KALBA IR KONTEKSTAI

LITHUANIAN UNIVERSITY OF EDUCATIONAL SCIENCES
FACULTY OF EDUCATION IN HUMANITIES

LANGUAGE IN DIFFERENT CONTEXTS

Research papers
2018 Volume VIII (1)

Lietuvos
edukologijos
universiteto
leidykla

Vilnius, 2018

MAGNETISM OF REFERRING IN THE TEXT: COGNITIVE AND PRAGMATIC ASPECTS

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ABSTRACT

The present paper explores the issue of reference in the light of current cognitive and pragmatic research paradigms in linguistics. The concept of reference is examined from a wide variety of approaches. Singular reference versus generic reference as well as coreference are analysed. The paper focuses on main linguistic means of expressing reference within the text, in particular referring expressions. They can be divided into two main classes: (1) nominal groups (e.g., key words-nouns and proper nouns) and (2) personal pronouns. Referring expressions used in a specific context of English scientific and technical text on civil engineering are analysed and illustrated with a selection of examples. They signal what the text is about. The study touches upon the problem of referential indeterminacy. It presents a challenge confronted by modern scholars, readers and/or recipients. Context dependent pragmatic considerations play a significant role in referential choice. The study outcomes are vital for the comprehension of the source text for translators. In the digital age the study results can be applied in technology assisted linguistic research, in development of natural language processing software for logical comprehension of the text. Additionally, theoretical assumptions of the paper, some remarks and examples can be used in delivering a course of lectures and workshops on semantics and pragmatics at higher education institutions.

Keywords: *the concept of reference, referring expressions, referential indeterminacy, pragmatic inferences, scientific and technical text, civil engineering*

INTRODUCTION

The phenomenon of reference has been studied within diverse theoretical paradigms in linguistics, on the basis of different data sets and languages for over years. One or other perspective on linguistic research predominated for a particular scholar or a particular historic period. Nowadays cognitive and pragmatic approaches to linguistic research have become widely applied. In the light of these current trends there is the necessity to revisit the issue of reference and look at what these orientations can offer to the examination of the nature of this phenomenon, linguistic means of

its expression and ultimately decoding the author's probable intended meaning of the sentence within the text.

We will place this study in a broader landscape of textual analysis, in particular English scientific-technical text in the field of civil engineering taking into account its main properties, an interactive nature and a debate about the boundary between semantics and pragmatics.

In this paper, the focus is on referential use of noun phrases (NPs) in the subject position of the sentence (e.g., proper nouns, key-words-nouns) and third person pronouns (e.g., *it*). It should be noted that referential use of civil engineering terms and abstract nouns is beyond the scope of this study.

Main aims of the research are:

1. to examine the concept of reference and main types of referring expressions from a theoretical perspective;
2. to interpret referring expressions in the subject position and illustrate them with examples from English scientific and technical text on civil engineering;
3. to consider the role of cognitive, semantic and pragmatic factors in determining reference and interpretation of referring expressions.

The object of the research is referential relationship between linguistic expressions in the context of their use at the level of the sentence within scientific and technical text and their intended referents in the world as well as the problems associated with it.

Methods of the research are:

1. library research;
2. contextual analysis.

Research challenge is referential indeterminacy confronted by readers and/or recipients in message interpretation.

1. MAIN APPROACHES TO THE CONCEPT OF REFERENCE

It is assumed that a text reflects a particular real or mental situation that can be seen from the author's stance. The text consists of paragraphs and sentences which reflect some fragments of the overall situation described in the text. The participants of the situation comprise animate or inanimate objects, their features, types of relationship between them and their complex interaction (Dijk, 1997; Liokumoviča, 2009).

The same situation described in the text can be seen differently by diverse recipients and/or readers. This is clear from the fact that each person perceives the reality and gives a range of its interpretation depending on his/her types and levels of expert knowledge, background, individuality of thinking, membership in a specific cultural community, etc. (Зубов, Зубова 2007, 95 – 96; Liokumoviča, 2009).

It is widely acknowledged that scientific and technical text has a factual and objective character. Nowadays a different perspective has been adopted. For instance, Hyland (2014, 417) states that "written texts embody interaction between writers and readers". We share this viewpoint and argue that scientific and technical text has

a multifaceted nature. It can be examined from two perspectives: (1) as a particular text type with a certain set of main features and (2) as an interactive process between a writer and a reader and/or recipient. These aspects are closely interconnected.

Reference is an extremely complex and multidimensional phenomenon interrelated with the philosophy of language, semantics, pragmatics and cognition. *Reference* is a central issue in the theory of meaning.

There is no consensus in the approaches to the issue of *reference*.

From the perspective of classical philosophy, *reference* is seen as the relationship between words and real-world objects.

From a cognitive point of view, referents are cognitive constructs. Within this framework, as Birner (2018, 136) points out, "referents reside in the minds of speakers and hearers". Similarly, according to Isac and Reiss (2008, 277), *reference* is viewed as a relation between words and phrases that "are in the heads or minds of individuals and the things in the world outside of individual minds".

