

Web CC: An effort towards its revival

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Colon Classification (CC), based on dynamic theory of classification saw seven editions from 1928 to 1987. Libraries practising it continued with extensions and additions carried out to meet their needs since it was not revised for long after the 7th edition. Revision requires adding terms in different disciplines, organising them in relation to each other and assigning notation for shelf classification. Use of ICT would help in reviving CC and is essential for regular revision of a classification scheme. The paper explores the possibility for creation of an expert system through the design of Web based Colon Classification. The author explores the possibility by designing a prototype for online revision of Colon Classification in the paper.

Keywords: Colon Classification; Expert system; Web CC

Introduction

Colon Classification (CC) is one of the important contributions of Ranganathan. Eric de Grolier praising the CC observed that Colon Classification has been the last new general classification system of international significance to have seen the light of day. It is the first 'multidimensional' bibliographic classification which has ever been conceived¹. CC is a freely faceted analytico synthetic scheme based on dynamic theory of classification revised as seven editions from 1928 to 1987. Since it was not revised for a long time, some libraries continued by adding extensions to meet their needs. But most shifted to other schemes particularly DDC which remains popular due to regular revisions and updations. Thus, CC has almost become extinct from libraries. Now it is even being removed from curricula of LIS schools too. There was a time when students used to contribute schedules for the Scheme.

Revision of any classification scheme requires adding terms from different disciplines, organising them in relation to each other and assigning notation for shelf classification. This paper attempts to argue that use of ICT would help in reviving CC and is a must for regular revision of a classification scheme and explores the possibility of creating an expert system through the design of a prototype of Web based Colon Classification².

Expert system

An expert system focuses on the development of computer systems to simulate the processes of solving the problems and duplicating the human brain functions. Expert systems (ES) are type of

programs based on artificial intelligence with a given theory and set methods.

The basic idea behind any expert system is to capture proficiency and expertise in a given application domain and then present it in a flexible and modular fashion for implementation and end-users convenience. It is based on rule-based systems³.

The components of the prototype expert system designed for the web colon classification system is given in Fig. 1. The expert system on CC will have the CC database and the postulates, principles, rules and devices, along with the algorithm for number building as the eight steps given in CC at the back end. The user interface will allow the user/ classifier to interact with the system to build class numbers using the system.

Expert systems of cataloguing

The expert colon classification system once developed will help in providing the regular updates with the new classes, new subjects, latest developments in the subjects, new built numbers and additional indexes accordingly. This will also provide an easy to search and navigate platform, and a simple interface for the users. The platform will be suitable for the novice as well as the expert classifiers of Colon Classification. This system once in place will further also help in mapping and regular updation the Colon Classification with the subjects presently not given.

The expert system in Colon Classification once developed will be a cataloguing tool for not only libraries but will help in many other expert systems developed in other fields for the classification.

