Digitization of Bulgarian folk songs with music, notes and text

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Abstract

A digitization project for Bulgarian folk songs *"Information technologies for presentation of Bulgarian folk songs with music, notes and text in a digital library"* has been started last year, joining the efforts of various experts from three institutes of the Bulgarian Academy of Sciences –

- Institute of Mathematics and Informatics,

- Institute of Art Studies and

- Institute of Folklore

and two universities –

- Sofia University (Faculty of Mathematics and Informatics) and

- New Bulgarian University (Department Informatics).

The project is partially supported by the National Science Fund of the Bulgarian Ministry of Education and Science.

The research that is carried out under this project aims at the development of a technology and corresponding supporting software tools for the creation and usage of heterogeneous institutional digital libraries. The tools will satisfy the needs of the researchers for information technologies in the fields of ethnology, ethnomusicology and folkloristic.

In the project frame a technological environment for digitization of notations is created, specially adapted for Bulgarian folk songs.

Now a database with notes (coded with LilyPond software), lyrics and music (digitized from old magnetic tapes) is under development.

An initial digitization and preservation of the Bulgarian cultural heritage will be carried out by means of digitization and insertion into the system of over 1000 songs that were recorded and written down during the 60s and 70s of XX century.

Keywords: Digitization, Bulgarian Folk Songs, Digital Library

The main activities under the project are differentiated in eight working packages (WP). The majority of WP tasks are under development in the current, already funded project but others (marked by *) will be work out in the next stage.

1. User requirements, market surveys and standards

2. Digitization of manuscripts and books and creation of a database

3. Project website and Internet access to the database

4. Research in the field of information technologies for building and using of digital libraries with BFS

5. Scientific research in ethnomusicology

6. Scientific research of verbal folklore

7. Information technologies for digitization of music recordings

8. Dissemination of the project results

WP1: User requirements, market surveys and standards

Task 1.1 Identification of potential users and their requirements for web-access and usage of the digital library with Bulgarian folk songs (BFS).

Task 1.2 Market surveys for existing technological solutions and software tools for project tasks and objectives

Task 1.3 Metadata for folk songs

Task 1.4 Integration and adaptation of existing standards

WP2: Digitization of manuscripts and books and creation of a database with BFS

Task 2.1 Technology for coding of note records from original manuscripts with field recordings

Task 2.2* Technology for scanning of printed books with BFS and OCR of the notation in them

Task 2.3 Creation, support and completion of database for preservation of notes, lyrics and music recordings

WP3: Project website and Internet access to the database

Task 3.1 Project site with the description of database, technologies for database completion and tools for searching and knowledge extraction

Task 3.2 Web-based access and visualization of the note records and the song lyrics

Task 3.3 Web-based access to metadata and musical objects of the database

Task 3.4* Visualization of geographic objects connected to geographic elements in the database

WP4: Research in the field of information technologies for building and using of digital libraries with BFS

Task 4.1 Methods and tools for building heterogeneous digital libraries

Task 4.2 Semantics oriented search in digital libraries

Task 4.3 Knowledge extraction from databases

Task 4.4* Software tools for special purpose (in particular, semantics oriented) search and knowledge extraction from a database

WP5: Scientific research in ethnomusicology

Task 5.1* Completion and diversification of the collection of BFS with newly "on the field" recorded samples

Task 5.2 Development of a scheme for classification of folk songs with respect to technical data (settlement, researcher, informant)

Task 5.3 Classification of the songs with respect to their implicit musical characteristics: tone scale; tone range; metro-rhythmical features (bar measures)

Task 5.4* Classification of the songs according to their cultural functions

WP6: Scientific research of verbal folklore

Task 6.1. Creation of a set of phonetic variations, which any sound can undergo according to the Bulgarian lexicology and dialectology

Task 6.2 Creation of frequency dictionaries over various sets of data

Task 6.3 Creation of frequency dictionaries – concordances

Task 6.4* Classification of songs by implicit lyrics, genre and statistic characteristics

Task 6.5* Theoretical aspects of giving a new meaning to the notion "genre" in folklore

WP7: Information technologies for digitization of music recordings

Task 7.1 Expert activities (preliminary and basic)

Task 7.2 Transfer (analogue-digital conversion)

Task 7.3 Mastering

Task 7.4* Conversion of audio information to MIDI impulses

Task 7.5* Theoretical analysis of the differences between the subjective notation (made by a human) and the authentic tone picture, and of the basic principles for the production of software for folk music notation

WP8: Dissemination of the project results

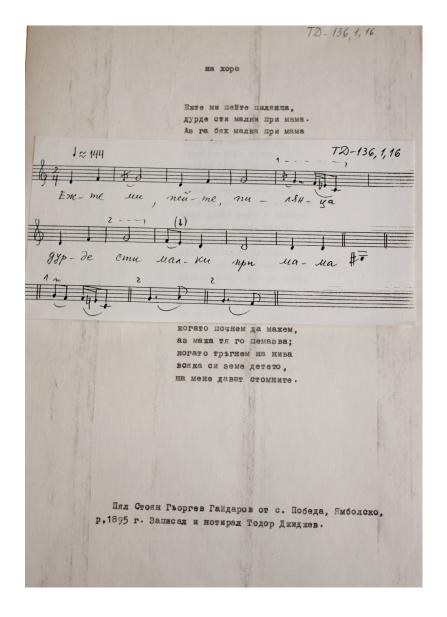Task 8.1 Dissemination of the results on the Internet

