Our research deals with the category of inclusiveness in the language of science (empirical material selected from Anglo-American articles in the field of information and communication technologies). Some issues of inclusiveness have been studied in philosophy, pedagogy and linguistics, but there is any complex research of this phenomenon as a separate category of written scientific discourse. We want to study cognitive structure, ways of rendering as well as discursive features of the category of inclusiveness. Why do we research the category of inclusiveness within articles of information and communication technologies in Anglo-American scientific discourse? Scientific article is one of the main genres of scientific written discourse. It is used to exchange information and knowledge in scientific community. The main goal of Information and Communication (ITC) technologies is to change the world for better life. The main advantages of ITC are: improvement of world trade and development of world economic market; globalization of culture and communications; possibility for people to have an access to education, health, culture, etc. Category of inclusiveness is regarded as a cognitive-discursive category of scientific discourse. It can be expressed verbally and visually. We distinguish explicit, implicit as well as semi-implicit ways of rendering inclusiveness. Explicit ways of rendering can be defined as linguistic devices, which express inclusiveness clearly. We've classified five main groups of explicit inclusiveness, such as: verbs and phrasal verbs, nouns, adjectives, grammatical constructions as well as negative phrases with inclusive negation. Quantitative analysis shows that explicit inclusive lexical units are three-fourth of all inclusive lexical units (implicit and semi-implicit).

**Keywords:** language of science, explicit inclusiveness, information and communication technologies, scientific discourse, lexical unit, quantitative data.
В статье исследуется категория инклюзивности в языке науки (на материале американских статей в сфере информационно-коммуникационных технологий). Некоторые аспекты инклюзивности исследовались в философии, педагогике и лингвистике, хотя комплексное изучение инклюзивности, как отдельной категории письменного научного дискурса, не проводили. Мы хотим исследовать когнитивную структуру, средства выражения и дискурсивные особенности категории инклюзивности. Почему материалом исследования послужили именно американские статьи в сфере информационно-коммуникационных технологий? Научная статья – один из основных жанров научного письменного дискурса. Она используется для обмена знаниями в научном сообществе. Основное задание информационно-коммуникационных технологий (ИКТ) – это изменение мира к лучшему. Основные преимущества ИКТ: улучшение международной торговли и развитие мирового экономического рынка; глобализация культуры и коммуникации; широкие возможности для людей иметь доступ к образованию, охраны здоровья, культурной деятельности и др. Мы рассматриваем категорию инклюзивности как когнитивно-дискурсивную категорию научного дискурса. Она может выражаться вербально и визуально. Мы выделяем эксплицитные, имплицитные и полуимплицитные средства выражения этой категории. Эксплицитные способы выражения – это лексические единицы, которые содержат явно выраженные семы инклюзивности. Мы выделяем пять основных групп эксплицитной инклюзивности: глаголы и фразовые глаголы, имена, прикметники, грамматические конструкции, отрицательные обороты с эксплицитным отрицанием. Количественный анализ показал, что эксплицитные лексические единицы составляют три четверти всех способов выражения этой категории.

Ключевые слова: язык науки, эксплицитная инклюзивность, информационно-коммуникационные технологии, научный дискурс, лексическая единица, количественные данные.

Introduction
Categories play an important role in the human conscience. They promote us to understand the world better (Smith 1981). Categories are the main tool to classify the mind. There are lots of different categories in scientific discourse, but the category of inclusiveness hasn’t been studied yet. There is a number of works that are associated with inclusiveness. Let’s look through it. The background of the category of inclusiveness is the correlation “PART-WHOLE”, that has been studied by many ancient philosophers, to name a few: Aristotel (2002), Platon (Vindelband, 1993), I. Kant (1993), G. Gegel (1974), E. Gusserl (2011). The latter one have considered the terms “part” and “whole” as the most universal formal subject categories (Gusserl 68: 174).
If we talk about linguistics, there is also plenty of studies of inclusiveness. First and foremost, it’s Brilliant American linguist D.G. Greenberg, who has pointed inclusiveness as universal category (Greenberg 1978: 178). F. de Soussure has regarded the language as a system where the parts create a whole (Soussure 1977: 147). Professor S. Zhabotinskaya has viewed the category of inclusiveness in the context of “inclusiveness - possessiveness” and states that a part always belongs to a whole (Zhabotinskaya 2013: 47-76). Besides, researchers K. Frels and company have classified the verbs of scientific discourse. They distinguish implicit, explicit and inclusive verbs. The latter one is used for description of connection among the elements of some whole (Frels 2010).

On the other hand, category of inclusiveness deals with inclusive (politically correct, gender neutral or non-sexist) language (Jacobson 1995; Ter-Minasova 2000). Not to be left out “inclusive education”, that is popular nowadays (Osnovy incluzyvnoi osvity 2012).

However, these studies haven’t addressed the issue of the ways of rendering inclusiveness in scientific discourse. So, the object of our investigation is the category of inclusiveness in Anglo-American scientific discourse. Explicit ways of rendering the category of inclusiveness is the subject of the article. The goal of the paper is to classify and to describe the main explicit ways of rendering inclusiveness in scientific discourse.

