



# An Atlas of Classification. Signage between Open Shelves, the Web and the Catalogue

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This paper aims to present the in-progress project for the signage system of the Dewey-classified shelves in the Library of Social Sciences at the University of Florence. The project dates back to 2005 (Fabbrizzi; Gnoli, p. 131–132);<sup>1</sup> its realization began in 2011 and is still ongoing.<sup>2</sup>

Library users use classified arrangement on open shelves in two main ways:

1. to search for works on a particular subject within a discipline;
2. to locate specific items, the position of which on the shelves is defined by a call number.

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<sup>1</sup>The signage system was designed according to the Dewey Decimal Classification, Edition 20, and was developed taking account of the latest editions of the classification.

<sup>2</sup>The realization of the signage system is being undertaken by Andrea Fabbrizzi (planning, coordination, images and texts, setting up), with the collaboration of Francesca Palareti (technical support for graphics, HTML and CSS) and Andrea Urbini (JavaScript programming, HTML and CSS), and with the advice of Marco Bicchierai, Lucilla Conigliello and Marianovella Fama.



The reasons for the systematic arrangement on open shelves relate to the first mode of use: the search for documents about a particular subject on the open shelves leads to the exploration of a semantic area that includes treatises on either more general or more specific subjects and on related subjects, shelved in proximity according to the hierarchic logic of classification. As a consequence, with a DDC classified arrangement, users are, on the one hand, induced to contextualize a particular research interest, and, on the other hand, they can unexpectedly find relevant documents.

In order to induce users to use the classified arrangement on open shelves to their full potential, a signage system is necessary. The Library of Social Sciences has been open to the public in its new location since 2004. Over the years, librarians have noticed that without a specific signage system, open shelves are used by library users almost exclusively to find a specific item, and therefore not for the main reason for which the shelves were systematically arranged.

## **1 The transparency of indexing**

Let's take the second letter of the acronym FSR in the title of this conference: a 'smarter' catalogue is also a more intelligible catalogue, one which is understandable to users. 'Understandable', however, does not mean 'friendly': many online catalogues which claim to be friendly simplify the search modes to the extent that a significant part of the cataloguer's work is rendered useless. 'Understandable' does not mean to deny complexity, but to make it explicit, to clarify it, so that users can perceive all the opportunities that are too often hidden in the catalogue records and in the indexes arranged for the organization and the search for documents.

To express the characteristics, the fundamental elements, and therefore all the potentials of indexing, in the presentation of the

cataloguing data one should always keep in mind what might be called the *principle of indexing transparency* towards users: entities and relationships, which appear in a specific form of indexing, must always be presented to users in a visible and understandable way.<sup>3</sup> Transparent indexing enriches the catalogue and is, thus, in keeping with the third letter, 'R', of our acronym.

The classified arrangement on open shelves is, along with the online catalogue, one of the two ways in which class indexing is made available to users. A signage system of the Dewey-classified shelves must, therefore, highlight its basic characteristics:

- the organization by disciplines;
- the principle of hierarchy expressed through both the structure of classified subjects and notations;
- the decimal notation, which expresses the coordination and the subordination of subjects.

Bearing in mind the basic characteristics of class indexing according to the DDC, the aims of the signage system for the classified arrangement on open shelves in the Library of Social Sciences are as follows:

- to make users always aware, from the first time they enter the library, that the subject on which they seek information, or the document they want to retrieve, is within the context of classification: only if users can grasp the logic behind the arrangement of documents, can they use the systematic arrangement effectively;

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<sup>3</sup>«On the contrary, if the entities and their relationships are not clearly presented or if they are lacking in the planning of displays and searches, cataloguing loses effectiveness and the work of cataloguers is actually wasted at least partially, which is bad both for the library economy and for the users» (Casson, Fabbrizzi, and Slavic, p. 45).

- to indicate the position of the shelves in the physical context of the library as well as in the conceptual context of the Dewey Classification;
- to effectively display all the classified subjects of the works contained on each shelf;
- to clearly identify the different sections of the Dewey-classified open shelves in the library.

