LEXICOGRAPHY: FROM ART TO SCIENCE (PARADIGMATIC PERSPECTIVE)

Ye. Plakhotniuk,
Kyiv National Linguistic University,
73, Velyka Vasylkivska St., Kyiv, 03150, Ukraine
eugeneplakhotniuk@gmail.com
ORCID iD 0000-0002-4413-1112

The paper brings to the fore an alternative paradigmatic view on lexicography in its development from art of making dictionaries to a groundbreaking scientific area. The core of discussion concerns the theoretical and methodological principles of metalexicographical information coding adopted by various lexicographical theories and traditions. The research identifies four lexicographical paradigms and interprets the latter as an intra-disciplinary framework bridging artificial intelligence and technologies with a praxis-derived theory at the intersection of cognitive and information sciences.

Key words: *lexicographical paradigm, dictionary, thesaurus, principles of structuring information, metalexicographical code, dictionary research, e-lexicography, interdisciplinary lexicography.*

Плахотнюк Є.І.

Лексикографія: від мистецтва до науки (парадигматична перспектива)

У статті на передній план висувається альтернативний парадигматичний погляд на лексикографію у її розвитку від мистецтва укладання словників до новаторської наукової царини. Серцевину дискусії складають теоретичні та методологічні принципи металексикографічного кодування інформації, прийняті різними лексикографічними теоріями та традиціями. Дослідження визначає чотири лексико-графічні парадигми та розглядає останню з них як інтрадисциплінарну систему, що об'єднує штучний інтелект та сучасні технології з теорією, отриманою емпіричним шляхом, на перетині когнітивних та інформаційних наук.

Ключові слова: *лексикографічна парадигма, словник, тезаурус, принципи упорядкування інформації, металексикографічний код, металексикографія, електронна лексикографія, міждисциплінарна лексикографія.*

Плахотнюк Е.И.

Лексикография: от искусства к науке (парадигматическая перспектива)

В статье на первый план выдвигается альтернативный парадигматический взгляд на лексикографию в ее развитии от искусства создания словарей к новаторской научной области. Ядро дискуссии касается теоретических и методологических принципов металексикографического кодирования информации, принятых различными лексикографическими теориями и традициями. Исследование идентифицирует четыре лексикографические парадигмы и рассматривает последнюю из них как интрадисциплинарную систему, объединяющую искусственный интеллект и современные технологии с теорией, производной от практики, на пересечении когнитивных и информационных наук.

Ключевые слова: *лексикографическая парадигма, словарь, тезаурус, принципы упорядочивания информации, металексикографический код, металексикография, электронная лексикография.*

Introduction

The history of lexicography, as we know it today, dates from the early 20 century; meanwhile, the history of dictionary making can be traced back to the 2 century BC. No wonder, the challenge for contemporary metalexicography concerned with general theory of making various lexicographical sources [11; 23; 53; 54; 50; 44; 36] is to bridge all those individual names, traditions and techniques for the better of the lexicographical informational systems to come. Such a system should establish (1) major shifts in the theoretical and methodological continuum of lexicography and (2) *transformations of dictionary concept or model.*

The paper **aims** at providing an alternative paradigmatic perspective on the first issue and, thus, identifying general metalexicographical tenets and underpinning principles of structuring information in diachrony. This angle of discussion may shed the light of new insights on upon the status of lexicography and dictionary concept in the context of contemporary interdisciplinary lexicographical projects.

Theoretical background

The problem of theoretical and methodological consistency of dictionary making emerges at the foreground of an unsure victory of the advocates for the academic status of lexicography as a science / scientific discipline [11; 8; 21; 50; 56; 49; 30; 14; 25; 54; 45; 52] over those who still reject defining it in any other way than an art or a craft [12; 13; 5]. Still, how trivial or touchy the issue might be, it poses a logical question: if lexicography is a truly scientific enterprise what are the main paradigms of dictionary research guiding the vectors of its development and underlying its theoretical basis, starting from the by-gone days and facing the nearest future of digital world? Such researchers as Tono Yukio [47] and Sven Tarp [45; 44] seem to have left no ground for doubt that we need a new theory of lexicography. The question is, however, what that theory should be like and why?

