

9th ANNUAL INTERNATIONAL CONFERENCE ON COMPUTER
SCIENCE AND EDUCATION IN COMPUTER SCIENCE 2013
(CSECS 2013)

29-30 June 2013 in Fulda, Germany and

1-2 July 2013 in Würzburg, Germany

**Information Technologies for Preserving
the Bulgarian Folklore Heritage**

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Abstract

- Folk songs are an important and essential part of the Bulgarian cultural heritage.
- Following the traditions of the 20th century in publishing Bulgarian folk songs we prepared the book “Folk Songs from Thrace” with scores and lyrics recorded by the original performances in the 60s and 80s years of the last century.
- We created a digital library of over 1200 songs, which provides access to songs via full-text search engine.
- The data sources are stored using advanced information technology to encode texts, notes and sound.
- Traditional indexes for the book are also developed using our software.

Introduction

Preservation of ancient samples of Bulgarian folk music is realized as a necessity of Bulgarian intellectual elite in the late nineteenth century.

1926 marked the beginning of systematic collection of Bulgarian folk songs with their melodies.

Inspirer and organizer of this major work is Vasil Stoin (1880-1934).

“Many educated Bulgarians in the distant and recent past took a clear need to keep the created and preserved through centuries folk creativity in words and music.” *Stoin*

Vasil Stoin, *Folk Songs from Timok to Vita*, Published by the Ministry of National Education, Sofia, 1928.

[Васил Стоин, *Народни песни от Тимок до Вита*, София: Издание на Министерството на Народното просвещение, 1928.]

(1134 pages, 4002 songs)

Introduction

This book is the first *grand collection* of scores and lyrics.

The term “*grand collection*” (“capital book”, [„капитален сборник“]) is a generic name of published a large collection of folk songs (musical notes and lyrics) from a given geographical area of Bulgaria.

Stoin’s project continued throughout the 20th century, he and his disciples issued 8 *grand collections* (last in 1975) with a total of over 14,000 songs. This tradition was continued with 4 books by Nikolay Kaufman, Todor Todorov, Ilija Manolov and Ruja Nejкова.

According to the method of recording the songs, collections of folk songs are of two types: recorded only as scores (using the method of “listening” or “by ear”) or recorded by audio recording devices.

Introduction

Our goal is to bring to the new level established tradition in Bulgaria to store, organize and publish notated *grand collections* of folk songs.

By digitizing noted handwriting and recorded music aims to build a database and digital library. This allows for such a structured representation of the information on certain criteria, enabling the recovery of various pieces/seams information combined with searching using multiple criteria.

Introduction

Our source is an archive of Todor Dzhidzhev (1927-2012), which consists of field recordings of over 1200 folk songs from the Thrace region. It contains:

- over 2000 pages with handwritten notes (scores) and typewriter written lyrics of songs;
- 27 magnetic tapes with recorded music tracks;
- 13 field notebooks and pads (over 500 pages) containing songs texts, messages and observations written in the time of recording songs.

Difficulties in digitization:

- technical (recognition, coding notes);
- identification and variations (interpretation);
- 3 sources for lyrics (typewritten text, notebooks, performances);
- obsolete and/or dialect words and pronunciation;
- grammar.

Digital library

The database consists of files of the following types:

- \LaTeX lyrics files. In addition to the song text, each file contains also metadata for the song.
- LilyPond notes files (scores). LilyPond is an open source music typesetting system.
- MP3 authentic performance files.
- JPEG files of digitized handwritten texts from notebooks and pads.

This database structure is suitable for

- adding new songs and new metadata,
- easy access processing programs derive summary or classification by different criteria,
- quick access of search engines by indexing, etc.

Digital library – Example of lyrics

%td_135_1_27.txt

%Забягнала Янка робинка

%Коледарска (из пътя)

%Джиджев:коледарски

\begin{multicols}{2}

\bbr

Забягнала Янка робинка,

\uic{хей, Енке, Енке ле, Енке робинке,}

\ebr

та ѝ бигала мало и много,

мало и много -- до девет годин,

%%чува се "до девет годин"

\five тя изляла при пшовити,

при пшовити вакли ѝовчари.

\kgray

Поискала ѝовчар да стане,

те я ѝотзели за ѝодаджия.

~~

\end{multicols}

\ed{\el{Њодаджия} -- вер. от ,,одая‘‘ ’стая, гостна, килер;
спалня’; в контекста ,,ѝодаджия‘‘ ’одалиска’.

\sing{Пял Христо Петров Петров}


```
\village{гр. Тополовград}  
\bornYear{1914}  
\bornVillage{с. Възгаш}  
\bornArea{Одринско}  
\rec
```

```
%Пял Христо Петров Петров от гр. Тополовград, р. 1914 г. в с. Възгаш, Одринско.  
%Родителите му са дошли от с. Възгаш, Одринско. В село Равна гора са дошли в 1916 г.  
%Записал: Тодор Джиджев.
```

```
\placedate{с.\,Равна гора, общ.\,Свиленград, 11 декември 1967\,г.}  
\singer{Христо Петров Петров, род.\,1914\,г.}
```

