML application and provides facilities for describing the relations between multimedia data and provides methods for describing hypermedia links and synchronization," at 497.
- *See, e.g.*, "The text element has attribute values for security, version, and duration," at 497.

- **Kimball 1996:**

Kimball 1996 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing" information. For example:

- *See, e.g.*, "Fundamentally, this is a book about dimensional modeling and how to build a dimensional data warehouse and keep it running. Dimensional modeling is a new name for an old technique for making databases simple and understandable. When a database can be visualized as a 'cube' of three, four, or even five or more dimensions, people can imagine slicing and dicing that cube along each of its dimensions," at *xx*.
- *See, e.g.*, text following the heading "The Time Dimension," at 7–8.
- *See, e.g.*, text following the heading "The Dimensional Model," at 10–11.
- *See, e.g.*, text following the heading "The Dimensional Tables," at 13–14.
- *See, e.g.*, text following the heading "Attributes Are the Drivers of the Data Warehouse," at 17–18.

- **Larson 1988:**

Larson 1988 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Larson

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1988 discloses a multidimensional space with attributes, nodes and links. For example:

- *See, e.g.*, "The basic conceptual model of hypertext is a multidimensional graph (or network) whose vertices (nodes) are information sources and whose edges (or links) represent both directed associative indices to those sources, and operational programs to display or utilize the information they contain. . . . The concept of an 'information space' that supports a hypertext network is useful. The world's store of recorded human knowledge may be viewed as a N-dimensional 'information space,' where N is the number of possible attributes that may be used to make up any information source," at 195.

- *See, e.g.*, "Obviously, not all points in this information space will be occupied. Various dimensions of similarity may be considered to provide a useful clustering of information items within this space. The clustering may be based on any number of entity/attribute relationships, such as storage location (e.g., a library collection), form, topical, historic, author, citations, language, or literary style," at 196.

- *See, e.g.*, "Neptune also permits any number of descriptive attribute/value pairs to be assigned to any node or link, which may be searched," at 196.

- *See, e.g.*, "The indexes supported in Telesophy include a keyword index (providing Boolean and proximity searching), a 'temporal index' that permits selection by the time an IU was created, and a 'spatial index' that 'places items in an N-dimensional space based on their attributes, then allows the space to be searched," at 197.

- **Liddy 1996:**

  Liddy 1996 discloses, teaches or renders obvious this claim for the reasons stated by the Patent Examiner in the Office Action of March 24, 2000 (incorporated herein by reference) and others.

- **Lo 1995:**

  Lo 1995 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Lo 1995 discloses encoding stored text-based documents with attributes using SGML. For example:

  - *See, e.g.*, "SGML (Standard Generalised Markup Language) was adopted by ISO as an international standard to describe the structure of electronic documents. The reason for using SGML is its international acceptance as an electronic document markup standard. Furthermore, while the description of a document's structure is primarily applied in publication, database technology could also make use of this structural knowledge to enhance its management of documents," at 339.

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- *See, e.g.*, "SGML tags are placed in text to denote its structure and such practice is known as descriptive markup. A component in the text such as a title or a paragraph can be explicitly defined by marking them with these tags," at 339.

- *See, e.g.*, "Each destination is given an identifier unique to the version…Globally unique identifications are then derived by combining the document identifier (DocId) and the version number (VerNo) with the destination identifier (DestID)," at 340.

- *See, e.g.*, "Attributes can be associated to this global link table as well to describe the characteristics of the link objects," at 343.

- *See, e.g.*, "While the Direct Reference Method can also achieve this by incorporating the attributes in the document (may utilize SGML attributes)," at 344.

- **Lo 1996:**

  Lo 1996 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Lo 1996 discloses multi-dimensional attributes associated with text-based information. For example:

  - *See, e.g.*, "Nodes of this document tree are associated with the information of valid time by two attributes: the start valid time and the end valid time," at 31.

  - *See, e.g.*, "*Attributes* can be embedded into the elements to describe some of their aspects, for example, the element chapter may contain the attribute "id" which gives the identifying number of that element," at 38.

  - *See, e.g.*, section 2.3.3, starting on page 41, entitled "SGML Support for Versioning," including figure 2.5.

  - *See, e.g.*, "More precisely, HyTime addresses three aspects: . . . Representing any quantifiable dimension (typically spatial and temporal dimensions) as a coordinate space and placing objects within it," at 48.

  - *See, e.g.*, "Such a facility will allow a user to traverse to any version that contains the destination that he wants," at 61.

  - *See, e.g*, "Documents are stored as records in SIM databases . . . . As a result of applying the fragmentation model in the prototype system . . ., two databases are defined: the *basedoc* database and the *fragdoc* database. The former is for storing bases, and the latter for fragments. The schema of the basedoc database defines six attributes for a record. The *body* attribute contains a whole piece of text marked-up in SGML. This piece of text is recognized to be a specific version of a specific document by the values of the *version number (VerNo)* and the *document identified*

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(DocId) attributes," at 112.

- **Osterbye 1992:**

  Osterbye 1992 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Osterbye 1992 discloses encoding stored text-based documents with attributes such as author, date, and state. For example:

  - *See, e.g.*, "If an element is versioned, a specific version represents a state in the development. Will it then be possible to annotate it, or to add new attributes?" at 33.
  - *See, e.g.*, "The top of the hierarchy is an entity which allows attributes to be attached to all entities," at 34.
  - *See, e.g.*, "Selection from version groups is based on the attribute values of the modules in the version group. Such attributes can typically contain information about authors, creation date, and release state (tested, experimental, etc.)," at 34.
  - *See, e.g.*, "Adding new attributes to a node might also be attractive," at 35.
  - *See, e.g.*, "For both models methods for controlling change and addition of attributes must be found," at 35.
  - *See, e.g.*, "The general entity provides attributes, which are key-value pairs attached to the objects. All information is stored as attributes," at 38.

- **Peltonen 1993:**

  Peltonen 1993 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Peltonen 1993 discloses electronic text-based data associated with attributes. For example:

  - *See, e.g.*, "Documents and various attributes are stored in a centralized database. ," at 2.
  - *See, e.g.*, "The goal of the EDMS project was to develop a system which stores the actual documents contents in addition to attribute data," at 2.
  - *See, e.g.*, "All data, i.e., the actual document contents and various attributes, are stored in a commercial relational database," at 3.
  - *See, e.g.*, "Various data about objects are stored as *attributes*. All objects of the same object kind (e.g., all document versions) have the same *system attributes*.

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These attributes are defined by EDMS and their values can only be modified by the system. The EDMS administrator can define both *common* and *type-specific* attributes. A common attribute is defined for an object kind; for example, all documents can have a particular attribute. A type-specific attribute is defined for an object type; for example, all versions of documents of the type *drawing* can have a particular attribute," at 9.

- **Promenschenkel 1995:**

Promenschenkel 1995 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Promenschenkel 1995 discloses using SGML to insert attributes into the stored documents. For example:

- *See, e.g.*, "SGML allows documents to move from one environment to another by separating the formatting information from the content and structure of the document," at 3.

- **Sacks-Davis 1994:**

Sacks-Davis 1994 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Sacks-Davis 1994 discloses encoding stored documents with multiple attributes. For example:

- *See, e.g.*, "Typed information can be associated with particular SGML elements by using attributes that appear in the text with the begin tag," at THOM00198836.

- *See, e.g.*, "A list of attributes can be associated with each element type, and these attributes contain typed data associated with each element instance," at THOM00198839.

- *See, e.g.*, "While strictly part of the SGML text, data stored as SGML attributes is representative of the data that is typically stored in traditional databases," at THOM198840.

- **Sacks-Davis 1995:**

Sacks-Davis 1995 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Sacks-Davis 1995 discloses encoding stored documents with multiple attributes. For example:

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- *See, e.g.*, "Text created in a word processor generally contains embedded markup that describes the structure of the text and how it should be presented," at 455.

- *See, e.g.*, "The attributes of records can be atomic values, tuples (structured values), nested tables, or references (pointers)," at 455.

- *See, e.g.*, "The Document table contains entries consisting of a document identifier, a title, a nested table of authors, and a nested table of references to hypertext nodes contained in that document," at 455.

- *See, e.g.*, "Information about author names is stored as a structured attribute, name, which is a tuple consisting of two components: surname and firstname," at 455.

- *See, e.g.*, "In addition to atomic attributes and structured attributes, Atlas supports reference attributes. A reference is a tuple comprising the global key of a record or nested record. In the hypertext example, bidirectional links between documents and their associated nodes are maintained using reference attributes, so that in table Hypertext, attribute doc has values from the domain of the key of the Document table, namely, attribute doc_id," at 456.

- *See, e.g.*, "As in a conventional database, each record contains attribute data such as name, age place of birth, and gender," at 465.

- **Sciore 1991:**

  Sciore 1991 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Sciore 1991 discloses encoding stored documents with multiple attributes which are expressly described as organizing the stored documents into a multidimensional space. For example:

  - *See, e.g.*, "We develop a version specification language at the conceptual level, and a multidimensional specification language at the logical level," at 355.

  - *See, e.g.*, "At the conceptual level, we show how versions can be chosen from a version set based on the values of their attributes," at 356-57.

  - *See, e.g.*, "At the logical level, we show how the logical semantics of versioning can be encoded explicitly in a dimension type. Arbitrary combinations of dimension types can be associated with a set of versions, according to the desired semantics of an application. Because each dimension types is independent of the others, each combination determines a multi-dimensional space of versions," at 357.

  - *See, e.g.*, "The versions of a design object all have the same scheme, so they differ only in the values for their attributes. These different attributes reflect the different

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design choices that caused the version to be created," at 358.

- *See, e.g.*, "In this section we show how this semantics can be specified as a set of orthogonal dimensions, with each version being a point in the k-dimensional space defined by these dimensions," at 363.

- *See, e.g.*, "The attribute occuredAT records the time at which the change took place. This attribute can be thought of as defining a one-dimensional time line, and allows the version set to be viewed as a function from times to versions," at 364.

- *See, e.g.*, "In particular: there can be an arbitrary number of dimensions, not just two; dimensions can be defined by any attribute, not just the ones corresponding to time; dimensions are not hard-coded into the system. New dimensions can be declared by an application, and different combinations of dimensions can be declared for each generic type," at 365.

- *See, e.g.*, "In general, the attributes chosen as dimensions should form a key of the version set, so that at most one version is associated with any coordinate in the version space," at 366.

- *See, e.g.*, "Our framework provides the means by which a database designer can specify a multi-dimensional logical structure to the version set. This logical structure can then be used to choose versions easily and conveniently," at 367.

- **Sciore 1994:**

  Sciore 1994 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Sciore 1994 discloses, for the bicycle example, attributes style, number of speeds, frame, and design date. Sciore 1994 explicitly discloses that these attributes can be used as part of a "multi-dimensional space" and that defining attribute values will specify a particular version in that multi-dimensional space. For example:

  - *See, e.g.*, pages 81, 94–103.

  - *See, e.g.*, "An *object* is defined to be an instance of a given *type*. A type defines a set of *attributes* for each of its instances, and a set of *operations* on these instances. The set of attributes and operations is called the *scheme* of the type. Each attribute of an object may contain either a *value* or a *reference* to another object," at 80.

  - *See, e.g.*, "This attribute can be thought of as defining a one-dimensional time line, and allows the version set to be viewed as a function from times to versions," at 95–96.

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- *See, e.g.*, "In section 5 we examine the semantics of versioning in some common applications, and show in each case how the version set of any object can be viewed as a multidimensional space," at 79.

- *See, e.g.*, "Logical and physical times are orthogonal concepts, and define a two-dimensional version space," at 96.

- *See, e.g.*, "The previous section showed that the semantics of both CAD and historical databases imposes a multidimensional structure on version sets," at 96.

- *See, e.g.*, "Note that under this new definition, instances of *Bicycle* have exactly the same attributes as before . . . . The difference is that three of the attributes have been designated as defining a three-dimensional version space," at 97.

- *See, e.g.*, "The choice of dimensions in Figure 7 was totally arbitrary on our part. We could just as easily have declared Bicycle to have fewer (or more) dimensions," at 98.

- *See, e.g.*, "In particular, a desired version of an object can be specified by giving its coordinates in the multidimensional space defined by its type," at 98.

- *See, e.g.*, "We also considered the semantics of versioning applications, and saw that version sets often form a multidimensional space," at 103.

- **Stonebraker 1990:**

  Stonebraker 1990 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Stonebraker 1990 discloses a multi-dimensional database where the attributes are points on axes of a multidimensional space. For example:

  - *See, e.g.*, Introduction, page 125 (saying that POSTGRES is a "three-dimensional solution" to "real-world data management problems").

  - *See, e.g.*, section II.B, beginning on page 126 (discussing attribute types and inheritance)

  - *See, e.g.*, "It is also possible to interact with at POSTGRES database by utilizing a navigational interface. . . . Because POSTGRES gives each record a unique identifier (OID), it is possible to use the identifier for one record as a data item in a second record. Using optionally definable indexes on OID's it is then possible to navigate from one record to the next by running one query per navigation step," at 126.

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- **Stonebraker 1994:**

  Stonebraker 1994 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Stonebraker 1994 discloses a multidimensional space stored in a POSTGRES database. Stonebraker 1994 further discloses navigation along the dimensional axes. For example:

  - *See, e.g.*, "Although Tioga uses POSTGRES, our proposal can readily be adapted to any system that supports an extendible type system, user defined functions, and a multi-dimensional access method," at 2.

  - *See, e.g.*, "Although it is possible to support an interface b/w the browser and the DBMS which allows browsing of an arbitrary collection of DBMS types, we chose a different approach. Each object may be of an arbitrary type, but it must have associated with it a **geometry**. The geometry of an object describes its location in an **application coordinate space**. All objects in an application are located in this common N-dimensional coordinate system, whose dimensions are appropriate to the specific application. The geometry of an object may be either a polygon [footnote text: "In this document, 'polygon' refers to a general N-dimensional polyhedron, not merely a two-dimensional polygon."] or a point. It is the job of the human recipe designer to ensure that the recipe produces the geometry representation (polygon or point) expected by some browser. Failure to provide this will result in a type mismatch. To achieve a common polygon representation, we have defined a standard N-dimensional polygon, **N-D-polygon**. The generic tuple passed from the browser from a recipe will have the form: {value, type, location}. The value can be an instance of a base type or a composite type, and its location is represented by the N-D-polygon as indicated. For example, the value might be a satellite image; its type might be AVHRR, and the location associated with it might be a rectangle representing one of the quadrants of a U.S. Geological Survey map," at 4.

  - *See, e.g.*, "The browser has three ways to relocate its position in N-space: it can move to a previously designated identifier, it can move to a specific N-D-point which it calculates in some fashion, or it can move in some direction, denoted by $(\Delta_1, \ldots, \Delta_N)$ until some condition F(value) <operator> <constant> is true. This third relocation command is useful, for example, if a user is browsing Hurricane Hugo, and wishes to **fast-forward** the hurricane, i.e. skip or skim through images sorted by time, until Hugo hits land. If landfall of the hurricane can be expressed as a predicate, then the appropriate MOVE command would look like MOVE along (0,0,…,+1) until hits_land(Hurricane.hugo) = TRUE. The +1 means a movement along the positive time axis, assuming time is the last dimension in this coordinate system. Note that recipes may be fast-forwarded in this fashion in any dimension," at 5.

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- **Taylor 1994:**

  Taylor 1994 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Taylor 1994 discloses attributes and multiple dimensions. For example:

  - *See, e.g.*, "SHIC provides for multiple classifications of an item which is crucial for classifying media items such as photographs where one scene could be classified in several different ways," at 240.

  - *See, e.g.*, "The temporal classification schema . . . stores information relating artefacts to some existence in time. The schema consists of year time point identifiers that constitute the relevant temporal span," at 240.

  - *See* figure 1.