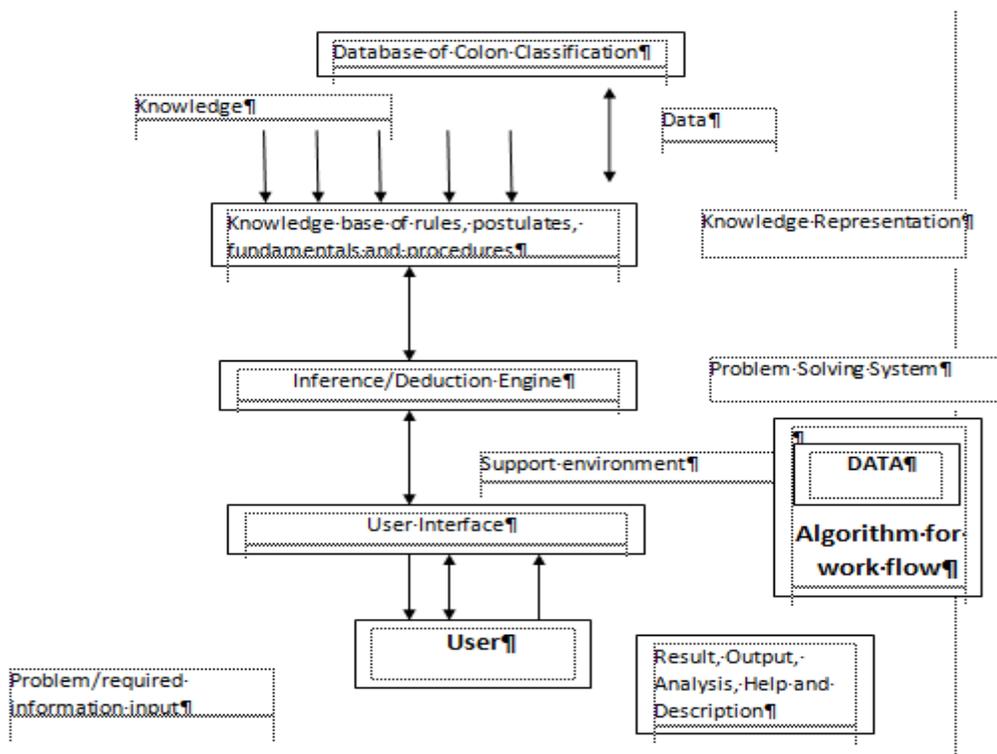


Fig. 1—Components of an expert system on Web CC

For libraries it will help in eliminating the repetitive work of classification and reduce the burden of librarians.

The system can be generated with the utilization of modern computer programs of expert systems, written and developed in contemporary computer languages and RAD computer environments, as user friendly programs. This will further use database of Colon Classification, some latest tools and parameters of knowledge base. The expert system will have a management module which will realize the forward, backwards and mixed inference process, as well as the main hypothesis falsification process⁴.

Web based expert system of Colon Classification can help the users with the following features:

- The user of Web Based Expert System will be able to search Colon Classification with the Main classes, Common Isolates, Time isolate, Space Isolate, Language Isolate and Phase and Intra Phase Relation. Search functionality will also include limiting by index, combined-term searches by using Boolean operators, proximity searches, truncation, and wildcard character masking.
- The Classes and Isolates can be browsable through the sequential indexes of Colon Classification and the Index.

- The index can be linked to the chosen subject heading list at later stages to enhance the approach of Colon Classification.
- Broader and narrower Class number will be available as per the user requirement.
- The window will provide Connecting Symbols including Starter, Arrester, Substantives, Octavising Digits, and Significant Digits with simple buttons to add them at appropriate positions.
- The links and hyperlinks to schedules of classification and annexure will be available for convenient access to related summary.
- Displays screens with the Main Classes with the digits representing them with the schedule

Steps of Web Based Classification through Web Colon Classification:

The steps of Classifying through the Web based Colon Classification will be similar to the Rule 0261 of Colon Classification to classify the documents in the steps of succession. These include:

- Step 0- Raw Title (= Keying the raw title as given in the document in the Text Box given in the platform)
- Step-1- Full Title (= Keying in the title expressing each of the relevant basic and isolate ides in the

subject of the document, got by filling up all the ellipses in the Raw Title)

- Step-2- Kernel Title (= Auto filtering of title by the web system, i.e. title minus all the auxiliary or apparatus words and which each composite term denoting a composite idea replaced by the fundamental constituent terms denoting its fundamental constituents ideas.)
- Step-3- Analysed Title (=Auto conversion of Kernel term with each kernel term marked by a symbol, denoting the fundamental category of which the idea denoted by the term is a manifestation and also the round and the level to which it is assigned in conformity to the Postulates of Classification).
- Step-4- Transformed Title (=Analytical title with the kernel terms re-arranged according to the symbols of analysis attached to them)
- Step-5- Title of Standard Terms- (=Auto replication of transformed title with the kernel terms by respective equivalents in the schedule)
- Step-6- Title in Facet Numbers- (=Auto replication of titles in Standard Terms with the kernel terms replaced by their equivalent numbers).
- Step-7- Class Number- (Auto removal of symbols of analysis and inserting appropriate Connecting Symbols between the facet numbers)
- Step-8 Translation - (System providing the re-translation of synthesised class number in to natural language for verification)⁵