From a semantic stance, Sullivan (2013, 21) claims that semantic reference is "a two – place semantic relation between a designator and what it conventionally or literally designates". Thus, context – dependent pragmatic considerations are not relevant for decoding meaning (ibid., 302 – 303).

Within a pragmatic approach to language, referring in the text depends upon the context. Therefore, pragmatic inferences are vital to figure out the author's intended meaning. As argued by Sullivan (2012, 293), *reference* is defined as the relation between the usage of a linguistic expression and the entity designated by it. We share this viewpoint.

At text level, *reference* can be seen as a cohesive device. Halliday and Hasan (1976) in their research suggest a typology of cohesive devices including reference, ellipsis, substitution, conjunction and lexical cohesion.

2. MAJOR TYPES OF REFERRING EXPRESSIONS

According to Sullivan (2012, 295), semantic role of referring expressions is "to single out a specific referent as the subject of discourse".

There are diverse typologies of referring expressions in linguistic literature. Traditionally referring expressions can be divided into 3 main classes: (1) full noun phrases (full NPs) (e.g., a *scientist, Newton*); (2) reduced referential devices, such as pronouns (e.g. s/*he; this*) and (3) zero forms (Федорова, 2015, 636). Kehler (2015, 625) argues that referring expressions comprise indefinite and definite lexical nouns phrases (NPs), demonstratives (e.g., *this*, *that*) and pronouns. As suggested by Sullivan (2012, 295), referring expressions can be subdivided into 2 major classes: (1) indexical referring expressions (e.g., *this, s/he*) and (2) non-indexical referring expressions (e.g., *proper names*). Indexical referring expressions signal a particular referent as the subject of the discourse. They may designate different referents depending upon the context in which they are used. In contrast, non-indexical referring expressions such

as proper nouns are context independent, in other words, the referent which they designate is constant and does not depend upon the use of the referring expression in a particular context (ibid.). As regards indexical referring expressions (e.g., *this, s/he*), David Kaplan's typology of character and content is significant in understanding how context affects *reference* (see Kaplan, 1989).

A detailed account on the nature of reference and typology of linguistic means of its expression was given by Yan Huang (see Huang, 2014) and Andrej A. Kibrik (see Kibrik, 2011).

As noted above, we will analyse NPs in the subject position of the sentence: (1) proper nouns; key-words-nouns and (2) personal pronouns (e.g., *it*). Key nouns are singled out on the basis of the quantitative criterion taking into account their frequency of occurrence in the text and the number of paragraphs in which they occur (see Liokumoviča, 2009, 114–115). Key nouns designate the topic of the text and have a referential character (ibid.).

Friederici (2017, 70) holds the view that the interpretation of a linguistic expression "depends on a number of aspects that are not part of the core language system". These aspects involve not only situational and communicative perspectives but also an individual's knowledge about the world (e.g., technical, cultural knowledge) (ibid.). We share this view. Friederici (ibid.) states that "this knowledge probably has a distributive representation across different regions in the brain and is therefore not easy to capture". We share this view.

3. SINGULAR REFERENCE VERSUS GENERIC REFERENCE

Reference can be divided into two main types: (1) *singular reference* (Simchen, 2017, 33) or *specific reference* (Finch, 2005, 167) and (2) *generic reference*. In this paper we will use the term *singular reference*.

Consider the case of *singular reference*. It can be expressed by the proper noun signaling out a particular person or the noun referring to a specific object. For instance:

(1) ***Sim Van der Ryn** is considered one of the pioneers in applying the principles of both ecology and social ecology to architecture* (Kibert, 2016, 107).

In (1), the proper name *Sim Van der Ryn* designates a particular architect explicitly. As it was mentioned earlier, the referent is context-independent. It is possible that two persons may have the same name. This is the issue of the homonymy of names. But the author refers to a particular *Sim Van der Ryn*.

Consider the example in (2):

(2) ***The Pertamina Energy Tower** represents a significant forward step in the design of supertall skyscrapers* (Kibert, 2016, 13).

In (2), *The Pertamina Energy Tower* refers to a specific real-world object. The referent is uniquely identifiable. Hence, it is the case of a *singular reference*.

As regards the case of *singular reference*, Simchen (2017, 55) points out the "threat of indeterminacy". The scholar gives a detailed account of productivist versus interpretationist approaches to *singular reference* (See Simchen, 2017, 33 – 59). The researcher claims that the case of *singular reference* can be characterized by "referential indeterminacy" in interpretationist setting (ibid., 36). Other scholars discuss the possibility of "referential conflict" (Федорова, 2015, 639). The term *referential conflict* can be defined as the discourse situation when several referents may be activated simultaneously high enough in the speaker's active memory so as to be chosen as the antecedent of a referring expression (ibid.).

