

Cognitive Theory of Markedness and Native Language Transfer

Liang Deng (Corresponding author)

School of Foreign Languages/Chongqing Jiaotong University

Nanping, Chongqing, China

E-mail: yangkunjordan@126.com

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Abstract

In the process of second language acquisition (SLA), such phenomena as some linguistic knowledge in the target language is much easier to acquire than others in SLA and some linguistic knowledge in native language is apt to be transferred are prevailing. To account for these phenomena, markedness theory is introduced and attempts to provide a plausible explanation. In particular, cognitive theory of markedness, or rather, prototypicality has proven to be effective and powerful in predicting the transferability of native language. This paper tries to offer a brief introduction of markedness theory and its recent development, prototypicality and conduct a review on related achievements gained in the studies of native language transfer in SLA. At the same time, shortcomings of current researches as well as prospect of future researches in this field will be pointed out.

Keywords: native language transfer, markedness theory, prototypicality

1. Introduction

Language transfer has long been an essential issue in the study of second language acquisition (SLA), while the role of native language in language transfer has always been the focus. Great efforts have been devoted to researches on native language transfer, and impressive achievements have been gained.

Since the initiation of the study on language transfer, it has witnessed huge shift from its emphasis on language itself to its focus on second language learners. Generally speaking, influenced by theories from other disciplines such as psychology, linguistics, and so on, studies on language transfer have mainly gone through three stages, that is, behaviorist point of view, mentalist perspective and cognitive view.

According to behaviorist point of view, learning is a process of habit formation and accumulation. In this sense, children acquired their mother tongue by copying what adults produce and those imitations were reinforced by rewards or punishments. Such a belief became favored by scholars engaged in the study of language transfer at that time. Learning a second language was regarded as the formation of a new habit which is apt to be hindered by the habit of the first language. Thus, native language was thought to be the main impediment in the acquisition of a second language. Under the influence of this idea, the concept of “difficulty” gained its prominence in SLA. At that time, it was held that the degree of difficulty is directly related to the extent to which native language differs from the target language. In other words, if they are similar to each other in terms of language patterns, learning a second will be easy through positive transfer, and if they are different, difficulties appear. And “the greater the diversity between two systems with numerous mutually exclusive forms and patterns in each, the greater is the leaning obstacle and the potential area of interference.” (Weinreich, 1953). Therefore, difference between native language and target language can be employed to predict difficulties and learners’ errors, which gives rise to Contrastive Analysis Hypothesis (CAH). Developed by Robert Lado (1957), CAH was designed to map out differences across languages by comparing their structures so as to establish areas of learning difficulty where negative transfer will arise. Though enjoyed great popularity in 1960s, it lost its position in 1970s after proven to be untenable both empirically and theoretically. Empirically, differences between native language and the target language do not necessarily result in negative transfer and not all errors made by learners are caused by mother tongue as predicted by CAH (Whitman & Jackson, 1972). Its theoretical basis also suffered severe challenge and criticism from mentalist view which contends that learning cannot be simply deemed as a simplified process of habit formation through imitation and reinforcement since behaviorism cannot provide a plausible explanation for the creativity of learners language as well as the fact that in the process of language acquisition errors produced by learners were seldom corrected.

While behaviorist point of view laid excessive emphasis on the role acted by mother tongue in SLA, the position of mother tongue from the perspective of mentalist perspective is over-diminished. In the respect of mentalists, they are committed to the paradigm of UG which, posited by Chomsky, was thought to be the highly abstract innate principles of language. Chomsky (1965) declares that children are endowed with a specific and unique kind of knowledge which enables them to learn a language and such knowledge is embodied in a mechanism called language acquisition device (LAD). Thus, children can acquire their mother tongue by establishing a connection between their innate knowledge of basic grammatical relations and the surface structure of utterances they encounter. According to Chomsky, native language and second language acquisition are potentially similar and this view is appreciated by Dulay and Burt (1974). They put forward creative construction hypothesis, which exposit that with the guidance of universal innate mechanisms, children formulate certain hypothesis about the target language system and gradually reconstruct rules for the input until the mismatch between what they produce and what they receive is settled down. Within the framework of UG, many scholars, such as Vainikka and Young-Scholten (1996), Eubank (1993/1994, 1996), Schwarthz and Sprouse (1994) and White (2003) etc.,