## 2 The Library of Social Sciences

The particular structure of the Library of Social Sciences was seen as an opportunity to achieve the above-mentioned aims. The library is, in fact, a single, completely open environment: three floors with a lightwell in the middle around which the open shelves are arranged. Most of the library workstations which are equipped with computers and most of the users' tables where portable computers can be used are near the open shelves, the former around the lightwell, the latter in the area between the shelves and the external perimeter (Natalini).

The Dewey-classified shelves are on the ground and second floors and are divided into four sections. The two sections on the ground floor concern in particular the student's early years of learning (ca. 6,500 volumes):

1. the collection of textbooks adopted by the professors of the courses of Political sciences, Law, and Economics and management (section TESTO),
2. reference works for basic research (section DID);

the two sections on the second floor are devoted to specialized studies:

3. reference works (section REF, ca. 8,700 volumes),
4. the General Section, with the most frequently consulted monographs (ca. 82,000 volumes) (Stagi).<sup>4</sup>

In order to distinguish these four sections, the signage system uses the same colours as the book labels: yellow for section TESTO and pink for section DID on the ground floor, green for section REF and grey for the General Section on the second floor.

### 3 The integration of information

In a vast and open environment, the information contained in the signs on the end caps of the adjacent shelves can be considered integrable with one another. This is possible since users standing at various distances are able, in one glance, to take in several signs.

The proximity of the devices for accessing the web to the shelves allows the floor plan shown on the library website to be placed in the real space: thus, the information on the website can be considered integrable with that which is physically on the end caps.

The project therefore involves the integration of information from different sources and proposes communication using:

1. the same medium: the sign on each end cap indicates the physical position of the shelf and its semantic content in relation to the physical position and the semantic content of the adjacent shelves;

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<sup>4</sup>In these sections, on the book labels the classification number corresponds to the class index, at the highest level of specificity. In the future, in particular sectors of the open shelves, the classification numbers in the call numbers might be different from class indexing, to give further specificity to classes or to abbreviate the class numbers that are too long, replacing the redundant number sequences.

2. different media: the library website presents further information that integrates the information on the signs, presenting it so that it can be both further explored and also shown in a different way.

In this signage system the information on the website is conceived for users who are physically *in the library*. In the years following the conception of this project, mobile devices such as tablets and smartphones have become very popular: due to their portability they are now even more suitable than computers for integrating the information on the website and the information physically present in the library. The possibility to access the Web while moving from shelf to shelf allows this project to be put into practice even in environments which are structurally different from the one for which it was designed.

## 4 The separation of information

The signage system is based on the identification of three types of information, the different functions of which achieve the purposes mentioned above:

1. context information, consisting of two elements side by side: physical context and context of the conceptual organization;
2. content information;
3. location information.

The *context information* and the *content information* relate to the search on the open shelves for works on a particular subject within a discipline, and facilitates an understanding of the logic behind the

organization of the open shelves; the function of the *location information* relates mainly to the retrieval of single items or to the returning of single items to their place on the shelf.

## 4.1 Context information

The main function of the context information is user orientation:

- it is aimed at making users constantly aware that the subject on which they are searching information or the document they want to retrieve are included in the context of a classification;
- it expresses the basic characteristics of the DDC: the organization by disciplines, the hierarchic structure, the decimal notation;
- moreover, it indicates on which shelves of a library floor one can find the documents corresponding to the main classes and the divisions of the Dewey Decimal Classification.

The first element of orientation is the *physical context*: the representation of the shelf near which the user is or which the user intends to examine, in the context of both the shelves in the section to which it belongs, and the shelves on that floor of the library, which are schematically represented in the plan. Next to the physical context, the *context of the conceptual organization* is presented: the conceptual content of the documents of the shelf, in the context of the entire world of knowledge, represented by the DDC summary of the hundred divisions. The representation of the shelf and the classes of the summary of the divisions corresponding to the conceptual content of the documents of the shelf, are highlighted in red; the section to which the shelf belongs is highlighted in its own colour.