Consider the examples of *general reference* in (3) and (4):

(3) **Green buildings** *use substantially less energy than conventional buildings and generate some of their power on-site from renewable or alternative energy sources* (Kibert, 2016, 535).

In (3), *green buildings* belong to the set of buildings and hence, have a *generic reference*.

(4) *With respect to high-performance buildings,* **concrete** *has many positive qualities: high strength, thermal mass, durability and high reflectance <…>* (Kibert, 2016, 387).

In (4), the noun *concrete* refers to a class of building materials. Thus, it is a *generic reference*.

4. COREFERENCE

Further let us examine the concept of coreference. According to Kehler (2015, 627), "coreference signifies a symmetric relationship between two expressions" since they refer to the same entity. In contrast, anaphoric relations are asymmetric. Kehler (ibid.) states that "whereas anaphora is defined as a relationship between pieces of linguistic material, it is mediated in part by referential relations between expression and their referents".

At the plane of language, lexico-semantic means of expressing the same referent comprise the reiteration of the same noun, word and contextual synonyms, associative and pronoun substitutions, hypernyms (Зубов**,** Зубова, 2007, 96).

For example:

(5) **Kroon Hall** *is designed to consume 50 per cent of the energy of a conventionally designed academic building and to reduce greenhouse gas emissions by 62 per cent.* **The building** *is conditioned by a displacement ventilation system that introduces air through the floor at low velocity <…>* (Kibert, 2016, 119).

In (5), *coreference* is signaled by *Kroon* hall and its contextual synonym - *the building*.

(6) **The Empire State Building** *is an icon of engineering achievements. Completed in 1932,* **it** *underwent an extensive green retrofit that focused on energy efficiency* (Kibert, 2016, 537).

In (6), *coreference* is expressed by the *Empire State Building* and a pronoun substitution *it*.

We assume that a corereferencial identity may indicate the significance of the referent or a corresponding word in the text.

As we noted above, identification of referents may present challenges.

Key words may signal referents in extralinguistic world in more complex way rather than referring to an apparent physical object or a person. For example:

(7) **An integrated project management team** *was organized early in the design process to help identify the basis of the design, prioritize goals, and create effective policies <…>* (Kibert, 2016, 207).

In (7), there is no single constituent that designates the referent as a team.

(8) **Governments** *across most major economies of the world are starting to care about energy efficiency and sustainability in the building sector* (Jadhov, 2016, 11).

In (8), the referent of *governments* is extremely ambiguous since there are a lot of governments in major economies of the world.

Results of the research confirm the fact that the process of determining the referent of the linguistic expression used in a particular context and identifying the author's communicative intentions has a probabilistic character.

CONCLUSIONS

1. In this paper we have made an attempt to consider cognitive, semantic and pragmatic perspectives on the concept of reference in linguistics. Although the approaches outlined are theoretically quite different they interact with each other.

2. Determining the referent can be regarded as an analytical research tool of textual analysis.

3. We argue that reference has a cognitive nature. Defining the referent is a pragmatic process that includes considering a particular context in which the linguistic expression is used and the author's probable intended meaning. In interpreting the meaning of the sentence the reader will have to consider both semantic and pragmatic factors, their interaction as well as cognitive principles.

4. Research outcomes are essential for a deep comprehension of the meaning of the text for translators. In the digital age the study results can be applied in the development of natural language processing software for comprehension of the meaning of the text and its interpretation.

5. Theoretical assumptions of the paper and examples can be applied in delivering lectures and workshops on semantics and pragmatics at higher education institutions.

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SANTRAUKA

REFERENCIJOS PATRAUKLUMAS TEKSTE: KOGNITYVINIS IR PRAGMATINIS ASPEKTAI

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Straipsnyje nagrinėjamas referencijos reiškinys, remiantis naujausiomis kognityvinių ir pragmatinių mokslinių tyrimų paradigmomis. Autorė sutelkia dėmesį ties kalbinėmis referencijos priemonėmis tekste. Referencinės priemonės suskirstomos į dvi pagrindines grupes: (1) daiktavardinė grupė (pvz., esminiai žodžiai daiktavardžiai ir tikriniai daiktavardžiai), (2) asmeniniai įvardžiai. Straipsnyje, pasitelkiant iliustracinius pavyzdžius, analizuojama referencinė raiška, kuri sutinkama tam tikruose kontekstuose moksliniame ir techniniame tekste apie civilinę inžineriją. Referencija signalizuoja, apie ką konkretus tekstas yra. Tyrime taip pat kalbama apie referencinio neapibrėžtumo problemą. Konteksto sąlygoti pragmatiniai teksto apsektai turi svarbų vaidmenį referencijos tipo pasirinkimui. Tyrimo rezultatai yra svarbūs vertėjams, taip pat technologijomis paremtiems lingvistiniams tyrimams, kuriant teksto suvokimo programinę įrangą, dėstant semantikos ir pragmatikos kursus aukštojoje mokykloje.