Digital library – Example of LilyPond coding

```
{ td_135_1_27.ly }

\include "td-preamble.ly"

\score {
\relative c'' {
\tempo 4 = 168
\time 2/4
\override Glissando #'style = #'zigzag
\phrasingSlurDown
\noteFi \acciaccatura c8\glissando d4 a |
\varA
\noteFi \acciaccatura c8\startTextSpan\glissando d2\stopTextSpan |
\varB
\afterGrace d4\startTextSpan(\( { e16[ d]\) } c8[ b\stopTextSpan]) |
\varC
\acciaccatura c8\startTextSpan d4 d\stopTextSpan |
\afterGrace d4(\( { e16[ d]\) } c8[ a]) | b4 b | d8[( c]) d4 |
\afterGrace d4(\( { e16[ d]\) } c8[ b]) |
\varD
a8\startTextSpan[( b]) c4\stopTextSpan |
\varE
c8\startTextSpan[( b]) b[( a\stopTextSpan]) |
a2 | a4 a
\bar "|."
```

```

s4 \fixB e \fixC
  \bar "|."
\endm
\varA
e'8\startTextSpan[( f e d\stopTextSpan)] \bar "||"
\varB
d8\startTextSpan([ c] c[ b\stopTextSpan]) \bar "||"
\varC
e4\startTextSpan e8[( d\stopTextSpan)] \bar "||"
\varD
a8\startTextSpan[( b]) c8 c\stopTextSpan\noBeam \bar "||"
\varE
d8\startTextSpan[( c]) b[( a\stopTextSpan)]
  \bar "|."
}
\addlyrics { За- бяг- на- ла Ян- ка ро- бин- ка,
хей, \startTextSpan Ен- ке, Ен- ке, \stopTextSpan
Ен- \startTextSpan ке ро- бин- ке \stopTextSpan }
%
\layout {
  indent = #0
  line-width = 190\mm
  ragged-right=##f
\context {
  \Lyrics
  \consists "Text_spanner_engraver"
  \override TextSpanner #'direction = #DOWN

```

```

\override TextSpanner #'style = #'line
\override TextSpanner #'outside-staff-priority = ##f
\override TextSpanner #'padding = #0.2
\override TextSpanner #'bound-details =
#'(left . ((Y . 0)
           (padding . 0)
           (attach-dir . ,LEFT)))
(left-broken . ((end-on-note . #t)))
(right . ((Y . 0)
          (padding . 0)
          (attach-dir . ,RIGHT))))
}
}
%
\midi {
\context {
\Score tempoWholesPerMinute = #(ly:make-moment 168 4)
}
}
}
%
\header{
opus = "ТД-135,1,27"
tagline = ##f
}

```

Digital library

Original performance: td_135_1_27.mp3

The digital library consists of the described database and full-text search engine.

- The search engine provides a Google-like web interface.
- Table of results contains songs that match the search query.
- Each song is represented by a row: identifier of the song, links to all the data from the database and to the pdf-files for viewing and printing of the song (scores and lyrics).

K. Kirov, N. Kirov, *Folklore Songs Digital Library and Keyword-based Search Engine*, *Serdica Journal of Computing*, 6 (3), (2012), 163-174.

The book

Following the traditions of publication of Bulgarian folk songs in *grand collections*, we prepared for printing the book

Todor Dzhidzhev, *Folklore songs from Thrace*, “Prof. Marin Drinov” Academic Publishing House, Sofia (accepted for publication).

[Тодор Джиджев, *Народни песни от Тракия*, Академично издателство „Проф. Марин Дринов“, София.]

The book consists of 700 pages and contains 1066 songs, each song is presented by music and lyrics.

It is based on the digital library and is done applying new information technologies.

The book

The songs are arranged according to their cultural functions, because the performance of each song is associated primarily with a certain ritual, a ritual celebration or activity.

The three main groups are:

- Ritual songs: calendar and family.
[Обредни песни: календарни и семейни]
- Work songs: field work, herdsman and working-bee.
[Трудови песни: на полския труд, пастирски и седенкарски]
- Holiday songs: dance and table.
[Празнични песни: на хоро и на трапеза.]

The book

The book has the following main indexes:

- Settlements:
 - Alphabetical index of settlements.
 - List of settlements in which the performers live and/or were born.
 - Settlements where there have been records of performances.
 - Chronology of the records (dates and settlements).
- Performers (singers):
 - List of the performers with information about them.
 - List of the songs performed by each performer.

The book

- Music (scores):
 - Index of the songs by time (measure).
 - Index of the songs as ornamental content.
 - Index of the sound sequences in tone content.
 - Index of the songs by tonal range (ambitus).
- Vocabulary:
 - Common nouns names.
 - Anthroponyms. Toponyms. Ethnonyms. Names of holidays.
 - Numbers (numerals).
 - Glossary of dialect words.

The software tools are written in C++ programming language and Qt as a cross-platform application and UI framework.

Conclusion

For the first time in preservation of Bulgarian folklore songs:

- advanced information technologies are applied in the publication of a *grand collection*;
- a paper and a virtual versions of songs scores are published in parallel;
- the traditional (and new) indexes are constructed by applying the information technologies methods.

Thank you for your attention.

<http://nikolay.kirov.be/2010/folk/FOLK.html>

This work is partially supported by Grant of the Bulgarian National Science Foundation under number DTK-02-54/2009.