have done a lot of empirical and theoretical work and contributed tremendously to the development of native language transfer in SLA. Even so, mentalists' view does not remain unchallenged with the development of cognitive science. In the opinion of Shi (2005), UG is qualified with no cognitive psychological evidence, and it cannot provide a plausible explanation for the process of child language acquisition.

The role of native language has been considered from two extremes: over-emphasis and neglect. But with new methodologies and theories and in-depth researches, scholars become much more rational and objective with regard to the function of native language in SLA. It is no longer taken as the exclusive source of learners' errors and a comprehensive negation of its transfer also becomes untenable. Instead, from a cognitive point of view, native language transfer, as a complicated cognitive process, is said to be an important strategy employed by learners in language learning and learners themselves are emphasized in the process of language learning. Whether native language will exert influence on SLA is no longer a question bothering researchers. More attention is shifted to factors that constrain native language transfer, that is, when and how language learners make use of their native language and comprehensive studies from various dimensions including linguistics, sociology, and cognitive psychology have been done. Factors including language level, social factors, markedness, prototypicality, language distance and psychotypology, and developmental factors are drawn by Ellis (1999).

This paper is mainly concerned with one of the most important factors proposed by Ellis, that is, markedness, in particular, markedness from the cognitive perspective. More specifically, our research is confined in the following issues: (I) how cognitive markedness interferes with second or foreign language learning; (II) what advantages cognitive markedness theoretical approach to native language transfer has compared with traditional approaches.

2. The Development of Markedness Theory in Native Language Transfer

The concept of "markedness" can be traced back to 1930s. At that time, it was originally put forward by a Russian linguist belonging to the Prague school, Trubetzkoy, to examine, within an individual language, linguistic symmetrical features of phonological systems for which he distinguished marked and unmarked features and then Jakobson took the advantage of it to investigate morphosyntactic categories and semantics. In the late 1960s, markedness, regarded as a universal property of a conceptual category, was examined cross-linguistically. Then, it found its way in the study of SLA in late 1970s, particularly, in the investigation of language transfer. In the following section, attention will be directed at the development of markedness theory. In detail, three major perspectives on markedness will be provided, that is, markedness in UG, typological markedness, and cognitive theory of markedness.

2.1 Markedness in UG

Chomsky (1981), combining markedness with theories of language acquisition, made a further explanation of markedness in the framework of UG. In the province of UG, language rules encompass core rules and peripheral rules. Core rules characterize all language throughout the world and are shared properties constrained by UG, such as basic word order,

while peripheral rules are unique to a particular language without the constraint of UG and reflect the distinct historical and cultural influence on the language, for example, the construction “the more...the more...” which belongs exclusively to English. The concept of core and peripheral rules gives rise to Chomsky’s theory of markedness in SLA, based on which core rules are unmarked, in accordance with the general tendencies of language and peripheral rules are marked, exceptional in some way. However, as can be shown in Figure 1, unmarked rules and marked rules are not in absolute complementary distribution, or rather, there is a continuum between them. In other words, some rules are more marked than other. The degree of markedness within core rules is determined by the markedness of parameters in the same category.

