

**BINOMIALS IN ENGLISH AUDIT TERMINOLOGY**

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**Abstract.** *The present scholar piece tightly links to the earlier introduced idea in the article of Monomial Variables in English Audit Terminology (by Oksana Chaika) published in International Journal of Philology (2019). In the light of global digitalization and processes automation, international business markets are getting more and more demanding in the search of insightful solutions and cutting-edge technologies. Terminology as a field of linguistics is moving ahead. The research carried out exemplifies a number of English terms – binomials – in the professional domain of audit, assurance and accounting, which smoothly fall under the proposed classification. Such classification breaks all the audit terms into the main three groups, where we distinguish (i) monomials [along with monomial variables], (ii) binomials (and those that contain variables), (iii) trinomials and polynomials in the English audit terminology. The mentioned classification has proven feasible so far and rests on similarities found between an algebraic expression (its terms/components and operations) in mathematics and a terminological set expression in English for Audit as a language for specific purpose. The earlier published data recommend one address a proposed substitute for a term in the audit terminology, by replacing the term that stands for a set terminological expression in audit with the linguistic term of audit monomial, or binomial, or polynomial, respectively. This suggestion is driven by the need in differentiation of the term (terminological set expression in audit) and terms of the term (components of such terminological set expression in audit) for the purpose of the article and in future if proven reasonable and adopted by professional communities and recognized scholars globally. A distinct facet of binomials in English audit terminology is presented in the paper. Any kind support or critique in relation to the proposed interpretations would be highly welcome at [oxana.chaika@yahoo.es](mailto:oxana.chaika@yahoo.es).*

**Key words:** *monomial [terminological set expression], binomial, trinomial, polynomial, binomial variable, term, algebraic expression, applied linguistics, audit terminology, IT solutions for machine translation.*

**Introduction.** Modern linguistics these days faces a great lot of challenges. A handful of books have been published on linguistics and law, linguistics and finance, linguistics and information technologies, artificial intelligence (AI), emphasizing the necessary aspects in relevant fields. For instance, Vogel, Hamann and Gauer (2018) define computer-assisted *legal linguistics* as “an area of study ranging

from computer-supported qualitative analysis of legal texts to legal semantics and legal socio-semiotics based on big data” [1, 1341]. Richard Charles Robinson (2018) states that “Global regulators in the financial industry have increasingly referred to the need for a universal “common financial language” to solve issues of perceived nonstandardization and to simplify the tasks of oversight and properly

functioning markets” [2, 62]. Following Florentine (2017) where the author cites Caterina Balcells, Chief Linguistic Officer at *Inbenta*, conversational search technology company, we read that more and more companies in the AI market are looking for the staff with linguistic background. It explains the high market demand as such employees “help aid in things like product development and customer service” [3]. Next, the post highlights the comment by Balcells, i.e. if one has “linguistics and programming skills, that's a killer combination, and those tech skills are always welcome” [3; 4]. Therefore, topicality of the current research underlines the burning need of the contemporary world to find and adopt the new solutions that can contribute to higher quality of wellbeing and business development globally. These days skyrocketing development of information technologies and focus on cross-cultural communication in the professional domain require fresh innovative views on the study, with more light on the transdisciplinarity. To summarise the ideas of professionals in the IT area, teams may end up “learning a lot of technical and programming skills just by working closely with software development and engineering teams” [3; 4; 6]. Consequently, it is obvious that we may add a great deal of value by cooperation in the adjacent fields, conducting more thorough linguistic research and diving deeper into certain algorithms that may facilitate jobs of IT and AI engineers, enable them to adopt the scholar findings and move faster into product development based on connections between linguistics and programming languages.

The tasks set presuppose:

(i) A general overview of the earlier introduced classification of the English audit terms as part of a methodological toolkit, where algebraic

expressions, IT and applied linguistics come together to share the research fundamentals [5, 100-108],

(ii) Introduction of the English audit terminological set expressions – binomials, followed by the term definition from the research point of view,

(iii) Description and analysis of certain binomials (binomial variables) in the English audit terminology.

