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CATEGORIES OF UNIFORMITY IN A SCIENTIFIC TEXT: COMMUNICATIVE-STYLISTIC ASPECT

Summary. The following article thoroughly analyzes communicative and stylistic aspects of the syntactic category of homogeneity in scientific and technical texts. It is mentioned that the notion of homogeneity in the development of the theory of descriptive grammar has undergone various interpretations. To find out the communicative potential of one-member complex sentences the category of homogeneity is described from the position of its use in a scientific text. Typization of homogeneous set is considered on the basis of the following features: semantic, lexical-grammatical, positional, stylistic and communicative.

Functional explanation of the predicate complication texts predetermines a certain syntactic division in which syntactically homogeneous sentences are represented in the "divided" sentences.

The essence of integrity of the components of homogeneous set which depends on the nature of its distribution is determined on the materials of modern scientific and technical texts.

The most significant characteristic of homogeneity is functional equivalence of the elements of a set, grammatical independence from each other. This characteristic has its own representation in the coordinate relationship externally expressed by either special unifying intonation or conjunction together with the intonation.

In the process of scientific and technical texts analysis it was defined that the functional type of complication of one-member sentences by homogeneous predicates in scientific style of Ukrainian language is mainly syntactically homogeneous predicates.

It is shown that syntactic organization coincides with the function of scientific thinking aimed at world perception through logical comprehension by understanding and transformation of the facts into semantic categories.

Key words: scientific text, one-member sentences, scientific style, homogeneity category, homogeneous set, communicative-stylistic aspect, communicative potential.

Subject description and justification of the relevance of its consideration. Properly highlighting and describing the category of homogeneity in the communicative and stylistic aspect is important,

since homogeneity influences the content of a sentence, as well as its real communicative meaning. To find out the communicative potential of complicated monosyllabic sentences, it is necessary to characterize the category of homogeneity from the position of its use in real text.

In psycholinguistic terms, homogeneity usually has an obvious explanation which is related to studies of operators and the amount of memory, as well as the ability to retain the information described in the sentence despite presence of different homogeneous members within the same sentence. If the main statement of psycholinguistics is accepted as true (whereas linguistic units are psychologically significant), then homogeneity itself will have a high degree of significance, because the main defining factor here will be recipient's perception regarding what is communicated, i.e., only those segments that turn out to be functionally operative as a whole in the process of encoding and decoding of information will be meaningful. The homogenous integrity (or lack of such integrity) is an essential point for understanding of what exactly is communicated. Homogeneity is a phenomenon of individual's thought process, which is expressed in language both in sensual and rational ways. By conditionally isolating these two plains of thought, it is possible to point to the specification of homogeneity in the stylistic and language-structural (phenotypic) directions [8, 64].

Descriptive syntax naturally establishes a phenotypic register of syntactic units, which is then reflected in the modern speech. The influence on text structure by the terms of speech, text, stylistic parameters is described as a part of the competence of communication. That is why syntax is conditionally divided into constructive and communicative. It is, however, worth emphasizing the convention of such division, since the communicative purpose of the expression from the point of view of functional grammar determines the selection and expression of the constructive features of the sentence. Nevertheless, such a division is essential for definition of types of the syntactic category of homogeneity from linguistic point of view.

From the point of view of stylistics, homogeneity is caused by expression. Therefore, different phenomena, such as numerical

arbitrariness, possible complication of homogeneous members by other members of the sentence, conceptual and semantic compatibility or incompatibility of homogeneous members, are stylistically motivated.

Analysis of recent research and publications.

The syntactic category of homogeneity has not yet been comprehensively covered. In modern researches dedicated to syntax there are no theoretical concepts related to research on homogeneity as one of the most essential phenomena of the functional structure within a sentence. A number of studies by scientists, such as L. Kadomtseva [1], N. Nepiyvoda [2], A. Zagnitka [3], G. Zolotova [4], V. Kukharieva [5], G. Diadiura [6], are devoted to the study of the communicative aspect of a scientific text. General communicative analysis of homogeneity as syntactic category in a scientific style is conducted on the basis of a generalization of different scientific theoretical works. For example, P. Dudyk's research [7] analyzed the stylistics of sentences with homogeneous members based on the material acquired from literary texts. Despite a number of studies dedicated to analysis of homogeneity within texts of various styles, research of this category in scientific and technical texts is still relevant from a communicative point of view.

Primary goals.

The main purpose of this article is to analyze the communicative and stylistic aspects of homogeneity as syntactic category in a scientific text. The following tasks are required to be completed to certify fulfillment of the aforementioned purpose: to analyze the concept of syntactic homogeneity and the communicative aspect of homogeneity based on Ukrainian scientific and technical texts.

Presentation of the main research material.