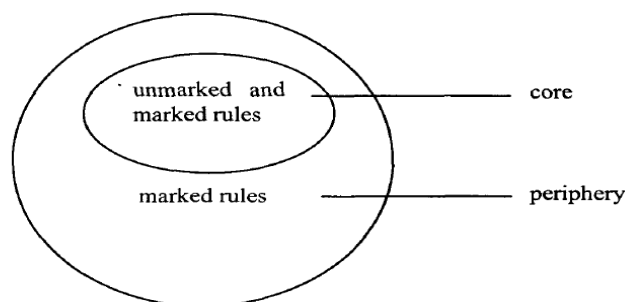


Figure 1. Markedness in Core and Peripheral Grammar (Ellis, 1994, p. 319)

2.2 Typological Markedness

The concept of markedness was later brought into studies in SLA, especially in language transfer by scholars including Eckman (1977), Zobl (1983), Hyltenstam (1984), Ellis (1994), etc. Among them, Eckman stood out and was the most influential.

By adopting ideas from language typology initiated by Greenberg, which extended the concept of markedness from being internal to one language to external to all natural languages and based on which features that are universal or present in most languages are thought to be unmarked, while those that are specific to a language or appear only in a few languages are marked, Eckman (1977) put forward what he called Markedness Differential Hypothesis, arguing that transferability is determined, to a great extent, by typological markedness. According to him, “A phenomenon A in some language is more marked than a phenomenon B, if the presence of A in a language implies the presence of B but the presence of B does not implies the presence of A” (Eckman, 1977, p. 320) As is stated by Markedness Differential Hypothesis:

Those areas of difficulty that a second language learner will have can be predicted on the basis of a comparison of the native language (NL) and the target language (TL) such that:

- a) *Those areas of the TL that are different from the NL and are relatively more marked than in the NL will be difficult.*
- b) *The degree of difficulty associated with those aspects of the TL that are different and more marked than in the NL corresponds to the relative*

degree of markedness associated with those aspects.

- c) *Those areas of the TL that are different from the NL but are not relatively more marked than the NL will not be difficult.*

(Eckman, 1977, p.321)

By reformulating Contrastive Analysis Hypothesis, Markedness Differential Hypothesis makes an attempt to explain when second language learners will come across difficulty and how difficult it is. It also elucidates where differences between the native language and target language will not give rise to difficulty and why certain structures are typically acquired before some others.

Though markedness from typological point of view greatly has enriched researches on language transfer and provided plausible explanations for many previously pendent issues in SLA, it is not so perfect as it seems to be, especially when it comes to the definition of markedness. Due to the differences in linguistic descriptions and linguistic theories, with which the degree of markedness of specific linguistic properties is bound up, markedness is defined vaguely, leaving it difficult to determine which language features are marked in respect of others. However, cognitive theory of markedness, or rather, prototypicality makes it possible to provide a clear and maneuverable definition for markedness or prototypicality by resorting to native speakers' intuitions of similarity.

2.3 Cognitive Theory of Markedness

According to Kellerman (1977), it is far from enough to focus on language itself alone because transfer reflects learners' judgments on ways in which forms and functions of native language can occur in the target language, so how learners relate native language to target language should also be examined. In order to gain a better understanding of how native language influence second language acquisition, he proposed that studies of native language transfer should be taken into the consideration of cognitive linguistics.

From cognitive perspective, Kellerman (1983, p117) holds that "If a feature is perceived as infrequent, irregular, semantically or structurally opaque, or in any other way exceptional, what we would in other words call psycholinguistically marked, then its transferability will be inversely proportional to its degree of markedness." In his later studies, he shifted the concept "psycholinguistic markedness" to "prototypicality" which is, in nature, the markedness theory from the perspective of learners' perception. The hypothesis posits that learners have perceptions of the structure of their own language, treating some structures as potentially non-transferable and others as potentially transferable, and that these perceptions influence what they actually transfer.