  - *See, e.g.*, "The combination of the conceptual, temporal and geographical classification spaces and their respective operators means that information requests do not need to be limited to one particular dimension. They can be multi-dimensional. An example of such a query would be: Show me Costume from Pontypridd during the Victorian era. The temporal dimension provides a method by which a temporal walk through a concept can be obtained. A temporal walk consists of showing the development of an historical concept or geographic area over time. In practical terms this requires the ordering of a set of media items according to the information stored in the temporal schema," at 242.

- **Travis & Waldt:**

  Travis & Waldt discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Travis & Waldt discloses storing multiple attributes that provide additional information about the text-based data being stored. For example:

  - *See, e.g.*, "The loader also makes available to the database parameterized information that can be used later to search and retrieve the appropriate objects. Such parameter information is object identifiers, author names, creation and modification dates, and perhaps some keywords. Most of this information can be obtained by querying the attributes on the element tags in the content of the document object," at 204.

  - *See, e.g.*, "In addition to the name of an element, the start-tag can contain information about the element. This additional information is called an 'attribute'. Attributes can be used to indicate additional information for processing. For example, although the creation date and author may never be

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printed in any form from this document, this information might be needed in order to load a database or decide which elements are to be included in a particular rendering," at 221

- *See, e.g.*, "Attributes are used to convey extra information about an element," at 239.

- *See, e.g.*, "Our general rule is that an element contains information that is to be published or appear in the rendered output forms, which attributes are used to further describe that information (information about information)," at 239.

- *See, e.g.*, pages 304–07.

- **Wilkinson 1998:**

Wilkinson 1998 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Wilkinson 1998 discloses versioning documents in a multidimensional space. For example:

- *See, e.g.*, "The simplest form of navigation is direct access, which, roughly speaking, is the kind of access provided by traditional paper filing mechanisms. In such accesses, the document is known to exist and to have a particular, unique identifier, and that identifier is used to fetch the document. Building relationships between documents allows more powerful forms of navigation. Several important relationships that can be exploited by navigation are: A document's location in an information space. A document's relationship to an information space. A document's membership of a set of related documents." at 95.

- *See, e.g.*, "Another method for supporting access to individual versions is to use a multi-dimensional index structure. With version information (or time) as one dimension and the content as another, search access to all versions can be provided at the cost of a small penalty for all queries . . . . An alternative requiring no penalty for searching all versions is to index each as a separate document using standard indexing mechanisms and to create a separate index for the version metadata (or time)," at 98.

- *See, e.g.*, "Most metadata is organized as a set of (attribute, value) pairs. Thus we need a structure that can support queries of the form 'which documents have value A for attribute B?'" at 100.

- **Wilson 1990:**

Wilson 1990 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at

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least one modified predefined portion of said text-based data." Specifically, Wilson 1990 discloses storing an index of catchwords associated with each stored document that can be used to manage the stored documents. For example:

- *See, e.g.*, "it is easy to provide a structured index composed of the terms appearing in the catchword section," at 125.
- *See, e.g.*, "When the user enters the Justus running under Guide he is given a choice of three methods of access…index of pre-defined terms," at 125.

- **Wilson 1992:**

Wilson 1992 discloses "a plurality of attributes, each attribute being a point on an axis of a multidimensional space for organizing said plurality of predefined portions and said at least one modified predefined portion of said text-based data." Specifically, Wilson 1992 discloses that attributes such as name of the amending author and date of the amendment can be stored. Wilson 1992 discloses that these attributes can be used as part of a multidimensional space in that these attributes describe nodes which are linked together into a network "where, in principle, any node in the system can b accessed from any other node." For example:

- *See, e.g.*, "The defining characteristic of hypertext is not its ability to accommodate hierarchical structures, but its capacity to support directed graphs; that is, networks were, in principle, any node in the system can be accessed from any other node," at 170.
- *See, e.g.*, "Explicit location references in the text to other nodes, either within the same document or in other documents, can be automatically converted to hypertext links. The effect of this conversion is to integrate many disparate documents into a seamless textual universe," at 170.
- *See, e.g.*, "An electronic system makes it easier to store the name of the amending author and the date of the amendment where these are required," at 180.
- *See, e.g.*, "Figure 14 shows the lowest level of catchword index: Fig. 15 shows four expanded entries for the headword criminal law. The full text of any of these law reports can be obtained by selecting the appropriate numerical button," at 181.

- **The Pre-1997 Westlaw/Westmate System**:

The Westlaw/Westmate system contained attributes associated with portions and amended portions. For example:

- *See, e.g.*, DataBasics 1993, at doc no. 79858–59 ("United States Code Annotated"): Disclosing multiple attributes.

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- *See, e.g.*, Westlaw DB 1991, at 14–15 (disclosing the TNDX file containing attributes associated with statutory sections).

- *See, e.g.*, Wren 1994, at 75 ("the CALR vendors have divided documents in their databases into units corresponding to elements that recur in cases and other legal authorities. These units are called "fields" in WESTLAW . . . . The term "field," though, is broadly used in computer terminology to refer to divisions within documents in any database . . . .").

- The Essential Guide 1996, at 47: "You can use restrictions to limit your WIN search. For example, in a case law database, you can restrict your search by court, date, judge, attorney or added date."

- The Essential Guide 1996, at 136, showing a statutory section, including some of the fields within a statute, as well as a link to a related case.

- **The Pre-1997 Premise System**:

  The Premise system contained attributes associated with portions and amended portions. For example:

  - *See, e.g.*, Premise Software & Statutes: Select "Search/Search Book…" and then change the "Search Using" field to "Fields Template," which will then list several of the attributes of the portions and amended portions.

  - *See, e.g.*, Premise Publisher, at 11 (defining "Detail" to be "A set of descriptive information fields about a single object in PREMISE Publisher, e.g., document . . . .); 151–154 (showing how to add, change, and delete attributes associated with documents); 181–89 (showing how to add attributes to a Premise database).

- **The Astoria System (pre-1997):**

  The Astoria System contained attributes associated with portions and amended portions and the use of attributes to organize and access the stored documents. For example:

  - *See, e.g.*, Astoria 1997-1: "Astoria provides a mechanism for associating arbitrary, user-definable attributes with Astoria objects. Custom Attributes provide a means for Astoria users to store relevant information directly with any object, providing a robust foundation for object status tracking, and the search and assembly of individual document components." "Astoria users specify a value for the custom attribute and then can search, retrieve, and assemble new documents based on custom attribute values," at THOM00211911.

- **The EnAct System** (previously known as Themis)**:**

  The EnAct system has many attributes that organize the portions and amended portions

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of legislation. For example:

- *See, e.g.*, TSS 1994-2, at SAIC002754, and explanatory material at SAIC002753–2781 (showing the attributes within the EnAct databases).
- *See, e.g.*, Arnold-Moore 1997-2, at 178, figure 1 (showing ability to search the information with various attributes).

- **The SCALEplus System:**

  The SCALEplus system has many attributes that organize the portions and amended portions of legislation. For example:

  - *See, e.g.*, Kerr 2000, at figures accompanying paragraphs 180 (page 6-4), 187 (page 6-6), 429 (page 11-3), 491 (page 11-19).

- **The Documentum/Interleaf System:**

  The Documentum/Interleaf system has many attributes that organize the portions and amended portions of text-based information. For example:

  - *See, e.g.*, Ovum Interleaf 1996, at 254–55 (and figure H2.3) ("RDM has several mandatory attribute types.").
  - *See, e.g.*, Ovum Documentum 1996, at 208–09 ("Documentum offers good scope for organizing documents via the attributes which come built-in with the system.").

- **The Core Materials on Legal Ethics System:**

  The Core Materials on Legal Ethics system contained attributes associated with portions.

- **The Federal Rules of Civil Procedure System:**

  The Federal Rules of Civil Procedure system contained attributes associated with portions.

- **The Law Desk NY System:**

  The Law Desk NY system contained attributes associated with portions.

- **The Law Desk USCS System:**

  The Law Desk USCS system contained attributes associated with portions.

- **The New Mexico Law System:**

  The New Mexico Law on Legal Ethics system contained attributes associated with

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portions. • **The NY Official Reports System:** The NY Official Reports system contained attributes associated with portions. • **The NY CLS Beta System:** The NY CLS Beta system contained attributes associated with portions. • **The OnPoint System:** The OnPoint system contained attributes associated with portions. • **The Social Security Plus System:** The Social Security Plus system contained attributes associated with portions. • **The UCC System:** The UCC system contained attributes associated with portions.
Claim 2: In addition to the prior art listed above in conjunction with Claim 1, and Subject to the Court's claim construction, and given Defendants' understanding of Plaintiff's incomplete contentions regarding the construction and application of the claims, the following references disclose, teach or render obvious Claim 2:
comprising means for searching within the system. • **Agosti 1991:** Agosti 1991 discloses "means for searching within the system." Specifically, Agosti 1991 discloses string search function on the stored text-based data. For example: • *See, e.g.*, "[A] simple searching technique for detection of text strings located within the full text information items has been introduced," at 318. • *See, e.g.*, "[I]t has been decided to include in the model only a simple string search function," at 318. • **Arnold-Moore 1994:** Arnold-Moore 1994 discloses "means for searching within the system." Specifically, Arnold-Moore 1994 discloses that various methods for querying Computer Aided Legal Research systems were already known and widely implemented as of 1994. For example: • *See, e.g.*, "Traditional CALR tools . . . allow[] the user to formulate a query to get

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sources and then to modify the query (either by explicitly changing it or by providing feedback about the relevance of the examined sources) to retrieve the further sources," at *viii*.

- *See, e.g.*, "Such systems provide powerful searching and browsing facilities simultaneously. Research systems of this type exist in the legal domain but commercial systems have not yet achieved significant market penetration," at *viii*.

- *See generally* page *ix - x*.

- **Arnold-Moore 1994-2:**

Arnold-Moore 1994-2 discloses "means for searching within the system." Specifically, Arnold-Moore 1994-2 discloses searching either by keyword, by attribute, or by a combination. For example:

- *See, e.g.*, "The language, Structured Generalized Query Language (SGQL), allows efficient access to the content, structure and attributes of documents at any level within their structure," at THOM00196608.

- *See, e.g.*, "Queries might specify that certain attributes have particular values, but have concentrated on matching against the content of the document," at THOM00196608.

- *See, e.g.*, "These databases will need to be searched by attribute," at THOM00196608.

- *See, e.g.*, "We thus see that a database system to support databases of large structured documents need a query language that allows retrieval: by exact matching Boolean combinations of words and phrases; by ranking by similarity to a given text; using hypertext links; by attribute," at THOM00106609.

- *See generally* THOM00196609-10 (Representative Queries).

- *See, e.g.*, "The relational model extended to support content queries can support a whole range of queries including mixed content and structure, pure structure, and attribute queries," at THOM00196610.

- **Arnold-Moore 1995:**

Arnold-Moore 1995 discloses "means for searching within the system." Specifically, Arnold-Moore 1995 discloses means for retrieving legislative elements. For example:

- *See, e.g.*, The structure of legislation allows for "retrieval by the content of particular elements and retrieval of elements at an arbitrary level," at 297.

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- **Arnold-Moore 1997:**

  Arnold-Moore 1997 discloses "means for searching within the system." Specifically, Arnold-Moore 1997 discloses searching by keywords and by attributes such as effective date. For example:

  - *See, e.g.*, "The drafter can view any Act or search the whole database using Boolean or ranking queries at any time point for which a valid version is stored on the system," at 59.

- **Arnold-Moore 1997-2:**

  Arnold-Moore 1997 discloses "means for searching within the system." Specifically, Arnold-Moore 1997 discloses Boolean queering, and restricting search results based on attributes such as effective date. For example:

  - *See, e.g.*, "Despite improved performance of ranking (or natural language) queries, lawyers who have used digital legal libraries will be most familiary with the Boolean query approach," at 177.

  - *See, e.g.*, "The SIM system supports both Boolean (with proximity operators) and ranking queries," at 177.

  - *See, e.g.*, "Each fragment or table of contents has a valid start and end time associated with it. We then use an inverted-file index to give access to the fragments by content. As described for whole documents, we then filter results using the time information to collect just the fragments which are valid at the specified time defaulting to the current date (See Figure 1)," at 179.

- **Bachman 1973:**

  Bachman1973 discloses "means for searching within the system." Specifically, Bachman 1973 discloses searching by attribute. For example:

  - *See, e.g.*, "In sequential file technology, search techniques are well established. Start with the value of the primary data key, of the record of interest, and pass each record in the file through core memory until the desired record, or one with a higher key, is found. (A primary data key is a field within a record which makes that a record unique within the file.) Social security numbers, purchase order numbers, insurance policy numbers, bank account numbers are all primary data keys. Almost without exception, they are synthetic attributes specifically designed and created for the purpose of uniqueness. Natural attributes, e.g. names of people and places, dates, time, and quantities, are not assuredly unique and thus cannot be used," at 654.

  - *See, e.g.*, "Database management has two main functions. First is the inquiry or retrieval activity that reaccesses previously stored data in order to determine the

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recorded status of some real world entity or relationship," at 654.

- *See, e.g.*, "In addition to a record's primary key, it is frequently desirable to be ale to retrieve records on the basis of the value of some other fields. For example, it may be desirable, in planning ten-year awards, to select all the employee records with the 'year-of-hire' field value equal to 1964. Such access is retrieval by secondary data key. The actual number of records to be retrieved by a secondary key is unpredictable and may vary from zero to possibly include the entire file. By contract, a primary data key will retrieve a maximum of one record," at 654.

- *See, e.g.*, "With the advent of retrieval on secondary data keys, the previously one-dimensional data space received additional dimensions equal to the number of fields in the record," at 655.

- **Bentley 1979:**

  Bentley 1979 discloses "means for searching within the system." Specifically, Bentley 1979 discloses six alternative methods for searching in the disclosed k-dimensional space using attributes. For example:

  - *See, e.g.*, "In this section we investigate a number of search methods for range searching," at 398.

  - *See, e.g.*, pages 398-405.

- **Campbell 1988:**

  Campbell 1988 discloses "means for searching within the system." Specifically, Campbell 1988 discloses searching the stored data by attribute or contents. For example:

  - *See, e.g.*, "The HAM maintains history for these objects, allows selective access through a filtering mechanism…," at 856.

  - *See, e.g.*, "A node's contents can be searched for the occurrence of user-specified regular expressions. The search mechanism allows all versions of a node to be searched," at 857.

  - *See, e.g.*, "Attributes are also used in the predicates that are part of the HAM filters," at 857.

  - *See, e.g.*, "The HAM provides a filtering mechanism that allows subsets of HAM objects to be extracted from large graphs. Filters allow the user to specify visibility predicates, which are expressions relating to attributes and their values. HAM filters only return objects that satisfy the predicates. Filters also allow the user to specify a

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version time so that earlier versions of a graph can be examined," at 857.

- *See, e.g.*, "Get operations retrieve data from existing objects. A get operation takes an object index and a version time, and returns the data that existed at the specified time. The object index specifies a unique identifier for the object from which data is being retrieved. The version time is a time range for the data retrieval," at 858.

- *See, e.g.*, "Filter (and linearize) operations selectively retrieve information from a graph. A filter operation takes a predicate, a version time, and a list of attributes. These operations return a list of objects that satisfy the predicate and a list of requested attributes attached to each object. The version time specifies the time at which the filter is to search for the information. Each filter operation also has unique parameters in addition to those already specified," at 858.

- *See, e.g.*, "They include functions such as searching for strings in node contents," at 858.

- **Elmasri 1990:**

  Elmasri discloses "means for searching within the system." Specifically, Elmasri discloses searching information by ranges of effective dates. For example:

  - *See, e.g.*, "A time index for temporal databases is provided which enables the retrieval of database object versions that are valid during specified time periods. Unlike prior access and retrieval structures, the present index is based on objects whose search values are time intervals rather than time points." Abstract.

