A Cognitive Approach to Ellipsis[*]

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Abstract—**The study of syntactic ellipsis represented by generative linguistics has been dominant since 1950s. Comparatively, the cognitive study of ellipsis is fewer and starts later than it. The paper poses challenges and raises questions toward the traditional syntactical ellipsis study, and comes up with its cognitive view of ellipsis. With the development of cognitive sciences, the cognitive study of ellipsis will flourish in the future.**

Index Terms—**ellipsis, cognitive linguistics, cognitive view, generative linguistics, generative view**

I. Introduction

Ellipsis is a common phenomenon in natural language which has been concerned by domestic and foreign linguistic circle (Ross, 1967; Sag, 1976; Dalrymple et al., 1991; Hardt, 1993; Lobeck, 1995; Merchant, 2001; Lobke, 2010; Chung, 2013; Phillips, 2013). From the data in Table 1, we can see that the syntactical study of ellipsis is dominant among the core journals articles of ellipsis in CSSCI and SSCI data base, there are 120 theses about syntactic ellipsis from the total 253 articles. Comparatively, the ellipsis study from other perspectives is fewer than the syntactical study, for example, there are only 22 articles about the cognitive study of ellipsis.

TABLE 1
DATA OF THE CORE JOURNALS ARTICLES ABOUT ELLIPSIS STUDY

source \ perspective	review	syntax	semantics	pragmatics	discourse	phonology	translation	cognition	total
CSSCI	13	68	0	7	8	2	7	6	111
SSCI	38	52	2	18	15	1	0	16	142
total	51	**120**	2	25	23	3	7	22	**253**

To a large extent, the study of linguistic phenomenon reflects the development trend of linguistics and represents the basic assumptions and guiding ideology of main schools of linguistics, the study of ellipsis phenomenon in this paper is a typical example. The ellipsis study also reflects the total development trend of linguistics: (1) The generative linguistics represented by Chomsky has played a leading role in the development of linguistics since 1950s, therefore, syntactic ellipsis study represented by generative linguistics is dominant in all document literature about ellipsis. (2)The cognitive linguistics begins to show its vigor since the 21st century, compared with syntactic ellipsis study, the cognitive ellipsis study is fewer and starts later than it, therefore, the ellipsis study from a cognitive approach has a broad research prospect and development space.

As we know, generative linguistics and cognitive linguistics are two main current schools of modern linguistics. Some scholars say that cognitive linguistics is the second "cognition revolutionary" toward generative linguistics because their basic assumptions and guiding ideology are opposite to each other. The divergence between generative linguistics and cognitive linguistics is summarized as follows:

(1) Autonomy of syntax thesis vs. symbolic thesis in grammar: According to autonomy of syntax thesis in generative linguistics, grammar is an autonomous system and grammatical rules aren't influenced by other factors except grammatical system such as semantics, pragmatics etc, in other words, grammar can be separated from semantics which reflects the modularity thesis of generative linguistics. On the contrary, cognitive linguistics objects to modularity thesis and assumes that grammar is not an autonomous system, grammar is symbolic and grammatical structures are just another kind of meaningful symbolic unit which is unified by two poles of phonology and semantics. Lakoff (1991) gave a great deal of evidence to prove that pure syntactic rules don't exist, and pointed out that all problems can be solved and explained at a semantic level if we can abandon autonomy of syntax.

(2) Language innatism thesis vs. language usage-based thesis: This divergence reflects different understanding toward the sources of language knowledge between generative linguistics and cognitive linguistics. Generative linguistics assumes that grammar is highly abstract principles and rules which are embedded in language faculty, so grammar or language knowledge is innate, that is language innatism thesis of generative linguistics. Comparatively, cognitive linguistics holds to usage-based thesis and assumes that language knowledge comes from language use, categories and structures in semantics, syntax, morphology and phonology are built up from our cognition of specific

utterances on specific occasions of use (Croft & Cruse, 2004, p.3).