Kellerman (1977; 1978; 1979; 1986; 1989) has conducted a series of researches on the relationship between prototypicality in semantics and syntactic structures and their transferability to verify this hypothesis. One of the best known studies is the study of the Dutch verb "breken" (Kellerman, 1978, p.80). The study encompasses two stages. In the first stage, 50 native speakers of Dutch were asked to sort 17 sentences with the verb "breken" into groups so that sentences with similar meaning can be placed in the same group. Based on

the data, Kellerman concluded two main dimensions, which he called “core/non-core” and “concrete/abstract” respectively. In the second stage, 81 Dutch students of English were invited to tell which of the 17 given sentences with “breken” can be translated in English with the verb “break”. He found that the ranking order of transferability of the 17 sentences is significantly and positively related to the “core/non-core” order. After sufficient verification, Kellerman concluded that native speakers’ intuitions about semantic space can be used to predict transferability, and such intuitions will not be significantly changed by teaching, learning and growing older, and that non-core or non-prototypical meanings and structures in native language are seldom transferred.

Kellerman’s framework of prototypicality, actually markedness theory with reference to learners’ perceptions, can provide not only a concise and maneuverable definition for markedness, thus solving the problem confronting typological markedness, but also tenable evidence for the predictability of prototypicality in language transfer. But Kellerman’s studies have its own shortcomings. As he (1989) has acknowledged, his studies are mainly based on the elicitation of native speakers’ intuitions regarding the similarity and transferability of decontextualized sentences, instead of spontaneous speeches, which is not enough in testifying the hypothesis. Besides, his studies focus on English learners who are native speakers of Dutch. The problem arises because both Dutch and English typologically belong to the Indo-European language family which may exert an influence on the experiments.

3. Native Language Transfer from in Cognitive Theory of Markedness

The framework of prototypicality goes much further in the investigation of native language in SLA. After initiation, it has captured extensive attention of scholars throughout the world. This section will be devoted to relevant studies in native language transfer from the perspective of cognitive theory of markedness, or prototypicality from both home and abroad.

3.1 Relevant Studies Abroad

In order to validate the hypothesis posited by Kellerman in prototypicality, scholars abroad other than Kellerman have gathered evidences from other languages. For example, the study on cross-linguistic transferability between Japanese and English carried out by Tanaka and Abe (1985) produces a similar conclusion to that of Kellerman. By replicating Kellerman’s (1986) “eye and head”, Fuller (1991) added other body parts including mouth, hand, and foot in his study and experimented on Chinese learners of English. He confirmed Kellerman’s findings.

In addition to those imitative studies from different languages, many other scholars have also conducted numerous relevant researches from different angles to further verify and develop the framework of prototypicality.

Ijaz (1986) made a comparison between the meaning ascribed to selected English spatial prepositions by adult English speakers and that of advanced adult English as second language (ESL) learners through a semantic-related test and a cloze-type/sentence-completion test. It was proven that the meaning ascribed to central members of the semantic category by ESL learners approximated that of native speakers than the meaning assigned to non-central ones,

that is, learners are apt to make a connection of prepositions between native language and second language through their prototypical meaning. Ijaz also found that though both central (prototypical) and non-central or (non-prototypical) meaning can be transferred, errors caused by transfer often arise from non-central (non-prototypical) meaning.

Hulstijin and Marchena (1989) conducted an experiment among intermediate and advanced Dutch learners of English. In their experiment, they exploited three tests including multiple choice, memorization and translation, with each test consisting of 15 sentences, eliciting preference for either a phrasal verb or an equivalent one-word verb. The results show that Dutch learners of English avoid the occurrence of idiomatic phrasal verbs that they perceive to be unique or marked in Dutch.

Sakuragi and Fuller (2003) carried out a cross-cultural survey of the perception of translatability of metaphors containing body parts among Americans and Japanese. They found that prototypicality, in particular, the aspect of perceptive similarity between a certain meaning of a word and the core meaning of it, exerts significant influence on the transferability of body-part metaphors. In addition, they further distinguished similarity in appearance from similarity in function within similarity, thus expanding researches on prototypicality.

3.2 Relevant Studies at Home

Kellerman's studies have also captured the attention of many Chinese scholars and they, too, have contributed considerably to the development of the framework of prototypicality.

In China, some of those relevant researches have been done in the form of literature review, such as studies from Xu (2004), and Zhang and Yu (2012). Empirical studies have also raised the interests of researchers at home, and these empirical studies can be generally divided into two categories, that is, those focusing on lexicon-semantic level and syntax-semantic level.