Among the traditional approaches to history of lexicography [29; 17; 22; 53; 54; 12; 13], which are based on (1) *conventional historical periods*, (2) *author-/editor-based tradition*, (3) *subject matter* or a *certain language aspect* (regional, national, purely linguistic or lexicographic etc.), (4) *type of dictionary*, or (5) *technological aspect of dictionary research*, there is none that can either provide a clear diachronic vision on dictionary research as an interdisciplinary continuum or fill the gap between lexicographical theory and practice. Partly this inconsistency can be accounted for individual national traditions in dictionary making and lack of a unifying lexicographical theory able to integrate the best practices and typological diversity of dictionaries under a feasible system of views on what a "dictionary" is or should be.

Methods

The research presents preliminary results obtained from an overview of a vast selection of papers in metalexicography, history of dictionary making in various languages, dictionary criticism and corresponding reference sources. A bulk of general scientific methods and critical dictionary research analysis [46] were put to practice to pilot a paradigmatic approach to metalexicography. It is based on the following assumptions:

(1) dictionary or any lexicographical system is a polisemiotic system structuring information of the three basic dictionary dimensions, i.e. (i) subject matter (*WHAT?*), (ii) user (*WHO / WHAT for?*) and (iii) lexicographical code (*HOW?*); the latter is harmonized in nature with the two others and has its own paradigmatic (methods and principles) and syntagmatic (layout) properties;

(2) the core of metalexicography concerns the problem of theoretical and methodological principles of balancing the three foci of dictionary; hence, the solution of this complex problem may be approached in various ways depending on a paradigm.

Results and Discussion

The notion of **lexicographical paradigm** (LP) is not new. It is often used throughout the literature as a synonym to *lexicographical trend, method, tendency, tradition, genre, style, approach* etc. when it goes about a significant distinction, shift or innovation in dictionary making. Sometimes it may refer to the subject matter itself denoting word-class/-type [10, 30–31] or a certain change in technologies or strategies of gathering data, i.e. *editorial, corpus, digital / electronical, computational and collaborative LP* [34, 3; 33]. Still, all of them either interpret the notion of paradigm without further specification or reduce it to purely linguistic or technological understanding.

In this paper, LP is viewed in close to general scientific understanding as a system of views on the nature and solution of a certain lexicographical problem. The structure of any LP encompasses:

(1) the key problem;

(2) lexicographical conception / theory underlying the research;

(3) methods of constructing and utilizing metalexicographical code;

(4) precedential / pattern of dictionary/-ies.

The verification procedure can follow both directions from theory to practice (*theory-based approach*) or vice versa (*artisanal / praxis-derived approach*) [46, 72–73]. Still, the empirical verification seems to be more relevant when it comes to dictionary research in terms of transformability of the theory and quality of the final results [23, 41–42].

This section presents the preliminary results of the analysis of historiographical sources and recent surveys in metalexicography only in the part of the major LPs and their parameters. The study attests the four major LPs (see *Table 1*). Furthermore, some historical periods and most typical lexicographical genres are indicated as well. The proposed division neither aims at absolute historical objectivity nor claims for an exhaustive analysis of all the aspects that have recently been in the focus of lexicographical studies. Instead, it outlines the contours of compatibility of various approaches and initiates a discussion for the researches to come. Let us consider each of the LPs further.

I. Formal-Intuitive LP and Protolexicographical period (before 18 c)

The earliest wordlists and ideographical reference sources as the first artifacts of culture and phylosophy help us to identify the central problem of the time, namely, not lanuage *per sei* or user and his needs, but the **methods of extracting knowledge.** The motives could range from trade and commerce to rituals and education; still, there were the two basic genres **glossography** and **ideography**.

Table 1

Major lexicographical paradigms and their components

Paradigmatic aspects		Formal-intuitive LP	Linguistic LP	Functional LP	Inter-disciplinary LP
The key problem	SUBJECT MATTER		X		X
	USER / FUNCTION			X	X
	CODE / METHOD	X			X
Status of lexicography		Art & Craft of making dictionaries	Linguistic discipline	Independent scientific discipline	Multidisciplinary scientific framework
Genres		Ideography vs. Glossography	Prescriptive (classical) L., Descriptive (linguo-centric / systematic) L.	Proscriptive L., Pedagogical L.,	Electronic L., Associative L., Cognitive L.
Methods / methodology		**Alphabetic** (formal) vs. **Ideographic** (thematic, intuitive) arrangement	(1) Historical, historical-comparative, cumulative methods; (2) Formal-structural and logical-naturalistic / analogous methods; (3) Systematic approach, semantic analysis, structural-systematic, field-based, nest-based methods etc.	Lexicogical critical analysis, dictionary use analysis, corpus analysis etc.	(1) Conceptual analysis, conceptual framing, conceptual metaphor; (2) Method of inter-semiotic agreement, (3) NLP tools, computational tools, big data analysis etc.

