

Nounal Simplified Monomials in Ukrainian for Audit and Accounting



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ABSTRACT: The present paper is work in progress and closely relates to the earlier introduced idea of monomials and polynomials as substitutes of the term in linguistics when applicable to terminologies, or languages for specific purposes (LSPs). It looks deeper into the investigation of monomials as mono-term (one component), bi-term (two component) and multi-term (three and more components) terms in Ukrainian for Audit and Accounting selected as a sample language from the Slavic language family.

The paper will start with the aim and objectives of the work to be followed by a brief overview of the term “monomial”. Section I will move to the material of the study, methods of investigation and literature review. Then it will also explain the differences among simple monomials, simplified monomials, and those compound and complex in the specified terminology in the Ukrainian language. Section II – Results and Discussion, will follow a number of classifications employable for simplified monomials in Ukrainian for Audit and Accounting and present the main findings according to the relevant classifications. Conclusion and References will end up the paper and request for constructive feedback and reasonable critique.

KEYWORDS: monomial, simple monomial, simplified monomial, nounal simplified monomials, Ukrainian for Audit and Accounting (Ukrainian for A&A).

INTRODUCTION

Language is well-known to consist of interdependent elements at various hierarchical levels. Terminologies, or languages for specific purposes (LSPs), make no exception. Thus, terms that make part of a relevant terminology may be viewed as independent linguistic units of simple or complex nature in glossaries or interdependent elements within one specified language system restricted by use and domain of specialised knowledge.

The semantic and grammatical combinations of different linguistic units, i.e. either words or terms (for terminologies) may form both a phrase and a sentence. The current work generally aims at the investigation of simplified terms in Ukrainian for Audit and Accounting (A&A) presented in the form of term clusters, or phrases, according to Lucien Tesnière, a prominent French linguist, and his grammatical theory based on dependency relations that are traditionally opposed to constituency relations natural of phrase structure grammar (Tesnière, 2015; Chomsky, 1957). More specifically, the paper aims at some classifications adoptable and realizable for the relevant investigation and such are going to be discussed in Section II.

Thus, the declared scope of work anticipates the following objectives to be met:

- (i) To define ‘monomial’ for the purpose of the paper,
- (ii) To provide an overview of respective literature, a linguistic classification of monomials and specify the methods and resources that have built up the study material,
- (iii) To furnish the theoretical part with the language study material and respective statistical data,
- (iv) To draw conclusions on the main findings.

As stated above in one of the objectives, it is critical to define ‘monomial’ in the paper that is linguistic rather than one of mathematics. Following a number of previously published works, e.g. *Monomial Variables in English Audit Terminology* (Chaika¹, 2019), *Binomials in English Audit Terminology* (Chaika², 2019), *Structure of Bi-Term Monomials in English for Audit and Accounting* (Chaika², 2020), *Monomials as Set Term Clusters in Terminologies* (Chaika³, 2020), a monomial deems to substitute a term in the light of investigating terminologies, or LSPs, and data mining for digital and artificial intelligence purposes, especially looking at automation of translation and voice recognition with artificial intelligence (AI). A linguistic unit either single in its form or expressed as a term cluster in an LSP is seen a correlate to an algebraic expression, which is why shares the same term of monomial. Moreover, this term reflects the nature of both an expression in mathematics and that in linguistics, and can be easily

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traced and employed by IT engineers while building frameworks of algorithms in computer sciences that may enable smoother and more accurate machine translation in future.

Therefore, a monomial is a term / term cluster characteristic of a mono-term or bi-term, or multi-term structure in any terminology (LSP) irrespective of the language and the language family, and constitutes a basic unit of syntax.

MATERIAL, METHODOLOGY AND LITERATURE REVIEW

Material of the study

The material of the study comprises the Ukrainian terms selected from the glossary of the Handbook of International Quality Control, Auditing, Review, Other Assurance, and Related Services Pronouncements validated by the International Auditing and Assurance Standards Board (IAASB) as of 2018. Volume I of the mentioned Handbook is considered reasonably helpful for term samplings as it includes the glossary of the Ukrainian audit and accounting terms accepted by professional communities not only in Ukraine, but also globally. At the same time, the statistics purposes would set the restricted canvas associated with frequency of term usage in the A&A professional domain such as professional reading, reporting and communication. To meet the objectivity criterion, no other sources except for the glossary (the Standards), have been used.

