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PRAGMATIC SUPERSTRUCTURE OF ARGUMENTATIVE DISCOURSE IN TECHNICAL RESEARCH PAPERS

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The article deals with pragmatic superstructure of argumentative discourse in technical research papers. Different approaches to pragmatics study including the theory of speech acts are outlined. The scientific article is considered as implementation of the author's plan to achieve the specific goals taking into consideration the reader's interest. The main concepts of the theory are described. The paper uses the types of speech acts according to J.Searle's taxonomy of illocutionary acts. The main parameters of speech acts are mentioned. The theory of three complicated speech acts classes in accordance with the types of relation between illocutionary goals is discussed. The article analyzes the features of various argumentation types in terms of the complicated speech acts classes. The sequence of speech acts as a complex speech unit is discussed. In particular the author draws reader's attention to the requirements for the speech acts within the sequences which is recognized as a macrospeech act. The functional relationships determined by A.Ferrara between the speech acts within the sequence are stressed. Much attention is given to macrorules that derive global speech acts from macrospeech acts. The process of singling out the conventional functional relationships between global speech acts is illustrated. The fragment of pragmatic superstructure for the genre of technical research papers is created.

Key words: macrorules, pragmatic superstructure, macrospeech act, global speech act, functional relationship, illocutionary goal, complex speech unit.

Introduction. One of the structural characteristics of discourse is a superstructure proposed by T. van Dijk. It is known to be standard schemata of a certain discourse. For such a type of scientific article as technical research paper the discourse belongs to argumentative superstructures. The latter can be looked at either from semantic or pragmatic point of view.

The aim of the article is to show the way of creating the pragmatic superstructure for that kind of scientific articles. Technical research papers are written according to the definite requirements. The plan of such an article belongs to discursive categories. It resulted in appearance of some discursive models e. g. ScholOnto, ABCDE, SWAN, SALT etc. However they didn't focus on pragmatic aspect of argumentation.

Theoretical background. Pragmatics is a multi aspect area of linguistics which implies a number of interpretations. Many scientists from different countries

have contributed to the research in this area. In a broad sense pragmatics is seen as a collection of all relationships and cross-links between such items as language reality, situation of speech, speakers and recipients. In particular pragmatics investigates the relationship between language units and the individuals using them. In addition pragmatics includes the effectiveness of communication assessment and specifically the set of questions related to interaction in the process of communication. [2, p. 344].

In the process of communication each participant can create a plan to achieve the specific goals. Observing somebody to perform an action the other person can unveil the plan and find some impediments to perform it. The goals in the plan that can't be achieved without outside help play the role of those impediments. Additionally a conversation partner can disagree with a statement or not understand it. By removing the impediments found, the conversation partner can create a preventive plan of behavior. The speaker's intention creates pragmatic orientation or goal defined as a tendency to influence the recipient. The task of the speaker is to send information in the best possible way. Thus the author of the paper generates the text in order to inform the readers and convince them. For the readers to get a piece of knowledge the author must foresee their responses, create the plan and choose the best means. Therefore a scientific paper is a result of the author's preventive plan implementation. Conversely by reading the paper we can deduct the author's plan [1, p. 325-336].

The most important part of linguistic pragmatics is the theory of speech acts which are considered to be the minimal units of speech activity. So, a speech act realizes one speaker's communicative goal. One of this theory empiric tasks is to create a cognitive model of speech acts production. Usually the speech act language content is one sentence. However other units which are bigger or smaller than one sentence also can represent one speech act. Within the sphere of a sentence, the speech act appertains to the modus i.e. its performative part. The description of any speech act is based on such concepts as locution, illocution and perlocution. The central one among them is illocution. Any speech act is analyzed from three points of

view. The act is locutionary if it is recognized as the way to achieve the goal with the help of language means. Concerning execution conditions and the speaker's goal the speech act is considered as illocutionary. Regarding its result the act is vieved as perlocutionary [4, p. 48-51]. The type of speech act is acknowledged due to some parameters e. g. illocutionary force, direction of fit and expressed psychological state.

The set of perlocutionary characteristics includes perlocutionary effect and perlocutionary goal. Accorging to J. Searle's taxonomy, the classes of illocutionary acts are as follows: assertives, directives, commissives, expressives, declaratioves. Furthermore the existence of one more class called representatives declaratives is supposed.

The next speech unit in order of increasing complexity was proposed by V.Karaban. Minimum two speech acts create a complicated speech act basing on their relationship [6, p. 175-199]. The latter depends on how the illocutionary goals correlate. Thus, three types of complicated speech acts are described as it is demonstrated in the following table.

Type of complicated speech act	Relationships between speech acts	Illocutionary goals correlation
complex speech act	subordination	goal1 is subset of goal2
composite speech act	coordination	goal1 is identical to goal2
compound speech act	assistance	goal1 assists goal2

However this unit isn't just a set of simple acts. Besides it includes a discursive act. Its function is either to combine the components simple intentions or to divide their complicated intention into simple ones.

