Short Paper

Expert System and Thesaurus of Concepts and Terms

“Byzantine Law and Acts”

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This Paper is dedicated to the blessed memory of Prof. Boris Fonkich

Byzantine law and acts are an integral part of the world cultural and scholarly heritage. Its study demands the application of new digital technologies. The Expert System “Byzantine law and acts” (ES) is represented as a conceptual project (Figure 1), which provides for the development of a standalone version of ES as well as online ES and Thesaurus of law concepts and terms.

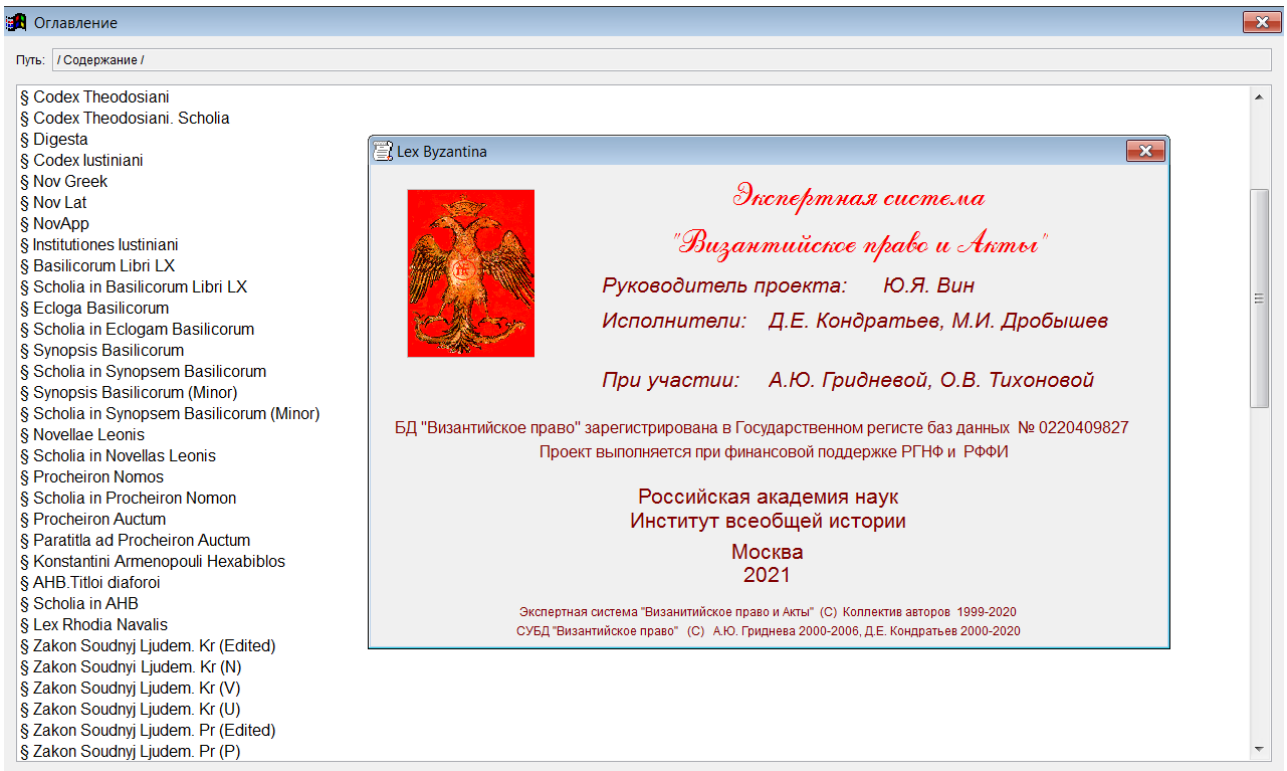

Fig. 1. Expert System “Byzantine law and acts”. Standalone version. Contents. (© Dmitry E. Kondratiev).