The article first introduces the divergence between generative linguistics and cognitive linguistics which provides a background knowledge for the following study. In section 2, the article reviews the study of ellipsis guided by generative linguistics. In section 3, the article questions the generative view of ellipsis and puts forward the cognitive view of ellipsis which is the main achievement of this paper. In section 4, the article introduces the current cognitive study of ellipsis and provides a new research thought for ellipsis in the future. Finally, the article comes to the conclusion and summarizes the content of the paper.

II.   REVIEW OF ELLIPSIS STUDY IN GENERATIVE LINGUISTICS

Since Ross (1967), many linguists discussed two core puzzles about ellipsis: the first question is what kind of identity relationship between the elliptical part and other syntactical structure it is, the second question is whether the syntactical structure of elliptical part exists or not, if exists, what kind of syntactical structure it is (Chung,2013). The scholars in generative linguistics gave different answers about the above two questions and studied ellipsis from various routes which was summarized by Phillips(2013) as Figure 1:
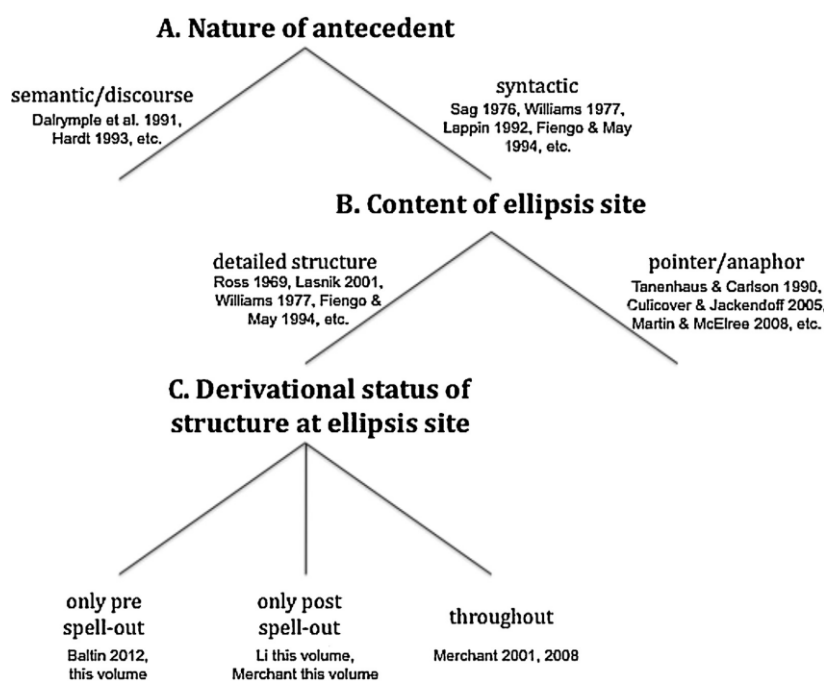

Figure 1. Various routes about ellipsis study in generative linguistics

According to various routes in figure 1, we summarize the main viewpoints of ellipsis in generative linguistics as follow:

Firstly, ellipsis is anaphoric in nature, as it depends on an antecedent in the context for recovery of meaning (Phillips, 2013).

Secondly, the relationship between the ellipsis and its antecedent is subject to a parallelism requirement and shows a formal identity including syntactic identity and semantic identity. The identity relationship can be defined by syntactic structure or semantic representations.