Design of Web Based Colon Classification

The design of web based Colon Classification will be as per the Part-2 of CC i.e. Schedule of Colon Classification where the Home page will be the Main Class which will be further enumerated by each Classes i.e. z, 1,2,3,4, A, AZ, B, BZ, C, D, E, F, G, H, HX, I, J, K, KX, L, LX, M, Δ, MZ, MZA, N, NX, O, P, Q, R, S, Σ, T, U, V, W, X, Y, YX, Z having Canonical Divisions and Foci in PMEST.

After the Main Classes, one can add to the number:

- Common Isolate with Anteriorising and Posteriorising Common Isolates
- Time Isolate
- Space isolate
- Book Number
- Collection Number

The web based system will create Call Number consisting all three parts including Class Number, Book Number and Collection Number. The formation of book number will also include and take care of

numbers for Language, Form, Year, Accession number of the Book, Volume Number of the book, Supplement Number, Copy Number, Criticism Number and Criticism Number in the accession part if any. The Web base sheet will be filled by Classifier with above fields to form the Book Number. Similarly, the Web system will ask for filling the Collection fields for the formation of Appropriate Collection Number.

The system will be flexible enough to add the devices given below to form or sharpen the Focus in any facet:

- Chronological Device
- Geographical Device
- Subject Device
- Mnemonic Device
- Alphabetic Device and
- Superimposition Device

Further, the web based system will also have index to the schedules and schedules of Classics and Sacred books with their Special Names as given in Part-3 of Colon Classification.

Colon Classification in expert systems

S R Ranganathan mentioned in Chapter 1 of Colon Classification Edition 6 that Main Class of a subject will have to be determined by the Method of Trail and Error and the procedures to be followed have to be elaborated, described and illustrated in the Fundamentals⁵. Classification requires the flair, i.e. a specific subject is to be determined from the title, subtitle, preface, table of contents, or even by reading the text. So, to complete this process in the expert system, the raw title will be augmented by keywords or phrases additionally to fully indicate the subject of the document⁶. However the principles of the expert system of web based colon classification will remain same.

The expert online system that is being developed by the author is in .NET using the C# programming language and SQL Database. The same has been also hosted on Windows based server online for the users.

For using the Web-Colon one requires to login with the username and password. One can register for the specific trial period by clicking on New Registration. The registrant will get a temporary password on the email-id. The email-id of the username will be the default username. The user will require the username and password and the captcha code to enter the Colon website (Fig. 2).

Once logged in, the dashboard appears that gives the drop downs to Main Classes, Tables and Isolate, Indexes and help file to Chapters (Fig. 3).

One can navigate the hierarchy of the main classes, tables and isolates and indexes. One can simultaneously search and browse for the concepts

that are in the chapters for the help to the schedules (Fig. 4).

The Web-Colon displays and records the progress. The appropriate records that appear in hierarchy box also help to execute the next step. The platform gives the ability to search for subjects, title words and

