Metadata of the Linguistic Sources in Lexicographic Electronic Tool

Oksana Tyshchenko[1][0000-0002-5709-1252] and Vladyslav Tyshchenko[2][0000-0003-2449-4722]

[1] Institute of Ukrainian Language of the National Academy of Sciences of Ukraine
M. Hrushevsky Street, 4, 01001 Kyiv, Ukraine
tom-73@ukr.net
[2] National Pedagogical Drahomanov University Pyrohov Street, 9, 02000 Kyiv, Ukraine
vvtyshchenko@gmail.com

Abstract. The paper is proposed a fragment of tools that will help to realize the author's model of the linguistic system of *Lexicographic Electronic Tool (LET)* (the project in the development phase and discussion). The principles (new in Ukrainian linguistics) of the author's concept of *synchronous linguistic source studies*, as well as of dynamic model of *Linguistic Sources* and the model of *Dictionary Sources Core* are among the foundations of the LET as the automated workplace of the modern lexicographer. The units of the LET structure are the *electronic lexical card index database* and the *linguistic sources database* (primary and secondary sources). The development of the metadata markup in this direction will contribute to the creation of a linguopragmatic model of Dictionary Sources Core of the 21st century according to internal and external factors. And the LET will be the material and the tool of thorough synchronous and diacritics learning of the language and its lexicographic description.

Keywords: lexicography, Lexicographic Electronic Tool (LET), electronic lexical card index database, sources database (SD), dictionary sources core (DSC), linguistic source (LS), dictionary, metadata, markup.

1 Introduction

A creating of high-quality lexicographic work requires a Dictionary Sources Core (DSC) that is a collection of Linguistic Sources (LS) to select and verify the lexical illustrative material. The linguistic source is a verbal source containing for linguist valuable information about a language: its history and development, content, structure, dynamics, trends in synchrony and diachrony, and so on. The same verbal source can be the object of study of the historian, literary critic, art critic, and therefore be a variety of historical, literary, art sources, such as diaries, songs, letters, etc. The theory of linguistic source has been carefully studied in historical linguistics (diachronic source studies) [1, 9, 13, etc.], however, there is no such data for synchronous research, which leads to the formulation of the theory of synchronous source studies.

The DSC is formed as a set of sources, sample of the available *Sources Database (DB)* according to the type and purpose of the dictionary.

For an accumulation, an ordering of a lexicographic multiparameter description and a storage of lexical and illustrative material, as a basis for creating different types of dictionaries NASU Institute of Ukrainian Language is working on the creation of the *Lexicographic Electronic Tool (LET)* [17, 18, see also: 2 , 4, 7, 10, 11]. LET is an open and dynamic computer linguistic system, designed for basic lexicographic tasks and with a development will become an information, reference, research, educational and editorial lexicographic system. LET will be an electronic collection not only of *words* and *phrases* with contexts of their using, but also of various types of accompanying *sources*, which will provide verification of such materials with the help of an information search system, configured to the needs of lexicography (fig. 1).
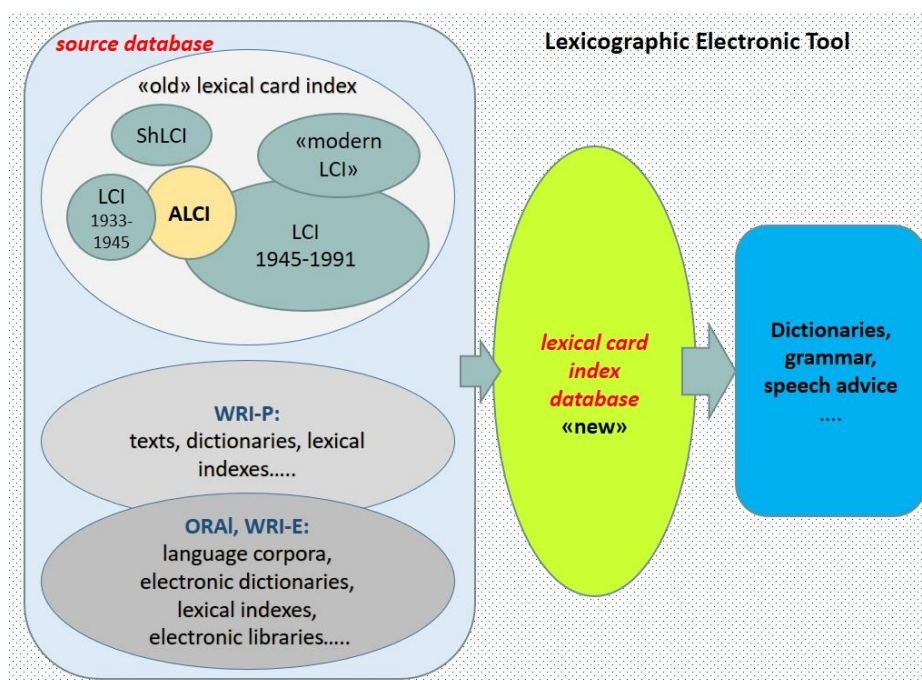