  - *See, e.g.*, "The present invention provides a time indexing procedure which is particularly useful with object versioning structured temporal computer databases for the efficient processing of temporal operations requiring reference to time intervals." Summary of the Invention.

- **Haake 1992:**

  Haake 1992 discloses "means for searching within the system." Specifically, Haake 1992 discloses a means for searching its text-based information. For example:

  - *See, e.g.*, "CHS offers nodes, links, and composites that can be equipped with application-defined attributes. Objects can be accessed by their attribute values using the query language of the underlying database system of CHS," at 46.

- **Horne 1997:**

  Horne 1997 discloses "means for searching within the system." Specifically, Horne 1997 discloses searching the database of statutes. For example:

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- *See, e.g.*, "But markup could go further. It could give the dates on which the amendments were made, the dates on which they took effect, and the names of the Acts or SI which had made them, and the user's program could use this markup to display a statute as it was on a particular date chosen by the user and could offer hypertext cross-references to the amending legislation," at 3.

- *See, e.g.*, "There is a 'front-end' program which can be used to search the database and to display the results in HTML," at 3.

- **Kim 1996:**

  Kim 1996 discloses "means for searching within the system." Specifically, Kim 1996 discloses searching either by keyword or attribute. For example:

  - *See, e.g.*, "First, since our hypermedia markup language is designed using SGML, the language can … support content-based and structure-based retrieval," at 496.

  - *See, e.g.*, "Therefore, it is necessary to support content-based and structure-based retrieval as well as database mechanisms for hypermedia documents," at 496.

  - *See, e.g.*, "Therefore, it is necessary to support an efficient information retrieval, which provides content and structure-based retrieval, and database query mechanism. Besides, the content-based retrieval method searches every object, which consists of the hypermedia network, and the object contents. On the other hand, the structure-based retrieval searches the logical and hypermedia network structures," at 498.

  - *See, e.g.*, "Since the data about document structure and attribute values can be stored as instances in the database, Postgres can directly process the structure-based retrieval. The other is a content-based retrieval. When a content-based retrieval query is given, the information retrieval manager performs full-text retrieval against the hypermedia document database," at 500.

  - *See, e.g.*, "For this reason, we design a new query language which supports both an information retrieval mechanism and a database query mechanism for handling structure hypermedia documents," at 500.

  - *See, e.g.*, "String search – Boolean operators can be used," at 501.

  - *See, e.g.*, "Element attribute search," at 501.

- **Larson 1988:**

  Larson 1988 discloses "means for searching within the system." Specifically, Larson 1988 discloses attribute/value pairs that can be searched. For example:

  - *See, e.g.*, "Neptune also permits any number of descriptive attribute/value pairs to be

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assigned to any node or link, which may be searched," at 196.

- *See, e.g.*, "The indexes supported in Telesophy include a keyword index (providing Boolean and proximity searching), a 'temporal index' that permits selection by the time an IU was created, and a 'spatial index' that 'places items in an N-dimensional space based on their attributes, then allows the space to be searched," at 197.

- **Lo 1996:**

  Lo 1996 discloses "means for searching within the system." Specifically, Lo 1996 discloses a querying a document management system. For example:

  - *See, e.g.*, "The main purpose of indexing is to provide a means through which the data items can be quickly searched and retrieved without the need to compare every item against a query," at 8–9, section 1.2.2.

  - *See, e.g.*, "The querying aspect in the DBMS layer handles the querying interface, format and protocol," at 9, section 1.2.2.

  - *See, e.g.*, pages 36–37.

- **Povilus 1995:**

  Povilus 1995 discloses, teaches or renders obvious this claim for the reasons stated by the Patent Examiner in the Office Action of March 24, 2000 (incorporated herein by reference) and others.

- **Promenschenkel 1995:**

  Promenschenkel 1995 discloses "means for searching within the system." Specifically, Promenschenkel 1995 discloses the ability to query the stored documents. For example:

  - *See, e.g.*, "IDI's storage manager built to accept, query, retrieve and manipulate SGML document components as separate objects," at 1.

- **Sacks-Davis 1994:**

  Sacks-Davis 1994 discloses "means for searching within the system." Specifically, Sacks-Davis 1994 discloses searching either by keyword or attribute. For example:

  - *See, e.g.*, "There are two major query paradigms for text, Boolean retrieval and ranked retrieval. Both paradigms are based on identifying the documents that contain the query terms, with Boolean queries requiring complete match and ranked queries being satisfied if only some of the query terms are present," at THOM00198838.

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- *See, e.g.*, "SGML's power can be utilized to create additional types of query over the whole database on the structural characteristics of the documents," at THOM00198839.

- *See, e.g.*, "We also want to be able to query on SGML attributes, for instance: Query 7.1 Find <corres>s with attribute confidential = yes," at THOM00198839.

- **Sacks-Davis 1995:**

  Sacks-Davis 1995 discloses "means for searching within the system." Specifically, Sacks-Davis 1995 discloses searching either by keyword or attribute. For example:

  - *See, e.g.*, "An ideal text retrieval system would include a range of query mechanisms. One is content-based querying, which requires the ability to index on each word of text," at 454.

  - *See, e.g.*, "Text retrieval systems should have the ability to manipulate structured information and attributes, as do conventional database systems. Thus a text system should, for example, be able to refer to a paragraph within a section, a data of publication, or to one of a list of authors," at 454.

- **Sciore 1991:**

  Sciore 1991 discloses "means for searching within the system." Specifically, Sciore 1991 discloses searching by any attribute. For example:

  - *See, e.g.*, "At the conceptual level, we show how versions can be chosen from a version set based on the values of their attributes," at 356-57.

  - *See, e.g.*, "The attribute occuredAT records the time at which the change took place. This attribute can be thought of as defining a one-dimensional time line, and allows the version set to be viewed as a function from times to versions," at 364.

  - *See, e.g.*, "In general, the attributes chosen as dimensions should form a key of the version set, so that at most one version is associated with any coordinate in the version space," at 366.

  - *See, e.g.*, "Our framework provides the means by which a database designer can specify a multi-dimensional logical structure to the version set. This logical structure can then be used to choose versions easily and conveniently," at 367.

- **Sciore 1994:**

  Sciore 1994 discloses "means for searching within the system." Specifically, Sciore 1994 discloses queries that can be used to locate and access data within the system. For

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example:

- *See, e.g.*, "Users should be able to access any subset of versions of an object or to choose a version based on specified properties," at 78.
- *See, e.g.*, pages 81-83.
- *See, e.g.*, "The existence of dimension specifications does not change the meaning of the queries and updates of Section 3, because the conceptual scheme of each type has not changed. However, their existence does provide added semantics that can lead to significantly shorter and more natural queries. In particular, a desired version of an object can be specified by giving its coordinates in the multidimensional space defined by its type," at 98.

- **Stonebraker 1990:**

  Stonebraker 1990 discloses "means for searching within the system." Specifically, Stonebraker 1990 discloses that users may query the POSTGRES database. For example:

  - *See, e.g.*, "We expect POSTGRES users to interact with their databases primarily by using the set-oriented query language POSTQUEL," at 126.

- **Stonebraker 1994:**

  Stonebraker 1994 discloses "means for searching within the system." Specifically, Stonebraker 1994 discloses ways of performing queries on complex data sets. For example:

  - *See, e.g.*, "one might think of Tioga as a convenient query specification tool since each box of a recipe corresponds to a query for the DBMS," at 6.

- **Taylor 1994:**

  Taylor 1994 discloses "means for searching within the system." Specifically, Taylor 1994 discloses searches on attributes such as time. For example:

  - *See, e.g.*, "For example, when the query employs the predefined relationships to generate a set of terms that are only one relationship away, it becomes equivalent to browsing," at 241.
  - *See, e.g.*, "We have implemented several operators that reflect the relationships between temporal periods. . . . These operators accept a temporal term and returns [sic] a set of temporal terms satisfying the operator," at 241.
  - *See, e.g.*, "Analysis of pairs of geographic models . . . provides information on the

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changes or similarities between the models in question, allowing queries such as, what are the similarities between Pontypridd today and its origins?" at 241.

- *See, e.g.*, "The combination of the conceptual, temporal and geographical classification spaces and their respective operators means that information requests do not need to be limited to one particular dimension. They can be multi-dimensional. An example of such a query would be: Show me Costume from Pontypridd during the Victorian era. The temporal dimension provides a method by which a temporal walk through a concept can be obtained. A temporal walk consists of showing the development of an historical concept or geographic area over time. In practical terms this requires the ordering of a set of media items according to the information stored in the temporal schema," at 242.

- **Travis & Waldt:**

Travis & Waldt discloses "means for searching within the system." Specifically, Travis & Waldt discloses searching by keyword or attributes to locate specific documents. For example:

- *See, e.g.*, "SGML browsers offer context-sensitive searching capabilities so that the user can quickly access the required information…For example, a search can be defined to allow a user to search for a part number, but only if it is contained in a chapter that was updated after a certain date. Or, a user can have the browser return a list of all sections containing a particular phrase, but only if the phrase is contained in a note. These are examples of context-sensitive searches," at 52-53.

- *See, e.g.*, pages 194–95 (and figure 61).

- *See, e.g.*, page 198 (and figure 64).

- *See, e.g.*, "The loader also makes available to the database parameterized information that can be used later to search and retrieve the appropriate objects. Such parameter information is object identifiers, author names, creation and modification dates, and perhaps some keywords. Most of this information can be obtained by querying the attributes on the element tags in the content of the document object," at 204.

- **Wilkinson 1998:**

Wilkinson 1998 discloses "means for searching within the system." Specifically, Wilkinson 1998 discloses searching on various aspects of documents. For example:

- *See, e.g.*, sections 5.4–5.7, beginning on page 85 (describing various ways of accessing documents, including by content and by attributes).

- **Wilson 1988:**

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Wilson 1988 discloses "means for searching within the system." Specifically, Wilson 1988 discloses that searching by Boolean query and comprehensive indexing will be possible in the Justus system. For example:

- *See, e.g.*, "There are two methods of entry into Justus: direct entry and browse: more are planned, including general boolean query and comprehensive indexing," at 31.

- **Wilson 1990:**

Wilson 1990 discloses "means for searching within the system." Specifically, Wilson 1990 discloses that searching by either boolean query or by structured index to access the stored documents. For example:

- *See, e.g.*, "When the user enters the Justus running under Guide he is given a choice of three methods of access: direct access, index of pre-defined terms, and boolean query," at 125.

- *See, e.g.*, "it is easy to provide a structured index composed of the terms appearing in the catchwords section," at 125.

- *See, e.g.*, "Full boolean searching is available on word operands with operators &(AND), (OR), and ~(NOT)," at 125.

- **Wilson 1992:**

Wilson 1992 discloses "means for searching within the system." Specifically, Wilson 1992 discloses Boolean queries that can be used to locate and access data within the system. For example:

- *See, e.g.*, "Indexes can be used to afford access by Boolean query. This has been a common retrieval mechanism since the introduction of automation to legal research. The Justus programs incorporate these techniques into a hypertext interface," at 183.

- **The Pre-1997 Westlaw/Westmate System**:

The Westlaw/Westmate system contained a means for searching portions and amended portions of legislation. For example:

- *See, e.g.*, DataBasics 1993, at doc no. 79858–59 ("United States Code Annotated"): Disclosing mechanisms for searching.

- *See, e.g.*, Westlaw DB 1991, at 2–5 (disclosing the mechanism for searching the Westlaw databases).

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- *See, e.g.*, Wren 1994.

- The Essential Guide 1996, at 3: "You can use WESTLAW to retrieve information from primary sources, such as cases and statutes from all 50 states and the District of Columbia, and from secondary sources, such as law reviews and treatises. You can seamlessly access Dow Jones News/Retrieval sources, including *The Wall Street Journal*, the same-day *New York Times* News Service and over 2,000 other sources. In addition, WESTLAW contains hundreds of databases from DIALOG, the world's largest online source of factual information. Subjects covered include business, current events, intellectual property, medicine, science and technology, and much more."

- The Essential Guide 1996, at 29: "The citation field is the part of a document containing the citation. When you restrict your search to the citation field, you specify that WESTLAW search only the citation field of a document. By limiting your search in this way, you avoid retrieving extraneous documents."

- The Essential Guide 1996, at 47: "You can use restrictions to limit your WIN search. For example, in a case law database, you can restrict your search by court, date, judge, attorney or added date."

- *See generally* The Essential Guide 1996, at "Chapter 9 Searching Statutes Databases"

- **The Pre-1997 Premise System**:

  The Premise system contained a means for searching portions and amended portions of legislation. For example:

  - *See, e.g.*, Premise Software & Statutes: Select "Search/Search Book…" to see one of the searching means within Premise.

- **The Astoria System (pre-1997):**

  The Astoria System contained a means for searching portions and amended portions of text-based data. For example:

  - *See, e.g.*, Astoria 1997-1: "Astoria provides a multilingual engine that lets users search on document content, structure, attributes, and version information. ," at THOM00211909.

- **The EnAct System** (previously known as Themis)**:**

  The EnAct system has a means for searching its text-based information. For example:

  - *See, e.g.*, Arnold-Moore 1997-2, at 178, figure 1 (showing ability to search the

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information with various attributes).

- **The SCALEplus System:**

  The SCALEplus system has a means for searching. For example:

  - *See, e.g.*, Kerr 2000, at figures accompanying ¶ 180 (page 6-4), ¶ 187 (page 6-6), ¶ 429 (page 11-3), ¶ 491 (page 11-19), ¶ 172 (page 6-2).

  - SCALEplus Secrets, at 2: "SCALEplus has lots of information that is huge, particularly legislation. SCALEplus data is formatted in HTML which is common to all World Wide Web applications but is ideally suited for one or a few pages—to view a document you have to wait for the browser to load it (often over a modem). Because of this the decision was made to turn each piece of legislation into a number of HTML files, each file being a section of that Legislation. When a results list is returned from SCALEplus what you see are the HTML files that have been found that match your search. For Legislation this will be a section of an Act; for Caselaw an individual case."

  - SCALEplus UM 2: "Data in Scale is organised into separate HTML files that can be viewed through a Web browser. Each document contains sections which are called zones. These zones can be searched using the 'In' operator. Each document also has fields such as 'name' and 'date' associated with the document. These can also be searched using the 'contains' operator."

  - SCALEplus UM 2: "Advanced Search Screen" at THOM00221692 and text describing the features on that screen, including the "Date Search Options."

  - SCALEplus UM 2: "SCALEplus presents all Law Databases obtained and/or prepared by Federal Attorney General's Department as Searchable and Browseable data." (THOM00221675)

  - SCALEplus UM 2: "Search Results Page" screen shot, and the text describing this screen shot. (THOM00221679)

- **The Documentum/Interleaf System:**

  The Documentum/Interleaf system allows searching of text-based data. For example:

  - *See, e.g.*, Ovum Interleaf 1996, at 262–63 (and figure H2.6) (describing the various search capabilities within Interleaf).

  - *See, e.g.*, Ovum Documentum 1996, at 219–22 (and figure H1.10) (describing the various search capabilities within Documentum).

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• **The Core Materials on Legal Ethics System:** The Core Materials on Legal Ethics system contained a means for searching. • **The Federal Rules of Civil Procedure System:** The Federal Rules of Civil Procedure system contained a means for searching. • **The Law Desk NY System:** The Law Desk NY system contained a means for searching. • **The Law Desk USCS System:** The Law Desk USCS system contained a means for searching. • **The New Mexico Law System:** The New Mexico Law on Legal Ethics system contained a means for searching. • **The NY Official Reports System:** The NY Official Reports system contained a means for searching. • **The NY CLS Beta System:** The NY CLS Beta system contained a means for searching. • **The OnPoint System:** The OnPoint system contained a means for searching. • **The Social Security Plus System:** The Social Security Plus system contained a means for searching. • **The UCC System:** The UCC system contained a means for searching.
Claim 3: In addition to the prior art listed above in conjunction with Claims 1 & 2, and Subject to the Court's claim construction, and given Defendants' understanding of Plaintiff's incomplete contentions regarding the construction and application of the claims, the following references disclose, teach or render obviousClaim 3:
wherein said searching means uses one or more attributes.