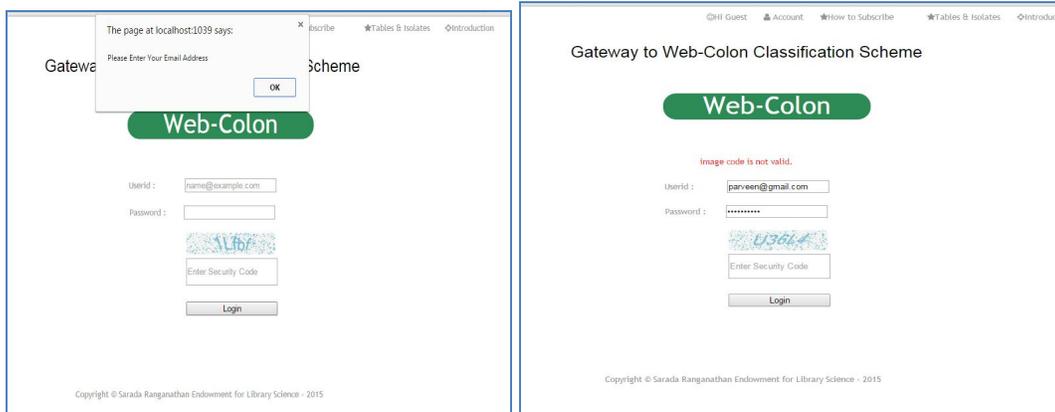


Fig. 2—Screenshots of Login Page: Users can register online by filling a registration form



Fig. 3—Dashboard of expert system

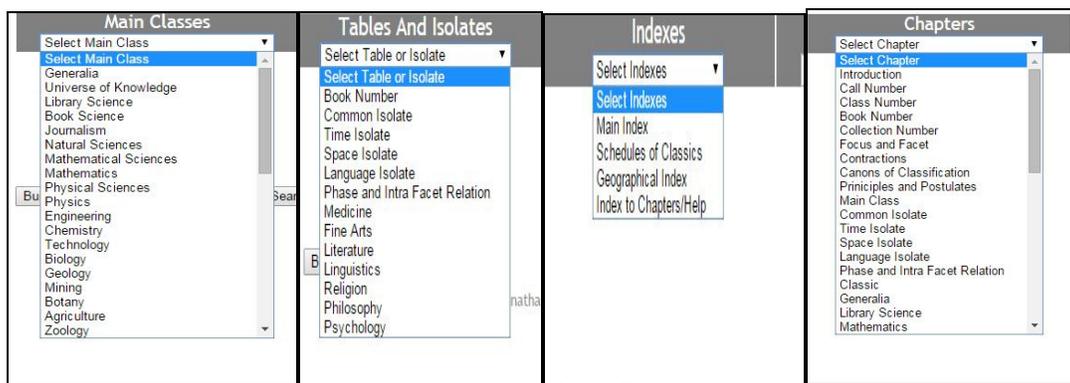


Fig. 4—Dropdown menus for Main Classes, Tables, Indexes and Schedules

earlier created class numbers in the number building process (Fig. 5).

One can build numbers integrated with other search results and browse results in Web-Colon. The built numbers can be reused as needed and shared with the other users. The users of Web-Colon can add the main

classes, common isolates, time isolates, space isolates, language isolates and phase and intra phase relations and connecting symbols. The system will automatically show the related notations but gives the liberty to edit the same if the user wishes to change the designed class number (Figs. 6 and 7)

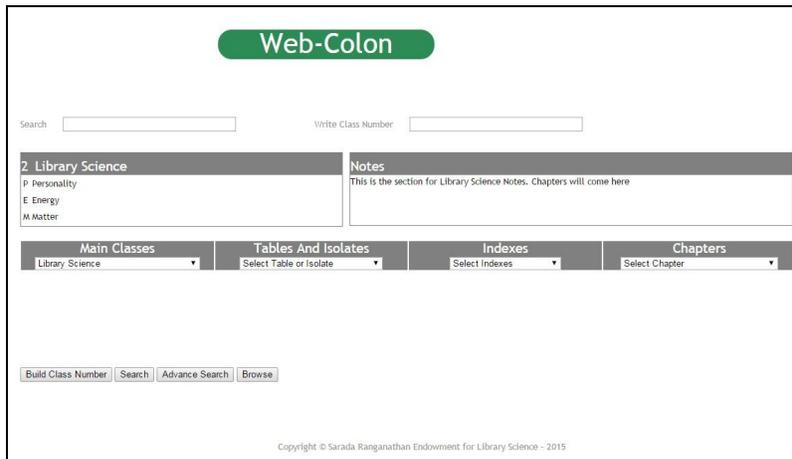


Fig. 5—Screenshot of the Class Number Designing Page of Web based Colon Classification