Fig. 1. Lexicographic Electronic Tool (LET).

For this purpose, LET will integrate in its source database texts, dictionaries, a lexical card index at this Institute and digitized here (for example, the Electronic System «Archive Card Index» represents the digital format of lexical and illustrative materials of the Dictionary Commission of the Living Ukrainian language of the All-Ukrainian Academy of Sciences, which created the «Russian-Ukrainian Dictionary» by ed. A. Krymsky and S. Yefremov: *https://ak.iul-nasu.org.ua.* This idea was realized by a team of linguists – O. Tyshchenko (project manager), L. Kyslyuk, Yu. Pozdran, Yu. Voznyuk – with the support of the Ukrainian Cultural Foundation (grant № 1109, September – November 2018). The system and web resource was created with the involvement of programmers led by M. Tkachenko), lexical indexes, etc., as well as it

will have links to sources opened for access in a virtual space: language corpora, electronic dictionaries, libraries and more. The LET will also contain a lexical card index database and tools for its management.

The electronic system optimizes the work with the collected lexicon of Ukrainian language according to the necessary lexicographer parameters (temporal, spatial, functional-style, genre-thematic, etc.) for the fulfillment of certain linguistic tasks.

Thus, LET will be at the same time the database of the Ukrainian vocabulary arrays, which should be studied, conceived and presented in new dictionaries, grammars, advisers in the language culture, spelling, and at the same time a tool for their elaboration, scilicet – the implement of the modern lexicographer.

Let's focus on the first block – the sources database that will contain primary and secondary sources (texts of different styles, dictionaries, lexical indices, etc.) for word verification in broader contexts of use, in idiolects of certain authors, in literary trends, in idioms (regional dialects, social-group dialects, gender dialects) in texts of different structure and subject matter. Let's make two observations about the selecting of primary sources to the LET text database.

The first is the problem of a matching the text of a certain edition (or its electronic copy) to the original text. We emphasize the problem of editorial interference, bringing in line with the norm of editor's contemporary spelling, cuts of different nature, etc. [5, 6, 16, 20]. We consider that the source database should include, at first, electronic documents (in DjVu or PDF format with a text layer) as copies of publications that are most relevant to the author's design, scilicet is basic, authentic. A second note about selecting primary sources for an LET text database is to update the concept of "living language": it is important to resume the practice of introducing into the vocabulary and illustrative database samples of the oral speech in graphic recording, samples of spoken language on the Internet, as well as to create an audio and videos database [10, 12, 14, 15, 16]. Due to this, the qualification of the sources in the primary form – oral or written – is relevant.

2 Scientific Novelty

The paper is proposed a fragment of tools that will help to realize the author's model of the linguistic system of Lexicographic Electronic Tool (the project in the development phase and discussion). The principles (new in Ukrainian linguistics) of the author's concept of synchronous linguistic source studies, as well as of dynamic model of Linguistic Sources and the model of Dictionary Sources Core are among the foundations of the LET as the automated workplace of the modern lexicographer. Some parameters are detailed, deepened, substantially developed, added new elements. Author's contribution: O. Tyshchenko – idea, theoretical background, metadata development; V. Tyshchenko – technical support.