The first was concerned with listing "hard words" / glosses below the actual text of the source [36, 102; 37, 203–204; 39; 27; 5, 55–104; 28; 4, 20] and interpreting / defining them into colloquial language. The results of such practices were glossaries, proto-explanatory dictionaries or pure collections of glossemes arranged by formal alphabethic method (*first letter order, second letter order* etc.) [36, 103]. The examples can be found both in West-European (glossaries of latin (7–8 c), vocabularies of French (11–16 c), compilations of vocabulary items ("*Table Alphabetical*" or "*Expositor of Hard Words*"; "*Corpus Glossar*", "*Hortus Vocabullorum*" (up to 17 c)) and East-European traditions ("*proizvolnyks*", "*azbukovnyks*", "*alphabets*" to explain Greek, South-Slavic and Church-Slavonic words in colloquial language) [4, 20]. The two functional axes of this "lexicography of hard words" [40, 132; 5, 58–59] were (1) translation / explanation for reading foreign or obscure texts (*glossary*) [4, 20] and (2) foreign language learning by means of scholastic translation-based activities (*vocabularium / vocabulary*)) [36, 103].

The second, ideography, has several conspicuous distinctions: (1) ideographical and symbolic coding of information urged upon dictionaries compiled by means of thematic grouping based on naive logical relations similar to those existing between the entities in reality [7, 12; 3, 155];

(2) the subject metter of idiographical dictionaries / thesauri was presented by names (common and proper), key notions of objects, religious and social life, domastic realias etc.) grouped and classified with brief explanations in prose or poetic form;

(3) the genuine purpose of thesauri was not defining individaul hardwords but rather systematizing knowledge signified by them.

The key principles of arranging information were thematic, logical and naturalistic classfication; although all of them were predominantly naive and intuitive. The initial patterns of such dictionaries are: "*Attikai Lexeis*" (2 BC), "*Onomasticon*" (2 AD), "*Amarakosha*" (2–3 AD) cited in [1; 3, 155; 2, 17].

II. Linguo-centric LP and period of linguistic lexicography (19–20 c)

The process of forming a truly linguo-centric LP (meaning systamatic proparties of natural language guiding the logics of dictionary) has gone through several stages. Firstly, it was **the national languages boom** (16–17 c) that initiated a shift of researchers' attention from the globalistic philosophical and mythologemic views on "universal metalanguage" to self-identity and self-awareness through an individual national language. The core problem was reformulated from (*How?*)-method to (*What?*)-subject matter. No woder, dictionaries became tools for codifying and accumulating words of basic wordstock. Those volumneous wordbooks strove for an overall coverage of both linguistic and encyclopeadic information. The mainstream methods of the time were historical, historical-comparative, and compilative [2, 17] and the main principles of arranging entries — alphabetical [2, 17–19; 40]. The examples are etimological dictionaries by E. Phillips, J. Florio, S. Skinner [5, 56–58], L. Zyzaniia [2, 19–23] et al. Apart from them there were thematic dictionaries by Galfridus ("*Promptorium Parvulorum*" 1440) and J. Withals [36, 102–103] together with an arrow of alphabetical learner's dictionaries of hard words by R. Cawdrey, J. Bullocar, H. Cockeram, T. Blount, E. Coles, R. Mulcaster, T. Eliot, T. Kooper et al [5, 59].

Secondly, the urge for canonsation of literary norm established rules of prescribtive lexicography with its **classical linguistic dictionaries (18–19 c)** [5, 63–70] concerned with objectivity through

