

**Anna Paluszkiewicz and Andrzej Padziński,
Aiming at the Union Catalog of Polish Libraries**

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Union Catalogs at the Crossroad

Edited by

Andrew Lass and Richard E. Quandt

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Chapter 13

Aiming at the Union Catalog of Polish Libraries

Stage 2: From the Union Authority File to the Union Catalog

Anna Paluszkiewicz and Andrzej Padziński

On October 16–18, 1997, at the Conference on Library Automation held in Warsaw under Mellon Foundation auspices, Anna Paluszkiewicz presented a paper on the Union Authority File (*Centralna Kartoteka Hasel Wzorcowych*—CKHW)¹. The project described in the paper was the first stage of building the union catalog in Poland. The National Union Catalog (*Narodowy Uniwersalny Katalog Centralny*—NUKAt) was initiated in June 10, 2002, after a long period of careful preparation. The present paper recapitulates the first stage of the preparations and the key role of CKHW. It briefly discusses the development of work on the idea of the union catalog, the principal aims of the project and the requirements for the union catalog's integrated library system. Next, it discusses the preparatory work directly preceding the start of the union catalog and the start of NUKAt. Finally, it focuses on the costs and advantages of the union catalog.

¹ Anna Paluszkiewicz, "Evolution of authority file work in Poland," in *Library Automation in Transitional Societies: Lessons from East Europe*, eds. Andrew Lass and Richard E. Quandt (New York: Oxford University Press, 2000: 224–234).

1 Stage 1

Political and economic transformations in Poland at the turn of the 1980s and 1990s and the rapid development of modern technologies led to significant improvements in the automation of Polish libraries. The automation of many Polish libraries became possible with financial help from foreign foundations supporting Polish scientific and cultural institutions.

Library automation is a very expensive process, and can yield significant advantages only through cooperation among libraries. In order to reduce cataloging costs and accelerate the process of building databases, we need to enable data exchange among libraries. The need for data exchange has generated a demand for an automated union catalog—the source of quality data for the libraries and an efficient searching tool for the library users, enabling them to search through the collections of Polish libraries. However, the transformation in Poland and the sudden influx of funds for the purchase of hardware and software left Polish libraries totally unprepared for the implementation of this project. Since an attempt to build the union catalog in this situation might have failed, we needed first to meet the necessary conditions for the implementation of the union catalog project. Among the most important tasks requiring immediate solutions were the establishment of connections between libraries and the computer network, the preparation of rules for creating authority files, the construction of authority files and the preparation of unified cataloging rules and librarians training.

In 1992, Warsaw University Library (*Biblioteka Uniwersytecka w Warszawie*—BUW), Jagiellonian Library (*Biblioteka Jagiellońska*—BJ), Main Library of Gdańsk University (*Biblioteka Główna Uniwersytetu Gdańskiego*—BGUG) and Main Library of Stanisław Staszic University of Mining and Metallurgy in Cracow (*Biblioteka Główna Akademii Górniczo-Hutniczej w Krakowie*—BGAGH) decided to begin a cooperation. They purchased the same integrated library system, VTLS, chose the USMARC format, and began to build CKHW. CKHW consisted of the name authority file (containing records for personal headings, corporate headings, uniform titles and series titles) and the subject authority file KABA. The KABA subject headings system is compatible with two other subject headings

systems, LCSH and RAMEAU. Apart from Polish terms, the subject authority file KABA also includes their English and French equivalents. At first, the CKHW database was built only by the libraries that used VTLS; but gradually it became of more interest to other libraries as well. Until the start of NUKat, CKHW was built cooperatively by 500 librarians from 27 libraries using various softwares (VTLS: 20 libraries, Horizon: 4, ALEPH: 2, Prolib: 1). Many libraries participated passively in the project, downloading records from CKHW or from its copy created for the libraries allied by an agreement entitled “Library with the Horizon”. Initially, CKHW was administered by BUW staff. Since 1996, CKHW has been supervised by the Center for Formats and Authority Files (*Centrum Formatów i Kartotek Hasel Wzorcowych*—CFiKHW) established at BUW. Standardization of headings and the use of CKHW as the only source of authority records for the catalogs of cooperating libraries maintained the consistency of data and, as a result, an effective search and exchange of data. The whole process will also facilitate the transfer of records from the local catalogs to the NUKat catalog.

