On Chinese Children's Acquisition of Motion Events

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Abstract: The motion events expressions in Chinese have been a controversial topic and few research on them from the developmental perspective. Therefore, based on the long-term tracking corpus of two Mandarin children SWK and WMX from their 13 months to 48 months, this paper studies the lexicalization of Chinese children's motion events in the process of language acquisition to reveal the unique features in Chinese motion event expressions. Research revealed that at age 3, Chinese children began to express motion events primarily using the serial verb structure, that is, a manner verb + path verb pattern and children's motion event expressions grew progressively more extensive with age. Chinese children follow the satellite-framed language pattern early on. The authentic language use in corpora and the features found based on them prove that Chinese is a satellite-framed language. The present study offers a new type of evidence for the typological properties of the language from the developmental perspective and could shed fresh insight on a thorny issue regarding the classification of Mandarin Chinese in motion events.
Keywords: Chinese motion events; lexicalization pattern; language acquisition

Introduction

Movement is one of the fundamental conceptual domains of human cognition, but different languages express the concept of movement with different morphosyntactic structures, exhibiting systematic typological differences. According to Talmy[1], the "path" was the core schema in the motion events, and the presentation of the "path verbs" in the language can determine the frame type of the language. So he has divided the world's languages into two basic types: Verb-framed languages, in which "path" is expressed by main verbs, such as French, Spanish, etc. and Satellite-framed languages, in which path is encoded by satellites, such as Spanish, English, and Chinese. However, due to the serial verbs in Chinese, the typology of Chinese has been controversial. Slobin[2] provided equipollently-framed language because the verbs in a serial verb construction are considered of equal grammatical status. For a long time, many scholars at home and abroad have expressed their views on this issue that how to classify the typology of Chinese in motion events.

Thus, exploring how different languages encode motion events may provide empirical evidence for understanding how events are categorized and expressed, thus revealing the complex relationship between language and thought. However, the patterns and development of motion events have not been thoroughly explored, especially Chinese motion events. So, there is an urgent need to explore how early Chinese children acquire and express motor events in natural contexts, so as to provide a cross-linguistic basis for theoretical development and practice of early language education, as well as to provide a basis for further clarification of Chinese language type attribution. In this paper, we will choose the natural corpus of two Chinese children (SWK and WMX) from the Multimodal Oral Corpus of Chinese Children set up by Institute of Cognitive Science and Language Aptitude in the School of Foreign Languages in my university and examine the developmental characteristics of motion event expressions of the child from early on. By taking the acquisition of path verbs as a clue, so as to provide a basis for further clarifying the attribution of Chinese language types. By using the natural data, this thesis intends to answer the following questions: (1) How Chinese children to learn motion events from early on? (2) What position of Chinese in the typology of motion events is, S-language, V-language and E-language?

Literature Review

According to Talmy, a motion event is defined as a situation involving the movement of an entity or the persistent state of an entity in a fixed position[1]. The former refers to a motion that results in an overall change in displacement, such as entering or leaving a room or going up or down stairs; the latter refers to a static scene or a motion without an overall change in displacement, such as bouncing in place. According to cognitive semantics, a basic motion event consists of four main components: *Figure, Ground, Motion and Path*. Path is the core schema in the whole motion events. These basic semantic components can be identified by the following examples:

    (1) The teacher   walked   into   the classroom.
             [figure]   [motion] [path] [ground]

Talmy[1] thought that there are typological differences in the expression of motion events in different languages, which can make the languages to be mainly divided into satellite-framed languages (S-language) and verb-framed languages (V-language). In V-languages such as Romance, Japanese, Bantu etc., Path is encoded by a core verb. However, in S-languages such as Germanic, Slavic, Warlpiri etc., the core information of path of movement is encoded in the subordinate satellite element associated with a verb such as a particle, while the co-event is encoded by a main verb. Slobin, however, thinks that Talmy's dichotomy can't cover all commonly used languages, so on the basis of previous studies, Slobin[2] put forward the equipolently-framed language (E-language), in which "Manner" and "Path" are expressed by grammatical elements with equivalent functions. Talmy classifies Chinese into a typical satellite-framed language, which arouses heated debates, because Chinese has a pervasive serial verb compound that permits at least two verb slots in a single clause, that is, one expressing the manner of motion, and the other expressing the path of motion. Since there is no clear marking to indicate which of the two verbs in such serial verb constructions is the main verb, the typological classification of Mandarin Chinese regarding motion expressions has been a focus of debate among linguists.