Thirdly, the scholars from the syntactic account hold that the relationship between the ellipsis and its antecedent is syntactic identity because the information of the elided site can be recovered from the syntactic representations of antecedent (Sag, 1976; Fiengo & May, 1994). The reason of the syntactic route is: if the ellipsis and its antecedent are not matched in syntactic structure, the sentence can't be accepted by people. Sag also pointed out that the identity of syntactic structure can't be limited to formal identity, for instance, "entered" and "enter" should be regarded as identity in example (1):

(1) Bob entered the competition and Paul may <u>enter the competition</u>, too. (syntactic identity)

Fourthly, the scholars from the semantic account hold that the relationship between the ellipsis and its antecedent is semantic identity. As for the situation of syntactic mismatch between the ellipsis and its antecedent, however, the sentence can be also accepted by people, the relationship between the ellipsis and its antecedent should be regarded as semantic identity (Dalrymple et al., 1991; Hardt, 1993). For instance, the passive voice and active voice is regarded as syntactic mismatch in example (2), it shouldn't belong to syntactic ellipsis but semantic ellipsis (Hartman, 2011):

(2) This problem was to have been looked into, but obviously nobody did <u>look into this problem</u>. (semantic identity)

Fifthly, as for the content of the ellipsis site, the decision tree continues to be divided into two routes: detailed structure / null copy account and pointer / anaphor account, these two routes stand for two distinguished positions. The

debate between two positions is about whether or not there is unpronounced syntactic structure at the ellipsis site. The null copy account assumes that the ellipsis site hosts a detailed structural representation of the antecedent. Comparatively, the pointer account assumes that the ellipsis site does not include a copy of the antecedent.

Sixthly, the main points of the pointer account can be described as follow: there is no additional unpronounced syntactic structure at the ellipsis site, the recovery and understanding of elliptical content depends on context. Syntax should be matched with phonology, that is, what you see is what you get, therefore, there in no additional unpronounced syntactic structure, no deleted elements and no null forms(Culicover & Jackendoff, 2005). Especially, Culicover & Jackendoff (2005) also put forward bare argument ellipsis and provided evidences for the ellipsis without syntactic structure, for example:

(3) A: When is Robin coming?
    B: ɸ *On Tuesday*.

Seventhly, the null copy account can be divided into three routes according to the derivational status of ellipsis: only pre spell-out, only post spell-out and throughout. All three routes assume that the ellipsis site has unpronounced internal structure. Based on the transformational account of syntax, syntactic structures consist of two representations: phonological form (PF) representation and logical form (LF) representation (Chomsky, 1995). As for the "only pre spell-out" route, or PF deletion route, it assumes that structure is present at the ellipsis from the beginning of the syntactic derivation, but that this structure undergoes deletion at some point prior to the pronunciation of the sentence (Merchant,2001). As for the "only post spell-out", or LF copy route, it assumes that the ellipsis site initially lacks internal structure, and that structure is inserted via a structure copying operation at LF (Fiengo and May, 1994; Chung et al., 1995). As for the "throughout" route, it assumes that the syntactic structure in the ellipsis site is present throughout the syntactic derivation, and is only marked for non-pronunciation at the phonological level (Ross, 1969; Sag, 1976; Merchant, 2001).

(4) Someone was singing La Marseillaise, but I don't know who ɸ. (PF deletion route)
(5) Christina read every book Hilary did ɸ. (LF copy route)

The ellipsis study from various routes in generative linguistics is all involved in two themes: the licensing of ellipsis and the identification of ellipsis, both of them are the constraints of ellipsis. The former focuses on the syntactic environments to permit the appearance of ellipsis, the latter focuses on the recoverability of ellipsis from contexts.

III.   QUESTIONS ABOUT THE ELLIPSIS STUDY OF GENERATIVE LINGUISTICS FROM THE COGNITIVE APPROACH

A.   Is the Ellipsis Site a Syntactical Unit?

The ellipsis is defined as "mismatching between phonology and semantics" by the school of generative linguistics (Lobke, 2010, p.1). They claim that ellipsis is a syntactic unit in nature with meaning but without overt phonological form. In other words, it means that phonology, semantics and syntax can be separated from each other, which reflects the modularity thesis and the guiding principle of "autonomy of syntax" in generative linguistics.