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- **Agosti 1991:**

  Agosti 1991 discloses "searching means uses one or more attributes." Specifically, Agosti 1991 discloses using attributes in query formation and indicates that the disclosed model could be extended to include attribute searching. For example:

  - *See, e.g.*, "EXPLICIT is based on a two-level architecture which holds the two main parts of the informative resource managed by an information retrieval tool: the collection of documents and the indexing term structure. The term structure is managed as a schema of concepts which can be used by the final user as a frame of reference in the query formulation process," at 316.

  - *See, e.g.*, "The EXPLICIT hypertext retrieval model is based on a two-level architecture, which holds the two main parts of a database managed by an information retrieval system: the collection of documents, and the auxiliary data. By the term auxiliary data we mean the data describing the document information contents," at 317.

  - *See, e.g.*, "a set of structured data which represents the different deterministic properties of the object (e.g., date of publication, title, list of authors, etc.)," at 318.

  - *See, e.g.*, "When the object is inserted in the network it becomes a node of the structure. The data which the object contains are modeled as property values of the object and become, when inserted, actual node attributes. Some node attributes can be, for example, name, node type (e.g. legal authority documents, law documents, auxiliary data items), or the link type," at 320.

  - *See, e.g.*, "Following the results of the user's requirements analysis which has been initially conducted, it has been decided to include in the model only a simple string search function, because the results of the analysis have indicated that it was not considered really important to include particularly sophisticated search functions," at 318.

- **Arnold-Moore 1994:**

  Arnold-Moore 1994 discloses "searching means uses one or more attributes." Specifically, Arnold-Moore 1994 discloses a means of filtering through legislative material based on effective dates. For example:

  - *See, e.g.*, "Queries can use these indices to return a subset of the database which can then be filtered on time constraints," at *xvi*.

  - *See, e.g.*, "A time index on the version skeleton can be maintained independently of the content index to filter versions on time," at *xix*.

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- **Arnold-Moore 1994-2:**

  Arnold-Moore 1994-2 discloses "searching means uses one or more attributes." Specifically, Arnold-Moore 1994-2 discloses searching either by keyword, by attribute, or by a combination. For example:

  - *See, e.g.*, "The language, Structured Generalized Query Language (SGQL), allows efficient access to the content, structure and attributes of documents at any level within their structure," at THOM00196608.
  - *See, e.g.*, "Queries might specify that certain attributes have particular values, but have concentrated on matching against the content of the document," at THOM00196608.
  - *See, e.g.*, "These databases will need to be searched by attribute," at THOM00196608.
  - *See, e.g.*, "We thus see that a database system to support databases of large structured documents need a query language that allows retrieval: by exact matching Boolean combinations of words and phrases; by ranking by similarity to a given text; using hypertext links; by attribute," at THOM00106609.
  - *See, e.g.*, Representative Queries at THOM00196609-10.
  - *See, e.g.*, "The relational model extended to support content queries can support a whole range of queries including mixed content and structure, pure structure, and attribute queries," at THOM00196610.

- **Arnold-Moore 1997:**

  Arnold-Moore 1997 discloses "searching means uses one or more attributes." Specifically, Arnold-Moore 1997 discloses searching by keywords and by attributes such as effective date. For example:

  - *See, e.g.*, "The drafter can view any Act or search the whole database using Boolean or ranking queries at any time point for which a valid version is stored on the system," at 59.

- **Arnold-Moore 1997-2:**

  Arnold-Moore 1997-2 discloses "searching means uses one or more attributes." Specifically, Arnold-Moore 1997-2 discloses a means of filtering legislative material based on effective dates. For example:

  - *See, e.g.*, "Despite improved performance of ranking (or natural language) queries, lawyers who have used digital legal libraries will be most familiar with the Boolean

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query approach," at 177.

- *See, e.g.*, "The SIM system supports both Boolean (with proximity operators) and ranking queries," at 177.

- *See, e.g.*, "A standard inverted-file word index can be used to extract a list of matching documents on content (or an enhanced index to allow queries on structure also), and then this list can be filtered by a time constraint using a time-index," at 179.

- *See, e.g.*, "Each fragment or table of contents has a valid start and end time associated with it. We then use an inverted-file index to give access to the fragments by content. As described for whole documents, we then filter results using the time information to collect just the fragments which are valid at the specified time defaulting to the current date (See Figure 1)," at 179.

- **Bachman 1973:**

  Bachman 1973 discloses "searching means uses one or more attributes." Specifically, Bachman 1973 discloses searching by attributes, which he describes as "data keys." For example:

  - *See, e.g.*, "In sequential file technology, search techniques are well established. Start with the value of the primary data key, of the record of interest, and pass each record in the file through core memory until the desired record, or one with a higher key, is found. (A primary data key is a field within a record which makes that a record unique within the file.) Social security numbers, purchase order numbers, insurance policy numbers, bank account numbers are all primary data keys. Almost without exception, they are synthetic attributes specifically designed and created for the purpose of uniqueness. Natural attributes, e.g. names of people and places, dates, time, and quantities, are not assuredly unique and thus cannot be used," at 654.

  - *See, e.g.*, "Database management has two main functions. First is the inquiry or retrieval activity that reaccesses previously stored data in order to determine the recorded status of some real world entity or relationship," at 654.

  - *See, e.g.*, "In addition to a record's primary key, it is frequently desirable to be able to retrieve records on the basis of the value of some other fields. For example, it may be desirable, in planning ten-year awards, to select all the employee records with the 'year-of-hire' field value equal to 1964. Such access is retrieval by secondary data key. The actual number of records to be retrieved by a secondary key is unpredictable and may vary from zero to possibly include the entire file. By contract, a primary data key will retrieve a maximum of one record," at 655.

  - *See, e.g.*, "With the advent of retrieval on secondary data keys, the previously one-dimensional data space received additional dimensions equal to the number of fields

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in the record," at 655.

- **Bentley 1979:**

  Bentley 1979 discloses "searching means uses one or more attributes." Specifically, Bentley 1979 discloses six alternative methods for searching in the disclosed k-dimensional space using attributes. For example:

  - *See, e.g.*, "In this section we investigate a number of search methods for range searching," at 398.

  - *See generally* 398-405.

- **Campbell 1988:**

  Campbell 1988 discloses "searching means uses one or more attributes." Specifically, Campbell 1988 discloses searching the stored data by attribute. For example:

  - *See, e.g.*, "The HAM maintains history for these objects, allows selective access through a filtering mechanism…," at 856.

  - *See, e.g.*, "Attributes are also used in the predicates that are part of the HAM filters," at 857.

  - *See, e.g.*, "The HAM provides a filtering mechanism that allows subsets of HAM objects to be extracted from large graphs. Filters allow the user to specify visibility predicates, which are expressions relating to attributes and their values. HAM filters only return objects that satisfy the predicates. Filters also allow the user to specify a version time so that earlier versions of a graph can be examined," at 857.

  - *See, e.g.*, "*Get operations* retrieve data from existing objects. A get operation takes an object index and a version time, and returns the data that existed at the specified time. The object index specifies a unique identifier for the object from which data is being retrieved. The version time is a time range for the data retrieval," at 858.

  - *See, e.g.*, "*Filter* (and linearize) *operations* selectively retrieve information from a graph. A filter operation takes a predicate, a version time, and a list of attributes. These operations return a list of objects that satisfy the predicate and a list of requested attributes attached to each object. The version time specifies the time at which the filter is to search for the information. Each filter operation also has unique parameters in addition to those already specified," at 858.

- **Elmasri 1990:**

  Elmasri discloses "means for searching using attributes." Specifically, Elmasri discloses

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searching information by ranges of effective dates. For example:

- *See, e.g.*, "A time index for temporal databases is provided which enables the retrieval of database object versions that are valid during specified time periods. Unlike prior access and retrieval structures, the present index is based on objects whose search values are time intervals rather than time points," at Abstract.

- *See, e.g.*, "The present invention provides a time indexing procedure which is particularly useful with object versioning structured temporal computer databases for the efficient processing of temporal operations requiring reference to time intervals," at Summary of the Invention.

- *See, e.g.*, "A search for objects that satisfy such a temporal condition combines selection based on a time interval with a selection based on conditions involving attribute values," at Summary of the Invention.

- **Haake 1992:**

  Haake 1992 discloses "searching means uses one or more attributes." Specifically, Haake discloses a means for searching its text-based information using attributes. For example:

  - *See, e.g.*, "CHS offers nodes, links, and composites that can be equipped with application-defined attributes. Objects can be accessed by their attribute values using the query language of the underlying database system of CHS," at 46.

- **Horne 1997:**

  Horne 1997 discloses "searching means uses one or more attributes." Specifically, Horne 1997 discloses searching by attributes such as effective date. For example:

  - *See, e.g.*, "But markup could go further. It could give the dates on which the amendments were made, the dates on which they took effect, and the names of the Acts or SI which had made them, and the user's program could use this markup to display a statute as it was on a particular date chosen by the user and could offer hypertext cross-references to the amending legislation," at 3.

  - *See, e.g.*, "There is a 'front-end' program which can be used to search the database and to display the results in HTML. So the user should be able to use the program to discover easily what the law is on a particular point on a particular date," at 3.

- **Kim 1996:**

  Kim 1996 discloses "searching means uses one or more attributes." Specifically, Kim 1996 discloses searching either by keyword or attribute. For example:

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- *See, e.g.*, "First, since our hypermedia markup language is designed using SGML, the language can … support content-based and structure-based retrieval," at 496.
- *See, e.g.*, "Therefore, it is necessary to support content-based and structure-based retrieval as well as database mechanisms for hypermedia documents," at 496.
- *See, e.g.*, "Therefore, it is necessary to support an efficient information retrieval, which provides content and structure-based retrieval, and database query mechanism. Besides, the content-based retrieval method searches every object, which consists of the hypermedia network, and the object contents. On the other hand, the structure-based retrieval searches the logical and hypermedia network structures," at 498.
- *See, e.g.*, "Since the data about document structure and attribute values can be stored as instances in the database, Postgres can directly process the structure-based retrieval. The other is a content-based retrieval. When a content-based retrieval query is given, the information retrieval manager performs full-text retrieval against the hypermedia document database," at 500.
- *See, e.g.*, "For this reason, we design a new query language which supports both an information retrieval mechanism and a database query mechanism for handling structure hypermedia documents," at 500.
- *See, e.g.*, "Element attribute search," at 501.

- **Larson 1988:**

  Larson 1988 discloses "wherein said searching means uses one or more attributes." Specifically, Larson 1988 discloses attribute/value pairs that can be searched. For example:

  - *See, e.g.*, "Neptune also permits any number of descriptive attribute/value pairs to be assigned to any node or link, which may be searched," at 196.
  - *See, e.g.*, "The indexes supported in Telesophy include a keyword index (providing Boolean and proximity searching), a 'temporal index' that permits selection by the time an IU was created, and a 'spatial index' that 'places items in an N-dimensional space based on their attributes, then allows the space to be searched," at 197.

- **Lo 1996:**

  Lo 1996 discloses "wherein said searching means uses one or more attributes." Specifically, Lo 1996 discloses a querying a document management system using attributes such as author and title. For example:

  - *See, e.g.*, "While it is reasonable to index the title and author field of a document, it is pointless to index or query against the whole piece of text because consequently at

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most only one document would match a given query," at 8–9, section 1.2.2.

- *See generally* pages 36–37.

- *See, e.g.,* "All the attributes in both database are indexed by the SIM DBS and are thus searchable," at 113.

- **Povilus 1995:**

  Povilus 1995 discloses, teaches or renders obvious this claim for the reasons stated by the Patent Examiner in the Office Action of March 24, 2000 (incorporated herein by reference) and others.

- **Sacks-Davis 1994:**

  Sacks-Davis 1994 discloses "searching means uses one or more attributes." Specifically, Sacks-Davis 1994 discloses searching either by keyword or attribute. For example:

  - *See, e.g.,* "There is also sufficient information in the DTD to allow the application level to provide information to the user about the elements and attributes which are available for query for each different type of document in the database," at THOM00198836.

  - *See, e.g.,* "SGML's power can be utilized to create additional types of query over the whole database on the structural characteristics of the documents," at THOM00198839.

  - *See, e.g.,* "We also want to be able to query on SGML attributes, for instance: Query 7.1 Find <corres>s with attribute confidential = yes," at THOM00198839.

- **Sacks-Davis 1995:**

  Sacks-Davis 1995 discloses "searching means uses one or more attributes." Specifically, Sacks-Davis 1995 discloses searching either by keyword or attribute. For example:

  - *See, e.g.,* "Text retrieval systems should have the ability to manipulate structured information and attributes, as do conventional database systems. Thus a text system should, for example, be able to refer to a paragraph within a section, a date of publication, or to one of a list of authors," at 454.

- **Sciore 1991:**

  Sciore 1991 discloses "searching means uses one or more attributes." Specifically,

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Sciore 1991 discloses searching either by keyword or attribute. For example:

- *See, e.g.*, "At the conceptual level, we show how versions can be chosen from a version set based on the values of their attributes," at 356-57.
- *See, e.g.*, "The attribute occuredAT records the time at which the change took place. This attribute can be thought of as defining a one-dimensional time line, and allows the version set to be viewed as a function from times to versions," at 364.
- *See, e.g.*, "In general, the attributes chosen as dimensions should form a key of the version set, so that at most one version is associated with any coordinate in the version space," at 366.
- *See, e.g.*, "Our framework provides the means by which a database designer can specify a multi-dimensional logical structure to the version set. This logical structure can then be used to choose versions easily and conveniently," at 367.

- **Sciore 1994:**

  Sciore 1994 discloses "searching means uses one or more attributes." Specifically, Sciore 1994 discloses, for its bicycle example, queries using the attributes of style, number of speeds, frame, and design date. For example:

  - *See generally* 81-83.

- **Stonebraker 1990:**

  Stonebraker 1990 discloses "wherein said searching means uses one or more attributes." Specifically, Stonebraker 1990 discloses that users may query the POSTGRES database using attributes. For example:

  - *See generally* section II.B, starting on page 127 (demonstrating numerous examples of queries using attributes).

- **Taylor 1994:**

  Taylor 1994 discloses "said searching means uses one or more attributes." Specifically, Taylor 1994 discloses searches on attributes such as time. For example:

  - "We have implemented several operators that reflect the relationships between temporal periods. . . . These operators accept a temporal term and returns [sic] a set of temporal terms satisfying the operator," at 241.
  - "The combination of the conceptual, temporal and geographical classification spaces and their respective operators means that information requests do not need to be limited to one particular dimension. They can be multi-dimensional. An example of

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such a query would be: Show me Costume from Pontypridd during the Victorian era. The temporal dimension provides a method by which a temporal walk through a concept can be obtained. A temporal walk consists of showing the development of an historical concept or geographic area over time. In practical terms this requires the ordering of a set of media items according to the information stored in the temporal schema," at 242.

- "The results of navigation produce classification terms rather than media items. To convert the classes to media sets a query is formulated to identify which media items have the terms as attributes," at 240.

- **Travis & Waldt:**

  Travis & Waldt discloses "searching means uses one or more attributes." Specifically, Travis & Waldt discloses SGML browsers that can conduct searches on the stored text-based data either by keyword or by attribute, or both. For example:

  - *See, e.g.*, "SGML browsers offer context-sensitive searching capabilities so that the user can quickly access the required information . . . . For example, a search can be defined to allow a user to search for a part number, but only if it is contained in a chapter that was updated after a certain date. Or, a user can have the browser return a list of all sections containing a particular phrase, but only if the phrase is contained in a note. These are examples of context-sensitive searches," at 52-53.