Methodology

In order to contrast simplified monomials in Ukrainian for A&A to simple and other monomials as to be further discussed, the research adopts such linguistic methods and techniques as term sampling, grouping and sub-grouping in accordance with the criteria of structural analysis.

Next, descriptive analysis, quantitative and qualitative approaches are employed to demonstrate the trend in term coinage in Ukrainian for A&A as well as help understand ways of identification, simulation and translation when big data analysis would step in and would help automate the required procedures for AI.

Literature review

As mentioned in the introduction part, monomials especially when bi-term or multi-term are undoubtedly interdependent elements not only within one specified language system restricted by use and domain of specialised knowledge (Chaika, 2018), but also determined by their structure (Chaika¹, 2020), thus, falling under focus of dependency grammar.

Marie-Catherine de Marneffe and Joakim Nivre (2019) in *Annual Review of Linguistics* underline that dependency grammar has long been influential in the European linguistics tradition and “has more recently become a mainstream approach to representing syntactic and semantic structure in natural language processing” and provide the framework for multilingual dependency-based morphosyntactic annotation applied to more than 60 languages. It is no longer a surprise, why more and more researchers go into investigation of dependency-based systems. These are becoming increasingly popular among the academicians as obviously come at hand to parse natural language and generate tree banks. Dependency grammar appeals to a great number of scholars and researchers, international conferences on dependency linguistics have become a tradition, for example, Depling.

Depling is a bi-annual conference held in Paris, France, and dedicated to dependency-based approaches in linguistics and natural language processing. So far, there have been five conferences, which take the academic world to the forefront of the debate of parallel and independent developments in theoretical and computational linguistics. Different aspects of dependency grammar turn of interest here. For instance, following the Proceedings of the Fifth International Conference on Dependency Linguistics (2019), Agnieszka Patejuk and Adam Przepiórkowski explore coordination of unlike grammatical functions, Vaclava Kettnerova and Marketa Lopatkova discuss reflexives in Czech from a dependency perspective, Timothy Osborne defies standard notions about the structure of NPs (and DPs) in English under the rubric of adjectival predeterminers, called Big Mess Construction (BMC).

Consequently, the interest in dependency grammar has been growing along with the merits by Chomsky and other distinguished linguists that pursue constituency grammar objectives. Both the grammars dependency and constituency result in banks of trees. The dependency tree is an “ordered” tree because it demonstrates actual word order while constituency tree based on the phrase structure keeps to the conventions of bare phrase structure (BPS). The words in the latter are not in the linear order, they are employed as the node labels.

In this paper, monomials in Ukrainian for A&A mean single terms and linear term clusters (dependency approach) that are analysed as a phrase, or cluster, or construct, when bi-term or multi-term, apart from the binary division of the subject noun phrase (NP) and predicate verb phrase (VP). However, the noun phrase in its respective part is for discussion and seen as a node.

Next, monomials are categorised according to their structure and the number of terms in the term / term cluster. It is possible to follow one of the classifications and explanations in Chaika¹ (2020). The underlying borderline differentiates simple monomials and others that comprise simplified, compound and complex monomials altogether.

It is significant to note that the key focus of the work in progress is with the term cluster as a basic unit of syntax, hence the value of introducing the term of ‘monomial’ in the study of terminologies for the traditional ‘term’ in linguistics. As a short explanatory note, a simplified monomial is a bi-term “term expression in which terms (notional words) engage in a certain interdependence to convey a meaning / concept of such a monomial” (Chaika¹, 2020). Following this definition and the nature of

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the term interdependence in the structure, which appears rather simple as contrasted to three-term or multi-term monomials, such two-term monomials fall under the group of simplified monomials. The other mentioned break into the groups of compound and complex monomials in accordance with their linear order that either semantically or grammatically features a more complicated nature, for example:

UA *ринкова угода* (*rynkova uhoda*) and its English correlate EN *arm's length transaction* 'a transaction conducted on such terms and conditions as between a willing buyer and a willing seller who are unrelated and are acting independently of each other and pursuing their own best interests' (the Standards),

UA *ті, кого наділено найвищими повноваженнями* (*ti koho nadileno najvyščymu povnovažennjamy*) and EN *those charged with governance* (the Standards).