multiaspect lexicographical parametrezation of microstructure and alphabetical arraingement of macrostructure of dictionary [48]. Although there is no evidence of an overall linguistic theory guiding lexicographers of the time, their dictionaries heavily depended on findings in the realm of language studies and individual methods when it came to **general / universal dictionaries** modelling language as a whole with dialectisms, slang, colloquialisms, borrowings (by J. Kersey, N. Bailey et al) [5, 63–67] and **monoligual puristic dictionaries** by S. Johnson, N. Webster, J. E. Worcester as well as dictionaries of pronunciation by T. Sheridan, J. Walker [5, 71–82]. The main method for arrainging information was either formal-structural or logical (naturalistic) in case of thesaurus by P. M Roget [7, 19]. The latter untimely practice considered language from the onomasiological approach. Still, modelling of inner logics of language system was beyond the linguistic instrumentarium at the time. Among the examples are ideographical thesauri of French by T. Robertson (1859), German by D. Sanders (1877) and A. Shlesinger (1881), Spanish by Ch. B. Hase (1889) and E. Samper Pizano (1912) etc. [cited in 7]. The objective of thesauri was "rational classfication of notional groups inherent in language" [7, 20]. Similar to these there were analogous dictionaries based on semantic fields and thematic groups, i.e. *Dictionnaire analogique de la langue française* by P. Boissière [1962]. Still, none of the thesauri or overall classical dictionaries could manage to solve the problem of covering and classify language with its reach cetegorial diversity and natural systematic relations between words [5, 143].

Finally, during the so-called **neoclassical stage** (early 20 c) lexicographers and linguistis turned to natural language proclaiming **linguo-centric / descriptive lexicography**. Language in use becomes the source of knowledge about what lexicon actually is; hence, there is no devision of bad and good words the main function of lexicography is to register / take stock of natural language and its structural-systematic order through the study of speech and discourse in various language corpora [9, 53]. The bright example of this vector is a **systematic lexicography** based on integral description of language, modelling linguistic picture of the world and semantic metalenguage of dictionary [1, 33–34; 51; 6; 2, 124]. Besides, the second part of the 20th century brought in first major theories of lexicography by lexciographers who had either to balance between tenets of their ancestors in dictionary making and adopt some of linguitsic methods [11; 30; 53, 20; 16] or call for application of information science tools [50].

III. Functional LP at the Anthropocentric turn

Functional LP at the Anthropocentric turn has been established on the ground of the theory of lexicographical functions which enshrined the user

factor above anything alse [46; 47]. The approach is based on axciological, deductive and observation methods. This implies the following key points:

(1) the lexicographical adaptation of methods, concepts, and ideas from other relevant fields (hence, reconceptualisation of linguistic prescription ("proscription" in stead), linguistic conception of meaning, diachotomy of semantic and encyclopeadic knowledge, senonymy, omonymy, polysemy and relevance (implication from relevance theory) etc. [25; 36; 23; 46]) in the light of user-factor;

(2) the functionality of dictionary as a "utility tool" concerns primarily its assistance of user by satisfying punctual **information needs** faced in certain **user situation** (cognitive or communicative) and is the only most important guidle at all stages and for all decisions of dictionary maker [23, 64–65];

(3) the principle of quantitative and qualitative sufficiency of data covered by dictionary to meet the user's needs and avoid information overload [44, 253];

(4) the prohibition of any retrospective modifications of categories of structured data [46, 69].

On balance, functional approach showed positive results for learner's lexicography. Still, it implies author-subjective creativity rather than clear scienctific doctrines or guidelines for dictionary makers.

IV. Inter-disciplinary LP and its major trends

It was the advent of an ***information-technological trend*** in the second part of the 20th century that seemed to make dreams of all generations of lexicographers come true. What started with **computer lexicography** [24; 25; 38; 23; 32; 26] with its machine-readable dictionaries, lexical databases, NLP tools and human-readable dictionaries during the late 1970–80-s [18; 26, 1–2] or **digital lexicography** with its transformative online / web-based dictionaries [18, 584–585] at the moment comes to the uprising **intellectual adoptive lexicography** and I-dictionaries [18; 19; 31; 26; 15; 43; 35; 42]. Artificial intelligence is viewed as "a branch of computer science that deals with how machines can find solutions to complex problems" [35, 1]. If dictionary making is one of such problems, a number of NLP tools can facilitate its solution, i.e. *information extraction, information retrieval, named-entity recognition, parsing, chunking, part-of-speech tagging, wordsense disambiguation, etc.* [35, 6–14] used for better corpus integration, "better selection of better data", sufficient access, automation, customization, hybridization and user input [31; 26, 3]. How elaborated technology might be it still needs a sufficient multidisciplinary theoretical framework. Namely, challenges

of such collaboration or artificial intelligence and e-lexicography concern two aspects:

(1) data extracted from the existing dictionaries lack formalization and consistency of inner systematic relations to be an input for computational processes and NLP applications [33];

(2) application of computational tools (for digitalization of printed sources) is often counterforced by outdated editorial constraints [26, 3; 43].