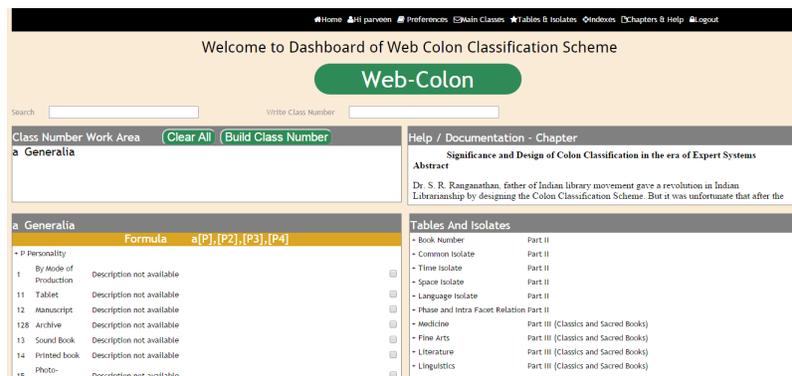


Fig. 6—Screenshot of the Generalia Class

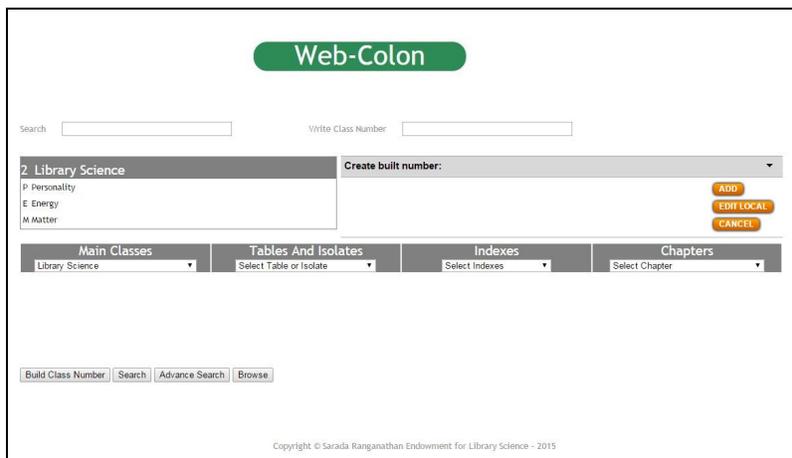


Fig. 7—Screenshot of building class number with the options of editing and local variations

Conclusion

CC, based on a sound theory of classification served libraries satisfactorily for classifying documents. It's easy availability and low cost makes it particularly useful for Indian libraries. All the more, being an Indian system, it needs to be used and propagated. An effort is made here to revive the scheme by initiating the design of an expert system that could be fully developed with time. Collaborative efforts by fellow professional will make it possible to create a Web CC and implement it in libraries.

References

- 1 Grolier E, A study of general categories applicable to classification and coding in documentation, Available at [http://unesdoc.unesco.org/images/0002/000250/025055eo .pdf](http://unesdoc.unesco.org/images/0002/000250/025055eo.pdf) (Accessed 11 November 2015).
- 2 Pandita R, Need and importance of library classification in ICT Era, *Journal of Indian Library Association*, 48 (4) (2012) 25-30.
- 3 Ramana K, Kumar B and Narayana K, An expert system for diagnosis of bearing faults of rotating machinery, *International Journal of Applied Engineering Research*, 9 (14) (2014) 2591-2599.
- 4 Brzozowski W, A skeleton rule-based expert system of new generation, *Journal Of Automation, Mobile Robotics & Intelligent Systems*, 7 (3) (2013)10-21.
- 5 Ranganathan S R, *Colon Classification*, 6th Ed, (Sarada Ranganathan Endowment for Library Science; Bangalore) (1960) p1.7-1.8
- 6 Satija M P and Singh J, Colon Classification: A requiem, *DESIDOC Journal of Library & Information Technology*, 33 (4) (2013) 265-276