3 Basic Information about the Linguistic Source

Basic information about the linguistic source we include in the database. The developing of metadata markup in this direction will help create the LS model in Ukrainian studies, the linguopragmatic model of the 21st century DSC according to the internal factors: the state of language, the degree of the linguistic theory development, the updated information from linguistic sources, the type and purpose of the dictionary, etc.; and the external factors: the historical and cultural context, the personal factors, etc.

The metadata as formal (and partly meaningful) LS information provides quality and accuracy of the search, the comprehensive use of different types of data, the preservation of different types of information, and more. We have covered bibliographic and linguistic metadata, based on Dublin Core – a metadata format describing various information resources, including the Internet (from 15 elements to 18) [8]. We also largely based on the markup of sources in the General regionally annotated corps of the Ukrainian language (GRAC) [3]; we substantially deepened the markup of styles and genres and added some elements and codes for certain types of data. So, to each linguistic source we give the following metadata.

4 Metadata Element and Codes Set

- **Information the contents of a storage unit – LS: DOC.FILENAME** – the file name (or URL for those sources that are publicly available on the Internet).
- **Source rewards information: DOC.AWARDSOURCE** – awards, ratings, and more.
- **File format: DOC.FORMAT** — electronic document format: TXT; PDF; DJVU; DOC.
- **Information on contributor: DOC.CONTRIBUTOR –** the contributor to the LET by adding the source or making a description of it: **CONNAME** – second name, first name, patronymic; **CONSTATUS** – position, etc.; **CONWORK** – a place of work (education).
- **Information on name of the LS: DOC.TITLE** – source (text) name.
- **Information on author (authors): DOC.AUTHOR** – first name, last name, patronymic; **DOC.SEX** – sex (M – the man, F – the women).
- **Information on basic milestones of the author's life,** that determines its language formation: **DOC.DATEBIRTH –** year of birth; **DOC.PLACEBIRTH** – place of birth (region, locality); **DOC.DATEDEATH** – year of death; **DOC.PLACEEDUCATION** – place of study (locality, university name); **DOC.PLACECREATIVITY** – region of topical creativity; **DOC.AUTHORLANGUAGE** – languages spoken by the author; **DOC.AWARDAUTHOR** – author rewards information – awards, ratings, and more; **LINK**.

We consider it necessary to provide information about co-authors: **DOC.COAUTHOR** – co-authors, for each of them, we form a separate section.

FILENAME	FORMAT	TITLE	AWARDSOURSE	AUTHOR
	TXT PDF DJVU DOC			
Andruxovych_Moskoviada_2006	RTF	Московіада	-	Андрухович Юрій

Fig. 2. Metadata element and codes set (worksheet snippet 1).

- **Information about language: DOC.LANGUAGE** – language; of course, this is primarily Ukrainian, but the code for the combined text is provided: COMB – combined, in this case, add the required code: UK, AB (Abkhazian); COMB-UK-RU; COMB-UK-EN, etc.
- **Literary norm – DOC.NORM.** There are at least three categories of text: STA – linguistic standard; N-STA – linguistic nonstandard; COMB – combined (with elements such as speech, dialect, regiolect, jargon and more).
- **Information on originality of the text** (for translations): **DOC.ORIGINAL**: ORI – original; TRAN – translation; to this we add the code of the language from which it was translated: TRAN-RU.
- **The dating of the text.** The texts are marked by the date of creation (or by the last year when the text could be possibly created, or by the timespan is specified, or by the year of first publication); the translated texts are marked by the year when the translation was made; the year of the last possible revision: **DOC.DATECREATION** – date of creation; **DOC.DATEREVISION –** date of last author's revision; **DOC.DATEPUBLICATION –** date of publication of the annotated source.
- **Information on orthography.** The experience of the creators of the GRAC convinces the expediency of introducing such an element of metadata, since LET is focused primarily on the original works of the classics of Ukrainian linguistics at least 200 years in deep into history. So: **DOC.ORTHOGRAPHY**: CONT – continuous (2019 edition); SKRY – skripnikivka; ZHEL – zhelekhivka. It may be advisable to annotate the data according to the spelling revision version: ORT-93 – 1993 edition; ORT-60 – 1960 edition; ORT-33 – 1933 edition.
- **Information on region.** We accept regional markup of sources based on contemporary administrative structure of Ukraine (including Crimea), as well as the Diaspora: the text belongs to the region where the author / translator was born, studied and lived for more than 10 years, or the place of publication of the periodical: as in GRAC, the texts of diaspora authors will be marked by countries (USA, Canada,