Obviously, the two main problems to be resolved are **data-centrism** and **function-determinism**.

The first problem relates to data processing in dictionary and data dictionaries [26, 3]. The attempt to create a data-*guided* dictionary based on corpora-derived lexical databases which are processed by methods of **big data** seems to resonate with lingo-centric LP but in a significantly broader sense. Some of the examples include *Croatian Encyclopaedic Dictionary* [19] as an information system to satisfy the closure criteria by means of automated compression of defining language [19, 2] and *Wiktionary* – as a result of collaborative lexicography. In this context lexicographers look for **connectedness** and **availability** as the two most important features of their dictionaries [33, 513–514].

The second problem deals with user's needs and elaborating on functionality of dictionary [38; 46] which resembles in a way functional LP but with a significant reconceptualization of user-factor. The core of the concept of intellectual transformative dictionary able to self-improvement and adaptation the individual user needs is based on building an informational system of user profiling [18]. It should be guided by fuzzy simultaneous feedback through monitoring and logging strategies of individual user's searches. In result, the dictionary provides a **gradual definition** by means of fuzzy answer set programming taking into consideration a number of factors (background knowledge, language proficiency, age, perceived difficulty etc). The user profile, thus, can be improved by means of the online statistics provided by data-mining and clustering on the principle of co-occurrence of data concerning user's behaviors and interests [18, 585–593]. The prototype of such a dictionary is online Swahili to English dictionary (aiLEX) [18, 585–593]. Still the transformability of layout and principles of structuring information in such a dictionary remain highly disputable.

There are also **psycholinguistic** and **lingo-cognitive** approaches to lexicography. The first attempts at modelling of human mental lexicon trough lingo-associative networks of reactions to a certain stimulus [1]. As a result, **associative lexicography** focuses on thesauri of that type and provides a unique linguistic picture of the world with heterogeneous relations between entries and separate senses. The second approach, known as **cognitive lexicography**, attempts at the application of various findings in the realm of cognitive linguistics and knowledge engineering to the lexicographical practice [41; 51; 55].

Conclusions

On balance, the study has shown four major lexicographical paradigms: formal-intuitive, linguistic, functional and interdisciplinary. Each of them has a certain prominent dimension of the dictionary, i.e. subject matter, the method of structuring data or function, which has been identified as the key problem of a certain period. Meanwhile, an emerging tendency of contemporary studies towards the integration of all three dimensions of the dictionary model brings us to the idea of an integrating and transformative theory of lexicography. It is expected to meet the needs of creators of intellectual information systems and dictionaries for human and machine-based users. To accomplish this task such an interdisciplinary framework of new lexicography should bridge artificial intelligence and information technologies with a praxis-derived theory at the intersection of cognitive and informational sciences. In its turn, the dictionary concept and its modelling need reconsideration in search of new methods of building conceptual ontologies of data and modelling real user's cognitive operations. This topic is to be addressed in the further papers on semiotic and cognitive aspects of the dictionary making.

REFERENCES

1. Apresian, Yu. D. (1974). Leksicheskaia semantika. Sinonimicheskie sredstva yazyka. Moscow: Nauka.
2. Atkins, B. & Rundell, M. (2008). The Oxford Guide to Practical lexicography. Oxford: Oxford University Press.
3. Béjoint, H. (2010). The Lexicography of English. Oxford: Oxford University Press.
4. Bergenholtz, H. & Gouws, R. (2012). What is Lexicography? *Lexikos*, 22(1), pp. 31–41.
5. Caruso, V. (2013). From e-Lexicography to Electronic Lexicography. A Joint Review. *Lexikos*, 23(1), 585–610.
6. Casares, J. (1992). Introducción a la lexicografía moderna. CSIC Press.

7. Considine J. (2010). Adventuring in Dictionaries: New Studies in the History of Lexicography. Cambridge Scholars Publishing.

8. De Schryver, G.-M. (2010). The State-of-the-art Software to Support Intelligent Lexicography. *Proceedings of the International Seminar on Kangxi Dictionary & Lexicology*, Continuum, 584–599.