  - *See, e.g.*, pages 194–95 (and figure 61), 198 (and figure 64).

  - *See, e.g.*, "The loader also makes available to the database parameterized information that can be used later to search and retrieve the appropriate objects. Such parameter information is object identifiers, author names, creation and modification dates, and perhaps some keywords. Most of this information can be obtained by querying the attributes on the element tags in the content of the document object," at 204.

- **Wilkinson 1998:**

  Wilkinson 1998 discloses "wherein said searching means uses one or more attributes." Specifically, Wilkinson 1998 discloses searching on attributes of documents. For example:

  - *See generally* section 5.6, beginning on page 93 (entitled "Access by Metadata").

  - *See, e.g.,* "Most metadata is organized as a set of (attribute, value) pairs. Thus we need a structure that can support queries of the form 'which documents have value A for attribute B?'" at 100.

- **Wilson 1990:**

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Wilson 1990 discloses "searching means uses one or more attributes." Specifically, Wilson 1990 discloses searching either by keyword or attribute. For example:

- *See, e.g.*, "When the user enters the Justus running under Guide he is given a choice of three methods of access: direct access, index of pre-defined terms, and boolean query," at 125.

- *See, e.g.*, "it is easy to provide a structured index composed of the terms appearing in the catchwords section," at 125.

- **Wilson 1992:**

Wilson 1992 discloses "searching means uses one or more attributes." Specifically, Wilson 1992 discloses examples of searches conducted by author name, key word, and date, all of which constitute attributes. For example:

- *See generally* 183.

- **The Pre-1997 Westlaw/Westmate System**:

The Westlaw/Westmate system contained a means for searching portions and amended portions of legislation using attributes. For example:

- *See, e.g.*, DataBasics 1993, ("United States Code Annotated"): Disclosing mechanisms for searching using attributes, at doc no. 79858-59.

- *See, e.g.*, Westlaw DB 1991, (disclosing the mechanism for searching the Westlaw databases using attributes), at 2–5, 14–15.

- *See, e.g.*, Wren 1994, "you can use a field-restricted search request in LEXIS or WESTLAW to conduct highly specialized searches that would be nearly impossible—or at least tremendously tedious and time-consuming—to perform without a computer," at 75.

- The Essential Guide 1996, at 3: "You can use WESTLAW to retrieve information from primary sources, such as cases and statutes from all 50 states and the District of Columbia, and from secondary sources, such as law reviews and treatises. You can seamlessly access Dow Jones News/Retrieval sources, including *The Wall Street Journal*, the same-day *New York Times* News Service and over 2,000 other sources. In addition, WESTLAW contains hundreds of databases from DIALOG, the world's largest online source of factual information. Subjects covered include business, current events, intellectual property, medicine, science and technology, and much more."

- The Essential Guide 1996, at 29: "The citation field is the part of a document containing the citation. When you restrict your search to the citation field, you

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specify that WESTLAW search only the citation field of a document. By limiting your search in this way, you avoid retrieving extraneous documents."

- The Essential Guide 1996, at 47: "You can use restrictions to limit your WIN search. For example, in a case law database, you can restrict your search by court, date, judge, attorney or added date."

- *See generally* The Essential Guide 1996, at "Chapter 9 Searching Statutes Databases"

- **The Pre-1997 Premise System**:

  The Premise system contained a means for searching portions and amended portions of legislation using attributes. For example:

  - *See, e.g.,* Premise Software & Statutes: Select "Search/Search Book…" and then change the "Search Using" field to "Fields Template," which will then display a mechanism for searching the portions and amended portions using attributes.

- **The Astoria System (pre-1997):**

  The Astoria System contained a means for searching portions and amended portions of text-based data using attributes. For example:

  - *See, e.g.,* Astoria 1997-1: "Astoria provides a multilingual engine that lets users search on document content, structure, attributes, and version information," at THOM00211909.

- **The EnAct System** (previously known as Themis)**:**

  The EnAct system has a means for searching its text-based information using attributes. For example:

  - *See, e.g.,* Arnold-Moore 1997-2, figure 1 (showing ability to search the information with various attributes), and ("The SIM client/server architecture is built around Z39.50 [a standard for searching using attributes],") at 178, 177.

- **The SCALEplus System:**

  The SCALEplus system has a means for searching using attributes. For example:

  - *See, e.g.,* Kerr 2000, Figures accompanying ¶ 180 (page 6-4), ¶ 187 (page 6-6), ¶ 429 (page 11-3), ¶ 491 (page 11-19), ¶ 172 (page 6-2).

  - SCALEplus Secrets, at 2: "SCALEplus has lots of information that is huge, particularly legislation. SCALEplus data is formatted in HTML which is common to

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all World Wide Web applications but is ideally suited for one or a few pages—to view a document you have to wait for the browser to load it (often over a modem). Because of this the decision was made to turn each piece of legislation into a number of HTML files, each file being a section of that Legislation. When a results list is returned from SCALEplus what you see are the HTML files that have been found that match your search. For Legislation this will be a section of an Act; for Caselaw an individual case."

- SCALEplus UM 2: "Data in Scale is organised into separate HTML files that can be viewed through a Web browser. Each document contains sections which are called zones. These zones can be searched using the 'In' operator. Each document also has fields such as 'name' and 'date' associated with the document. These can also be searched using the 'contains' operator."

- SCALEplus UM 2: "Advanced Search Screen" at THOM00221692 and text describing the features on that screen, including the "Date Search Options."

- SCALEplus UM 2: "SCALEplus presents all Law Databases obtained and/or prepared by Federal Attorney General's Department as Searchable and Browseable data." (THOM00221675)

- SCALEplus UM 2: "Search Results Page" screen shot, and the text describing this screen shot. (THOM00221679)

- **The Documentum/Interleaf System:**

  The Documentum/Interleaf system allows searching of text-based data based on attributes. *See, e.g.*:

  - *See, e.g.,* Ovum Interleaf 1996, "It is possible to search on attribute combinations and combine these using Boolean operators," at 262 (and figure H2.6).

  - *See, e.g.,* Ovum Documentum 1996, "Documentum exposes just about all a document's attributes to querying," at 220 (and figure H1.10).

- **The Core Materials on Legal Ethics System:**

  The Core Materials on Legal Ethics system contained a means for searching using attributes.

- **The Federal Rules of Civil Procedure System:**

  The Federal Rules of Civil Procedure system contained a means for searching using attributes.

Prior Art Analysis
• **The Law Desk NY System:** The Law Desk NY system contained a means for searching using attributes. • **The Law Desk USCS System:** The Law Desk USCS system contained a means for searching using attributes. • **The New Mexico Law System:** The New Mexico Law on Legal Ethics system contained a means for searching using attributes. • **The NY Official Reports System:** The NY Official Reports system contained a means for searching using attributes. • **The NY CLS Beta System:** The NY CLS Beta system contained a means for searching using attributes. • **The OnPoint System:** The OnPoint system contained a means for searching using attributes. • **The UCC System:** The UCC system contained a means for searching using attributes.
Claim 4: In addition to the prior art listed above in conjunction with Claims 1 & 2, and Subject to the Court's claim construction, and given Defendants' understanding of Plaintiff's incomplete contentions regarding the construction and application of the claims, the following references disclose, teach or render obvious Claim 4:
wherein said searching means uses any predefined portion, any modification of a predefined portion, or any word or phrase within such predefined portion or such modification. • **Agosti 1991:** Agosti 1991 discloses "said searching means uses any predefined portion, any modification of a predefined portion, or any work or phrase within such predefined portion or such modification." Specifically, Agosti 1991 discloses string search function on the stored text-based data. For example: • *See, e.g.*, "[A] simple searching technique for detection of text strings located within the full text information items has been introduced," at 318.

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- *See, e.g.*, "[I]t has been decided to include in the model only a simple string search function," at 318.

- **Arnold-Moore 1994:**

  Arnold-Moore 1994 discloses "said searching means uses any predefined portion, any modification of a predefined portion, or any work or phrase within such predefined portion or such modification." Specifically, Arnold-Moore 1994 discloses queries that can be run on either attributes, such as effective date, or on the contents of the legislative material itself. For example:

  - *See, e.g.*, "Queries can use these indices to return a subset of the database which can then be filtered on time constraints," at *xvi*.

  - *See, e.g.*, "search a subset of the database (e.g. an Act or collection of Acts) on the content of particular elements," at *ix*.

  - *See generally*, *vii - x*.

- **Arnold-Moore 1994-2:**

  Arnold-Moore 1994-2 discloses "said searching means uses any predefined portion, any modification of a predefined portion, or any work or phrase within such predefined portion or such modification." Specifically, Arnold-Moore 1994-2 discloses searching either by keyword, by attribute, or by a combination. For example:

  - *See, e.g.*, "The language, Structured Generalized Query Language (SGQL), allows efficient access to the content, structure and attributes of documents at any level within their structure," at THOM00196608.

  - *See, e.g.*, "Queries might specify that certain attributes have particular values, but have concentrated on matching against the content of the document," at THOM00196608.

  - *See, e.g.*, "These databases will need to be searched by attribute," at THOM00196608.

  - *See, e.g.*, "We thus see that a database system to support databases of large structured documents need a query language that allows retrieval: by exact matching Boolean combinations of words and phrases; by ranking by similarity to a given text; using hypertext links; by attribute," at THOM00106609.

  - *See, e.g.*, Representative Queries, at THOM00196609-10.

  - *See, e.g.*, "The relational model extended to support content queries can support a whole range of queries including mixed content and structure, pure structure, and

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attribute queries," at THOM00196610.

- **Arnold-Moore 1997:**

Arnold-Moore 1997 discloses "said searching means uses any predefined portion, any modification of a predefined portion, or any work or phrase within such predefined portion or such modification." Specifically, Arnold-Moore 1997 discloses searching by keywords and by attributes such as effective date. For example:

- *See, e.g.*, "The drafter can view any Act or search the whole database using Boolean or ranking queries at any time point for which a valid version is stored on the system," at 59.

- **Arnold-Moore 1997-2:**

Arnold-Moore 1997-2 discloses "said searching means uses any predefined portion, any modification of a predefined portion, or any work or phrase within such predefined portion or such modification." Specifically, Arnold-Moore 1997-2 discloses queries that can be run on the contents of the legislative material itself. For example:

- *See, e.g.*, "Despite improved performance of ranking (or natural language) queries, lawyers who have used digital legal libraries will be most familiar with the Boolean query approach," at 177.

- *See, e.g.*, "The SIM system supports both Boolean (with proximity operators) and ranking queries," at 177.

- *See, e.g.*, "A standard inverted-file word index can be used to extract a list of matching documents on content (or an enhanced index to allow queries on structure also), and then this list can be filtered by a time constraint using a time-index," at 179.

- *See, e.g.*, "Each fragment or table of contents has a valid start and end time associated with it. We then use an inverted-file index to give access to the fragments by content. As described for whole documents, we then filter results using the time information to collect just the fragments which are valid at the specified time defaulting to the current date (See Figure 1)," at 179.

- **Campbell 1988:**

Campbell 1988 discloses "said searching means uses any predefined portion, any modification of a predefined portion, or any work or phrase within such predefined portion or such modification." Specifically, Campbell 1988 discloses searching the stored data by contents of the stored data. For example:

- *See, e.g.*, "A node's contents can be searched for the occurrence of user-specified

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regular expressions. The search mechanism allows all versions of a node to be searched," at 857.

- *See, e.g.*, "They include functions such as searching for strings in node contents," at 858.

- **Kim 1996:**

Kim 1996 discloses "said searching means uses any predefined portion, any modification of a predefined portion, or any word or phrase within such predefined portion or such modification." Specifically, Kim 1996 discloses searching either by keyword or by attribute. For example:

- *See, e.g.*, "First, since our hypermedia markup language is designed using SGML, the language can . . . support content-based and structure-based retrieval," at 496.

- *See, e.g.*, "Therefore, it is necessary to support content-based and structure-based retrieval as well as database mechanisms for hypermedia documents," at 496.

- *See, e.g.*, "Therefore, it is necessary to support an efficient information retrieval, which provides content and structure-based retrieval, and database query mechanism. Besides, the content-based retrieval method searches every object, which consists of the hypermedia network, and the object contents. On the other hand, the structure-based retrieval searches the logical and hypermedia network structures," at 498.

- *See, e.g.*, "Since the data about document structure and attribute values can be stored as instances in the database, Postgres can directly process the structure-based retrieval. The other is a content-based retrieval. When a content-based retrieval query is given, the information retrieval manager performs full-text retrieval against the hypermedia document database," at 500.

- *See, e.g.*, "For this reason, we design a new query language which supports both an information retrieval mechanism and a database query mechanism for handling structure hypermedia documents," at 500.

- *See, e.g.*, "String search – Boolean operators can be used," at 501.

- **Lo 1996:**

Lo 1996 discloses "searching means uses any predefined portion, any modification of a predefined portion, or any word or phrase within such predefined portion or such modification." Specifically, Lo 1996 discloses a querying a document management system on the text. For example:

- *See, e.g.*, "The main purpose of indexing is to provide a means through which the data items can be quickly searched and retrieved without the need to compare every

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item against a query," at 8-9, section 1.2.2.

- *See, e.g.*, "Notes supports full-text searches that allow users to index and search Notes documents based on user queries. An indexed database can be searched for words, phrases, numbers, and dates," at 65.

- *See, e.g.*, "Basic document management features are provided, such as keyword search or full text retrieval," at 66-67.

- *See* "Furthermore, the vector space information retrieval paradigm of the SIM DBS supports querying of the documents based on content," at 113.

- **Povilus 1995:**

  Povilus 1995 discloses, teaches or renders obvious this claim for the reasons stated by the Patent Examiner in the Office Action of March 24, 2000 (incorporated herein by reference) and others.

- **Sacks-Davis 1994:**

  Sacks-Davis 1994 discloses "said searching means uses any predefined portion, any modification of a predefined portion, or any word or phrase within such predefined portion or such modification." Specifically, Sacks-Davis 1994 discloses searching either by keyword or by attribute. For example:

  - *See, e.g.*, "There are two major query paradigms for text, Boolean retrieval and ranked retrieval. Both paradigms are based on identifying the documents that contain the query terms, with Boolean queries requiring complete match and ranked queries being satisfied if only some of the query terms are present," at THOM00198838.

- **Sacks-Davis 1995:**

  Sacks-Davis 1995 discloses "said searching means uses any predefined portion, any modification of a predefined portion, or any word or phrase within such predefined portion or such modification." Specifically, Sacks-Davis 1995 discloses searching either by keyword or by attribute. For example:

  - *See, e.g.*, "An ideal text retrieval system would include a range of query mechanisms. One is content-based querying, which requires the ability to index on each word of text," at 454.

- **Travis & Waldt:**

  Travis & Waldt discloses "said searching means uses any predefined portion, any modification of a predefined portion, or any work or phrase within such predefined portion or such modification." Specifically, Travis & Waldt discloses SGML browsers

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that can conduct searches on the stored text-based data either by keyword or by attribute, or both. For example:

- *See, e.g.*, "SGML browsers offer context-sensitive searching capabilities so that the user can quickly access the required information…For example, a search can be defined to allow a user to search for a part number, but only if it is contained in a chapter that was updated after a certain date. Or, a user can have the browser return a list of all sections containing a particular phrase, but only if the phrase is contained in a note. These are examples of context-sensitive searches," at 52-53.

- *See, e.g.*, pages 194–95 (and figure 61)

- *See, e.g.*, 198 (and figure 64).

- *See, e.g.*, "The loader also makes available to the database parameterized information that can be used later to search and retrieve the appropriate objects. Such parameter information is object identifiers, author names, creation and modification dates, and perhaps some keywords. Most of this information can be obtained by querying the attributes on the element tags in the content of the document object," at 204.