**Materials and Methods**

We used the language material selected from Anglo-American articles in the field of information and communication technologies, such as Telecommunications Policy (2013-2014), The International Journal on Advances in Internet Technology (2010-2015), The International Journal on Advances in Systems and Measurements (2010-2015), The International Journal on Advances in Telecommunications (2010-2015), The International Journal on Advances in Intelligent Systems (2010-2014), The International Journal on Advances in Networks and Services (2010-2015), IEEE Communications Magazine (2008-2014). Overall number of such articles is 1686, or about 10 billion words. Dictionary definitions analysis, componential analysis, method of opposition as well as quantitative method are used in our research. We have analyzed empirical articles, since it is the most numerous genre in the realm of Information and Communication Technologies.

**Results and discussion**

We regard the category of inclusiveness as cognitive-discursive category, so it deals with knowledge, categorization and conceptualization of cognition (Selivanova 2008: 377). Categorization is one of the base elements of cognition (Kubriakova 2004: 96). It’s used the theory of prototypes to study cognitive structure of the category. It means that there is a prototype (cognitive reference points) and the frontier zone. Prototype – is the central part of the category, it has distinctive features of the category (Rosh 1978). We can note that explicit lexical units are prototype of the category of inclusiveness. After that, implicit lexical units are situated. Semi-implicit lexical units are placed between mentioned above lexical units. We define **explicit inclusiveness** as linguistic devices where semantic structure overtly express inclusive meaning. Let’s use dictionary and
componential analysis and method of opposition to classify the main inclusive explicit lexical units into groups. We have classified five main groups:

- verbs and phrasal verbs to include, to contain, to consist of, to involve, to integrate, to combine, to form, to comprise, to cover, to be composed of, to constitute, to group, to surround, to exclude, to merge, to mix, to encompass, to entail, to make up, to embrace, to be made up of, to enclose, to blend, to circle, to wrap up, to encircle, to amalgamate, to envelop;
- nouns system, section, (a)part, set, element, group, network, segment, team/crew, container, portion, envelope, formation, circle, contents, fragment, family, inclusion, involvement, (a)whole, exclusion, constituent, constitution, reservoir, makeup;
- adjectives complete, whole, partial, universal, comprehensive, exclusive, multi-purpose, inclusive, encompassing, all-purpose, all-encompassing;
- grammatical constructions let us/let’s + V, to range from…to;
- negative phrases with inclusive negation not, no, without, neither…nor.

We’ve divided each group into subgroup, according to their meaning. Let’s study it more properly.

We consider collective nouns (system, set, group, network, team/crew, container, family, reservoir, (a)whole as the lexical units that denote some whole, consisting of a number of parts. For example:

The second set of traffic pattern consists of 70% RT active users and 30% of NRT active users (IJANS, № 3-4 2011, 254).

Noun system is the most frequently used language unit of inclusive semantic that marks inclusiveness explicitly. We have found 10537 examples with this noun. 40 % of all examples contain the noun system in the “chains” of inclusive semantics. In the example below, we can see the noun system and the phrasal verb to be composed of, moreover, the noun system denotes some whole that consists of parts:

The basic module of the system is composed of a Master Node (MN), which has superior computational and energy resources and is connected to a remote database via TCP/IP over UMTS (IJANS № 1-2 2011, 28).

On the other hand, we have studied examples, where the noun set is a part of a whole, for instance:

An mPlane infrastructure consists of a set of components spanning over multiple domains, whose overall workflow is… (CM, May 2014, p. 153).

Nouns of “parts” are the other nouns that mark inclusiveness explicitly, since they denote part of a whole. They are: section, (a)part, element, segment, portion, contents, fragment, for example:

The Automatic Dependent Surveillance Broadcast (ADS-B) system is a core part of this future (CM, May 2014, p.115).

Table II presents the contents of the whole evaluation procedure, which lasted from 90 to 120 minutes (IJAIS, № 3-4 2013, p.271).

Although we have found some examples where “parts” nouns are composed of numbers of other parts, that is to say, parts are the whole, for instance:

The main part of a person’s UID consists of a hash value calculated from the person’s full name, i.e., first name plus last name (IJAIT, № 3-4 2011, p. 116).
Verbs of inclusive semantics to consist of, to comprise, to be composed of, to be made up of, to involve, to surround, to enclose, to encircle, to envelop, to embrace, to entail, to cover, to wrap up, to circle denote some whole that is composed of a number of parts (in this case enumeration may be full or partial), for instance:

The notion of meaning complexity embraces the notions of Kolmogorov complexity/information and Shannon complexity/information/entropy (IJAIS, № 3-4 2012, p. 500).