The objective of the paper is to attract attention of the scholars in this field and welcome discussions – support or critique, on the findings, which would be highly appreciated. The **methods** applied are deduction and induction, analysis and synthesis. At the same time, structural approach makes integral part of the methodological toolkit.

### **I. Overview of the Earlier Introduced Classification for English Terms in the Domain of Audit and Accounting.**

The mentioned classification, for more detail please kindly see *Monomial Variables in English Audit Terminology* (2019), considers ways of synchronising technical frameworks based on certain algorithms in operations with the structural and conceptual frameworks of the English terminological set expressions in the domain of professional audit activities [5; 6]. The classification provides the data to follow to which extent the terms and/or terminological set expressions in English for Audit, as language for specific purpose, and the algebraic expressions match. In addition, a special focus is laid on a relationship between the term and components of the term both – in algebra and linguistics. In a circumstance, such a term features a more complex nature, the further steps lead to the break-out into subcategories in the proposed classification.

Broadly speaking and as described in *Monomial Variables in English Audit Terminology*, an algebraic expression is an

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amalgam of variables and constants of one or more terms. The expressions include symbols or operations like 'add', 'subtract', 'multiply', and 'divide'. Operation of addition is crucial for the purpose of the article because it is fundamental in designing the definition and argument for introducing the term of binomial in English for Audit and Accounting. Reading further, Giorgio Bolondi *et al.* (2018) note that these expressions are categorized as monomials and polynomials [7, 3-11], e.g.  $2c + 3d$ ,  $4x/y - 2$ ,  $4sp \div 2a$ , etc.

Furthermore, the need in another term for a terminological set expression may be explained with the comparison of the terms applicable in algebra. To draw the perimeter of the current research, it is also reasonable to include here the operations of addition or subtraction in the algebraic expression. Every part of an algebraic expression that is separated by a minus or plus sign is known as the term of the algebraic expression. Thus, there are five types of algebraic expressions: (a) monomial, (b) binomial, (c) trinomial, (d) polynomial, (e) multinomial.

Similarly, we approach the definitions in linguistics when contrasting the algebraic expression and the terminological set expressions in English for Audit. English audit terms are words and compound words including multi-word expressions similarly to non-zero terms of an algebraic expression, which in a specific context acquire specific meanings. Importantly, such meanings differ from meanings the same words may have in contexts other than audit-marked or in every day communication.

Consequently, the widely accepted classification of an algebraic expression and that of a terminological set expression in English for Audit enlist [7, 6-10; 5, 104-106]:

(1) Monomial, an algebraic expression that includes only one non-zero term, e.g.  $a$  is a monomial in one variable

$a$ ;  $2ab^3$  is a monomial in two variables  $a$  and  $b$ ;  $2d$  is a monomial in one variable  $d$ ;  $2ay/3c$  is a monomial in three variables  $a$ ,  $y$  and  $c$ ;

(2) Polynomial, an algebraic expression that has one, two or more terms, e.g.  $2a + 3b$  is a polynomial of two terms in two variables  $a$  and  $b$ ;  $2xy + 4x + 1$  is a polynomial of three terms in two variables  $x$  and  $y$ . Polynomials may be subdivided into binomials and trinomials in connection with the number of non-zero terms:

(a) Binomial, an algebraic expression that has two non-zero terms, e.g.  $a^2 + 2b$  is a binomial in two variables  $a$  and  $b$ ;  $f + g$  is a binomial in two variables  $f$  and  $g$ ;

(b) Trinomial, an algebraic expression that has three non-zero terms, e.g.  $x + y + z$  is a trinomial in three variables  $x$ ,  $y$  and  $z$ .