Another shared project that may be considered one of the stages in the process of building the union catalog is the Union Serials Catalog (*Centralny Katalog Czasopism*—CKTCz). CKTCz was started on the BGUG server in 1995. At first it was built only by the librarians from VTLS libraries, but later it was supported by the staff of other libraries as well. CKTCz contains over 20,000 bibliographic records for Polish and foreign serials collected by the cooperating libraries. The establishment of CKTCz has accelerated the process of cataloging serials and allowed for the unification of cataloging rules for them.

Experience gained during the work on CKHW and CKTCz has been of considerable help to staff working on the NUKat project, since we have recognized the need for unified rules and procedures. In accordance with the accepted strategy, each authority or bibliographic record is entered into the central database and only then copied to the local catalogs. The control numbers of these records guarantee their unequivocal identification. This solution allows us to restrict any required modifications of records to their versions in the central database. Then the files with modified records are transferred to the local catalogs where they replace earlier versions of the records.

2 Towards the Union Catalog

In 1996, at a conference in Kraków, Anna Paluszkiewicz discussed the proposal of building the union catalog for academic libraries as a facility for the retrospective conversion of catalogs². This proposal served as a starting point for the 1996-1997 idea of a Union Catalog for Academic Libraries (*Wspólny Katalog Bibliotek Naukowych*—WuKa) designed by the staff of VTLS libraries. This catalog was intended to reduce cataloging costs and accelerate the development of the online catalogs of Polish academic libraries, as well as provide library users with the ability to carry out effective searches. WuKa was originally developed for VTLS libraries, but it also allowed cooperation with libraries using different software.

It should be stressed that the beginning of 1996 was the most suitable moment for the initiation of such a catalog. After difficult beginnings, when the creation of bibliographic records was slowed by the necessity of building the appropriate authority records, the process of cataloging gradually accelerated. However, the same book was still cataloged many times in different libraries.

In the fall of 1997, the Mellon Foundation indicated the possibility of a grant for establishing the union catalog, on the condition that the catalog was to be of national character and the group of cooperating libraries included the National Library (*Biblioteka Narodowa*—BN) and the VTLS and Horizon libraries. The work on the National Union Catalog, NUKat, project started in January 1998 and included representatives of BN, the VTLS libraries (from Gdańsk, Kraków, Lublin, Warsaw, and Wrocław) and Horizon libraries (from Łódź, Toruń, and Poznań). In December 1998, the Mellon Foundation awarded a grant of \$ 705,000 for the implementation of the project. However, further work on the project was impeded by disagreements concerning the shape of the union catalog and the methods of implementation of this project. The most contentious point was the necessity of using unified cataloging rules, and what followed from this, the necessity of using the authority file. Finally, in June 2000, under pressure

² Anna Paluszkiewicz. "Propozycja ułatwienia retrospektywnej konwersji katalogów współpracujących bibliotek akademickich." *Przegląd Biblioteczny*, 4 (1996): 315–322.

from the Mellon Foundation, the participants of the project reached a compromise and managed to define the main aims of NUKat, which permitted the work on implementation and initiation of the union catalog to begin.³ Since then, the project has been run and supervised by CFiKHW (transformed in 2001 into NUKat Center). The compromise included, among other things, the decision to provide access to non-uniform data built without authority control by means of collecting them in a separate, temporary database. This solution was abandoned in July 2001, after the KaRo catalog (Distributed Catalog of Polish Libraries), allowing for the simultaneous search of many catalogs, had been started on the server of the Main Library of Nicholas Copernicus University in Toruń (*Biblioteka Główna Uniwersytetu Mikołaja Kopernika w Toruniu*—BG UMK).

The NUKat catalog has been expected to allow for the realization of three basic aims:

1. Constructing a source of high-quality records to be used in the local catalogs;
2. Creating a source of information on the collections of Polish academic libraries; and
3. Facilitating the process of inter-library loans.