RESULTS AND DISCUSSION

There is a good number of classifications, which help distinguish and analyse terms in terminologies. The present paper pursues no goal to introduce another. On the contrary, by means of the traditionally accepted classifications, it will look at simplified monomials in Ukrainian for A&A in order to spot a linguistic trend, if any, to the term coinage and frequency of usage by professional communities of monomials relevant to the knowledge domain. More specifically, the emphasis will be held with the simplified monomials that are nounal as to the morphological class of the head term, or kernel.

Overall, linguists generally discuss various classifications of grammar constructs, or word combinations, or collocations, or word expressions, including term clusters in terminologies. At large, in line with dependency grammar (DG) and phrase structure grammar, or constituency grammar (CG), each may have some advantages of its own.

The traditional classification of phrases, and simplified monomials under the study, correspondingly, rests on the part of speech status attributable of the phrase constituents, or monomial terms, in particular. Therefore, the following simplified monomials as the most frequently encountered in business and professional contexts can be differentiated:

- (i) Nounal, e.g. UA *облікова оцінка* (*oblikova ocinka*) and its English correlate EN *accounting estimate* 'an approximation of a monetary amount in the absence of a precise means of measurement' (the Standards, 2018:10). This monomial is restricted in the use by professional communicants and denotes an amount measured at fair value where there is estimation uncertainty, as well as for other amounts that require estimation.
- (ii) Verbal, e.g. UA *викон(ув)ати процедури з аудиту* (*vykonaty / vykonuvaty procedury z audytu*) and its English correlate *to carry out audit procedures* (the Standards, 2018:10),
- (iii) Adjectival, e.g. UA *необізнані з обґрунтуванням [таких] процедур* (*neobiznani z obgruntuwannjam procedur*) and its English correlate EN *unaware of the reasons for the procedures* (the Standards, 2018:10),
- (iv) Adverbial, e.g. UA *очевидно не є репрезентативним* (*ocevydno ne je representatyvnym*) and its English correlate EN *demonstrably not representative* (the Standards, 2018:11).

According to the classification by L. Bloomberg on hypotactic and paratactic relations, the phrase structures are divided into endocentric and exocentric. For the purpose of the paper, endocentric structures are of significant value as these subordinate and coordinate structures. Thus, monomials in general and simplified monomials, in particular, fall under the group of subordinate structures whereas binomials that remain beyond the subject matter of the current research findings pertain to the coordinate structures.

Another classification is known to connect to the research. It is based on the internal structure of the simplified monomials in Ukrainian for A&A. There are two groups of structures, which single out kernel phrases and kernel-free phrases. It should be noted that the findings of the research prove the belonging of all nounal simplified monomials in Ukrainian for A&A to the kernel phrases group:

Example 1: UA *додаткова інформація* (*dodatкова informacija*) 'information that is presented together with the financial statements that is not required by the applicable financial reporting framework used to prepare the financial statements, normally presented in either supplementary schedules or as additional notes' (the Standards, 2018: 39),

Example 2: UA *документація із завдання* (*dokumentaatsija iz zavdannja*) 'the record of work performed, results obtained, and conclusions the practitioner reached (terms such as "working papers" or "workpapers" are sometimes used)' (the Standards, 2018: 18),