From the point of view of stylistics, homogeneity qualitatively alters the content of the sentence and its real communicative meaning. Therefore, homogeneity itself has a qualitative meaning.

The communicative and stylistic parameters of homogeneity are characterized by the blurring of boundaries between homogeneous and heterogeneous members within a sentence. In descriptive grammar, this opposition (homogeneity/heterogeneity) still exists, but only to highlight the features of the former. In addition, it has not been indicated what kind of modifier of the main structure of the sentence (quantitative or qualitative) can heterogeneity be described as.

During development of the theory of descriptive grammar, different interpretations were created to describe the concept of homogeneity/heterogeneity. Over time, an unspecified thesis about homogeneity as a semantically indivisible phenomenon was derived from the general definition (members of a sentence are in the same logical-semantic relations and characterize the dependent component of the sentence or they themselves are characterized by it). Semantic indivisibility still distinguishes only homogeneity or heterogeneity, but is not relevant to other homogeneous members within the sentence.

The main indicator of homogeneity as a syntactic phenomenon is considered to be "identity of syntactic position, which is possible only through combination of several word forms into a coherent construction" [8, 185]. Two essential features are: the functional identity of the members of a homogeneous row and their expression of semi-predicative relationships, which are a vital part of the dynamic structure of the sentence.

Simple monosyllabic sentences with homogeneous members can be described as certain thought expression forms which are

typified in syntax. The evolution of their creation in language, as well as definition of combinatorics of meanings as acts of thought, remains, according to scientists, "beyond the screen", which only highlights the real, actual essence of reality. Of course, it is possible to indicate possible shortenings, omissions or ellipses of the text and its sentences, as well as hypothetically reconstructing the previous stages of thought formation. However, as pointed out by V. Martynov, the real presence of an uncondensed text as a basis for syntactic condensation is not at all mandatory. Presence of a certain stereotype or condensation model is enough for the sentence to be generated already in a condensed form [9, 97].

Therefore, increase in complexity of sentences by utilization of homogeneity is a problem of synchronic description of language and can be described from the standpoint of its usage in real speech or texts.

L. Kadomtseva points out that the typization of a homogeneity can be done on the following levels:

- 1) semantic (primary level, which ascertains various forms of complication);
- 2) lexical-grammatical (lexical content and grammatical form of a homogeneous row);
- 3) positional (position of homogeneous members in the sentence);
- 4) stylistic and communicative [1, 71].

The complication of the main structure within specified sentence is caused by both semantic and syntactic factors, and the underlying basis of this process is the communicative purpose of the specified sentence. Overall increase in complexity of the main sentence by utilization of homogeneous row also depends on which members of this sentence are part of it.

The sentence records and describes not only the results of thinking processes, but also the results of cognitive processes, including human emotions. Therefore, not every sentence can correspond to a logical judgment. The presence of homogeneous subjects in a sentence, and especially homogeneous predicates, makes this sentence unrelated to a single conclusion or judgement, since it contains not one, but several possible conclusions or judgments.

The degree of integrity of homogeneous components depends on the structure of the homogeneous row and on the nature of its distribution. For example, it manifests itself the least in sentences where homogeneous members may have their own syntactic connections. For example: *На рис.9.7 показано розгортку одного полюсного ділення машини постійного струму і розподіл магнітної індукції В під полюсом* (ЕМТ, 205) (*Fig. 9.7 shows the sweep of one pole division of a DC machine and the distribution of magnetic induction B under the pole*); *Регулювати кутову швидкість двигунів постійного струму можна: введенням додаткового опору послідовно з обмоткою якоря; зміною напруги на якорі та зменшенням магнітного потоку шляхом зменшення струму збудження* (ЕМТ, 231) (*It is possible to regulate the angular speed of direct current motors by doing the following: by increasing resistance through the armature winding; by changing the armature voltage and by reducing the magnetic flux through reduction of excitation current*); *Критерієм доцільності варіанта пристрою вважають або цехову собівартість виготовлення деталей, або річну технологічну собівартість виконання операції* (ІТТО, 310) (*The criterion for the expediency of the device is considered to be either the workshop cost of man-*

ufacturing parts, or the **annual technological cost** of performing the operation).

Generally, homogeneous members that depend on one word are characterized by the greatest integrity: *За способом збудження мікродвигуни постійного струму виконують з паралельним, незалежним, послідовним збудженням...* (ЕМТ, 231) (*When categorized by the method of excitation, micromotors can function with parallel, independent, or sequential excitation...*).

Homogeneous predicates in the structure and grammatical forms of homogenous rows are typically considered a functional category. This becomes evident by analyzing the reverse transformation of complex sentences into simple complicated ones. This analysis shows that textual variability is vividly and consistently expressed in such constructions [8, 111–112]. The basis of this syntactic process is semantic "tension" of meanings within linearly organized speech. The semantics of verbs used to create a homogeneous row also has significant importance.