- **Wilkinson 1998:**

  Wilkinson 1998 discloses "searching means uses any predefined portion, any modification of a predefined portion, or any word or phrase within such predefined portion or such modification." Specifically, Wilkinson 1998 discloses searching on a document's contents. For example:

  - *See generally* section 5.5, beginning on page 87 (entitled "Access by Content").

  - *See, e.g.*, "Characteristic of many document storage systems is the ability to query against the content of stored documents. This important task is enabled by indexing documents' text content. The most prevalent form of text index is the *inverted file*," at 100.

- **Wilson 1988:**

  Wilson 1988 discloses "said searching means uses any predefined portion, any modification of a predefined portion, or any word or phrase within such predefined portion or such modification." Specifically, Wilson 1988 discloses boolean searching. For example:

  - *See, e.g.*, "There are two methods of entry into Justus: direct entry and browse: more are planned, including general boolean query and comprehensive indexing," at 31.

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- **Wilson 1990:**

  Wilson 1990 discloses "said searching means uses any predefined portion, any modification of a predefined portion, or any word or phrase within such predefined portion or such modification." Specifically, Wilson 1990 discloses boolean searching. For example:

  - *See, e.g.*, "When the user enters the Justus running under Guide he is given a choice of three methods of access: direct access, index of pre-defined terms, and boolean query," at 125.

  - *See, e.g.*, "Full boolean searching is available on word operands with operators &(AND), (OR), and ~(NOT)," at 125.

- **Wilson 1992:**

  Wilson 1992 discloses "said searching means uses any predefined portion, any modification of a predefined portion, or any work or phrase within such predefined portion or such modification." Specifically, Wilson 1992 discloses examples of searches conducted by key words appearing in the predefined portions and/or modified predefined portions. For example:

  - *See generally* 183.

- **The Pre-1997 Westlaw/Westmate System**:

  The Westlaw/Westmate system contained a means for searching portions and amended portions of legislation using words or phrases within portions and amended portions. For example:

  - *See, e.g.*, DataBasics 1993, ("United States Code Annotated"): Disclosing mechanisms for searching using words or phrases within portions and amended portions of statutes, at doc no. 79858-59.

  - *See, e.g.*, Westlaw DB 1991, (disclosing the mechanism for searching the Westlaw databases using words or phrases within the portions and amended portions), at 10-13, 16-17.

  - *See, e.g.*, Wren 1994, listing the searchable fields, including, among others, the "text" field, at 114-24, 141-42.

  - The Essential Guide 1996, at 43: "WESTLAW processes your description and displays the 20 documents most closely matching the concepts in your description . . . ."

  - The Essential Guide 1996, at 43: "You can review the documents you retrieve using

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standard WESTLAW browsing commands. When you browse documents retrieved by a Natural Language description in term mode, the five portions of each document that most closely match your description are displayed. To view the portion of each document most closely matching your description, type **best** or **b** to browse your documents in best mode."

- *See generally* The Essential Guide 1996, at Chapter "4.6 Using Terms and Connectors"

- **The Pre-1997 Premise System**:

  The Premise system contained a means for searching portions and amended portions of legislation using words or phrases within portions and amended portions. For example:

  - *See, e.g.*, Premise Software & Statutes: Select "Search/Search Book…" and then change the "Search Using" field to "Term Search," which will then display a mechanism for searching the portions and amended portions using words or phrases.

  - *See, e.g.*, Premise Publisher: 181–89 (showing how to add attributes to a Premise database for use in text searches.)

- **The Astoria System (pre-1997):**

  The Astoria System contained a means for searching portions and amended portions of text-based data using words or phrases. For example:

  - *See, e.g.*, Astoria 1997-1: "Astoria provides a multilingual engine that lets users search on document content, structure, attributes, and version information," at THOM00211909.

  - *See, e.g.*, XSoft Astoria: "The search engine allows context-sensitive searching. For example, it can find the phrase "lower taxes," at THOM00198652.

- **The EnAct System** (previously known as Themis)**:**

  The EnAct system has a means for searching its text-based information using words or phrases within portions and amended portions. For example:

  - *See, e.g.*, Arnold-Moore 1997-2, (text following the heading: "Accessing Elements,") at 177.

  - *See, e.g.*, RMIT 2, (text following the heading: "3.3.10 Browse/Search Legislation"), at SAIC002509.

- **The SCALEplus System:**

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The SCALEplus system has a means for searching its text-based information using words or phrases within portions and amended portions. For example:

- *See, e.g.*, Kerr 2000: Figures accompanying ¶ 180 (page 6-4), ¶ 187 (page 6-6), ¶ 429 (page 11-3), ¶ 491 (page 11-19), ¶ 172 (page 6-2).

- SCALEplus Secrets, at 2: "SCALEplus has lots of information that is huge, particularly legislation. SCALEplus data is formatted in HTML which is common to all World Wide Web applications but is ideally suited for one or a few pages—to view a document you have to wait for the browser to load it (often over a modem). Because of this the decision was made to turn each piece of legislation into a number of HTML files, each file being a section of that Legislation. When a results list is returned from SCALEplus what you see are the HTML files that have been found that match your search. For Legislation this will be a section of an Act; for Caselaw an individual case."

- SCALEplus UM 2: "Full Text Searching – Through the Verity Search Engine". (THOM00221676)

- SCALEplus UM 2: "Advanced Search Screen" at THOM00221692 and text describing the features on that screen, including the "Date Search Options."

- SCALEplus UM 2: "Results List Page" screen shot and the text describing this screen shot. (THOM00221697)

- **The Documentum/Interleaf System:**

  The Documentum/Interleaf system allows searching of text-based data based on the text itself. For example:

  - *See, e.g.*, Ovum Interleaf 1996, (text following heading "Full-text Searching"), at 262.

  - *See, e.g.*, Ovum Documentum 1996, (text following heading "Full-text Searching"), at 221.

- **The Core Materials on Legal Ethics System:**

  The Core Materials on Legal Ethics system contained a means for searching portions using words or phrases within portions.

- **The Federal Rules of Civil Procedure System:**

  The Federal Rules of Civil Procedure system contained a means for searching portions using words or phrases within portions.

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• **The Law Desk NY System:** The Law Desk NY system contained a means for searching portions using words or phrases within portions. • **The Law Desk USCS System:** The Law Desk USCS system contained a means for searching portions using words or phrases within portions. • **The New Mexico Law System:** The New Mexico Law on Legal Ethics system contained a means for searching portions using words or phrases within portions. • **The NY Official Reports System:** The NY Official Reports system contained a means for searching portions using words or phrases within portions. • **The NY CLS Beta System:** The NY CLS Beta system contained a means for searching portions using words or phrases within portions. • **The OnPoint System:** The OnPoint system contained a means for searching portions using words or phrases within portions. • **The Social Security Plus System:** The Social Security Plus system contained a means for searching portions using words or phrases within portions. • **The UCC System:** The UCC system contained a means for searching portions using words or phrases within portions.
Claim 5: In addition to the prior art listed above in conjunction with Claim 1, and Subject to the Court's claim construction, and given Defendants' understanding of Plaintiff's incomplete contentions regarding the construction and application of the claims, the following references disclose, teach or render obvious Claim 5:
further comprising means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are

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coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space.

- **Agosti 1991:**

Agosti 1991 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Agosti 1991 discloses searching based on attributes, maintaining attribute indexes, and linking between attribute indexes and the stored text-based data. For example:

- *See, e.g.*, "EXPLICIT is based on a two-level architecture which holds the two main parts of the informative resource managed by an information retrieval tool: the collection of documents and the indexing term structure. The term structure is managed as a schema of concepts which can be used by the final user as a frame of reference in the query formulation process," at 316.

- *See, e.g.*, "The EXPLICIT hypertext retrieval model is based on a two-level architecture, which holds the two main parts of a database managed by an information retrieval system: the collection of documents, and the auxiliary data. By the term auxiliary data we mean the data describing the document information contents," at 317.

- *See, e.g.*, "The experimental prototype, called HyperLaw, manages a collection of full text legal documents and a vocabulary of indexing terms…," at 317.

- *See, e.g.*, "[A] simple searching technique for detection of text strings located within the full text information items has been introduced," at 318.

- *See, e.g.*, "Following the results of the user's requirements analysis which has been initially conducted, it has been decided to include in the model only a simple string search function, because the results of the analysis have indicated that it was not considered really important to include particularly sophisticated search functions," at 318.

- *See, e.g.*, "a set of structured data which represents the different deterministic properties of the object (e.g., date of publication, title, list of authors, etc.)," at 318.

- *See, e.g.*, "Being a document generally indexed by more than just one single term, a document object proves to be an instance of various different term classes," at 319.

- *See, e.g.*, "When the object is inserted in the network it becomes a node of the structure. The data which the object contains are modeled as property values of the

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object and become, when inserted, actual node attributes. Some node attributes can be, for example, name, node type (e.g. legal authority documents, law documents, auxiliary data items), or the link type," at 320.

- *See, e.g.*, "The model supports navigation between the two levels by means of the navigability function. In this way it is at all times possible to pass from the hyperdocument to the hyperconcept and back again," at 320.

- *See, e.g.*, "When the object is inserted in the network it becomes a node of the structure. The data which the object contains are modeled as property values of the object and become, when inserted, actual node attributes. Some node attributes can be, for example, name, node type (e.g. legal authority documents, law documents, auxiliary data items), or the link type," at 320.

- *See, e.g.*, "It is possible to shift directly from any point of the hypertext network to other hyperdocuments by making use of the links existing between them," at 322.

- **Arnold-Moore 1994:**

  Arnold-Moore 1994 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Arnold-Moore 1994 discloses searching based on attributes, such as effective dates of legislative material. Arnold-Moore 1994 also discloses maintaining indexes of various attributes for browsing, which are then linked directly to the legislative material. For example:

  - *See, e.g.*, "A time index on the version skeleton can be maintained independently of the content index to filter versions on time," at *xix*.

  - *See, e.*g., "The implementation we propose can be viewed as a refinement of the two-level model of Agosti et al. involving two distinct sets of data objects: 1. the text (or structure containing the text) of each of the Acts which we term the data; and 2. the indicies, tables of content and glossaries which provide a means of browsing at a level above the data which are considered to be in the index level. Agosti et al. suggest links between objects at each level and also links between objects of either level are necessary to create sufficient browsing power," at *xxi*.

  - *See generally xxii - xxiii*.

- **Arnold-Moore 1994-2:**

  Arnold-Moore 1994-2 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality

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of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Arnold-Moore 1994-2 discloses searching based on attributes and using hypertext links. For example:

- *See, e.g.*, "The language, Structured Generalized Query Language (SGQL), allows efficient access to the content, structure and attributes of documents at any level within their structure," at THOM00196608.
- *See, e.g.*, "Queries might specify that certain attributes have particular values, but have concentrated on matching against the content of the document," at THOM00196608.
- *See, e.g.*, "These databases will need to be searched by attribute," at THOM00196608.
- *See, e.g.*, "We thus see that a database system to support databases of large structured documents need a query language that allows retrieval: by exact matching Boolean combinations of words and phrases; by ranking by similarity to a given text; using hypertext links; by attribute," at THOM00106609.
- *See, e.g.*, Representative Queries, at THOM00196609-10.
- *See, e.g.*, "The relational model extended to support content queries can support a whole range of queries including mixed content and structure, pure structure, and attribute queries," at THOM00196610.

- **Arnold-Moore 1997-2:**

Arnold-Moore 1997-2 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Arnold-Moore 1997-2 discloses searching based on attributes, such as effective dates of legislative material. Search results then provide means of linking to the legislative material itself. For example:

- *See, e.g.*, "A standard inverted-file word index can be used to extract a list of matching documents on content (or an enhanced index to allow queries on structure also), and then this list can be filtered by a time constraint using a time-index," at 179.
- *See, e.g.*, "Each fragment or table of contents has a valid start and end time associated with it. We then use an inverted-file index to give access to the fragments by content. As described for whole documents, we then filter results using the time

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information to collect just the fragments which are valid at the specified time defaulting to the current date (See Figure 1)," at 179.

- *See, e.g.*, Figures 1 and 2, at 178.

- **Bachman 1973:**

Bachman 1973 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Bachman 1973 discloses searching by attributes, which he describes as "data keys," and then linking directly from data keys to the documents described by those data keys. For example:

- *See, e.g.*, "In sequential file technology, search techniques are well established. Start with the value of the primary data key, of the record of interest, and pass each record in the file through core memory until the desired record, or one with a higher key, is found. (A primary data key is a field within a record which makes that a record unique within the file.) Social security numbers, purchase order numbers, insurance policy numbers, bank account numbers are all primary data keys. Almost without exception, they are synthetic attributes specifically designed and created for the purpose of uniqueness. Natural attributes, e.g. names of people and places, dates, time, and quantities, are not assuredly unique and thus cannot be used," at 654.

- *See, e.g.*, "Database management has two main functions. First is the inquiry or retrieval activity that reaccesses previously stored data in order to determine the recorded status of some real world entity or relationship," at 654.

- *See, e.g.*, "In addition to a record's primary key, it is frequently desirable to be able to retrieve records on the basis of the value of some other fields. For example, it may be desirable, in planning ten-year awards, to select all the employee records with the 'year-of-hire' field value equal to 1964. Such access is retrieval by secondary data key. The actual number of records to be retrieved by a secondary key is unpredictable and may vary from zero to possibly include the entire file. By contract, a primary data key will retrieve a maximum of one record," at 654.

- *See, e.g.*, "With the advent of retrieval on secondary data keys, the previously one-dimensional data space received additional dimensions equal to the number of fields in the record," at 655.

- *See, e.g.*, "He can enter the database with a database key that provides direct access to the physical location of a record," at 656.

- **Campbell 1988:**

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Campbell 1988 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Campbell 1988 discloses searching by attributes to retrieve stored documents. For example:

- *See, e.g.*, "The HAM maintains history for these objects, allows selective access through a filtering mechanism…," at 856.
- *See, e.g.*, "Attributes are also used in the predicates that are part of the HAM filters," at 857.
- *See, e.g.*, "The HAM provides a filtering mechanism that allows subsets of HAM objects to be extracted from large graphs. Filters allow the user to specify visibility predicates, which are expressions relating to attributes and their values. HAM filters only return objects that satisfy the predicates. Filters also allow the user to specify a version time so that earlier versions of a graph can be examined," at 857.
- *See, e.g.*, "Get operations retrieve data from existing objects. A get operation takes an object index and a version time, and returns the data that existed at the specified time. The object index specifies a unique identifier for the object from which data is being retrieved. The version time is a time range for the data retrieval," at 858.
- *See, e.g.*, "Filter (and linearize) operations selectively retrieve information from a graph. A filter operation takes a predicate, a version time, and a list of attributes. These operations return a list of objects that satisfy the predicate and a list of requested attributes attached to each object. The version time specifies the time at which the filter is to search for the information. Each filter operation also has unique parameters in addition to those already specified," at 858.

- **Elmasri 1990:**

Elmasri discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Elmasri discloses searching using attributes, links between the information, all in a multidimensional space. For example:

- *See, e.g.*, "A search for objects that satisfy such a temporal condition combines selection based on a time interval with a selection based on conditions involving attribute values," at Summary of the Invention.
- *See, e.g.*, "However, numerous past versions of the object may also exist. These

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versions of an object are linked to the current version and may be recovered through the use of various known techniques . . . ," at Summary of the Invention.

- *See, e.g.*, "The present invention provides a time indexing procedure which is particularly useful with object versioning structured temporal computer databases for the efficient processing of temporal operations requiring reference to time intervals," at Summary of the Invention.

- **Haake 1992:**

Haake 1992 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Haake 1992 discloses a means for searching its text-based information using attributes. For example:

- *See, e.g.*, "CHS offers nodes, links, and composites that can be equipped with application-defined attributes. Objects can be accessed by their attribute values using the query language of the underlying database system of CHS," at 46.