The generative view of ellipsis is contrary to the symbolic thesis in cognitive grammar. The autonomy of syntax thesis is the serious divergence and debate between generative linguistics and cognitive linguistics because autonomy of syntax makes it impossible to realize the symbolic relationship of grammar (Langacker, 1991, p.533). Langacker pointed out that grammar is symbolic in nature, a symbolic unit is the basic unit and the research object of grammar (Langacker, 1987, p.11). A symbolic unit can be defined as "matching between phonological structure and semantic structure" (Langacker, 1987, p.77), which is shown as figure 2:
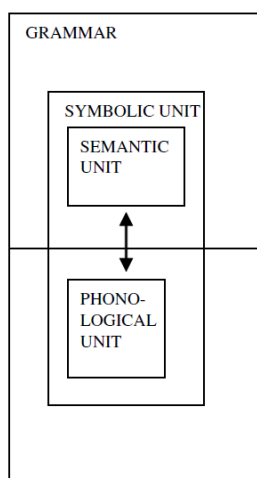

Figure 2. The symbolic unit

According to Langacker's viewpoints, a grammatical unit is a symbolic unit which is "matching between phonology and semantics", a grammatical unit is unified by a phonological unit and semantic unit. Grammar is similar to a coin

with two sides of phonology and semantics, therefore, grammar, phonology and semantics can't be separated from each other. Since ellipsis is a phenomenon of "mismatching between phonology and semantics", it is impossible to be a symbolic unit, in other words, ellipsis is not a legal grammatical unit or syntactical unit. As mentioned above, Culicover & Jackendoff (2005, p.88) also provided evidence in their "*Simpler Syntax*" for ellipsis, they claimed that there is no additional unpronounced syntactic structure, that is, there is no syntactical units in elided site. Therefore, the study of constraints of ellipsis by grammatical rules is meaningless.

Ellipsis can't be generated by grammatical rules, the appearance and use of ellipsis is a pragmatic phenomenon. Chomsky distinguished language knowledge and language competence and paid more attention to the former—universal grammar, language use is not a concern for him. Comparatively, cognitive grammar holds that grammar is usage-based and language knowledge comes from language use, therefore, grammatical rules are not innate. The formative factors of ellipsis are complicated including pragmatic, cognitive, psychological, social and cultural factors etc.

B.   Does the Meaning of Ellipsis Only Come from Its Antecedent?

The generative view of ellipsis claims that ellipsis is anaphoric in nature and the recovery of its meaning depends on its antecedent in the context. The cognitive view of ellipsis denies the syntactic structure in elided site, the meaning of ellipsis doesn't only come from syntactic elements including its antecedent. The meaning of elided site is closely related to the meaning of other overt parts in a sentence, to some extent, the meaning of ellipsis is the meaning of a sentence. In the understanding process of ellipsis, it doesn't mean that we first acquire the meaning of elided sites and then acquire the meaning of sentences, however, it is a synchronous process, that is, we acquire both of meanings at the same time, the understanding of sentences means the realization of understanding of ellipsis.

When we start to study the meaning of ellipsis from the meaning of the whole sentence instead of the recoverability of ellipsis, it is simpler to answer the question where the meaning of ellipsis comes from. As for the question where the meaning of a sentence comes from, cognitive linguistics gives us an answer that semantic structure endows the meaning of a linguistic expression including a word or a sentence. What is a semantic structure? a semantic structure is equal to a conceptual structure (Evans & Green,2006). The meaning of a linguistic unit is the conceptual structure which has a conventional relationship with this linguistic unit (Geiger & Rudzka-ostyn, 1993, p.1). Conceptual structure exists in our mind and it is a stable knowledge system of objective world (Li Fuyin, 2008, p.77).