The NUKat Coordinating Group faced the difficult task of choosing an integrated library system that would allow for the realization of the accepted project. To make sure that the decision made was appropriate, we began by defining the essential features that the software for the union catalog had to possess, following the rule that data are the most important part of every system. Since it is considerably easier to replace or update software than to modify improperly entered data, the system had to permit the entry of quality data and guarantee that they were adequately controlled. It was decided that the most important features of the system were:

³ “Kompromisowa koncepcja Narodowego Uniwersalnego Katalogu Centralnego NUKat.” *Bibliotekarz* 2000, 10: 3–4.

1. Support of MARC21 formats for bibliographic and authority records;
2. Adequate support of links between authority records and bibliographic records and mutual links between authority records, allowing the maintainance of a proper structure of bibliographic data;
3. The possibility of entering online all types of authority records;
4. The possibility of entering authority records irrespective of bibliographic records, which was important because of the additional function of NUKat as a union authority file and the principle that the record for the authority heading had to be created prior to the bibliographic record in which this heading was to be used;
5. Adequate support and presentation of data in the authority file (generating references, displaying notes, etc.);
6. Support for the character sets employed by the cooperating libraries and the possibility of converting data to a required character set. Polish libraries use character sets: ISO 6937/2, ALA and UTF-8 in their automated catalogs;
7. The possibility of keyword searching in the authority records (important for the proper support of CKHW),
8. Protection tools against uncontrolled modifications in the database;
9. Support for three subject headings systems employed by the cooperating libraries or the libraries intending to enter into cooperation. After some discussion the participants of the project decided that NUKat had to employ
 - KABA subject headings system—mainly for the academic libraries,
 - BN subject headings system—for National Library and several public libraries,
 - MeSH—for medical libraries;
10. The possibility of entering location data and building hyperlinks between these data and the local catalogs of the cooperating libraries;
11. The possibility of displaying authority records through WWW gateways;
12. An implemented Z39.50 protocol.

None of the library systems we considered met all the requirements listed above. The analysis of various systems resulted in the choice of the Virtua Integrated Library System developed by VTLS, Inc., which met most of the conditions for entering quality data. VTLS, Inc. was required to modify the Virtua system to the specific needs of the NUKat catalog.

3 After Choosing Virtua ILS

The decisions concerning the choice of the system and the institution responsible for the implementation of the project were followed by work on

1. building the union set of records for extended subject headings;
2. preparing the unified rules for bibliographic records
3. the purchase of hardware;
4. negotiating the contract with VTLS, Inc., and
5. organizing the structure of NUKat Center.

The creation of the union set of records for the extended subject headings was one of the fundamental tasks. Before January 2001, the subject authority file consisted mainly of records for simple (non-extended) subject headings, subject subdivision records and reference records. The extended subject heading record was entered into CKHW in only three cases: when the heading contained non-floating subdivisions, when the heading was quoted in other records as an example, or when the creation of a record for the extended subject heading was necessary for the fulfillment of semantic relationships in the subject headings system. The remaining records for the extended subject headings were entered only into the local catalogs, and they were not controlled by CKHW. Before loading bibliographic records from the local databases into the union catalog, it was necessary to verify the extended subject headings in these records. Moreover, it was essential to unify the procedures for entering and modifying records for all types of headings. Thus the modifications of records for extended subject headings needed to be entered only in the central database and transferred, like all other modifications, to the local catalogs. As these records were not given control numbers (010 tags), the integration of data from the local catalogs into one database was made considerably easier. In January 2001, we

loaded the records for extended subject headings from CKTCz into CKHW, and from that time all new records were entered into CKHW. After we had designed all necessary programs and scripts, we also began loading records from the local catalogs. The loading procedure began with generating a file with records for the extended subject headings without control numbers from a given local catalog. Records from the file were automatically provided with control numbers after the file was taken over by CFiKHW, and loaded after this modification into the buffer. CKHW administrators checked and validated all the records (those entered online as well as those loaded in a file). At night, the system generated a file of new records for extended subject headings, which was used to replace records without control numbers in the local catalogs with records for the same headings from CKHW. As a result, we accomplished two tasks: building the union set of extended subject heading records, and enabling the identification of the records for the corresponding headings by the same control number in all catalogs. In this way, all modifications in the records for the extended subject headings can be easily transferred to the local catalogs. The loading of records for the extended subject headings was finished in March 2002. By March 31, 2002, CKHW contained 195,302 records for the extended subject headings (including 139,874 loaded in files and 55,428 entered online).