Any complicated speech act can be expressed either as a set of sentences or as a complex sentence when the propositional structure of the sentence is complex but its illocutionary and perlocutionary components are simple. [3, p. 60-100].

Another complex speech unit was determined by T. van Dijk who states that any discourse consists of different speech act sequences meeting the following requirements:

– the acts within them are arranged in time order;

– each speech act changes the pragmatic context of the next one;

– all speech acts are united by one common topic and one goal.

Such a sequence or macrospeech act can be represented as a chain where each speech act is illocutively evaluated in the context of the previous one. Therefore there are some relations between them. In particular A. Ferrara has described the relations of expansion, justification, explanation, repetition, correction, addition, agreement, objection, conclusion etc. [7, c. 146-148].

To operate a macrospeech act as a whole we should use some macrorules that turns it into a global speech act.

The macrorule of deletion prescribes to omit irrelevant information and non-substantive speech acts. When a sequence of speech acts is perceived as a global action it means there is some knowledge how to perform it. Therefore the rule of construction requires generalization in the frame of the sequence. Further, global speech acts can also be connected pair-wise and create sequences.

When speech act sequences are conventional for the event being described its discourse pragmatic superstructure is created.

Argumentation in the speech acts theory. Argumentation is reported to be a macrospeech act. Its structure consists of proposition, logic form and illocutionary force. Both of the proposition and illocutionary force of macrospeech act are equal to the sums of components speech acts propositions and illocutionary forces respectively [5, p. 35-45]. According to V. Karaban's theory argumentation is a complex speech act i.e. there is a relation of subordination between its speech acts of claim and reasons. The logic form of such an act is manifestation of its discursive act.

Argumentation is known to be integral part of any scientific paper. Minimal argumentative sequence is made up of one speech act of claim and one speech act of reason. As it has been mentioned above from the Karaban's theory point of view the

relations between them is subordination. However in the context of functional taxonomy of relation there are two following cases depending on argumentative composition.

When the author arrives at a conclusion based on the results of experimental or theoretical research it is prevalently placed in postposition as it is shown below.

A systematic study of the overlap functions for different ear configurations shows that no single ear configurations results in an orthogonal set of templates. Hence ghost images will always occur. [10, p. 85]

If a claim is in preposition it should be explained or confirmed later.

Coffee is the world's most widely traded tropical agricultural commodity, according to the International Coffee Organization, a global intergovernmental trade group. In the 2011/12 season, 134.4 × 106 bags of coffee (60 kg each) were exported by countries that produce coffee beans, worth an estimated $30.1 × 109.1. [11, p.265]

Implicit elements of argumentation are expressed by implicit speech acts. Technical research papers include different types of argumentative fragments. Some of them have implicit claim. Having read the definitions of experimental procedure or input data the reader should make an evaluative judgment. Conversely the author persuades the reader in correctness of algorithms and data representativeness. In the fragment of scientific paper below the sequence of representatives describing successive actions compiles the composite speech act. The speech act of claim is implicit.

The speech-shaped noise was obtained by filtering white noise with a second order Butterworth filter (1100 Hz cutoff frequency). Noise was added to speech to obtain signal-to-noise ratios (SNRs) of 19, 16, 13, and 0 dB. The noisy speech sentences were then processed by the speech enhancement algorithm. Sentences were presented to CI subjects in the free field via single loudspeaker (Tannoy Reveal) at 65 dBA. Subjects were tested using their clinically assigned speech processor; subjects were asked to use their normal, everyday volume/ sensitivity settings. [12, p. 1003]

Meanwhile in subordinate argumentation an argumentative speech act is a member of other speech acts. However within the same argumentative level complex argumentation can be either coordinate or multiple. The latter is interpreted as a set of separate complicated speech acts.

In coordinate argumentation the reasons is a composite speech act with a discursive act joining intentions. The fragment below includes argumentation consisting of two reasons and the claim outlining the purpose of research.

This study suggested that the sensitivity of the audio-vocal system to voice feedback perturbation might vary as a function of voice F0 during sustained vowels. However, no research has been conducted on whether the same is true for speech production. ... Therefore, the purpose of the present study was to investigate if vocal responses to pitch perturbation in auditory feedback can be modulated as a function of voice F0 during English speech. [8, p. 1]

Global speech acts. In order to transform an argumentative macrospeech act into global speech act one should not only delete irrelevant and non-substantive speech acts but also select the components of argumentation model. The fragment below deals with justification of the research done. In line with topics the fragment is divided into four sequences of speech acts.

(1) Complex speech including one simple speech act (*It has been claimed*) and another complex speech act where the part explained is subordinate to its explanation.

(2) Simple speech act serving as notification of the fact in favor of the hypothesis mentioned.

(3) Complex speech act describing the causal situation.

(4) The claim.