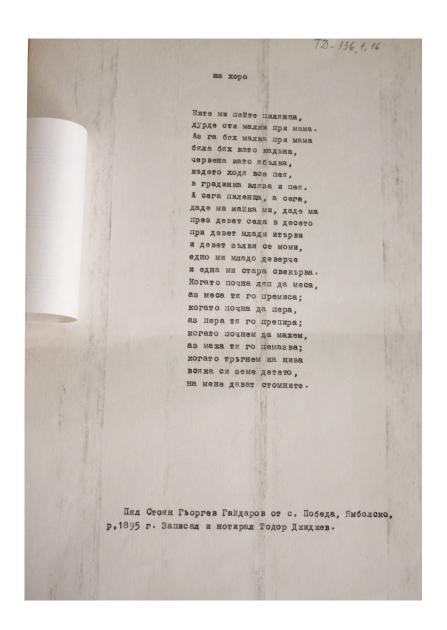Task 8.2 Dissemination of the results among scientific institutions in the country and abroad

Task 8.3* Organization of a training seminar for working with the LilyPond software for digitization of notes

Task 8.4* Dissemination of the results among the educational institutions and the public

Task 8.5 Publications The most important publication will be the printing of a book with collection of notated folk songs that were gathered during the 60s and 70s by Todor Dzhidzhev. The book will be completed with a CD of authentic musical recordings of songs. The ambition of the team is to provide the book with indices for the main criteria for classification of folk songs and to turn it into a model to be followed in the preparation of similar collections.

Example – original manuscript

Example – LilyPond coding:

```
\include "td-preamble.ly"
\score {
\relative c' {
 \tempo 4 = 144
 \time 2/4
d4 f | \acciaccatura f8 g2 | d4 f | g2 |
\override Glissando #'style = #'zigzag
\varA
 \acciaccatura a8\startTextSpan \noteFi g4\glissando f16( ees c8) \stopTextSpan |
d4 f | \break
\varB
 \set Score.measureLength = #(ly:make-moment 3 4)
 s4\startTextSpan g2\stopTextSpan |
 \set Score.measureLength = #(ly:make-moment 2 4)
f8( e^"(v)") d4 d2 d4 d
\bar "|."  s8 \fixB gis,4 \fixC s8 \bar "|."
\endm
\varA
 g'8\startTextSpan\prall( f) f16([ e c8)] \stopTextSpan \bar "||"
\varB
 g'4.\startTextSpan( a8)  \stopTextSpan  \bar "||"
\varB
 g4.\startTextSpan( f8)  \stopTextSpan \bar "|."
}
\addlyrics { Еж- те ми, пей- те, пи- лян- ца дур- де сти мал- ки при ма- ма }
```

```
%
\layout {
  indent = #0
  line-width = 190\mm
  ragged-right=##f
}
%
\midi {
    \context {
        \Score tempoWholesPerMinute = #(ly:make-moment 144 4)
            }
      }
}
%
\header {
  opus = "ТД-136,1,16"
  tagline = ##f
}
```

Example – lyrics:

%На хоро

\begin{multicols}{2}
Ежте ми пейте пилянца,
дурде сти малки при мама.
Аз га бях малка при мама
бяла бих като кадъна,
червена като ябълка,
където ходя все пея,
в градинка вляза и пея.
А сега пиленца, а сега,
даде ма майка ми, даде ма
през девет села в десето
при девет млади итърви
и девет зълви се моми,
едно ми младо деверче

и една ми стара свекърва.
Когато почна ляп да меса,
аз меса тя го премиса;
когато почна да пера,
аз пера тя го препира;
когато почнем да межем,
аз мажа тя го премазва;
когати тръгнем на нива
всяка си земе детето,
на мене дават стомните.
\end{multicols}

\singer{Пял Стоян Гьоргев Гайдаров}
\village{с. Победа}
\area{Ямболско}
\bornYear(1895)

LilyPond MIDI file:

tdd_136_1_16.mid

Original performance:

TD_136_1_16.mp3

Ежте ми пейте пилянца

(На хоро)

Еж- те ми, пей- те, пи- лян- ца дур- де
сти мал- ки при ма- ма

Ежте ми пейте пилянца,
дурде сти малки при мама.
Аз га бях малка при мама
бяла бих като кадъна,
червена като ябълка,
където ходя все пея,
в градинка вляза и пея.
А сега пиленца, а сега,
даде ма майка ми, даде ма

едно ми младо деверче
и една ми стара свекърва.
Когато почна ляп да меса,
аз меса тя го премиса;
когато почна да пера,
аз пера тя го препира;
когато почнем да межем,
аз мажа тя го премазва;

Project site: `http://www.math.bas.bg/or/nkirov/2010/folk/FOLK.html`

Mirror: `http://nikolay.kirov.be/2010/folk/FOLK.html`

Proposals for international collaborations for digitization of authentic folk songs

- from neighbor countries (Romania, Serbia, Macedonia, Greece, Turkey);

- from Balkan countries (SEEDI countries);

- from Cyrillic alphabet countries (Serbia, Macedonia, Ukraine, Belarus, Russia).

An extended collection of digitize authentic folk songs form several countries can generate many investigations about common roots of popular customs and culture for people in these countries.

Thank you for your attention.