Another important problem to be solved before the start of the union catalog concerned the consistency of cataloging rules. It should be stressed that recently we have observed in Poland a significant tendency to standardize the choice and form of headings. In 1998, we received official approval of the Polish standard for personal headings (published in 2000). In 2000, the Polish Committee for Standardization approved two new standards, for corporate headings and uniform titles (published in 2001). Establishing these standards was possible due to the experience gained during the process of designing rules for the name authority file and the procedure of entering data into this file (five out of the six authors of these rules worked in the libraries using VTLIS software). Since the local catalogs copy the authority records from CKHW, headings from these catalogs are identical to those in the central database. On the other hand, we have observed many differences in the local catalogs concerning the bibliographic records, despite numerous attempts to enforce unified rules for their creation. Differences pertain mainly to the method of cataloging

multi-volume books, and the choice of headings under which the bibliographic description is entered into the catalog. To solve this problem, we had appointed a group whose task was to prepare the unified rules of cataloging. The decisions taken by this group would be of considerable help while entering new records into the union catalog. Differences in cataloging the multi-volume books make the integration of data from the local catalogs very difficult. It has been assumed that the union catalog will contain exactly one record for a given edition of a given book. Therefore the working group would have the additional task of defining the procedures for data transfer from the local catalogs into the union catalog, while protecting the latter from the input of duplicate records.

After signing the contract in March 2001, VTLS Inc. began modifying the Virtua system in accordance with the requirements defined in the Appendix to the contract. At the same time, CFiKHW initiated the purchase of a server (SUN Enterprise 450) and a database management system, ORACLE 8. On August 2, 2001, the server was delivered to the library, and on the next day the test database of Virtua was installed (Release 37).

In June 2001, CFiKHW was transformed into NUKat Center, with two new sections: the Section for the Control of Bibliographic Records (9 persons) and the Section for the Control of Extended Subject Headings Records (5 persons). The salaries for the staff of the new sections are financed by the Scientific Research Committee (*Komitet Badań Naukowych*—KBN). The first stage of work for the new sections was devoted to intensive training of new staff.

4 After Installing Virtua Test Database

The Virtua release installed in August 2001 had only some of the features defined in the contract. The time necessary for preparing the final version of the system and building the set of records for the extended subject headings was devoted to training the staff and testing the system.

In August and September 2001, VTLS, Inc. representatives ran training sessions for selected staff of the NUKat Center. In October and November we prepared printed instructions in Polish. Training in November and December involved all the remaining staff of the NUKat Center. In January

2002, we began training librarians from 27 libraries entering data into CKHW. As the whole group amounted to some 500 people, the NUKat Center ran 4 sessions for 4 days each for 40 librarians who later led training in their libraries for other staff. This group later met at several one-day meetings to discuss the new features of Virtua system and the procedures for entering and modifying data in the union catalog.

After installing Virtua, we immediately started thorough testing. In the beginning, we prepared the list of the system features defined by the contract that were not implemented with the first release of the system. VTLS answered with a schedule for installing the subsequent releases of the system that would include the requested features. Before the final approval of the system, the NUKat Center tested about 10 Virtua releases and engaged in very intensive discussions with VTLS via e-mail. The fruitful cooperation between August 2001 and May 2002 saw the exchange of 600 letters.

5 After Final Approval of Virtua

In May 2002, we agreed on Release 40.2 of Virtua, which had all the features needed for the start of the NUKat catalog. We settled the conditions for the migration of CKHW records from the classic VTLS version to Virtua. We also defined the parameters for the NUKat database and the permissions for various groups of Virtua users. We also prepared the scripts necessary for the proper functioning of the process of entering, modifying and validating data. CKHW was migrated from May 25 to June 6, 2002. At that time the database contained 721,425 records, including 407,042 records for personal and corporate headings, 39,221 records for series titles, 6,565 records for uniform titles, 3,578 records for combined name/title headings, 60,855 records for KABA subject authority headings, and 204,164 records for extended subject headings of the KABA subject headings system.