9. Dembitz, Š., Jojić and Lj., Pavlek, J. (2005). Artificial intelligence in Lexicography: Croatian encyclopaedic dictionary example. *The 16th International DAAAM Symposium: Intelligent Manufacturing & Automation: Focus on Young Researchers and Scientists*, Opatija, 1–2.

10. Dubichinskii, V. V. (2008). Leksikografiia russkogo yazyka. Moscow: Nauka / Flinta.

11. Dubois, J & C. (1971). Introduction a La Lexicographie: Le Dictionnaire. Paris: Librairie Larousse.

12. Duda, W. et al. (1978). Zu einer Theorie der zweisprachigen Lexikographie. Überlegungen zu einem neuen russisch-deutschen Wörterbuch. *Linguistische Studien. Reihe A. Arbeitsberichte*, 142, Berlin: Academie, 1–122.

13. Durkin, Ph. (2016). The Oxford Handbook of Lexicography. Oxford University Press.

14. Fesenko, O. P. (2015). Leksikografiia yazyka, rechi i diskursa. *Omskii nauchnyi vesnik. Gumanitarnyie nauki,* Omskii gosudarstvennyi tehnicheskii universitet, 52–54.

15. Fuertes-Olivera, P. A. & Tarp, S. (2014). Theory and Practice of Specialised Online Dictionaries: Lexicography versus Terminography. Berlin / Boston: De Gruyter.

16. Gouws, R. H., Heid, U., Schweickard, W. & Wiegand, E. H. (2006). Dictionaries. An International Encyclopedia of Lexicography. Supplementary Volume: Recent Developments with Special Focus on Computational Lexicography. An Outline of the Project. *Lexicographica, 22*, 262–269.

17. Gouws, R. H. (2011). Learning, Unlearning and Innovation in the Planning of Electronic Dictionaries. *E-Lexicography: The Internet, Digital Initiatives and Lexicography,* New York: Continuum, 17–29.

18. Granger, S. (2012). Electronic Lexicography: From Challenge to Opportunity. *Electronic Lexicography*, Oxford: Oxford University Press, 1–14.

19. Green, J. (1995). Chasing the Sun: Dictionary Makers and the Dictionary They Made. New York: Henri Holt.

20. Hanks, P. (2013). Lexicography from Earliest Times to the Present. The Oxford Handbook of the History of Linguistics, Oxford University Press, 503–536.

21. Hartmann, R. R. K. (1986). The History of Lexicography. John Benjamins.

22. Kromann, H-P., Riiber, T., Rosbach, P. (1984). Überlegungen zu Grundfragen der zweisprachigen Lexikographie. *Studien zur neuhochdeutschen Lexikographie*, 5. Hildesheim/New York: Olms. 159–238.

23. L'Homme, M-C. (2010). Designing Specialized Dictionaries with Natural Language Processing. Examples of applications in the fields of computing and climate change. *eLexicography in the 21st Century: New Challenges, New Applications Proceedings of eLex.* Louvain-la-Neuve, 203–216.

24. Lendau, S. I. (2012). Slovnyky: mystetstvo i remeslo leksykohrafii. K.I.S.

25. Leroyer, P. (2011). Change of Paradigm: From Linguistics to Information Science and from Dictionaries to Lexicograhic Information Tools. *e-Lexicography. The Internet, Digital Initiatives and Lexicography*, Continuum, 121–140.

26. McCracken, J. (2016). The Exploitation of Dictionary Data and Metadata. *The Oxford Handbook of Lexicography*, Oxford University Press, 501–515.

27. Melchuk, I. A. (1974). Opyt teorii lingvisticheskikh modelei «Smysl — Tekst». Moscow: Nauka.

28. Meyer, Ch. M. (2013). Wiktionary The Metalexicographic and the Natural Language Processing Perspective. Darmstadt.

29. Mishra, K. (2018). Computational Approaches and NLP Applications. *Artificial Intelligence and Natural Language Processing*, Cambridge Scholars Publishing, 1–16.

30. Morkovkin, V. V. (1970). Ideograficheskie slovari. Moscow: Izd-vo Mosk. un-ta.

31. Murray, J. A. H. (1990). The Evolution of English Lexicography (1900). [Romanes lecture]; repr. with introduction by R. W. Burchfield. *International Journal of Lexicography 2(6),* Oxford University Press, 89–122.

32. Murray, K. M. E. (1977). Caught in the Web of Words: James A. H. Murray and the Oxford English Dictionary. New Haven: Yale University Press.