- **Kim 1996:**

Kim 1996 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Kim 1996 discloses searching based on attributes and using links. For example:

- *See, e.g.*, "First, since our hypermedia markup language is designed using SGML, the language can … support content-based and structure-based retrieval," at 496.

- *See, e.g.*, "Therefore, it is necessary to support content-based and structure-based retrieval as well as database mechanisms for hypermedia documents," at 496.

- *See, e.g.*, "Meanwhile, hypermedia data relate multimedia data by linking them together, and permit users to browse related parts through links," at 496.

- *See, e.g.*, "Besides, HOML defines virtual objects and dynamic link objects, which can decide a link destination with a query result in run time," at 497.

- *See, e.g.*, "The anchor element specifies the source or the destination of a link. Since there can be many anchor elements in a text element, each anchor element should have a unique identifier," at 497.

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- *See, e.g.*, "The link element specifies a relation between a source object and a destination object through navigation. According to the number of destination objects, there are single links, multi-destination links and dynamic links," at 498.

- *See, e.g.*, "Therefore, it is necessary to support an efficient information retrieval, which provides content and structure-based retrieval, and database query mechanism. Besides, the content-based retrieval method searches every object, which consists of the hypermedia network, and the object contents. On the other hand, the structure-based retrieval searches the logical and hypermedia network structures," at 498.

- *See, e.g.*, "Since the data about document structure and attribute values can be stored as instances in the database, Postgres can directly process the structure-based retrieval. The other is a content-based retrieval. When a content-based retrieval query is given, the information retrieval manager performs full-text retrieval against the hypermedia document database," at 500.

- *See, e.g.*, "For this reason, we design a new query language which supports both an information retrieval mechanism and a database query mechanism for handling structure hypermedia documents," at 500.

- *See, e.g.*, "Element attribute search," at 501.

- **Larson 1988:**

  Larson 1988 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Larson 1988 discloses searching text using attributes in a multidimensional space, wherein the attributes in the index are coupled to the text data by a linking means. For example:

  - *See, e.g.*, "The basic conceptual model of hypertext is a multidimensional graph (or network) whose vertices (nodes) are information sources and whose edges (or links) represent both directed associative indices to those sources, and operational programs to display or utilize the information they contain. . . . The concept of an 'information space' that supports a hypertext network is useful. The world's store of recorded human knowledge may be viewed as a N-dimensional 'information space,' where N is the number of possible attributes that may be used to make up any information source," at 195.

  - *See, e.g.*, "Obviously, not all points in this information space will be occupied. Various dimensions of similarity may be considered to provide a useful clustering of information items within this space. The clustering may be based on any number of entity/attribute relationships, such as storage location (e.g., a library collection),

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form, topical, historic, author, citations, language, or literary style," at 196.

- *See, e.g.*, "Neptune also permits any number of descriptive attribute/value pairs to be assigned to any node or link, which may be searched," at 196.

- *See, e.g.*, "The indexes supported in Telesophy include a keyword index (providing Boolean and proximity searching), a 'temporal index' that permits selection by the time an IU was created, and a 'spatial index' that 'places items in an N-dimensional space based on their attributes, then allows the space to be searched," at 197.

- **Liddy 1996:**

  Liddy 1996 discloses, teaches or renders obvious this claim for the reasons stated by the Patent Examiner in the Office Action of March 24, 2000 (incorporated herein by reference) and others.

- **Lo 1996:**

  Lo 1996 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Lo 1996 discloses searching text using attributes in an index, wherein the attributes in the index are coupled to the text data by a linking means. For example:

  - *See, e.g.*, "While it is reasonable to index the title and author field of a document, it is pointless to index or query against the whole piece of text because consequently at most only one document would match a given query," at 8-9, section 1.2.2.

  - *See, e.g.*, "Documents are stored as records in SIM databases . . . . As a result of applying the fragmentation model in the prototype system . . ., two databases are defined: the *basedoc* database and the *fragdoc* database. The former is for storing bases, and the latter for fragments. The schema of the basedoc database defines six attributes for a record. The *body* attribute contains a whole piece of text marked-up in SGML. This piece of text is recognized to be a specific version of a specific document by the values of the *version number (VerNo)* and the *document identified (DocId)* attributes. The combination of DocId and VerNo is unique in the entire database," at 112.

  - *See e.g.*, "All the attributes in both database are indexed by the SIM DBS and are thus searchable. The prototype program uses the combination of DocId and VerNo to obtain the specific version of a document for manipulation. Similarly the combination of Fid and Doc is used to fetch the specific fragment," at 113.

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- **Povilus 1995:**

  Povilus 1995 discloses, teaches or renders obvious this claim for the reasons stated by the Patent Examiner in the Office Action of March 24, 2000 (incorporated herein by reference) and others.

- **Sacks-Davis 1994:**

  Sacks-Davis 1994 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Sacks-Davis 1994 discloses searching based on attributes and using links. For example:

  - *See, e.g.*, "There is also sufficient information in the DTD to allow the application level to provide information to the user about the elements and attributes which are available for query for each different type of document in the database," at THOM00198836.

  - *See, e.g.*, "SGML's power can be utilized to create additional types of query over the whole database on the structural characteristics of the documents," at THOM00198839.

  - *See, e.g.*, "We also want to be able to query on SGML attributes, for instance: Query 7.1 Find <corres>s with attribute confidential = yes," at THOM00198839.

  - *See, e.g.*, "SGML can be used to support advanced presentation modes such as hypertext," at THOM00198835.

  - *See, e.g.*, "Access by SGML attributes is a commonly used method for supporting hypertext links," at THOM00198839.

- **Sacks-Davis 1995:**

  Sacks-Davis 1995 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Sacks-Davis 1995 discloses searching based on attributes and using links. For example:

  - *See, e.g.*, "The index manager returns a set of record numbers of matching records, and possibly of additional non-matching records. Records are then retrieved on demand using the record numbers and passed back to the DML evaluator," at 460.

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- **Stonebraker 1990:**

  Stonebraker 1990 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Stonebraker 1990 discloses a means for searching records in the database using attributes, and linking to related records by utilizing a record identifier that is coupled to the original record. For example:

  - *See, e.g.*, "It is also possible to interact with at POSTGRES database by utilizing a navigational interface. . . . Because POSTGRES gives each record a unique identifier (OID), it is possible to use the identifier for one record as a data item in a second record. Using optionally definable indexes on OID's it is then possible to navigate from one record to the next by running one query per navigation step," at 126.

- **Taylor 1994:**

  Taylor 1994 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Taylor 1994 discloses searches on attributes within a multidimensional space, such as time, and a corresponding query to retrieve the multimedia objects associated with the results of the query. For example:

  - *See, e.g.*, "We have implemented several operators that reflect the relationships between temporal periods. . . . These operators accept a temporal term and returns [sic] a set of temporal terms satisfying the operator," at 241.

  - *See, e.g.*, "The combination of the conceptual, temporal and geographical classification spaces and their respective operators means that information requests do not need to be limited to one particular dimension. They can be multi-dimensional. An example of such a query would be: Show me Costume from Pontypridd during the Victorian era. The temporal dimension provides a method by which a temporal walk through a concept can be obtained. A temporal walk consists of showing the development of an historical concept or geographic area over time. In practical terms this requires the ordering of a set of media items according to the information stored in the temporal schema," at 242.

  - *See, e.g.*, "The results of navigation produce classification terms rather than media items. To convert the classes to media sets a query is formulated to identify which

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media items have the terms as attributes," at 240.

- **Travis & Waldt:**

  Travis & Waldt discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Travis & Waldt discloses SGML browsers that can conduct searches on the stored text-based data either by keyword or by attribute, or both. In addition, Travis & Waldt discloses maintaining a database of attributes which can be searched and which are linked via pointers to the associated text-based data. For example:

  - *See, e.g.*, 194–95 (and figure 61).
  - *See, e.g.*, 198 (and figure 64).
  - *See, e.g.*, "Consider the requirement to create a link to an on-line database containing legal citations. The name of the citation must be rendered on the screen in a different color and underlined, which informs the user that the item is associated with an external link . . . . Notice the unique number of the citation is contained in the "num" attribute. This will be used to access the database, while the actual name of the citation is stated separately," at 306–07.
  - *See, e.g.*, "One way this is done is to use the relational database manager to track identifiers and other information about textual objects. The text itself is stored elsewhere, maybe in a file system or some other easily accessible location. When a user wants to query the ext, he submits a query to the relational database, which returns pointers to the actual text. The system returns the text as whole objects, ready to be used," at 192 & Figure 60.
  - *See, e.g.*, "When a document is loaded into the database, the database manager creates a record containing this identifier, along with other parameters like the authors name, load date, chapter title, and so on. The document is stored separately, with a pointer in the relational data table pointing to where the text ended up," at 193.

- **Wilkinson 1998:**

  Wilkinson 1998 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Wilkinson 1998 discloses a means for searching records in the document database using attributes, and linking to

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related records by utilizing a record identifier or pointer that is coupled to the original record. For example:

- *See, e.g.*, Figure 5.2, page 102.

- **Wilson 1990:**

  Wilson 1990 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Wilson 1990 discloses searching based on attributes and using links. For example:

  - *See, e.g.*, "When the user enters the Justus running under Guide he is given a choice of three methods of access: direct access, index of pre-defined terms, and boolean query," at 125.

  - *See, e.g.*, "it is easy to provide a structured index composed of the terms appearing in the catchwords section," at 125.

  - *See, e.g.*, "He can look at the full text by selecting the button that precedes the most relevant catchwords paragraph, at 125.

- **Wilson 1992:**

  Wilson 1992 discloses "means for searching at least one of said text-based predefined portions of said data using said plurality of attributes, wherein said plurality of attributes are coupled to each of said predefined portions by said respective linking means, and for retrieving one or more of said predefined portions using said plurality of attributes to define a point in said multidimensional space." Specifically, Wilson 1992 discloses examples of searches conducted by author name, key word, and date, all of which constitute attributes. Wilson 1992 also discloses maintaining indexes of various attributes for browsing, which are then linked directly to the stored text-based data. For example:

  - *See generally* 16.

  - *See, e.g.*, "Figure 14 shows the lowest level of catchword index: Fig. 15 shows four expanded entries for the headword criminal law. The full text of any of these law reports can be obtained by selecting the appropriate numerical button," at 181.

- **The Pre-1997 Westlaw/Westmate System**:

  The Westlaw/Westmate system contained a means for searching its text-based information using attributes that are coupled using a linking means and for retrieving

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portions using attributes. For example:

- Westlaw DB 1991, generally (describing how the search process within Westlaw used attributes, text, pointers, and database files; the search files are coupled to the text-based data files using a linking means)

- *See, e.g.*, DataBasics 1993, ("United States Code Annotated"): Disclosing mechanisms for searching using words or phrases within portions and amended portions of statutes, doc no. 79858-59.

- *See, e.g.*, Wren 1994: listing the searchable fields, including, among others, the citation, date, and title fields, at 114-24, 141-42.

- The Essential Guide 1996, at 3: "You can use WESTLAW to retrieve information from primary sources, such as cases and statutes from all 50 states and the District of Columbia, and from secondary sources, such as law reviews and treatises. You can seamlessly access Dow Jones News/Retrieval sources, including *The Wall Street Journal*, the same-day *New York Times* News Service and over 2,000 other sources. In addition, WESTLAW contains hundreds of databases from DIALOG, the world's largest online source of factual information. Subjects covered include business, current events, intellectual property, medicine, science and technology, and much more."

- The Essential Guide 1996, at 29: "The citation field is the part of a document containing the citation. When you restrict your search to the citation field, you specify that WESTLAW search only the citation field of a document. By limiting your search in this way, you avoid retrieving extraneous documents."

- The Essential Guide 1996, at 47: "You can use restrictions to limit your WIN search. For example, in a case law database, you can restrict your search by court, date, judge, attorney or added date."

- *See generally* The Essential Guide 1996, at "Chapter 9 Searching Statutes Databases"

- The Essential Guide 1996, at 136, showing a statutory section, including some of the fields within a statute, as well as a link to a related case.

- **The Pre-1997 Premise System**:

  The Premise system contained a means for searching its text-based information using attributes that are coupled using a linking means and for retrieving portions using attributes. For example:

  - *See, e.g.*, Premise Software & Statutes: Select "Search/Search Book…" and then change the "Search Using" field to "Fields Template," which will then display a

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mechanism for searching the portions and amended portions using attributes. Conduct a search and retrieve the resulting portions.

- *See, e.g.,* Premise Publisher: (defining "Hypertext Link" as "A section of text that refers to a related piece of text . . . or an object. The related information is the target of the reference."); (showing means for linking in PREMISE); (describing how to add links to documents), at 11, 49 and 156-61.

- *See, e.g.,* Premise Publisher: (defining "Detail" to be "A set of descriptive information fields about a single object in PREMISE Publisher, e.g., document . . . . "); (showing how to add, change, and delete attributes associated with documents); (showing how to add attributes to a Premise database for use in attribute searches), at 11, 151-54, 181-89.

- **The Astoria System (pre-1997):**

  The Astoria System contained a means for searching its text-based information using attributes that are coupled using a linking means and for retrieving portions using attributes. For example:

  - *See, e.g.,* Astoria 1997-1: "Astoria provides a multilingual engine that lets users search on document content, structure, attributes, and version information," at THOM00211909. "Astoria Link Clusters allow users to link components in hypertext fashion within and between documents. Through Link Clusters, users can identify associations—for instance, topical relationships—between related components without changing the location of the component," at THOM00211910. "Astoria provides a mechanism for associating arbitrary, user-definable attributes with Astoria objects. Custom Attributes provide a means for Astoria users to store relevant information directly with any object, providing a robust foundation for object status tracking, and the search and assembly of individual document components," at THOM00211911.

- **The EnAct System** (previously known as Themis)**:**

  The EnAct system has a means for searching its text-based information using attributes that are coupled using a linking means and for retrieving portions using attributes. For example:

  - *See, e.g.,* Arnold-Moore 1997-2, (showing ability to search the information with various attributes), and saying "Each target element has an identifier (unique within that document) in the tag which can then be included in the tag of the source of the reference. . . . These tags—in combination with an SGML display which supports hypertext—allow users to navigate from the text of the reference (See Figure 3) to the fragment which contains the element to which the reference refers (See Figure 5). The identifier from the source tag is used to construct a query which retrieves the

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appropriate fragment from the database, at 178, figure 1, and 181.

- *See, e.g.,* LSP Newsletter 1998, explaining date search capability.

- *See, e.g.,* TSS 1994-2, (showing the attributes within the EnAct databases), at SAIC002754, and explanatory material at SAIC002753-81.

- **The SCALEplus System:**

  The SCALEplus system has a means for searching using attributes. For example:

  - *See, e.g.,* Kerr 2000, at figures accompanying ¶ 180 (page 6-4), ¶ 187 (page 6-6), ¶ 429 (page 11-3), ¶ 491 (page 11-19), ¶ 172 (page 6-2).

  - SCALEplus Secrets, at 2: "SCALEplus has lots of information that is huge, particularly legislation. SCALEplus data is formatted in HTML which is common to all World Wide Web applications but is ideally suited for one or a few pages—to view a document you have to wait for the browser to load it (often over a modem). Because of this the decision was made to turn each piece of legislation into a number of HTML files, each file being a section of that Legislation. When a results list is returned from SCALEplus what you see are the HTML files that have been found that match your search. For Legislation this will be a section of an Act; for Caselaw an individual case."

  - SCALEplus UM 2: "Data in Scale is organised into separate HTML files that can be viewed through a Web browser. Each document contains sections which are called zones. These zones can be searched using the 'In' operator. Each document also has fields such as 'name' and 'date' associated with the document. These can also be searched using the 'contains' operator."