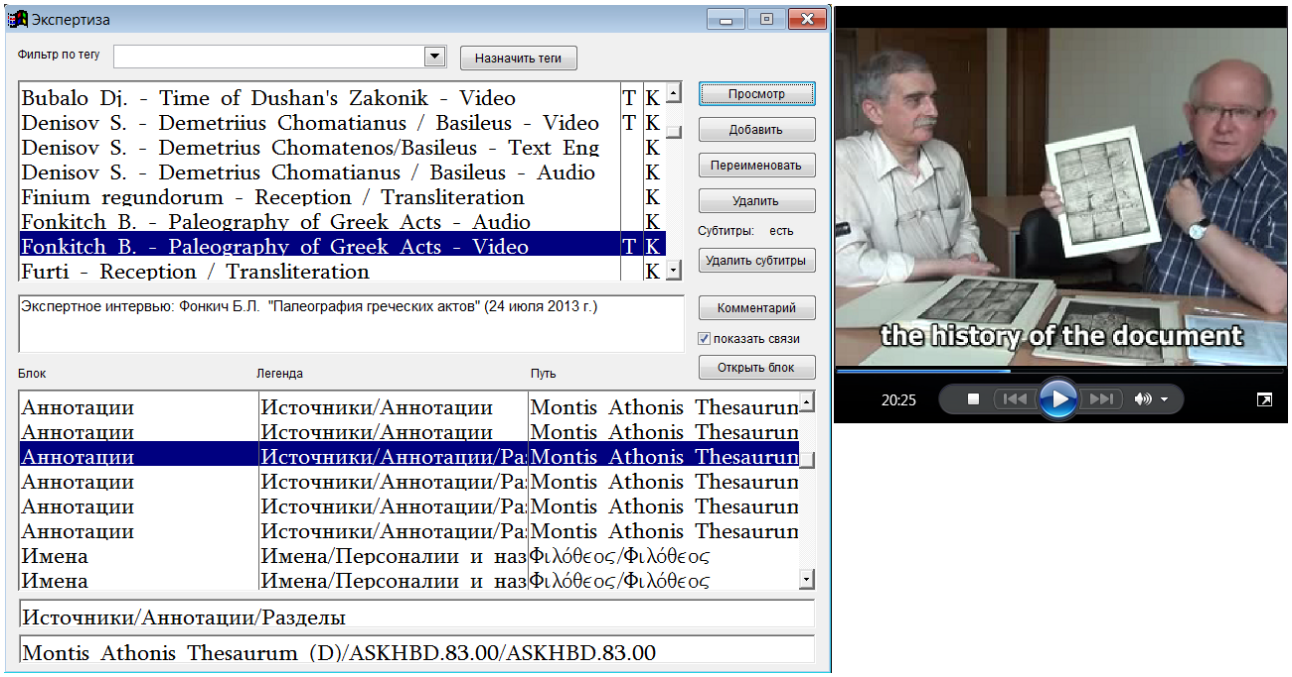

Fig. 2. Expert System "Byzantine law and acts". Standalone version. The Block of information expertise. Prof. Boris Fonkich. (© Dmitry E. Kondratiev).

The building of the ES complex is carried out following the principles of a systems approach to the development and implementation of means, which ensure a free access to video-, audio- and text-information of expert data on the monuments of Byzantine law and acts. The centre of expert data is information array of Knowledge base "Annotations" (KBA). It, including primarily textual information, is designed to support the information and analytical expertise of materials of Byzantine law and acts as a scientific and critical apparatus. The Block of information expertise (BIE) is the main means of storage and direct representation of expert knowledge in structure of ES. BIE accumulates expert data in the proper sense of the word, including video-, audio- and text-interview of leading branch specialists as well as graphics (schemes and tables) and visual materials, employees to get expert evaluations (Figure 2).

It is necessary to emphasize that the each "quantum of knowledge" is unique in the Byzantine studies, much as the mediaeval studies, owing to specificity of this epoch. Therefore the methods, depending on the conceptions of "big data" and "Semantic Web", are mostly unacceptable in the aforementioned branches of knowledge. At the present stage of the development of the humanities the study of the Byzantine law and acts, especially concepts and terms, is certainly justified only through the methods of cognitive analysis and representation. The participants of the represented project develop own methodology and means of analysis taking into consideration the achievements of theory and practice in development of the expert systems, computer semantics and cognitive representations.

In this light the foreground task of this project is focused on development of special software to support the machine processing of expert information of KBA and BIE, first of all systems of special information and analytic retrieval and database navigation. The matter concerns special documents, their contents are particularly different. And they require very different program applications for machine processing of their scientific and critical apparatus and expert information.

KBA is intended for special categorical data search in an information array of scientific and critical apparatus of sources. The representation of data on relations of sections and articles of law monuments and acts is fulfilled as a special information-analytical function of KBA. So the forecasting retrieval is developed for data of information array of KBA. This data retrieval is destined to carry out explication of relations between the sections and articles of law and acts, which were previously not obvious to the user, on the basis of the determined data. The system of the multifunctional retrieval by descriptors finds information on the ascriptions of documents, their dating, subject classifiers, and commentaries of experts. The authentic concepts and terms are too revealed as well as Latin, Greek and Slavonic lexis of monuments of Byzantine Law and its Slavonic receptions.