*In the library, the context information is presented with a sign in A3 format on the two end caps of each shelf (figure 1 and figure 2 on the next page).*

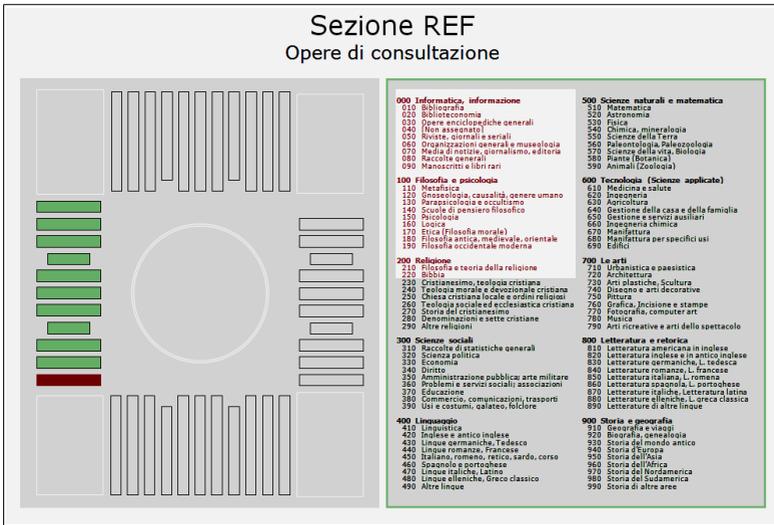


Figure 1: Context information sign, section REF

In several cases the classes expressed at the level of the division (two significant digits) are not sufficient to distinguish the conceptual content of a shelf from the adjacent ones. For this reason, it is possible for the summary of the divisions to be superimposed by a text box, with a list of classes and their descriptions which expresses the conceptual content of the shelf with greater specificity, even up to five digits (figure 3 on page 110).

Looking at the end caps of the shelves, library users can simultaneously see several signs. As they shift their gaze from one shelf to the adjacent one, the parts highlighted in red in the floor plan and

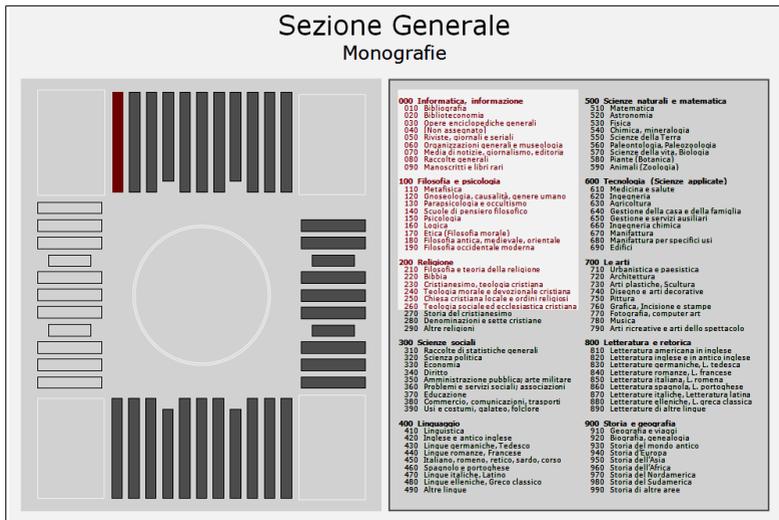
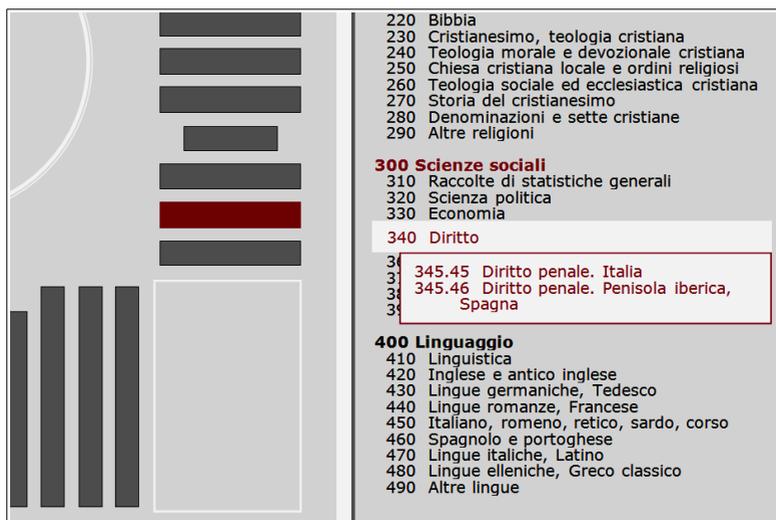