33. Nielsen, S. & Tarp, S. (2009). Lexicography in the 21st Century: In honour of Henning Bergenholtz. Benjamins.

34. Noyes, G. E. & Starnes, de W. T. (1991). The English Dictionary from Cawdrey to Johnson, 1604–1755 (Studies in the History of the Language Sciences). Chapel Hill: University of North Carolina Press.

35. Osselton, N. E. (2009). The Early Development of the English Monolingual Dictionary (seventeenth and eighteenth centuries). *The Oxford History of English Lexicography*, Oxford: Oxford University Press, 131–154.

36. Ostermann, C. (2015). Cognitive Lexicography: a New Approach to Lexicography Making Use of Cognitive Semantics. De Gruyter.

37. Plakhotniuk, Ye. (2018). Artificial Intelligence and Digital Lexicography: challenges and opportunities. V All-Ukrainian scientific and practical conference for students, PhD students and young scientists

"United by Science: Perspectives of Interdisciplinary Researches", November, 8–9, 2018, Taras Shevchenko Kyiv National University, "Kyivskyi Universytet ", 119–121.

38. Rundell, M. (2015). From Print to Digital: Implications for Dictionary Policy and Lexicographic Conventions. *Lexicography MasterClass and Macmillan Dictionary*, London, 301–322.

39. Shcherba, L. V. (1974). Opyt obshchei teorii leksikografii. *Yazykovaia sistema i rechevaia deiatelnost*, Moscow: Nauka, 265–304.

40. Shilova, I. V. (2016). Aksiologicheskaia paradigma "strannyi" v funktsionalno semanticheskom aspekte. Moscow.

41. Sorokoletov, F. P. (1978). Traditsii russkoi sovetskoi leksikografii. *Voprosy yazykoznaniia*, 3, Moscow, 37–38.

42. Tarp, S. (2012). Do We Need a (New) Theory of Lexicography? *Lexikos*, 22, AFRILEX, 321–332.

43. Tarp, S. (2018). Lexicography as an Independent Science. *The Routledge Handbook of Lexicography*, London: Routledge, 1–15.

44. Tarp, S. (2014). Theory-Based Lexicographical Methods in a Functional Perspective. An Overview. *Lexicographica*, 30 (1), De Gruyter, 58–76.

45. Tono, Y. A. (2010). Critical Review of the Theory of Lexicographical Functions. *Lexicos*, 40, AFRILEX, 1–16.

46. Vişan, R. (2010). Entry Layout in the History of English Lexicography: Bailey 1736, Martin 1749 and Johnson 1755. *Working Papers in Linguistics*, XII, Bucharest, 93–103.

47. Weber, N. (1996). Theorie der Semantik und Theorie der Lexikographie. Tübingen: Max Niemeyer.

48. Wiegand, H. E. (1984). On the Structure and Contents of a General Theory of Lexicography. *Proceedings. Papers from the International Conference on Lexicography at Exeter, 9–12 September 1983*, Tübingen: Max Niemeyer Verlag, 13–30.

49. Wierzbicka A. (1972). *Semantic Primitives*. Frankfurt.

50. Yong, H. & Peng, J. (2008). Chinese Lexicography: A History from 1046 BC to AD 1911. New York: Oxford University Press.

51. Zabashta, R. V. (2006). Osnovnyie etapy razvitiia ideografii: podkhody, kategorii, leksikografirovaniia. *Kultura narodov Prichernomoria*, 82 (1), 155–160.

52. Zgusta, L. (1993). Lexicography, Its Theory, and Linguistics. *Dictionaries: Journal of the Dictionary Society of North America*, 14, Illinois: University of Illinois Press, 130–138.

53. Zgusta, L. (1971). *Manual of Lexicography*, 39. Prague: Academia.

54. Zhabotynska, S. A. (2010). Principles of Building Conceptual Models for Thesaurus Dictionaries. *Cognition, Communication, Discourse*, 1, 75–92.

55. Zöfgen, E. (1994). Lernerwörterbuch in Theorie und Praxis. Ein Beitrag zur Metalexikographie mit besonderer Berücksichtinung des Französischen. *Lexikographica*, 59, Tübingen: Niemeyer.

56. Ivanova, O. V. (2016). Osnovy ukladania galuzevykh hlosariiv. Lectures, manual. Kyiv: Komprint.