Poland, etc.): and regions of Ukraine (total 26): **DOC.LOCATION:** UA-C-PLT — Poltava oblast; UA-E-HRK — Kharkiv oblast; as well as countries: BG – Bulgaria; BY – Belarus and others.

LANGUAGE	ORIGINAL	ORTHOGRA	NORM	DATECREAT	DATEPUBLIC	DATEREVISI	LOCATION	PLACEPUB	PUBLISHER
UK COMB-UK-RU COMB-UK-EN	ORI – оригінал TRAN – переклад TRAN-AB — з абха TRAN-AR — з араб UK – українська AB – абхазька AR – арабська ARM -- вірменська AZ – азербайджанс	CONT – сучасний SKRY – скрипників ZHEL – желехівка; ORT-93 – редакція т ORT-60 – редакція т ORT-33 – редакція т COMB – combined -	STA – відповідає (N-STA – не відпові COMB – комбінова				UA-C-CRK — Черн UA-C-KRV — Кіро UA-C-KVS — Київ UA-C-PLT — Полт UA-E-HRK — Хар UA-E-SUM — Сум UA-KYV — Київ UA-N-CRG — Черн UA-N-RVN — Рівн	UA-C-CRK — Черн UA-C-KRV — Кіро UA-C-KVS — Київ UA-C-PLT — Полт UA-E-HRK — Хар UA-E-SUM — Сум UA-KYV — Київ UA-N-CRG — Черн UA-N-RVN — Рівн	
UK	ORI	COMB-ORT-9	COMB	1992	2006		D-W-DE	UA-W-IFR, Іва	Лілея-НВ

Fig. 3. Metadata element and codes set (worksheet snippet 2).

- **Information on environment of the source**. Traditionally, this element is referred to as a *source*; but in order to avoid tautology (the main term of our project is a *linguistic source*), we use the name *environment* (from which this source was taken): **DOC. ENVIRONMENT:** PRI – printed publications; WEB – Internet; ARC – archive; TEL – television.
- **Information on initial form of the text.** The database contains texts, the initial form of which may be written or oral, translated into written form. Occasionally, texts contain a combination of the original oral language and the original written snippets (analysis, commentary): **DOC. INITIALFORM** – initial form: ORA – oral; WRI – written; COMBI – combined.
- **Information on the source form available in the database: DOC.SOURCEFORM**: ORA – oral (for video and audio); WRI-P – written printed (printed sources in appropriate electronic formats); WRI-E – written electronic.
- **Information on publisher**: **DOC.PUBLISHER** – publisher or publishing house; **DOC.PLACEPUB** – place of publication.
- **Source volume information: DOC.PAGE** – number of pages (for print). **DOC.CAPACITY** – is the capacity of electronic text (number of language units, characters, etc.); **DOC. VOLUME –** number of volumes, books, issues and more.
- **Information on source type: primary / secondary.** There are two types of sources used in creating dictionaries. *Primary* sources – fiction, newspapers, magazines, diaries, memoirs, epistolary, etc. – are facts of verbal creativity that are objectively generated and are the source of a word from a variety of genres, from scientific literature, from the media, from folk art and more. *Secondary* sources – dictionaries, encyclopedias, indexes, etc. – were created as a result of linguistic processing of primary sources, comprehension of linguists and encyclopedists of certain linguistic data according to the purpose of the research. So: **DOC.SOURCETYPE:** PRIM – primary source; SEC – secondary source.