Figure 2: Context information sign, General Section



**Figure 3:** Text box superimposed on the summary of the divisions on a context information sign

in the summary of the divisions seem to move, in a sequence similar to film frames: in this way the signage system aims to suggest that each shelf covers one part of the overall knowledge (figure 4).



**Figure 4:** Adjacent context information signs: the parts highlighted in red appear to move



**Figure 5:** Context information for the same shelves on the library website

The context information is also presented *on the library website*, with graphics similar to those of the signs on the end caps. By clicking with the mouse on the shelves represented on the floor plan, users can get the same effect that occurs in the library when looking at the signs on the end caps of the adjacent shelves (figure 5).

*On the website* it is possible to indicate where the documents of a particular discipline are: this is a particularly important orientation, because this is the first question users ask when faced with a floor of open shelves, and it is a question which a conventional signage system applied to shelves cannot answer.

By clicking one of the classes contained in the summary of the divisions, users can see in light red, for all the sections of the floor, what and where the relevant shelves are (figure 6).

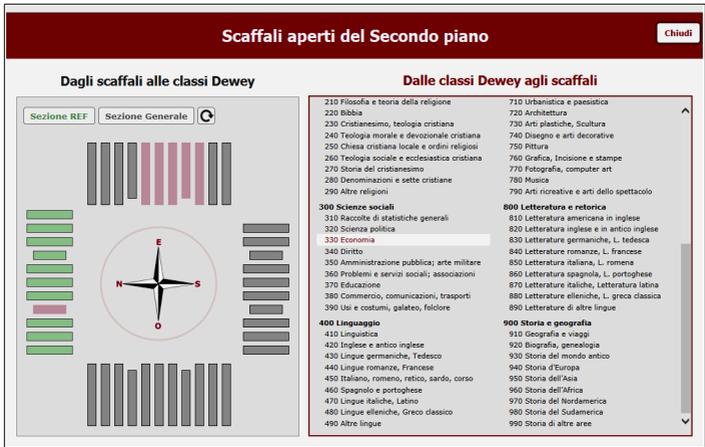


Figure 6: Context information on the library website indicating the shelves relevant to the class 330 Economics

## 4.2 Content information and link to the catalogue

Starting from the context information, the content information is displayed and the classes highlighted in red in the context of the conceptual organization are explored in depth.

- The function of the content information is to list all the classified subjects assigned to the documents located on a particular shelf;
- together with the context of the conceptual organization, it

represents the hierarchical organization established by the classification scheme for the classified subjects.

The content information consists of the notations and their descriptions concerning the documents located on each shelf. As this data is contained in the catalogue, the most complete, the most effective and cheapest way to present it to users is by direct access to the online catalogue, starting from the context information relating to a particular shelf.

The best place to obtain the content information is *the library website*,<sup>5</sup> through direct access to the catalogue starting from the specific red bar relevant to the list of classes highlighted in the context of the conceptual organization relating to a particular shelf (figure 7 on the following page).

Similarly, with the QR code a link to the catalogue is also obtained from each context information sign displayed on the end caps (figure 8 on the next page).

The link to the catalogue presents a complete list of the notations and their descriptions relevant to each highlighted shelf in the context information. From this list, for each classified subject one can see the documents located on the shelf, check whether the documents are currently available or out on loan, examine the complete records

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<sup>5</sup>In this signage system the display on the website is divided into two functional areas, which alternately act as *exploration* and *display of the results of the exploration*; a red frame indicates the functional area which acts as exploration. In the left functional area, the exploration 'From the shelves to Dewey classes' allows the user to analyze the sections on the library floor from shelf to shelf, showing on the right the context information and the content information relating to each shelf (figure 7 on the following page). In the right functional area, the exploration 'From Dewey classes to the shelves' indicates, for each class of the DDC summary of the divisions, the relevant shelves in all the sections on the floor, highlighted on the left in light red (figure 6 on the preceding page); they can then be analyzed by activating the exploration 'From the shelves to Dewey classes' in the left functional area.