Now the online version of ES is put into practice, first of all the demo version of the Thesaurus of concepts and terms of Byzantine and Mediaeval Slavonic law and acts (ETh). Its alpha-version is represented on the website of the actual project. The system design of ETh makes provision for integration of the authentic Latin, Greek and Slavonic concepts and terms as well as lexis, word forms, set expressions and syntagma. ETh is provided with the lexicons of monuments of Byzantine law and its Slavonic receptions, which are represented independently of language and transcriptions of lexis. Its meanings will be exposed by contexts of sources according to program functions of online version Eth (Figure 3). The fulfilment of these tasks and the representation of expert information is precondition of success compiling of ETh as a part of the online version ES.

The materials of expert interviews of ES are available for viewing and examination by BIE and by the system of references, implemented for each respective position in the program applications of standalone version of ES (KBA, the Block of concepts and terms, the Block “Names”, the Block of cognitive mapping, application “Lexicon”, the Module of determination of the information affinity). Here the video interviews could be represented in the regime so-called “Discussion” – this is successive viewing and listening to expert interviews, given in fixed chronological range. Now the tasks are to be undertaken to reproduce these functions at online version of ES.

It is possible to examine on the actual project of ES, including the collection of expert interviews, on its website. There is too arranged the demo version of ES and ETh, as well as the full version of their representation: Vin, Yu. (2021) Expert System “Byzantine law and acts” and thesaurus of Concepts and Terms [*The Electronic Resource*].

The ES “Byzantine law and acts” waits for all specialists, who are interested in the active collaboration, to take part in this project as experts.

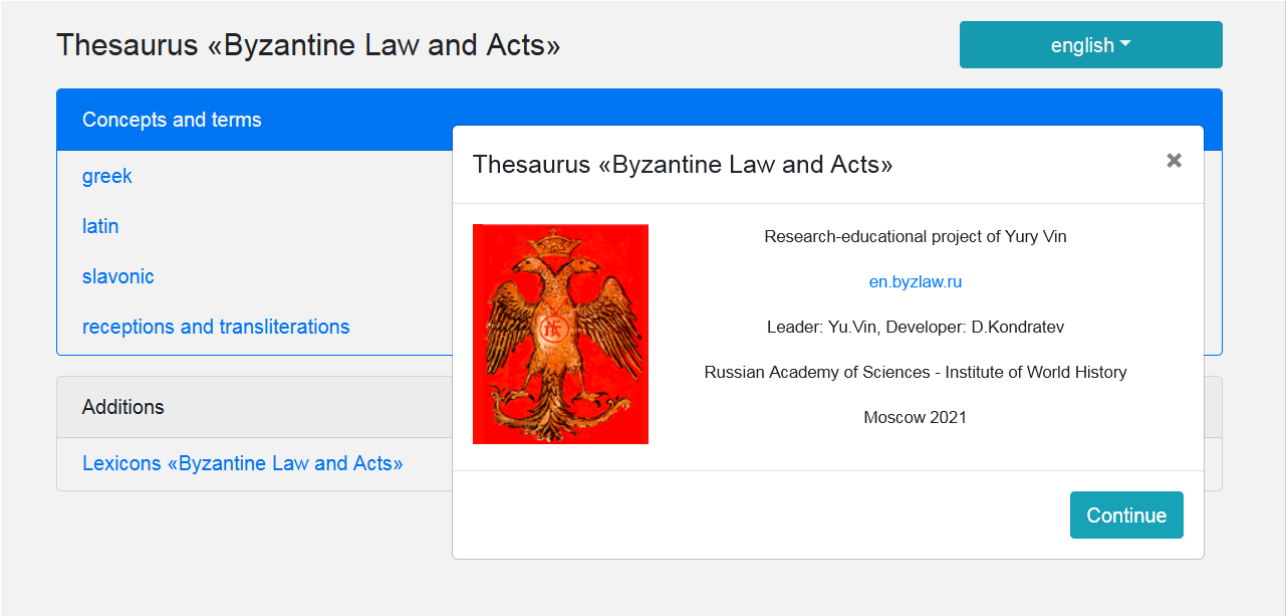

Fig. 3. Thesaurus of Concepts and Terms. Demo version. (© Dmitry E. Kondratiev).

References

Electronic Ressources

Demo version of Expert System (En)

Available at: https://expsys.byzlaw.ru/?lang=en (Accessed: 21 March 2023).

Demo version of Expert System (Ru)

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