The proposed linguistic classification breaks into such subcategories, and let us look at the binomials in English for Law and their structure. It is well noted that "a terminological set expression in English for Audit is an amalgam of variables and constants of one or more terms that incorporate into such an expression by means of a relevant conjunction (e.g. **and**, **or**), if any, in order to form term settings required by a certain context in the audit domain" [7; 5]. By analyzing the structure of the English terminological set expressions including constituent elements, one may easily follow that all the terms / terminological set expressions in English for Audit, in a broad sense of the word, may fall under the two groups, thus, mirroring an algebraic expression: (1) monomials, and (2) polynomials, or mostly binomials, to be more exact.

## II. Proposed Definitions for Monomials and Binomials in English for Audit .

Following the mentioned above and

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as described in a previous publication on *Monomial Variables in English Audit Terminology*, a **monomial terminological set expression** in English for Audit, or a monomial in audit terminology, or a monomial, means only one term, which can be either unextended or extended with a modifier / modifiers [5]. A **polynomial terminological set expression**, a polynomial in audit terminology, or a polynomial, in English for Audit means a sum of two or more terms, which can be extended with a modifier / modifiers or remain unextended, respectively [5]. Linguistically speaking, the operation of addition (or subtraction) links to the use of a relevant conjunction. In majority of cases, the roles associate with the two of them – **and** and **or**. Consequently, we may define a **binomial terminological set expression**, or a binomial in audit terminology, or a binomial, as a kind of a polynomial in English for Audit, which consists of a sum of at least two terms – whether or not extended with a variable/s, and linked with **AND** / **OR**, correspondingly. Next, it is critical to note that the word order of such coined audit term clusters – **binomials** in English for Audit, is irreversible. In language studies, Nordquist 2019 explains that a pair of words conventionally linked by a conjunction or a preposition is called a binomial pair. Richard Nordquist adds “when the word order is fixed, the binomial is said to be irreversible” [8]. Malkiel 1968 addressed this linguistic theme in the previous century, by underlining that if “one agrees to label the sequence of two words pertaining to the same form-class, placed on an identical level of syntactic hierarchy, and ordinarily connected by the some kind of lexical link”, it is proper to refer to it as binomial [9, 113].

Ultimately, it is vital we focus on the succession of binomial constituents (terms) in English for Law. For example, *assurance skills and techniques* ‘those

planning, evidence gathering, evidence evaluation, communication and reporting skills and techniques demonstrated by an assurance practitioner that are distinct from expertise in the underlying subject matter of any particular assurance engagement or its measurement or evaluation’ (IAASB, 16) is a binomial in three variables (1) *assurance*, (2) *skills*, (3) *techniques*. The core is *skills and techniques* in English for Audit, which means that with time the order of the binomial constituents has hardened to such an extent that an inversion of *techniques and skills* would be hardly understandable to professionals in audit or even lay people, if articulated unexpectedly. As illustrated with *assurance skills and techniques* (IAASB, 16) or *to provide a true and fair view* (IAASB, 32), we may tend to look at the binomial in English for Law as an irreversible cluster [10]. Moreover, it is recommended to assure that such a binomial meet the below criteria:

(i) The two terms constituents of a binomial in English for Audit pertain to the same part of speech, however, in a further publication we will provide a case study, under which there are a few that fall out of the group;

(ii) Such two terms constituents of a binomial in English for Audit are found at the identical level of syntactic hierarchy;

(iii) Such two terms constituents of a binomial in English for Audit link with some lexical element, most likely such may be conjunctions AND and OR.

To exemplify the mentioned criteria met in the standardized audit terminology, let us look at some binomials taken from *International Audit and Assurance Standards*, Volume I.