The verb to include is the most numerous unit (9992 examples) that marks inclusiveness explicitly (among other verbs of explicit semantics in the language of science) as it expresses the main meaning of inclusiveness – to consist of (some parts), to contain as a secondary or subordinate element (Ilchenko 2014: 294). It is stated that you want to mention all the parts that something has in it, use consist of, comprise, be composed of, or be made up of, use include to mention only some of the things that something has as its parts (Longman dictionary 2005: 822). For example:

For example, Muradand Fuja proposed a composite trellis, made up of a Markov source, a Variable Length Code (VLC), and a channel decoder’s state transitions, to exploit a priori source statistics (IJAT, № 3-4 2013, 143).

The non-cluster model is composed of five steps: peer join/leave, peer exchange information, peer selection, buffer organization and segment scheduling (IJANS, № 1-2 2012, p. 13).

The test track consists of three different track sections: straights, clothoids and curves (IJAIS, № 1-2 2010, p. 75).

These examples include full (as well as numeral) enumeration of the parts. Let’s compare with the next example, where is only one part:

G.8031 includes an Automatic Protection Switching (APS) protocol (CM, March 2009, 37).

Another group of nouns that marks inclusiveness explicitly – is the nouns of “formation”. They mark the process of a formation of some whole. They are: formation, constituent, constitution, makeup, for example:

The protocol of coalition formation is composed of two distinct steps (IJAIS, № 1-2 2013, p. 129).

Verbs to constitute, to make up, to form are used to denote formation of some whole (if it is used in Active Voice) (Ilchenko, 2014: 121, 489), for example:

The network operation system (Network OS) constitutes the set of fundamental functions that must be provided (CM, October 2014, p. 151).

Or to consist of (if it is used in Passive Voice) (Ilchenko, 2014: 121), for instance:

In LBSNs, the “spatial social network,” formed by a combination of social and spatial elements, is leveraged in (CM, August 2014, p. 153).

One more group of explicit inclusive verbs is the verbs of “amalgamation”, such as: to integrate, to combine, to mix, to group, to merge, to blend, to amalgamate. They are used to denote the process of amalgamation for formation whole, for example:

The proposed region of interest concept combined with the joint audio and video analysis offers the possibility to compose a video based on the detected
persons at the receiving client (IJAT, № 3-4 2013, p.159).

We can divide adjectives of inclusive semantics on two groups: the first one, adjectives that denotes full inclusion (complete, whole, universal, comprehensive, multi-purpose, inclusive, encompassing, all-purpose, all-encompassing), the second group is the adjectives that mark partial inclusion (partial), for example:

After the timeout expires, the operation returns this whole set of messages (IJAIS, № 1-2 2011, 4).

Partial aspects of the algorithms were previously presented (IJANS, № 1-2 2010, 42).

Grammatical construction let us/let’s is used to express suggestions. In another words the author propose reader to do some action together. For example:

Let us suppose that at an instance t, the MANET consists of five nodes namely MNA, MNB, MNC, MND and MNE and their connectivity is as shown in Figure 1 (IJANS, № 1-2 2011, 58).

In abovementioned example we can see that author propose us to do some operation with him (Let us suppose). Moreover, there is “chain” of inclusive semantic, to clarify, phrase (let us suppose) and phrasal verb of inclusive semantics (to consist of).

Negative phrases with inclusive negation not, no, without, neither…nor are used to state that there is any part, that belong to a whole:

The current paper is based on and expands a previous conference paper, which includes neither the experimental results nor the proofs (IJASM, №1-2 2011, 87).

Besides, explicit lexical units of inclusive semantics such as circle (n, v), container, contents, encircle, enclose, envelop, envelope, family, network, range from…to, reservoir, surround as well as wrap up is used as a metaphor of inclusive semantics, for example:

The family of copters includes various platforms with vertical propellers (e.g., helicopters, quadrocopters, and hexa-copters) (CM, July 2014, 146).

In the Dictionary of Contemporary English is stated: “family – a group of people who are related to each other, especially a mother, a father, and their children” (Longman Dictionary 2005: 568); while contextual meaning of this noun – is a whole that is made up of some parts (various platforms).

The node carrying the messages could, for instance, be a fast-moving UAS, which circles a larger area and gathers information (CM, October 2013, 45).

The verb circle is used as a metaphor, because it means: to draw a circle around something (Longman Dictionary 2005: 264), so the circle is a whole with its parts inside.

To receive relevant data, we have made some calculations. We have estimated word frequency of inclusive semantics per 1000 words. Overall number of explicit lexical units is 81741. It can be said that explicit language units of inclusive semantics are 87% or 8,44 language units per 1000 words.

Conclusions

In this paper we have described explicit ways of rendering the category of inclusiveness in scientific discourse. We’ve classified the main groups of explicit inclusiveness, as verbs and phrasal verbs, nouns, adjectives, grammatical
constructions and negative phrases with inclusive negation. It can be concluded that explicit lexical units of inclusive semantics are three-fourth of all ways of rendering this category. These results are of practical relevance. We leave discursive potential as well as functional potential of the category of inclusiveness for future work.

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References of illustrative material:


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