There are two sources of semantic structure: a part of it comes from the conventional meaning of a linguistic expression in a dictionary or linguistic knowledge; the other part of it comes from the encyclopedic knowledge we know about the world (Li Fuyin, 2008, p.79). Cognitive semantics holds to the encyclopaedic view of meaning which is distinguished from the dictionary view of formal linguistics. The function of words is to provide a mental path for us to guide us to find the knowledge domain related to this linguistic expression, in other words, lexical items are points of access to encyclopaedic knowledge (Evans, 2006, p.215). Based on the above viewpoints of cognitive semantics, we can know that the meaning of ellipsis comes from both the conventional meaning of overt linguistic expressions and the knowledge domains related to them including linguistic knowledge, context knowledge, situational knowledge and other encyclopedic knowledge etc. Therefore, the meaning of ellipsis doesn't only come from its antecedent which only plays a pointing role and provides a mental path for us to acquire encyclopedic meaning of ellipsis in the understanding of ellipsis.

C.   Is the Recovery of Elided Site Equal to the Understanding of Ellipsis?

The recoverability of ellipsis is one of two study themes of ellipsis in generative linguistics, the recovery of elided site means the understanding of ellipsis. So far, generative linguistics hasn't provided powerful proof to verify the mental reality of recovering process or filling process of ellipsis in our mind. Does the understanding of ellipsis appear after the recovery of elided site? Can the recovery of ellipsis guarantee the understanding of ellipsis? It is a question. The recoverability of ellipsis doesn't mean the real recovery process of ellipsis in practice. The recoverability of ellipsis only tells us that an elliptical sentence has a correspondent full sentence in form, it can't explain the understanding process of ellipsis. The construal of a sentence is a cognitive process in mind not as simple as the recovery of syntactic elements.

The construal process of ellipsis is the process of acquiring the meaning of ellipsis. Language itself doesn't encode meaning and only acts as a prompt in the meaning construction (Evans, 2006, p.162). Cognitive linguistics assumes that meaning construction is not structural but conceptual (Evans, 2006, p.363). Langacker (1990, p.2) holds that meaning is equal to conceptualization, it is a dynamic process. He also points out that meaning is a function of both the content and the construal. Conceptualization is not only a process but a result that various cognitive abilities (or construal) act on semantic content. Semantic content is provided by cognitive domains, cognitive abilities are our organizing models of knowledge structure such as ICM, image schema, frame, cognitive reference-point, figure-ground model, mental space and so on. Based on the viewpoints of cognitive linguistics, the understanding or construal process of ellipsis is not a simple recovery process but a conceptualization process. We must study two aspects of conceptualization — cognitive domains and cognitive abilities (construal) if we want to know how ellipsis is construed by us. Therefore, the basic task of ellipsis research is to find a unified cognitive mechanism or cognitive model which can explain various ellipsis phenomena.

In short, the cognitive view of ellipsis is summarized as follows: (1) Grammar or syntax is symbolic in nature, a symbolic unit is "matching between phonology and semantics", however, ellipsis is "mismatching between phonology and semantics", therefore, the elided site is not a symbolic unit or a syntactic structure. (2) Since elided site is not a syntactic structure and is not limited to grammatical principles of generative linguistics, therefore, ellipsis can't be generated by grammatical rules. (3) Chomsky, the representative of generative linguistics, distinguished language knowledge and language performance and focused on the former and ignored the use of language. Cognitive linguistics objects to the dictionary view of generative linguistics and holds to the encyclopaedic view and assumes that language knowledge comes from language use, based on viewpoints of cognitive linguistics, the meaning of ellipsis does not only come from its antecedent but from both linguistic knowledge and encyclopedic knowledge. (4) One of guiding principles in cognitive semantics is that meaning construction is conceptualization, the process of obtaining the meaning of the elided site and the whole sentence is also a process of conceptualization. The understanding or construal process of ellipsis is not a simple recovery process but a dynamic process of conceptualization, a result that cognitive abilities act on semantic content.