Figure 7: Link to the catalogue on the library website from the context of the conceptual organization relating to a shelf



Figure 8: QR code for the link to the catalogue from a context information sign

and search the catalogue further.<sup>6</sup>

The list of classified subjects is coherent with the classification structure because, following the principle of hierarchy, each classified subject involves all the superordinated subjects included in the classification. This relationship, implicit in any notation, is made explicit in a hierarchic context as the list of notations and their descriptions, and it can therefore be grasped by users.

In addition to its implicit relationships with all the superordinated subjects, each classified subject has relationships with other subjects, especially those which share one or more concepts within different disciplines: for example the classified subject 331 *Labor economics* has a relationship with 344.01 *Law. Labor*. If these relationships are recorded in the catalogue, it is possible to give the users the opportunity of a network of search paths that otherwise would not be evident due to the organization by disciplines.<sup>7</sup>

The direct link to the catalogue, proposed by the signage system in the context of the linear sequence of the documents arranged by class, introduces in the search path among the shelves all these relationships, and becomes the key for informing users of the presence of other documents that could interest them but which have been assigned by cataloguers to different disciplines and therefore classified with different notations.

This respects the principle of indexing transparency, and allows us to overcome, at least in part, the underlying problems of the phys-

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<sup>6</sup>To get the complete list of notations and their descriptions relevant to a particular shelf, it is necessary to identify in the catalogue the subset of the notations corresponding to the section, and to establish which are the first and the last notations on each shelf, as these form a filter for the presentation of data.

<sup>7</sup>Giving the users the relationships between the classified subjects in the catalogue is the only way to deal with a difficulty intrinsic to the Dewey Classification, which due to the rigidity of the disciplinary boundaries is becoming less and less representative of a knowledge that develops in an interdisciplinary way (Galluzzi, p. 242–243).

ical arrangement of the documents on the basis of the classification: the need to choose, for each document, a single classified subject from among the semantic indexes relevant to the work or the works that the document contains, and the need for each classified subject to follow the citation order of the notation, which determines the physical contiguity of the documents on the basis of only some of the concepts that it expresses.

This signage system does not involve the application of shelf labels to translate the single notations, as is widely used in open shelf libraries. We are all well aware of shelf management problems relating to relative location, which involves frequent changes of position as well as insertions between the documents on the shelves, making it therefore necessary to frequently relocate also the relevant shelf labels. But, above all, a choice of notations tends to highlight particular subjects, and reduces the perception of their relationship with similar subjects; as a consequence, it does not make the hierarchic organization of the classified subjects visible, visibility being one of the aims of the content information. Moreover, since the choice is generally based on the most representative subjects, the works on less documented subjects, which could potentially be of greater interest to the user, are made less noticeable.

### **4.3 Location information**

Location information supplements context information and content information, facilitating the retrieval of single items or the returning of single items to their place on the shelf.

- Its function is to provide reference points to be used as a starting-point for following the decimal number sequence on the book labels, up to the labels bearing the classification number being searched for.

- It indicates the classification number with which one side of the shelf or a part of it begins.
- In the library two projecting panels are put, one at the beginning of the shelf and one half-way down, placed high up on each side and readable from either side (figure 9). The signs are produced in-house and made of fixed plastic supports and of removable elements of plastic laminated paper, on which the classified notations are printed. The background of the removable elements is of the same colour as the labels used in the corresponding section.



**Figure 9:** Location information, section REF

## 5 Information architecture

From the earliest phase of the project, this signage system has been intended to achieve what is currently defined cross-media communication: in fact, it is an integrated system in which integration regards firstly the media, and secondly the data.