Since June 10, 2002, all new authority records have been entered into NUKat, which also functions as the union authority file. On July 5, 2002, NUKat opened its bibliographic database for the first bibliographic records.

According to the NUKat project, the union catalog will take over the bibliographic records from the catalogs employing the CKHW headings. In September 2002, we loaded the bibliographic records from CKTCz (21,943 records). This task was considerably facilitated by the fact that CKTCz was built as a union database not allowing any duplicate records. After the transfer of CKTCz data, all new bibliographic records for serials are now entered in NUKat and the CKTCz database at the server of Gdańsk University has been closed. This operation will be followed by the more difficult transfer of bibliographic records from the local catalogs of individual libraries.

In view of the fact that NUKat replaced CKHW, we first trained the librarians from the libraries that cooperatively built this authority file. In October 2002, we started training for other libraries that entered into cooperation with NUKat.

At present, one of the more important tasks is adjusting the system to the needs of Polish users, and modifying and completing the Polish version of system and help messages.

6 Procedure of Entering and Downloading Data from NUKat

The NUKat catalog is supported by the Virtua system. The libraries cooperating with NUKat and using a Virtua client to enter data employ one of the following systems: Virtua, classic VTLS (gradually they will be migrating to Virtua), ALEPH, Horizon and Prolib. Virtua employs the UTF-8 (Unicode) character set and the local databases employ ALA, ISO 6937/2 and UTF-8 character sets. This difference has considerable impact on the procedure of copying data from NUKat. VTLS, Inc. provided the Virtua client and the VTLS client (EasyPAC) with tools enabling the transfer of authority records as well as bibliographic records from the Virtua database to the VTLS database. In the case of systems with an implemented Z39.50 protocol (ALEPH, Horizon), the bibliographic records may be transferred online from NUKat to the local catalogs. The modified bibliographic records are transferred to the local catalogs in files generated at night. We also prepared procedures enabling the file transfer of new records built by a given library. These procedures will apply to the libraries

that enter many records into the union catalog. Unfortunately, the Z39.50 protocol does not permit the transfer of authority records. Here we may offer two solutions. One is to save records to the local disk (using a Virtua client) and load them to the local catalog by means of the client software used by a given library. This solution is employed by ALEPH libraries. Horizon libraries copy authority records from a CKHW copy at the server of BGUMK in Toruń. Another copy of CKHW is kept at the server of the Main Library of the Silesian University (*Biblioteka Główna Uniwersytetu Śląskiego*—BGUŚ) and used by Prolib libraries. Both copies are updated with new records entered into NUKat by files generated at night. In a similar manner, data in CKHW copies and the local catalogs are updated by files generated at night containing modified authority records.

It should be stressed that the Virtua system is provided with a buffer that protects the database against any uncontrolled modifications. Every new or modified record is checked and approved by NUKat Center staff. At night, the approved records are transferred from the buffer to the database proper. On the one hand, this procedure allows us to control data entered into the union catalog, and on the other it helps to protect the consistency of NUKat data with data in the local catalogs and CKHW copies, since the files with new and modified records are also generated at night. The only data that may be added to a bibliographic record without the control procedure described above are the symbols of libraries that own the document described in the record and have copied this record to their local databases.

7 Presentation of NUKat Data

Apart from the usual ways of searching in online catalogs (browse search, keyword search in bibliographic records, control number search), the Virtua client provides other search methods that may be of more interest to a librarian: a search through the content of fixed fields of the bibliographic record, and a keyword search in authority records. The Virtua client is used exclusively by the librarians entering or copying data from NUKat. Other users may access the database via the Chameleon iPortal. The Chameleon iPortal provides full access to the OPAC features of the Virtua client. One of its more useful features (to Polish as well as foreign users) is the option

of displaying an authority record. The Chameleon iPortal has been configured to provide hyperlinks to local databases. This feature means that the library user viewing a bibliographic record can select a special link derived from a library symbol, jump to a given local database where the specified search is performed, and receive information on the availability of an appropriate item. This is a method of accessing the local catalogs supported by Virtua and VTLS. The Chameleon iPortal also makes it possible to search multiple databases with a single query (broadcast search). This feature will be used for broadcast search in the catalogs of non-VTLS libraries.