- **Source conformity information.** The electronic source database should first be created from the copies of the editions that are most relevant to the author's design – authentic (most often the last lifetime editions of the author, often edited or at least approved, although there are some exceptions), as we noted above, in DjVu format or PDF with a text layer. This format will be digitally accessible and will provide a visual link to the original for accurate reproduction and analysis of text: **DOC.CONFORMITY** – conformity, adequacy, authenticity of the source: MAIN – main text; MOD – modified text: MOD-FORM - modified text – modified source form (printed – electronic text); MOD-CONTENT - modified content (later editorial, spelling, etc.).

INITIALFOR	ENVIRONME	SOURCEFOR	SOURCETYP	CONFORMIT
ORA - усна WRI - письмова	PRI — друковане д WEB — інтернет ARH — архів TEL — телебаченн	ORA – усна WRI-P – друкована WRI-E – електронн	PRIM – первинне д SEC – вторинне дж	MAIN – основний т MOD-FORM – моди MOD-CONTENT –
WRI	PRI, WEB	WRI-E	PRIM	MOD-FORM

Fig. 4. Metadata element and codes set (worksheet snippet 3).

- **Branch and audience: DOC.BRANCH:** SOC – social sciences; CHI – children and more.
- **Source topic** (primarily for scientific and popular science texts): **DOC.THEMA –** subject, theme: GEO — geography; BIO – biology, etc.
- **Information on media.** For the media, we use the markup accepted in the GRAC: **DOC.MEDIANAME; DOC.MEDIATYPE:** N-PAP – newspaper; MAGA – magazine; SITE – information site.

STYLE	SUB-STYLE	GENRE	MEDIANAME	MEDIATYPE	BRANCH	THEMA
COLL – розмовний OFF – офіційно-діл SCI – науковий JOU – публіцистич FIC – художній EPI – епістолярний	COLL – розмовний COLL-COM – COLL-PROD - COLL-EPIST - OFF – офіційно-діл ADMIN – адмі	COLL – розмовний COLL-COM – CONV – б COLL-PROD - PRE – про CONV – б		N-PAP – газета; MAGA – журнал; SITE – сайт	SOC – суспільні нау TEC – техніка NAT – природничі FOL – фольклорні CHI – дитячий HUM – гумор	ART — мистецтво BIO — біологія CHE — хімія ECN — економіка ETH — етнографія FMA — фізика, мат
FIC	EPIC	NOV				

Fig. 5. Metadata element and codes set (worksheet snippet 4).

- **Information on style, subspecies-style, genre LS: DOC.STYLE: DOC.SUBSPECIES-STYLE:** *DOC.GENRE:*

COLL – colloquial:
   COLL-COM – colloquial and common: *CONV – conversation;*
   COLL-PROD – colloquial and production: *SPE – speech; CONV – conversation;*
   COLL-EPIST – colloquial and epistolary: *LET – letter.*
OFF – official and business:
   ADMIN – administrative-clerical: *LET – letter; CON – contract; COV – covenant; STAT – statement; AUTOB – autobiography; AUTHORI – authorization; PROT – protocol; ADVER – advertisement; ORDER – order; INS – instruction; CER – certificate;*
   LEG – legislative: *CONS – Constitution; ACT – act; LAW – law; EDIT – edit; REG – regulations; DECR – decree;*
   RIG – human rights: *ACT – act; SENT – sentence; PROT – protocol;*
   DIP – diplomatic: *MEMOR – memorandum; ULT – ultimatum; CONVE – convention; COV – covenant; STAT – statement; PROT – protocol; NOT – note; COMM – communique.*
SCI – scientific:
   ACA-SCI – academic scientific: *DIS – dissertation; CRI – critique; MONO – monograph; LEC – lecture; ARTI – article; SUM – summary; REPO – report; THE – these; COURS – coursework; DEG – degree; ABS – abstract; RES – response; TRANS – transcript; REPT – report;*
   EDU-SCI – educational and scientific: *TEX – textbook; MAN – manuals; GUI – guidelines; LEC – lecture; CONV – conversation;*
   POP-SCI – popular science: *DIC – dictionary; ARTI – article; REV – review; PREF – preface; EPIL – epilogue; CHR – chronicle; ADVI – advice.*
JOU – journalistic:
   MEDIA-JOU; (information style of the media: television, radio, newspaper, magazine, Internet): *INT – interview, talk show; NEW – news; REP – reportage; NOTE – note (post); ARTI – article;*
   SCI-JOU – scientific and journalistic (analytic): *ARTI – article; REV-A – analytical review; SOC-PORT – social portrait;*
   FIC-JOU – fiction and journalistic: *PAM – pamphlet; FEAT – feature article; FEU – feuilleton; ESSE – esse;*
   GALA-JOU – gala and journalistic: *CONG – congratulation;*
   PROP-JOU – propaganda and agitation: *ADV – advertising, commercial.*
FIC – fiction:
   EPIC – epic: *NOV – novel; EP – epic; NOV-A – novella; STORY – short story; FEAT – feature article; SKE – sketch;*
   LYR – lyrical: *POET – poetry; POEM – poem; BAL – ballad; HYM – hymn; ELE – elegy; EPITH – epithelium; IDY – idyll; MAD – madrigal; SON – song; EPIS – epistle; SONN – sonnet; TERZ – terza rima; RUB – ruba'i; TAN – tanka; HAI – haiku;*
   DRA – dramatic: *DRAM – drama; TRA – tragedy; COME – comedy; MELO – melodrama; VAU – vaudeville;*
   COMB – combined: *DF – drama extravaganza; SM – smile (sketch).*