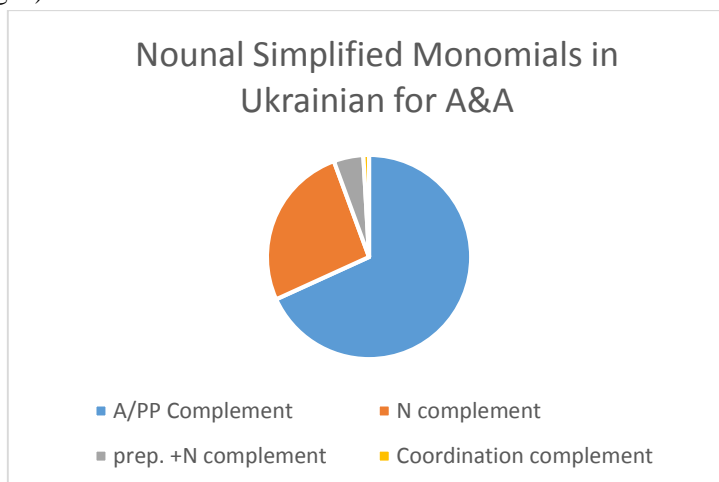
Example 3: UA *елемент вибірки* (*element vybirky*) 'the individual items constituting a population' (the Standards, 2018: 39), etc.

Kernel simplified monomial structures can be explained as grammatically organized bi-term structures, in which one term dominates the other. This term in the simplified monomial in Ukrainian for A&A is the head term, or leading term, which is why regarded the kernel of the Ukrainian A&A simplified monomial. As demonstrated above, in Example 1 the kernel of the simplified monomial *додаткова інформація* (*dodatкова informacija*) in Ukrainian for A&A is expressed by the noun *інформація* (*informacija*) that dominates the other term in the simplified monomial. In Examples 2 and 3 - *документація із завдання*

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(*dokumentaatsija iz zavdannja*) and *елемент вибірки* (*element vybirky*), the kernels are also expressed by the noun, which makes the simplified monomials referred to the nounal group.

Having analysed 107 simplified monomials in Ukrainian for A&A, the nounal simplified monomials sub-break into the four main categories (please see Fig. 1):



- 1) The kernel in the simplified monomial structure is expressed by the noun and modified by an adjectival or participle complement in majority of cases:

UA *аудиторський ризик* (*audytorskyj ryzyk*) ‘the risk that the auditor expresses an inappropriate audit opinion when the financial statements are materially misstated’ (the Standards, 2018: 14),

UA *аудиторський файл* (*audytorskyj fajl*) ‘one or more folders or other storage media, in physical or electronic form, containing the records that comprise the audit documentation for a specific engagement’ (the Standards, 2018: 14),

UA *прямі викиди* (*prjamy vykydy*) ‘emissions from sources that are owned or controlled by the entity’ (the Standards, 2018: 18);

- 2) The kernel in the simplified monomial structure is expressed by the noun and modified by a nounal complement in majority of cases associated with the N + N group simplified monomials:

UA *аудитор користувача* (*audytor korystuvača*) ‘an auditor who audits and reports on the financial statements of a user entity’ (the Standards, 2018: 40),

UA *аудитор компонента* (*audytor komponenta*) ‘an auditor who, at the request of the group engagement team, performs work on financial information related to a component for the group audit’ (the Standards, 2018: 16),

UA *викривлення факту* (*vykryvlennja faktu*) ‘other information that is unrelated to matters appearing in the subject matter information or the assurance report that is incorrectly stated or presented’ (the Standards, 2018: 26);

- 3) The kernel in the simplified monomial structure is expressed by the noun and modified by a nounal complement but the subordination is carried out with the help of prepositions rather than asyndetic adjoinment:

UA *документація із завдання* (*dokumentacija iz zavdannja*) ‘the record of work performed, results obtained, and conclusions the practitioner reached (terms such as “working papers” or “workpapers” are sometimes used)’ (the Standards, 2018: 18),

UA *команда із завдання* (*komanda iz zavdannja*) ‘all partners and staff performing the engagement, and any individuals engaged by the firm or a network firm who perform procedures on the engagement’ (the Standards, 2018: 19),

UA *завдання з огляду* (*zavdannja z ohliadu*) ‘the objective of a review engagement is to enable an auditor to state whether, on the basis of procedures which do not provide all the evidence that would be required in an audit, anything has come to the auditor’s attention that causes the auditor to believe that the financial statements are not prepared, in all material respects, in accordance with an applicable financial reporting framework’ (the Standards, 2018: 35);

- 4) The kernel in the simplified monomial structure is expressed by the noun and modified by another nounal complement, which is exceptionally unique for sampling population from the Standards insomuch as the case speaks of coordination rather than generally traceable subordination:

UA *лист-угода* (*lyst uhoda*) ‘written terms of an engagement in the form of a letter’ (the Standards, 2018: 18).