8 Our Reasons for Choosing the Strategy of a Union Catalog

The maintenance costs of a union catalog are very high. Irrespective of the expected benefits, we should strive for cost reductions. We have decided to transform CKHW into the union catalog, which has allowed us to reach two objectives: CKHW has been moved to a new server with new software (more comfortable for the librarians entering data as well as for users), and we built the union catalog. Supporting only one database is less expensive and more convenient with respect to the data entry process. Moreover, the transformation of CFiKHW into the NUKat Center helped in reducing the costs of maintenance of the union catalog to an unavoidable minimum. Present and future costs should easily be outweighed by the expected benefits. However, the six months of work since we started entering the bibliographic records into NUKat is too little to provide sufficiently credible data that would confirm the advantages of running a union catalog. But our general observations over this period seem to confirm the appropriateness of our choice. From July 5 to December 31, NUKat entered 52,687 bibliographic records (24,051 records for books published in the years 2000–2002, 27,761 records for books published before 2000, 875 records for serials). During the six months, 32,545 bibliographic records for books were copied to the catalogs of the libraries other than the library that created a given record. This number has been increasing quickly in the case of records for books published in the years 2000–2002. In the group of records for books published before 2000, only 1,043 records have been

copied. These records will be more intensively used when the subsequent libraries begin the retrospective conversion of their catalogs. We can already see the positive side of entering and copying data from only one database. Libraries copy records entered into NUKat by several different libraries. These records would not have been copied if the libraries had had to search for them in many catalogs. We want to stress the fact that before NUKat was established, records were copied from the library catalogs employing the same software. NUKat catalog allows for copying records entered by the libraries employing various systems. With the participation of former CKHW libraries, we expect NUKat to enter about 8,000–10,000 bibliographic records a month, copied on average by two local catalogs. The librarians from those libraries should be able to catalog a one-year influx of documents in about six months. These numbers will change further as new libraries enter into cooperation and passive users of the union catalog employ the results of the work of the former group. If the librarians from all libraries participating in NUKat project start entering the bibliographic records, the one-year influx of documents may be cataloged in about 4 months. The remaining time can be devoted to other tasks.

As mentioned earlier, the NUKat union catalog is built on the basis of cooperative cataloging. The procedure of creating the authority records for headings precedes the procedure of building the bibliographic records in which these headings are to be used. The cooperating libraries tend to describe each document only once, as each authority or bibliographic record is created at first in the union database and only later copied to the local catalogs. This solution has proved to be successful in the case of libraries building CKHW (as regards authority records) and CKTCz (as regards bibliographic records for serials). All cooperating libraries receive daily files with modified records, which permits the automatic transfer of union database modifications to the local catalogs of cooperating libraries. This scheme is very useful in NUKat due to the specificity of subject cataloging. Most Polish libraries begin with creating bibliographic records without subject headings (they are added later by another group of librarians). As a result, new records entered into NUKat often do not contain subject headings, and they are copied in this form to the local catalogs. After they are completed with subject headings, they are transferred again into the file with modified records. This allows for the

reduction of time-consuming subject cataloging to a single operation on each title. Before NUKat the same task of subject cataloging was performed many times by different libraries.

The above approach to a union catalog may seem expensive and time-consuming. It results from a belief that modern integrated library systems, technological progress in the network accessibility of databases and their connection by means of Z39.50 protocol will bring the expected benefits only with high-quality data. Low-quality data may undermine the value of a system, even if other elements (software, hardware) are of a very high standard. Therefore, it is of primary importance to rely on a union authority file, as well as to organize the process of data entry in a way that permits cost reductions without loss of data integrity. Data integrity will improve the broadcast search efficiency in the KaRo catalog, which is complementary to NUKat. It also should be emphasized that the solution we have accepted, avoiding duplication of work, will accelerate the process of cataloging new books in libraries. Time saved in this way can be devoted to retrospective cataloging. The whole process described above should considerably accelerate the development of automated library catalogs and improve the system of inter-library loans.