IV. THE STUDY OF ELLIPSIS IN A COGNITIVE APPROACH

There are not much achievements of the cognitive study of ellipsis in domestic and foreign linguistic circle, which includes the following three aspects:

A. Types of Ellipsis and Prototype Theory

Quirk(1985) is the first linguist to divide ellipsis into various types according to family resemblance, first he established five criteria for ellipsis and then divided ellipsis into six types according to the degrees of strictness including strict ellipsis, standard ellipsis, quasi-ellipsis, situational ellipsis, structural ellipsis and semantic implication. The strict ellipsis accords with all five criteria, which is the best example, the central member and the prototype of ellipsis. Comparatively, semantic implication is the marginal or peripheric member, that is, strictly speaking, it doesn't belong to ellipsis any more, so Quirk named this type of ellipsis as "semantic implication". Let's compare the following two sentences:

(6) I'm happy if you are φ. (φ=happy, strict ellipsis)
(7) φ Frankly, he is very surprised. (φ=I speak/am speaking frankly, semantic implication)

B. The Exploration of Cognitive Models of Ellipsis

Wu Dilong and Zhao Yan (2010) explained semantic ellipsis with idealized cognitive model; Zhang Tianwei (2012) analyzed ellipsis from conceptual metonym; Yang Leida and Zhao Genglin (2013) put forward a cognitive network model for ellipsis; Tang Yinyi (2013) provided a cognitive mechanism for semantic ellipsis with conceptual blending theory; Xia Riguang (2010) analyzed discourse ellipsis with figure-ground theory etc.

C. The Empirical Research of Ellipsis

Some scholars began to study event-related brain potentials of ellipsis (Martin, 2012); Martin & McElree (2009) revealed the relevance of language understanding with memory representation by the eye movement method and speed-accuracy tradeoff procedure; Poirier & Shapiro (2010) tested the processing time of sluicing sentences with prime effect; Johnson (1994), Tesak et al.(1995) and Hardt (1997) studied ellipsis with a corpus-based approach etc.

In addition to the above achievements, Langacker (2012) studied ellipsis in coordination sentences from the cognitive perspective, Culicover & Jackendoff (2005) tried to analyze ellipsis from the interface between syntax, semantics and cognition. With the development of cognitive linguistics, cognitive psychology, neurolinguistics, psycholinguistics and other cognitive sciences, the cognitive study of ellipsis will gain new development and breakthrough.

V. CONCLUSION

If cognitive linguistics is the second "cognition revolutionary" toward generative linguistics, it can also say that the cognitive study of ellipsis is the "cognition revolutionary" toward the generative study of ellipsis. The paper poses challenges and raises questions toward the traditional syntactical ellipsis study, and comes up with its cognitive view of ellipsis. The main viewpoints of cognitive view of ellipsis include: there is no syntactical structure in elided site, the meaning of ellipsis is from both linguistic knowledge and encyclopedic knowledge, the construal and understanding of ellipsis is a dynamic process of conceptualization. Cognitive linguistics is a linguistics research paradigm which absorbs achievements comprehensively from cognitive sciences and has a strong vitality and explanatory power, the cognitive study of ellipsis will flourish with the development of cognitive sciences in the future.

REFERENCES

[1]   Chomsky, N. (1995). The minimalist program. Cambridge: The MIT Press.
[2]   Chung et al. (1995). Sluicing and logical form. *Natural Language Semantics (3),* 239-282.
[3]   Chung,S. (2013). Syntactic identity in sluicing: How much and why. *Linguistic Inquiry (44),*1-44.
[4]   Croft,W. & Cruse,A. (2004). Cognitive linguistics. Cambridge: Cambridge University Press.