Division of homogeneity into types, for example, predicate homogeneity as one of the grammatical levels of sentence analysis is possible and justified. Universal examples of complication of a simple sentence by utilizing homogeneous predicates (syntactically identical or of different types in the conjunctive or non-conjunctive form of connection) require additions and clarifications from the standpoint of functional syntax, particularly the syntax of connected speech, for there is no clear and defined scheme. This linguistic construct exists only because its lexically representations exist both in language and speech [7, 86].

In order to clarify the communicative role of monosyllabic sentences in a scientific text it is necessary to understand that compounding sentences with homogeneous predicates is not a product of combinatorics of so-called elementary sentences [8, 112]. In addition, general sum of lexical components cannot be considered the actual semantics of any sentence. Theoretically, all verbs enter into syntactically homogeneous relations, while some of them enter into semantically homogeneous ones. Overall, homogeneous row, its structure and different forms (regarding different types of predicates that enter into syntactically homogeneous relations) are important for clarifying different types of this complication of a sentence, the functional manifestation of which is also determined by the overall distribution of sentences, the text itself and its contextual background. Syntactically significant in this regard are the restrictions created by the text to preserve its linear message in a form of a simple structure [8, 57].

The analysis of modern scientific and technical texts showed that the functional type of complications of monosyllabic sentences with homogeneous predicates in the scientific style of the Ukrainian language is mainly complication through syntactically homogeneous predicates created by verbs with the semantics which describes a sequence of actions, states etc. Within the studied texts, homogeneous members tend, as a rule, to replace other members with adverbial inflections, which express the integrity of a semantically complex, but formally linear predication: *Позитивний елемент виготовляють у вигляді спіралі з мідного дроту і вставляють у банку* (ФА, 207) (*The positive element is made in the form of a spiral from copper wire and is then inserted into a jar*); *Їх очищують від іржі та масла, складають за допомогою струбици, вивіряють правильність взаємного положення і прихвачують в окремих точках* (ПТО, 427) (*They are cleaned of rust and oil, folded with the help of a clamp, and then put into*

a correct position and clamped at separate points); *Для кожного із значень і точки $[M_{np}, n]$ наносять на графік (рис.10.15,а) і з'єднують плавною лінією* (МГ, 168) (*For each value, the points $[M_{np}, n]$ are marked on the graph (Fig. 10.15, a) and connected by a smooth line*).

It is also worth noting that certain scientific texts contain sentences with homogeneous predicates that are part of sentences with adverbial inflections or complex sentences: *Визначивши для деяких і значення K , обчислюємо $\eta = iK$ і будуємо лінію $\eta = iK$ (МГ, 170) (Having determined the value of K , we then calculate $\eta = iK$ and construct the line $\eta = iK$); *Щоб вмикати і вимикати в потрібний час приймачі електричної енергії, застосовують рубильники, кнопки, вимикачі, тобто пристрої, які замикають і розмикають електричні кола* (ФА, 208) (*In order to turn on and off the receivers of electric energy at the right time, switches and buttons are used, that is, devices for closing and opening the electric circuits*).*

The functional manifestation of an increase in complexity of a sentence by utilization of predicates also determines its certain syntactic division, in which syntactically homogeneous predicates are represented in different "divided" sentences. Forms of such division, as well as their types cannot be precisely determined, since it is simply impossible to theorize and establish all possible verbal constructions. And yet, no matter how potentially and situationally diverse these constructions are (possibilities for embodiment of thoughts in speech are endless), certain patterns of sentence structure will influence the variety of syntactic expressions within text. In modern Ukrainian scientific and technical literature, for example, a three-member structure of a syntactically homogeneous predicate row is often observed. The reasons for this phenomenon should be sought by examining all linguistic means of representing thoughts and judgements at the modern level of the connection between language and thinking, in particular those related to the compression of an expression, as well as regressive or progressive ways of unfolding a sentence.

Increase in complexity of structure of a simple monosyllabic sentence with homogeneous members is a true syntactic phenomenon, for which it is difficult to establish a grammatically meaningful network of relations. This is explained by several reasons, in particular, the fact that attributive relations are correlated with predicative ones, and have different forms of manifestation (homogeneous, heterogeneous etc.). For example: *При обробці вуглецевих, інструментальних сталей та жароміцних сплавів на нікелевій основі використовують графітні та мідні електроди – інструменти* (МТФ, 14) (*When processing carbon steel alloys and heat-resistant nickel-based alloys, graphite and copper electrodes are utilized, and they often fulfill the purpose of tools*); *Складаючи загальний курс фізики, треба сконцентрувати увагу... на доборі матеріалу... для вивчення як самої фізики, так і суміжних з нею природничих і технічних наук* (МТФ, 4) (*During creation of a general physics academic course, one should focus attention... on the selection of material... in order to provide opportunity for studying both physics itself and related natural and technical sciences*); *З досвіду відомо, що порожнього візка легше зрушити з місця або пригальмувати, ніж навантаженого* (МТФ, 23) (*From experience alone, it is well-known that an empty cart is easier to move or slow down than a loaded one*); *Звідси можна зробити цікавий і короткий висновок, що загальний опір ділянки кола $R_{12} = 244$ Ом, яка складається з двох паралельно з'єднаних*