Empirical studies from lexicon-semantic level include those from such scholars as Jing (1998), Zhou (2001), Yang Yang (2003), Yang Caiyu (2012), and Xiang (2013). Among the studies, those done by Yang Yang (2003), Yang Caiyu (2012), and Xiang (2013) have combined prototypicality with psychotypology as constraints on native language transfer, instead of being specially directed at prototypicality. They all confirmed the importance of prototypicality in the process of native language transfer. Jing and Zhou have actually imitated Kellerman's experiment. Based on Kellerman's "eye" experiment, Jing made an exploration on the Chinese polysemous word "yan (眼)" to test whether prototypicality could be employed to the transferability in the case of Chinese learners of English. His experiment is composed of three parts, transferability experiment, similarity experiment and frequency of use experiment. In transferability experiment, which is based on translation test, interviewees were asked to select from a pair the one phrase in which, they perceive, the word "yan (眼)" can, most probably, be translated into the English word "eye". In similarity experiment, interviewees were supposed to pick out from a pair the one phrase in which, they think, the meaning of the word "yan (眼)" is closest to the prototypical meaning, eye. The frequency of use experiment was designed to single out from the pair the one phrase

which is most frequently used in the eyes of interviewees. The result showed high concordance with Kellerman's experiment, and thus confirmed Kellerman's hypothesis. As for Zhou's study, he, by replicating Kellerman's "breken" experiment, specially designed an experiment for prototypicality in which the Dutch verb "breken" was shifted to the Chinese verb "da po (打破)" and native language Dutch to Chinese. The experiment further verified Kellerman's hypothesis that learners' perception of their own language can be used to predict the transferability.

Cai (2006), Yang (2007), Tian (2011) and Xuan (2012) and other scholars have devoted their researches on prototypicality from syntax-semantic level. Cai, taking into consideration English proficiency of Chinese learners in the research, investigated learners' perception of prototypicality and psychotypology of topic-prominent construction and proved that both of them exercise significant influence over transferability, but not as influential on actual transfer in students' compositions. A similar study on topic construction transfer was also done by Tian and a similar conclusion was given. Yang's study was carried out in terms of passive voice. In the experiment, the author first examined learners' perception of prototypicality and transferability of 15 Chinese passive sentences and then figured out the manifestation of language transfer in learners' production of passive voice in English. The results indicate that prototypicality is predictable in native language transfer of passive voice. Different from researches of Cai, Yang and Tian, Xuan took ditransitive construction in Chinese-English interlanguage as her research object. At the same time, learners' English proficiency was taken into account. Xuan examined the transferability of ditransitive construction and its relationship with prototypicality through questionnaires. Similarly, she demonstrated that prototypicality is predicative in terms of the transferability of ditransitive construction in Chinese-English interlanguage. Since Kellerman's studies were mainly confined in lexicon-semantic level, and paid little attention to learners' proficiency, Cai, Yang, Tian and Xuan's researches have actually complemented his researches. Moreover, they have extended studies on prototypicality to syntax-semantic level, thus enriching the research content.

4. Conclusions

The framework of prototypicality, based on cognitive theory, provides plausible elucidation for when language transfer will occur and what is most likely transferred in the process of SLA. It has solved the problems facing behaviorist and mentalist theories in language transfer and initiated a new era for researches on language transfer as well as second language teaching.

However, as can be seen from the above review, current researches have mainly focused on replicative and confirmatory experiments, but more innovative studies on prototypicality are needed to make it more systematic and perfect. Moreover, studies on prototypicality from the perspective of grammatical structure have not received enough attention as they deserved, since Kellerman's studies were mainly dedicated to lexicon-semantic level. Though Kellerman emphasized the dominant role of prototypicality on native language transfer, he neglected its influence on the target language, which remains to be investigated. In addition,

how prototypicality interacts with other constraints in the process of language transfer also deserves more concerns.

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