EPI – epistolary: *LET – letter; MEM – memories; AUT – autobiography; BLO – blog; DIA – diary.*

REL – religious (Choosing such a name, at the same time we ascertain the functioning of several terms for the definition of this kind of language: *religious, confessional, liturgical, sacred* style):

   CULT – cult: *BIB – Bible; LIF – life; APO – apocrypha;*

   ORIG – original: *SER – sermon; EDIF – edification; INT-SCR – interpretation of Scripture; PRA – prayer; EPIS – epistle; LIT-EDUC – liturgical educational literature;*

   LITUR – liturgical: *LIT – liturgy.*

INET – Internet: *COM – comment; BLO – blog; S-NET – social network; CHAT – chat; MESS – messenger.*

So, as in GRAC, we will use the following parameters: **DOC.AUTHOR, DOC.SEX, DOC.ORIGINAL, DOC.ORTHOGRAPHY, DOC.LOCATION, DOC.BRANCH, DOC.THEMA, DOC.MEDIANAME, DOC.MEDIATYPE.**

Some parameters are detailed, deepened, and presented in the following elements: **DOC.DATECREATION, DOC.DATEREVISION, DOC.DATEPUBLICATION, DOC.PLACEBIRTH, DOC.DATECREATION, DOC.DATEREVISION, DOC.PLACEEDUCATION, DOC.PLACECREATIVITY, DOC.PUBLISHER, DOC.ENVIRONMENT,** substantially developed: **DOC.STYLE, DOC.SUBSPECIES-STYLE, DOC.GENRED.**

Added new elements: **DOC.TITLE, DOC.FORMAT, DOC.CONTRIBUTOR, DOC.DATEDEATH, DOC.COAUTHOR, DOC.AUTHORLANGUAGE, DOC.AWARDSOURCE, DOC. AWARDAUTHOR, DOC.NORM, DOC.LANGUAGE, DOC. INITIALFORM, DOC.SOURCEFORM, DOC.PAGE, DOC.CAPACITY, DOC.SOURCETYPE, DOC.CONFORMITY.**

5   Conclusion and Future Work

The developed metadata system for linguistic source is open and dynamic. In the long term, it is possible to deepen or adjust the already mentioned elements, as well as to formulate such parameters as external factors of formation and functioning of the LS, which define such a characteristic as "authority of the source" in the cultural and in the linguistic context, in particular lexicographic. This will allow the creation of a dynamic model of the Dictionary Sources Core, will facilitate the flexible modeling of the linguistic (including lexicographic) portrait of a particular language unit according to pragmatic factors, optimize the formation of DSC for different types of dictionaries of the 21st century according to internal factors: the state of speech, the degree of development of linguistics theory, up-to-date information in the linguistic sources, type and purpose of the dictionary, etc.; would external factors: historical and cultural context,

personal factor, etc. And LET can be both a material and a tool for careful synchronic and diachronic study of the language and of its use in order to deepen the identity of Ukrainian linguistic thinking and Ukrainian lexicographic tradition, of its continuity and dynamism.