(1) It has been claimed that the effect results from the "decomposition" of the excitation pattern; that is, the neural excitation evoked by the inducer (a sound of higher amplitude, such as a burst of noise) is decomposed into the inducee (an illusory continuous sound) and the residue. (2) This decomposition theory is consistent with the loudness reduction of the inducer accompanying the continuity. (3) However, some studies have revealed the properties of the continuity effect for

relatively complicated signals and suggested that the continuity may not be based only on the excitation pattern. (4) The present study was designed to provide additional data supporting the idea that the decomposition of the neural excitation pattern is not the only cause of illusory continuity. [9, p.14]

The relations can be described as follows:

[[(1) coordination (2)] coordination (3)] subordination (4).

After applying the deletion mucrorule the fragment is the following.

(1) It has been claimed that the neural excitation evoked by the inducer (a sound of higher amplitude, such as a burst of noise) is decomposed into the inducee (an illusory continuous sound) and the residue. (2)... (3) However, some studies suggested that the continuity may not be based only on the excitation pattern. (4) The present study was designed to provide additional data supporting the idea that the decomposition of the neural excitation pattern is not the only cause of illusory continuity.

The relations between the speech acts are also reduced:
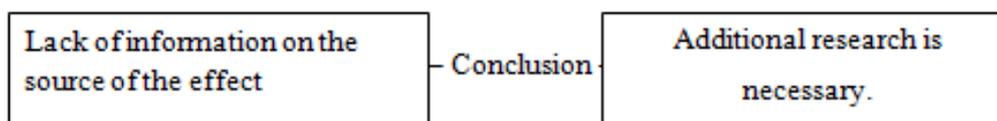
[(1) coordination (3)] subordination (4).

Applying the macrorule of construction reveals subordinate argumentation in the fragment.

Reason1: there is a hypothesis for the origin of a certain effect.

Reason2: some research showed other sources of the effect.

Claim: we need additional research.

If the macrorule of construction taking account of functional relationship is applied again the plan of argumentation looks as it is shown below.

| Lack of information on the source of the effect | Conclusion | Additional research is necessary. |

The relationship of conclusion in that case is conventional. Therefore the structure received is a fragment of argumentative pragmatic superstructure.

Conclusions. Argumentative discourse of technical research papers has some pragmatic characteristics including its superstructure. They are common for this

genre. Therefore there are a number of typical global speech acts that serve as parts of superstructure. The target of further research is to recognize those acts and to determine those characteristics.

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Н. Є. Доронкіна. Прагматична суперструктура аргументативного дискурсу у науково-технічних статтях.

Відповідно до назви стаття присвячена побудові прагматичної суперструктури дискурсу аргументативного дискурсу науково-технічної статті. Описано різні підходи до вивчення прагматики, у тому числі у широкому та інших значеннях. Визначено місце теорії мовленнєвих актів в теорії прагматики. Науково стаття розглядається як реалізація плану автору з метою досягнення його цілей, враховуючи інтереси читачів. Перелічено основні поняття теорії мовленнєвих актів. Названо основні характеристики мовленнєвих актів згідно з класифікацією Дж. Серля. Проаналізовано види та особливості мовленнєвих актів у науково-технічних статтях та роль, яку вони грають у аргументації. У якості більш складних мовленнєвих одиниць, ніж мовленнєві акти розглянуто складні мовленнєві акти та макромовленнєві акти. У статті використовується типологія складних мовленнєвих актів, яка базується на відношенні між ілокутивними цілями складових мовленнєвих актів. Проаналізовано особливості аргументації відповідно до типу складного мовленнєвого акту. Сформульовано вимоги, яким повинні відповідати послідовності мовленнєвих актів, які складають макромовленнєвий акт. Особливу увагу приділено функціональним відношенням між мовленнєвим актами у послідовності, які були сформульовані А. Ферейрою, та макроправилам, за допомогою рекурсивного застосування яких макромовленнєвийй акт скорочується і таким чином виводиться глобальний мовленнєвий акт. Сформовано фрагмент прагматичної суперструктури дискурсу науково-технічної статті шляхом висвітлення конвенціональних функціональних відношень між глобальними мовленнєвими актами, створюючи план аргументації науково-технічної статті.

Ключові слова: макроправила, прагматична суперструктура, макромовленнєвий акт, функціональне відношення, ілокутивна ціль, складна мовленнєва одиниця.

Н. Е. Доронкина. Прагматическая супернструктура аргументативного дискурса в научно-технических статьях.

Статья посвящена построению прагматической суперструктуры аргументативного дискурса научно-технической статьи. Описаны различные подходы к изучению прагматики. В статье также перечислены основные понятия теории речевых актов. Названы основные характеристики речевых актов в соответствии с классификацией Дж. Серля. В качестве более сложных речевых единиц, чем речевые акты, рассмотрены сложные речевые акты и макроречевые акты. Проанализированы особенности различных типов аргументации в соответствии с видом сложного речевого акта. Для последовательностей речевых актов сформулированы требования, которым они должны удовлетворять, чтобы составить макроречевой акт. Сформирован фрагмент прагматической суперструктуры дискурса научно-технической статьи путем вычленения конвенциональных функциональных отношений между глобальными речевыми актами, составляя план аргументации научно-технической статьи.