[5]   Culicover, P., Jackendoff, R. (2005). Simpler syntax. Oxford: Oxford University Press.
[6]   Dalrymple et al. (1991). Ellipsis and higher-order unification. *Linguistics and Philosophy (14)*, 399-452.
[7]   Evans, V. & Green, M. (2006). Cognitive linguistics: An introduction. Edinburgh: Edinburgh University Press.
[8]   Fiengo, R.,May,R. (1994). Indices and identity. Cambridge: MIT Press.
[9]   Geiger, R. A., Rudzka-Ostyn, B. (eds.) (1993). Conceptualizations and mental processing in language. In *Cognitive Linguistics Research* (vol. 3). Berlin: Mouton de Gruyter.
[10] Hardt, D. (1993). Verb phrase ellipsis: Form, meaning, and processing. Ph.D. dissertation, University of Pennsylvania.
[11] Hardt,D. (1997). An empirical approach to VP ellipsis. *Computational Linguistics (23)*,525-541.
[12] Hartman, J. (2011). The semantic uniformity of traces: Evidence from ellipsis parallelism. *Linguistic Inquiry (42)*, 367-388.
[13] Johnson, F.C. (1994). A classification of ellipsis based on a corpus of information seeking dialogues. *Information Processing & Management (30)*, 315-325.
[14] Lakoff, G. (1991). Cognitive versus generative linguistics: How commitments influence results. *Language and Communication (11),*53-62
[15] Langacker, R.W. (1987/1991). Foundations of cognitive grammar. 2 vols. Stanford: Stanford University Press.
[16] Langacker, R.W. (1990).Subjectification. *Cognitive Linguistics (1)*, 5-38.
[17] Langacker, R.W. (2012). Elliptic coordination. *Cognitive Linguistics (23)*, 555-599
[18] Li Fuyin. (2008). Introduction to cognitive linguistics. Beijing: Beijing University Press.
[19] Lobeck,A. (1995). Ellipsis: functional heads, licensing, identification. New York: Oxford University Press.
[20] Lobke,A. (2010). The syntactic licensing of ellipsis. Amsterdam: John Benjamins Publishing Company.
[21] Martin, A.E., McElree, B. (2009). Memory operations that support language comprehension: Evidence from verb-phrase ellipsis. *Journal of Experimental Psychology: Learning, Memory, and Cognition (35)*, 1231-1239.
[22] Martin et al. (2012). Event-related brain potentials index cue-based retrieval interference during sentence comprehension. *Neuroimage (59)*, 1859-1869.
[23] Merchant, J. (2001). The syntax of silence: Sluicing, islands, and the theory of ellipsis. Oxford: Oxford University Press.
[24] Phillips,C., Parker,D. (2013). The psycholinguistics of ellipsis. *Lingua (151)*, 78-95.
[25] Poirier,J. et al. (2010). The real-Time processing of sluiced sentences. *J Psycholinguist Res (39)*, 411–427.
[26] Quirk et al. (1985). A comprehensive grammar of the English language. London: Longman.
[27] Ross, J.R. (1967). Constraints on variable sin syntax. Cambridge: The MIT Press.
[28] Sag, I.A. (1976). Deletion and logical form. Cambridge: The MIT Press.
[29] Tesak,J et al. (1995). Patterns of ellipsis in telegraphese: a study of six Languages. *Folia Linguistica (3),* 297-316.
[30] Tang Yinyi. (2013). The mechanism analysis of semantic ellipsis in modern Chinese. Ph.D. dissertation, Zhejiang University.
[31] Wu Dilong, Zhao Yan. (2010). The cognitive illustration of semantic ellipsis in the ICM theory. *Electronic Teaching of Foreign Languages (9)*, 70-73.
[32] Xia Riguang. (2010). The study of ellipsis in cognitive linguistics and translation teaching. Ph.D. dissertation, Southwest University.
[33] Yang Leida, Zhao Genglin. (2013). The cognitive network model of ellipsis. *Foreign Languages Research (5)*, 45-50.
[34] Zhang Tianwei, Lu Weizhong. (2012). The illustration of ellipsis from cognitive metonym perspective. *Journal of Tianjin Foreign Studies University (2)*, 25-30.

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