резисторів з опором $R_1 = 440 \text{ Ом}$ і $R_2 = 550 \text{ Ом}$, менший від опору кожного провідника (ФА, 248) (From here we can draw brief but interesting conclusion that total resistance of the circuit section $R_{12} = 244 \text{ Ohms}$, which consists of two parallel-connected resistors with resistances $R_1 = 440 \text{ Ohms}$ and $R_2 = 550 \text{ Ом}$, is lower than the resistance of each individual conductor).

The most important sign of homogeneity is the functional equality of the homogenous elements, their grammatical independence from each other. For example, sentences with uniform additions are used in scientific texts quite often. Homogeneous additions create syntactically homogeneous rows without creating additional grammatical forms, in particular in cases of combining the same or different additions: *Далі необхідно ввести матрицю значень аргументів і вектор значень функції...* (ПК, 33) (Next, it is necessary to create a matrix of argument values and a vector of function values...); *Наприклад, компонентами методичного забезпечення є документи, в яких викладено ... теорію, методи, засоби, математичні моделі, алгоритми, алгоритмічні спеціальні умови для опису об'єктів, термінологію, нормативи, стандарти та інші дані, що забезпечують методологію проектування в підсистемах САПР (ОСП, 207–208) (For example, the components of methodical support can be defined as documents that outline ... theory, methods, tools, mathematical models and algorithms for describing objects, terminology, regulations, standards and other data that describe methodology of design in CAD subsystems).*

Conclusions and prospects for further research in this direction. In conclusion, analysis of the homogeneity of all sentence members on both communicative and stylistic levels in a scientific text can reveal a greater number of different linguistic schemes and constructs that are created in speech and acquire features of specific language types and patterns. In the studied texts, we observed a phenomenon that is not typical for other styles, namely, an increase in the overall capacity of category of homogeneity. This increase is manifested in the expansion of possibilities for combination (both conjunctive and non-conjunctive) in form of homogeneous sentence members that express different relations. This study does not, however, cover all issues related to the category of homogeneity in a scientific text. The prospects of our research are the further study of syntactic constructions in the scientific style of language from the communicative point of view.

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Кухарева-Рожко В.І., Колесник Д.М., Дядюра Г.М. Категорії однорідності в науковому тексті: комунікативний аспект

Анотація. У статті ґрунтовно проаналізовано комунікативно-стилістичний аспект синтаксичної категорії однорідності в науковому тексті. Зазначено,

що поняття однорідності в розвитку теорії описової граматики зазнавало різних інтерпретацій. Для з'ясування комунікативного потенціалу ускладнених односкладних речень охарактеризовано категорії однорідності з позиції вживання в реальному, комунікативно спрямованому мовленні, тобто в науковому тексті. Розглянуто типізацію однорідного ряду за такими ознаками: семантичною, лексико-граматичною, позиційною, стилістичною, комунікативною. Функціональний вияв присудкового ускладнення в текстах зумовлює його певне синтаксичне членування, при якому синтаксично однорідні присудки репрезентовані в різних «поділених» реченнях.

На матеріалі сучасних науково-технічних текстів з'ясовано ступінь цілісності компонентів однорідного ряду, що залежить від структури однорідних рядів та від характеру їхнього поширення. Найістотнішою ознакою однорідності є функціональна рівноправність елементів

ряду, їх граматична незалежність один від одного. Ця ознака має своє оформлення в сурядному зв'язку, зовнішніми виразниками якого є або особлива об'єднувальна інтонація (переліку або протиставлення), або сполучники разом з інтонацією.

У процесі аналізу науково-технічних текстів визначено, що функціональним видом ускладнення односкладних речень однорідними присудками в науковому стилі української мови є переважно синтаксично однорідні присудки.

У статті показано, що синтаксична організація узгоджується з функцією наукового мислення, спрямованого на усвідомлення світу через логічне освоєння його шляхом розуміння та перетворення фактів пізнання в смислові категорії.

Ключові слова: науковий текст, односкладні речення, науковий стиль, категорія однорідності, однорідний ряд, комунікативний аспект, комунікативний потенціал.