References.

1. Blinova, O.: About the subject of linguistic source studies. Languages and toponymy of Altai. pp. 83–89. Barnaul (1981).
2. Electronic Lexicography. In: Granger, S., Paquot, M. Oxford (2012).
3. General Regionally Annotated Corpus of the Ukrainian Language (GRAC). Shvedova, M., Waldenfels, R. Von, Yarygin, S., Kruk, M., Rysin, A., Starko, V., Wozniak, M.. Kyiv–Oslo–Yen, https://www.uacorpus.org (2017–2019), last accessed 2020/02/09.
4. Hnatyuk, I.: Ways of forming the source base of the explanatory lexicography of modern Ukrainian literary language. In: Lexicographic bulletin. Collection of scientific works, vol. 24, pp. 9–14. Kyiv (2015).
5. Honcharuk, M.: The problem of the main text of prose works by Panas Myrny in the 1870. In: Literary Source Studies. Textology, vol. 3, 479 p. Kyiv (2007).
6. Hrytsenko, P.: Idiolect and text. In: Linguistic: object – style, purpose – assessment. Collection of scientific works, pp. 16–43 (2007).
7. Demska-Kulchytska, O., Perevozchikova, O., Sichkarenko, V.: Development of lexical card index of the Ukrainian language. In: Scientific notes of NaUKMA, vol. 19–20. Computer Science, pp. 40–48 (2002).
8. Dublin Core™ Metadata Initiative, https://www.dublincore.org, last accessed 2020/02/09.
9. Kazymyrova, I.: Historical Terminography in the Context of Linguistic Source. In: Studies Language and Culture, 17, II (170), pp. 265 – 272 (2014).
10. Karpilovska, Ie.: Introduction to Applied Linguistics: Computer Linguistics. Textbook. Donetsk (2006).
11. Karpilovska, Ie.: Lexical card index and body as tools of lexicographic modeling of the word. In: Lexicographic bulletin. Collection of scientific works, vol. 24, pp. 15–22. Kyiv (2015).
12. Cosmeda, T.: The status of the concept of "live speech" in the paradigms of modern linguistics and traditional linguistics. In: Linguistic research. Issue 37, pp. 179–184 (2014).
13. Kotkov, S.: About the subject of linguistic source studies. In: Source study and the history of the Russian language, p. 5. Moscow (1964).
14. Palamarchuk, L.: Reflection of oral speech by modern lexicography. In: Ukrainian oral literary speech, pp. 84–93, Kyiv (1967).
15. Palamarchuk, L.: About the principles of lexical inventory selection for a general dictionary. Linguistics. 3, 3–11 (1973).
16. Tyshchenko, O.: Two notes on selecting primary sources for the lexicographer text base. In: In search of harmony of language. On the 80th anniversary of the birth of the corresponding member of NAS of Ukraine, Doctor of Philology, prof. N. Klymenko, pp. 381–389, Kyiv (2020).
17. Tyshchenko, O.: Electronic lexical card index: the way to create modern vocabulary tools. Ukrainian language, 2 (2019).
18. Tyshchenko, O.: Implement of modern lexicograph: history of one name. In: Terminological Bulletin, vol. 5. pp. 334–340. Kyiv (2019).

19. Tyshchenko, O.: The language of the Internet communication in the National Corpora of the Ukrainian language. In: Linguistic style: object – style, purpose – assessment. Collection of scientific works devoted. 70th anniversary of the birth of prof. S. Yermolenko, pp. 362–367. Kyiv (2007).
20. Tsymbalyuk-Skopnenko, T.: Source base of author's lexicography: theoretical and practical dimension. In: Lexicographic bulletin. Collection of scientific works, vol. 24. pp. 77–82. Kyiv (2015).