  - SCALEplus UM 2: "Advanced Search Screen" at THOM00221692 and text describing the features on that screen, including the "Date Search Options."

  - SCALEplus UM 2: "SCALEplus presents all Law Databases obtained and/or prepared by Federal Attorney General's Department as Searchable and Browseable data." (THOM00221675)

  - SCALEplus UM 2: "Search Results Page" screen shot, and the text describing this screen shot. (THOM00221679)

- **The Documentum/Interleaf System:**

  The Documentum/Interleaf system provides searching text via attributes, and returning the associated portion(s) of text-based data based on the results of that search and the coupling of the attributes to the text-based data. For example:

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- *See, e.g.,* Ovum Interleaf 1996, "It is possible to search on attribute combinations and combine these using Boolean operators."; *see also* figure H2.3 (showing that the attributes and content are stored separately, and so the attributes are necessarily coupled to the content via some linking means), at 262 (and figure H2.6),

- *See, e.g.,* Ovum Documentum 1996, "Documentum exposes just about all a document's attributes to querying."; "As shown in figure H1.9, each content object has an attribute which refers to a storage object for that content object. Ordinary file store objects have an attribute which references a location object. The location object, in turn, has an attribute which references the path name of the file store," at 220 (and figure H1.10), and 213 (and figure H1.9),

- **The Core Materials on Legal Ethics System:**

  The Core Materials on Legal Ethics system contained a means for searching its text-based information using attributes that are coupled using a linking means and for retrieving portions using attributes.

- **The Federal Rules of Civil Procedure System:**

  The Federal Rules of Civil Procedure system contained a means for searching its text-based information using attributes that are coupled using a linking means and for retrieving portions using attributes.

- **The Law Desk NY System:**

  The Law Desk NY system contained a means for searching its text-based information using attributes that are coupled using a linking means and for retrieving portions using attributes.

- **The Law Desk USCS System:**

  The Law Desk USCS system contained a means for searching its text-based information using attributes that are coupled using a linking means and for retrieving portions using attributes.

- **The New Mexico Law System:**

  The New Mexico Law on Legal Ethics system contained a means for searching its text-based information using attributes that are coupled using a linking means and for retrieving portions using attributes.

- **The NY Official Reports System:**

  The NY Official Reports system contained a means for searching its text-based information using attributes that are coupled using a linking means and for retrieving

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portions using attributes. • **The NY CLS Beta System:** The NY CLS Beta system contained a means for searching its text-based information using attributes that are coupled using a linking means and for retrieving portions using attributes. • **The OnPoint System:** The OnPoint system contained a means for searching its text-based information using attributes that are coupled using a linking means and for retrieving portions using attributes. • **The Social Security Plus System:** The Social Security Plus system contained a means for searching its text-based information using attributes that are coupled using a linking means and for retrieving portions using attributes. • **The UCC System:** The UCC system contained a means for searching its text-based information using attributes that are coupled using a linking means and for retrieving portions using attributes.
Claim 6: In addition to the prior art listed above in conjunction with Claim 1, and Subject to the Court's claim construction, and given Defendants' understanding of Plaintiff's incomplete contentions regarding the construction and application of the claims, the following references disclose, teach or render obvious Claim 6:
wherein said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML). • **Arnold-Moore 1994:** Arnold-Moore 1994 discloses "said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML)." Specifically, Arnold-Moore 1994 discloses use of SMGL. For example: • *See, e.g.*, "SGML can be used to solve a number of the failings of the hyperbase approach. The problem of presentation is addressed by storing Acts of a given jurisdiction in SGML format satisfying a particular DTD," at *xii*. • *See, e.g.*, "Both of these references discuss prototype systems which utilize SGML for hypertext database systems with legal applications," at *xii*.

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- **Arnold-Moore 1994-2:**

  Arnold-Moore 1994-2 discloses "said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML)." Specifically, Arnold-Moore 1994-2 discloses use of SMGL. For example:

  - *See, e.g.*, "A data model and query language for accessing structured documents expressed in SGML is presented," at THOM00196608.
  - *See, e.g.*, "Standard Generalized Markup Language (SGML), now provides a grammar for describing document structure which is widely used for document exchange," at THOM00196609.
  - *See, e.g.*, "In order to construct a conceptual model of the database system we consider the database to be a list of ELF's (ELements with Features) where an ELF is: a complete SGML element … a list of features associated with that element," at THOM00196611.

- **Arnold-Moore 1995:**

  Arnold-Moore 1995 discloses "said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML)." Specifically, Travis & Waldt discloses use of SMGL. For example:

  - *See, e.g.*, "This paper proposes an architecture for a system which accepts Amending Acts expressed in SGML and produces a database of resulting versions of the Principle Acts, and describes its implementation," at Abstract.
  - *See, e.g.*, "The text database system needs to manage multiple versions of a single document and to manage highly structured documents. We have chosen to use the Structured Information Manager (SIM)…SIM stores documents in the Standard Generalized Markup Language (SGML)," at 299.
  - *See, e.g.*, "SGML has received broad acceptance as an appropriate tool for encoding legislation as well as a variety of other types of documents. Many providers of legislation in electronic form use SGM to encode their distribution," at 299.

- **Arnold-Moore 1997:**

  Arnold-Moore 1997 discloses "said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML)." Specifically, Arnold-Moore 1997 discloses use of SMGL. For example:

  - *See, e.g.*, "The Themis system manages a library of legislation which is encoded in the Structured Generalized Markup Language (SGML)," at 58.

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- **Arnold-Moore 1997-2:**

  Arnold-Moore 1997-2 discloses "said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML)." Specifically, Arnold-Moore 1997-2 discloses use of SMGL. For example:

  - *See, e.g.*, "Themis uses SGML to store legislation," at 175.
  - *See, e.g.*, "Law librarians have identified the need for a standard coding of structure in legal texts for ease of distribution and reformatting, particularly identifying SGML as an appropriate scheme," at 177.
  - *See, e.g.*, "Logical structure is identified by tags which appear interspersed with the text in an SGML document," at 177.

- **Azaria 1994:**

  The Azaria reference discloses, teaches or renders obvious this claim for the reasons stated by the Patent Examiner in the Office Action of March 24, 2000 (incorporated herein by reference) and others.

- **Fay 1996:**

  Fay 1996 discloses the use of SGML. For example:

  - *See, e.g.*, "Documents can either be originated within this document management system or can be generated elsewhere and imported. Imported documents are assumed to conform to a Document Type Definition (DTD) specified according to the ISO standard 8879 for document representation known as SGML or Standard Generalized Markup Language. Elements are the logical components of document structure defined in the DTD," at 3:21–29.

- **Horne 1997:**

  Horne 1997 discloses "said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML)." Specifically, Horne 1997 discloses use of SMGL. For example:

  - *See, e.g.*, "Since the mid 1980s every statute and statutory instrument has been coded using SGML (the Standard Generalized Markup Language)," at 2.

- **Kim 1996:**

  Kim 1996 discloses "said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML)." Specifically, Kim 1996 discloses

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use of SMGL. For example:

- *See, e.g.*, "In this paper, we design a new hypermedia markup language using SGML," at 496.
- *See, e.g.*, "[W]e propose a markup language for hypermedia using SGML (Standard Generalized Markup Language)," at 496.
- *See, e.g.*, "From now one, we will call our markup language HOML (Hypermedia Object Modeling Language). HOML is an SGML application," at 497.

- **Lo 1995:**

  Lo 1995 discloses "said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML)." Specifically, Lo 1995 discloses use of SMGL. For example:

  - *See, e.g.*, "SGML (Standard Generalised Markup Language) was adopted by ISO as an international standard to describe the structure of electronic documents. The reason for using SGML is its international acceptance as an electronic document markup standard. Furthermore, while the description of a document's structure is primarily applied in publication, database technology could also make use of this structural knowledge to enhance its management of documents," at 339.
  - *See, e.g.*, "SGML tags are placed in text to denote its structure and such practice is known as descriptive markup. A component in the text such as a title or a paragraph can be explicitly defined by marking them with these tags," at 339.

- **Lo 1996:**

  Lo 1996 discloses "wherein said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML)." Specifically, Lo 1996 discloses the use of SGML. For example:

  - *See generally* section 1.4, beginning on page 12, entitled "Standard Generalized Markup Language."
  - *See generally* section 2.3, beginning on page 38, entitled "SGML Support."

- **Promenschenkel 1995:**

  Promenschenkel 1995 discloses "said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML)." Specifically, Promenschenkel 1995 discloses use of SMGL. For example:

  - *See, e.g.*, "It will encompass capture and conversion of the article, Standard

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Generalized Markup Language (SGML) editing," at 1.

- **Sacks-Davis 1994:**

  Sacks-Davis 1994 discloses "said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML)." Specifically, Sacks-Davis 1994 discloses use of SMGL. For example:

  - *See, e.g.*, "The ISO Standard Generalized Markup Language (SGML) was designed to support document interchange and fulfils this requirement," at THOM00198835.

- **Sacks-Davis 1995:**

  Sacks-Davis 1995 discloses "said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML)." Specifically, Sacks-Davis 1995 discloses use of SMGL. For example:

  - *See, e.g.*, "SGML is a widely used standard for the representation and interchange of documents. SGML defines a language that can be used to specify abstract grammars consisting of tags that are interspersed throughout the text of documents," at 464.

- **Travis & Waldt:**

  Travis & Waldt discloses "said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML)." Specifically, Travis & Waldt discloses use of SMGL. For example:

  - *Passim*, especially Chapter 10.

- **Wilkinson 1998:**

  Wilkinson 1998 discloses "wherein said markup language is Standard Generalised Markup Language (SGML) or eXtensible Markup Language (XML)." Specifically, Wilkinson 1998 discloses SGML and many other markup languages. For example:

  - *See generally* section 2.4.6, beginning on page 28 (entitled "SGML").

- **The Pre-1997 Westlaw/Westmate System**:

  The Westlaw/Westmate system uses a markup language called AMPEX that is equivalent to XML and SGML. For example:

  - *See, e.g.,* AMPEX § 2.

- **The Pre-1997 Premise System**:

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The Premise system uses a markup language called AMPEX that is equivalent to XML and SGML. For example:

- *See, e.g.*, Premise Publisher: stating that the chapter is instructing the user how to insert markup code into documents for purposes of publishing them via PREMISE; explaining how to add the correct markup tags and attributes to an ASCII file; defining "Data markup"; defining "Data markup codes", at 30, 74-96, 359, and 360.

- **The Astoria System (pre-1997):**

The Astoria System allowed users to use a markup language and to add links to SGML documents. For example:

- *See, e.g.*, Astoria 1997-1: "Astoria Link Clusters allow users to link components in hypertext fashion within and between documents. Through Link Clusters, users can identify associations—for instance, topical relationships—between related components without changing the location of the component. This allows Astoria users to organize related information so they can reference and update it more quickly," at THOM00211908.

- *See, e.g.*, XSoft Astoria: "Astoria has complete version control capabilities. . . . The result is a version control module that is consistent with an SGML environment," at THOM00198652.

- *See, e.g.*, XSoft Premiers Astoria: "Astoria is fully integrated with the XSoft InContext SGML Editor," at THOM00211913. "Astoria is particularly well-suited to working with structured documents based on the Standardized Generalized Markup Language (SGML), making the management of those documents significantly easier and more productive," at THOM00211914. "[I]t builds on the value of SGML with document management capabilities such as version control, revision tracking and component re-use," at THOM00211914.

- *See, e.g.*, XSoft: "Astoria is an object-oriented document production component management system that enable users to easily find, use, share and manage SGML documents and their components, as well as unstructured documents. . . .Because Astoria works directly with SGML elements using an object-oriented database, it can provide unprecedented control over SGML documents as well as unstructured information by allowing fine-grained access and version control," THOM00198647.

- **The EnAct System** (previously known as Themis)**:**

The EnAct system uses SGML to store its text-based data. For example:

- *See, e.g.*, http://web.archive.org/web/19990430002036/www.thelaw.tas.gov.au/background.ht

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ml: "Legislation is stored in a format known as SGML." • *See, e.g.,* Arnold-Moore 1997-2, text following the heading: "Encoding Structure in *Themis*", at 177. • **The Documentum/Interleaf System:** The Documentum/Interleaf system facilitates markup languages such as SGML and its equivalents. For example: • Interleaf allows users to utilize the SGML markup language. *See, e.g.,* Consleg 1996, ("SGML is used as the representation format for the storage of acts,") at 301. • Documentum allows users to utilize the SGML markup language. *See, e.g.,* Ovum Documentum 1996, "Similarly, Documentum can be integrated with SGML parsers for importing SGML documents: using the parser, a large SGML document is turned into a set of compound documents, based on the internal document structure defined by the Document Type Definition," at 212.
Claim 7: In addition to the prior art listed above in conjunction with Claims 1 & 6, and Subject to the Court's claim construction, and given Defendants' understanding of Plaintiff's incomplete contentions regarding the construction and application of the claims, the following references disclose, teach or render obvious Claim 7:
wherein said text-based data is encoded using one or more Document Type Definitions (DTD) or Style Sheet Mechanisms (SSM). • **Arnold-Moore 1994:** Arnold-Moore 1994 discloses "said text-based data is encoded using one or more Document Type Definitions (DTD) or Style Sheet Mechanisms (SSM)." Specifically, Arnold-Moore 1994 discloses encoding test-based data using DTD. For example: • *See, e.g.*, "SGML can be used to solve a number of the failings of the hyperbase approach. The problem of presentation is addressed by storing Acts of a given jurisdiction in SGML format satisfying a particular DTD," at *xii*. • **Arnold-Moore 1994-2:** Arnold-Moore 1994-2 discloses "said text-based data is encoded using one or more Document Type Definitions (DTD) or Style Sheet Mechanisms (SSM)." Specifically, Arnold-Moore 1994-2 discloses encoding test-based data using DTDs. For example: • *See, e.g.*, "The ELF (ELements with Features) model uses the SGML grammar (DTD) directly as a schema avoiding transformations which can lose information," at THOM00196608.

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- *See, e.g.*, "Each document instance consists of a declaration (which describes the character set and the available facilities), a DTD (document type definition – the grammar which the document satisfies) and the tagged text itself," at THOM00196609.

- **Arnold-Moore 1997:**

  Arnold-Moore 1997 discloses "said text-based data is encoded using one or more Document Type Definitions (DTD) or Style Sheet Mechanisms (SSM)." Specifically, Arnold-Moore 1997 discloses encoding test-based data using DTDs. For example:

  - *See, e.g.*, "SGML is a meta-grammar which allows the user to define a grammar (a Document Type Definition or DTD) describing the structure of a document," at 58.

- **Arnold-Moore 1997-2:**

  Arnold-Moore 1997-2 discloses "said text-based data is encoded using one or more Document Type Definitions (DTD) or Style Sheet Mechanisms (SSM)." Specifically, Arnold-Moore 1997-2 discloses encoding test-based data using both DTD and style sheets. For example:

  - *See, e.g.*, "SGML allows the construction of a DTD (or Document Type Description) which describes the structure of a class of documents, describing what document are valid and what they can contain," at 177.

  - *See, e.g.*, "While a DTD describes the logical structure of a class of documents, a style sheet is used to map logical structure to an appropriate representation of that structure," at 177.

- **Azaria 1994:**

  The Azaria reference discloses, teaches or renders obvious this claim for the reasons stated by the Patent Examiner in the Office Action of March 24, 2000 (incorporated herein by reference) and others.

- **Fay 1996:**

  Fay 1996 discloses the use of SGML. For example:

  - "Documents can either be originated within this document management system or can be generated elsewhere and imported. Imported documents are assumed to conform to a Document Type Definition (DTD) specified according to the ISO standard 8879 for document representation known as SGML or Standard Generalized Markup Language. Elements are the logical components of document structure defined in the DTD," at 3:21–29.