The media is both media of the same type (the signs on the end caps of the shelves) and media of different types (the signs on the shelves and the website). The data is the context information on the signs and on the website, and the content information in the electronic catalogue linked to the website. The data is from different sources but, however, convergent and coherent: the list of notations and their descriptions in the catalogue converges, complementing it, with the context of the conceptual organization on the signs and the website; these signs and website images, being coherent with each other, provide users with a constant cognitive framework.

Integrated systems of this type are entirely common today: «The boundary between different media and even between physical space and digital space is tending more and more to shrink, almost to the point of disappearing. This leads to an increasingly inextricable weave between heterogeneous media and environments, between atoms and bits, with the consequence that today any 'product' tends to take the shape of a cluster, of a constellation: a real ecosystem» (Rosati, p. 12; see also Resmini and Rosati, p. 39-62).

## 6 Conclusion

The signage system for the Dewey-classified open shelves that the Library of Social Sciences is realizing,<sup>8</sup> aims to make class indexing

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<sup>8</sup>At present, the signs for the context information and the location information have been prepared and applied to half of the open shelves of the second floor. The

effective, and therefore fully usable. For this reason it orients users towards the logic behind the shelf arrangement: this signage system can therefore be considered a form of user education.

User orientation requires spatial coordinates and conceptual coordinates, which are determined shelf by shelf: the spatial coordinates on the library floor plan, the conceptual coordinates in the DDC summary of the divisions. The result is an *atlas of classification*, where the cartography is made of signs but also of images on electronic support, integrable with the images on the signs, and available online. When it is necessary to detect the differences between the conceptual coordinates of two or more shelves, the images on the signs and online provide the information on a larger scale in a box. On the website, through the catalogue, a much larger scale can be used, which allows the detection of all entities: the list of the classified subjects shelf by shelf, that users faced with the open shelves will have in their hands through to the mobile devices to access the Web.

The entities which are the object of this signage system are not the single items as in many virtual shelves, but the classified subjects: for this reason the classified notations are proposed in the first place to users. For each classified subject, the catalogue, starting from the list of the class numbers and their descriptions, then allows the user to see the documents on the shelf.

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link to the catalogue has not been activated because in the OPAC browsing by class cannot correspond to the documents of a particular shelf: the filters to identify the notations and their descriptions relevant to a particular section and to a particular shelf have yet to be defined. A Web application is being developed, the main routines of which have been completed: it is not yet available to the public, but it can be seen at: <http://www.sba.unifi.it/CMpro-v-p-748.html>. As a demonstration, in the application the links to the catalogue are activated only from the section REF. The application was developed using JavaScript (jQuery library), and it can be used in a desktop environment with a screen/window resolution of not fewer than around 1000 pixels; the adaptation for mobile devices is in development.

Apart from the effective realization of the content information and the opportunity to show users the complexity of the relationships between the classified subjects, the direct link between the information relating to the shelves in the website and the catalogue data restores visibility to the catalogue. Unlike the old card catalogue, the electronic catalogue is not a physical object, and so it does not occupy space in the library. Many users tend to do without it, as if it did not exist or it were not necessary: the consequence is that a relevant part of the documentary offer of the library is known, and therefore used, only partially.

For the user who approaches the classified arrangement on open shelves, the possibility to access the catalogue directly, leaves the door open to new searches: because of their material presence, the open shelves could in turn be considered signage for the electronic catalogue.

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**ABSTRACT:** This paper intends to present the in-progress project for the signage system of the Dewey-classified shelves in the Library of Social Sciences at the University of Florence. To make the classified arrangement effective, a signage system must clarify complexity, that is it must orient users towards the logic behind the shelf arrangement, presenting in a visible and understandable way the entities and the relationships which appear in class indexing. This signage is based on cross-media communication and integrates the library's communication means at various levels, both in the context of the same medium and between different media: between the information signs on the end-caps of the shelves, between these information signs and the library website, between the library website and the catalogue. Mobile devices such as tablets and smartphones are particularly suitable for this integrated system, because they give the possibility to access the Web while moving from shelf to shelf. The QR codes allow a link between the Dewey-classified shelves and the catalogue directly from the information signs.

**KEYWORDS:** Class indexing; Cross-media communication; DDC, Dewey Decimal Classification; Library instruction; Open shelves; Signage systems.

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