To meet Criterion I, the terms in a binomial should belong to the same part of speech. That would allow for the terms of the binomial to display similar syntactic behavior. For instance, *cap and trade* ‘a

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system that sets overall emissions limits, allocates emissions allowances to participants, and allows them to trade allowances and emission credits with each other'(IAASB, 17) includes two terms expressed grammatically by two nouns, of similar syntactic nature. To this extent, these two terms of the binomial also meet Criterion II inasmuch the level of syntactic hierarchy remains identical. Finally, Criterion III determines a lexical link, the conjunction *AND* performs the relevant role in *cap and trade*. Moreover, a professional or a layperson may get stuck at hearing *\*trade and cap*. It is similar indeed when one hears other irreversibles in everyday communication, i.e. *day and night* (not *\*night and day*), *neck or nothing* (not *\*nothing or neck*), etc. This draws a distinct line on irreversibility with the constituents of such an audit binomial.

Interestingly, the syntactical role stands out in a number of other examples in English for Audit. Thus, with *to form an opinion on the financial statements and communicate with those charged with governance* we face another irreversible extended binomial in English for Law, where we distinguish the two terms (1) *to form an opinion on the financial statements* and (2) *to communicate with those charged with governance* (IAASB, 11). Please kindly follow that the binomial is definitely irreversible: you may not *communicate with those charged with governance* until and unless [you] *form an opinion on the financial statements*.

To conclude, concepts integrally characterize binomials as well as monomials in English for Audit. The

relations between the terms or variables in a binomial, and variables in a monomial undoubtedly make a difference, especially where there is a change in a preposition – to be exemplified in further reading. Moreover, with most binomials in English for Audit the fixed order in the term setting remains unchanged, which is why such binomials refer to the group of irreversible binomials.

The analysis made of the binomials in the English audit terminology pinpoints that English for Audit places such coinages into the setting of immediate linear relations between binomial terms and their variables. A binomial can be set as a single term featuring one variable, or a number of variables interdependent of one another as modifiers.

**Conclusion.** The present publication has been conceived as strictly exploratory. The purpose of the article links to examination of the so called binomials in English for Audit under the earlier proposed classification for the terminological set expressions in English for Audit and Accounting. At the current moment, the material exemplified is somewhat limited. However, it is thoroughly subject to severe linguistic analysis. The look at the interdisciplinary shapes the need in progressive and efficient tools for scientific findings. At the same time, a strong study case is yet to be built and more substantial data are required to establish it. A kind of limitations can occur with rather exhaustive range of applications, i.e. the narrow terminological settings in the domains of audit and accounting.

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## БІНОМІАЛИ ЯК РІЗНОВИД АНГЛІЙСЬКИХ ТЕРМІНІВ У СФЕРІ АУДИТУ О. І. Чайка

**Анотація.** У статті йдеться про англійські біноміали як сталі термінологічні вирази / сполуки в сфері обліку й аудиту, висвітлюються питання огляду раніше запропонованої класифікації Оксани Чайки для аналізу та опису термінів у сфері аудиту термінологічного корпусу англійської мови у порівнянні з аналізом складників алгебраїчного виразу. Мета статті передбачає подальше ознайомлення зі ще однією групою англійських сталих термінологічних виразів у сфері огляду й аудиту – біноміалів, та покликана потребою сучасного суспільства в поєднанні традиційних теоретичних баз знань у прикладній лінгвістиці, практики та удосконалення підходів до наукових досліджень: створення цифрових баз даних, що спрощують роботу перекладача / викладача/ носія мови чи експерта при роботі з англійськими фінансовими термінами у сфері провадження аудиторської діяльності. Проведено паралель між алгебраїчним одночленом і многочленом та англійським терміном / стійкою термінологічною сполукою у мові для аудиту, в результаті чого запропоновано класифікацію для аналізу, опису, використання терміну у визначеному контексті, підкреслено неможливість зміни послідовності модифікаторів. Ключовим моментом є розуміння спільних і відмінних рис елементів формальних граматик, де власне і лінгвістика, і математика, й інформаційні технології використовують подібну методологію до системного аналізу мов.

**Ключові слова:** одночлен (мономіал), двочлен (біноміал), многочлен, англійська для аудиту, прикладна лінгвістика.