The latter group that includes only one nounal simplified monomial in Ukrainian for A&A outstands by its unique representation. Given that the nounal simplified monomials in Ukrainian for A&A are characterised by subordination as a syntactic connection in the monomial structure, UA *лист-угода* (*lyst uhoda*) at first sight falls into kernel-free phrase structure, however, with a specific note to be made. On the one hand, the simplified monomial refers to the letter, on the other, to a contract, or

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engagement according to the accepted practice in audit. These two terms might be interchangeable in representation but for engagement that would specify and determine the properties of that letter.

CONCLUSIONS

Nounal simplified monomials in Ukrainian for A&A make part of a bigger group of simplified monomials whereas monomials are used as the substitute term for the traditional 'term' in linguistics, when applicable to the study and implementation of the linguistic findings in terminologies, or LSPs, computer science and algebraic linguistics, in particular, and digital technologies where appropriate.

According to the classification introduced in the earlier publications, there are four basic classes of the monomial. They are the simple monomial (one-term term, i.e. a term that consists of one constituent / component only), simplified monomial (two-term, or bi-term term cluster), compound monomial (three-term or multi-term cluster in terminologies, or LSPs) and complex monomial (a monomial structure characterized by a more complex semantic and/or grammatical structure).

Nounal simplified monomials in Ukrainian for A&A make a major outstanding group of Ukrainian bi-term monomials in audit and accounting as opposed to the adjectival, verbal and adverbial groups, each also frequently noticeable in use by professional communicants.

The main findings help arrive at the following numbers driven from the statistics data of samplings under the Standards.

The nounal simplified monomials in Ukrainian for A&A, in which kernel in the simplified monomial structure is expressed by the noun and modified by an adjectival or participle complement, make 73 units out of 107, which comes to 68.2% in total.

The nounal simplified monomials in Ukrainian for A&A, in which kernel in the simplified monomial structure is expressed by the noun and modified by a nounal complement in majority of cases associated with the N + N group simplified monomials, meet the figure of 28 clusters, which in percentage rounds to 26.2%.

The nounal simplified monomials in Ukrainian for A&A, in which kernel in the simplified monomial structure is expressed by the noun and modified by a nounal complement but the subordination is carried out with the help of prepositions rather than asyndetic adjointment, constitute 5 clusters out of 107 and may equal 4.7% in total.

The nounal simplified monomials in Ukrainian for A&A, in which kernel in the simplified monomial structure is expressed by the noun and modified by another nounal complement, which is exceptionally unique for sampling population from the Standards insomuch as the case speaks of coordination rather than generally traceable subordination, makes a bit under 1%.

Taken the statistics from above, it is reasonable to conclude that the nounal simplified monomials in Ukrainian for A&A enjoy a growing trend in term coinage and usage when associated with adjectival and/or participle complements in majority, to be followed by another large group of simplified monomials that are structured as a N+N phrase.

In the end, it is worth mentioning that the presented paper is work in progress and it features a lot of other perspective trends for investigation, for example, to explore the trends in term / monomial coinage and use in other languages including such that belong to different language families, firstly. Secondly, it may be of interest to see the syntactic connections / relations between (among) the terms in the monomial and move further to tree-banks in the relevant languages. Finally, it may be reasonable to make a contrastive analysis of the data to be obtained so that it would enable scholars to draft the global trend in monomial / term coinage and use, work with the corpora-based approaches in terminologies, education, AI and other ways of result-oriented theory implementation.

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