The first view is that the first verb (V_1) in the verb-complement structure of Chinese is the main verb, and the path encoded by the second verb (V_2), which is an satellite language, so Chinese belongs to the S-language. At present, there are many scholars who support this view, such as Talmy [1] [3], Yan Chen-song [4], Shen Jiaxuan[5], Shi Wenlei[6] and so on. However, there are still many cases in Chinese that do not meet the criteria of S-language, such as the use of V_2 alone as a core verb in the serial verbs construction (such as *chūlái*, "come out"). This phenomenon leads directly to a second view of Chinese language types.

The second view is that V_2 representing path information, is the core verb, and therefore Chinese belongs to the V-language. The main advocate of this view is Tai [11], who believes that Chinese is a verb-framed language with a satellite frame as its main component. The third view is that either V_1 or V_2 is the core verb in, so Chinese is both a S-language and V-language, and belongs to the category of E-language. The supporters of this typology of Chinese are Chen[7], Ji [8] and Kan [9] who proved this view by using the Chinese corpus elicited through the *Frog* story.

Talmy's serial studies have aroused a large number of related studies, but the controversy over the typological classification of Chinese always exists. Since most of the above conclusions are based on non-empirical inferences, the common lexicalization pattern of Chinese motion event has not been collected and analyzed. The existing studies are still empirically inadequate, just as scholars have questioned Slobin's trichotomy. In addition, most of the existing empirical studies have focused on the characteristics of voluntary motion events, and few studies have explored the typological attribution of Chinese by exploring the characteristics of caused motion events. Based on this, this paper adopts an corpus approach by using a Chinese child's long-term tracking data to collect oral narratives of caused motion events expressions in Chinese in order to explore the lexicalization of Chinese motor events. The purpose of the present study is to offer a new sight and proof for the typology of Chinese regarding motion events from the developmental perspective.

From the language development point of view, Choi and Bowerman[10] found that children produced more manner verbs when learning S-language than when learning V-language through the study of 17~20 month-old children's motion verbs in English and Korean. Hohenstein[11] explored the relationship between thinking and language by eliciting the response of Spanish and English children to epxress motion events. Choi[12] further found when children who speak Korean and English started talking about motion events from the very early time, they could be influenced by their native language types. Maya Hickmann and Henriëtte Hendriks[13] studied and compared the differences of descriptive object displacement between French children aged 3, 4 and 5 and British adults, discussed and emphasized the influence of specific determinants of language acquisition on typological attributes of French and English, and finally concluded that these factors are related to specific language characteristics, which were partially acquired in the early stage, but could not be fully mastered until later years.

Chinese scholar, Guo & Chen[7], by investigating the narrative style of Mandarin children, concluded that Chinese children showed obvious language type characteristics at the age of 3, that is, they supported the "language specificity hypothesis". Zeng Yonghong and Zhao Chen[14] explored the overall characteristics of Chinese college students in the description of motion events by analyzing how Chinese students described classic "Frog Story" in English and Chinese.

About children's language acquisition order of motion events, Jia Hongxia [15] collected and observed the spontaneous language of a Mandarin child from one year to two years and six months, and found that the acquisition of verb-framed language tended to be earlier than that of satellite-framed language. Before children are 2 years old, with manner verbs acquired, the expression of satellite-framed motion events will appear, and most of them indicate the caused motion events. At the same time, it also proves that the development order of children's language acquisition can reflect the diachronic shift of language to some extent.

In general, there is little research on the lexicalization mode of Chinese motion events and the previous research is mostly based on data elicited by experiment. Although there are some researches on motion events in mandarin, they are not comprehensive enough, especially on the acquisition of path verbs by Chinese children. This paper will take the path verbs with vector of arrival as the clue to further explore the typology of Chinese through children's acquisition of motion events in mandarin and further find out what factors affect children's acquisition of motion events in mandarin.

Methodology

The corpus approach is a main method used for the present study. The corpus is collected by members in the Institute of Cognitive Science and Language Aptitude in the School of Foreign Languages in my university. Every two members use cameras to record for one hour in children's homes every weekend over a 3-year period from 1to4 ages. Video recordings unfold children's daily life, including children's natural interactions with parents, without other interventions. And then all recording were transcribed in form of CHAT (Codes for Human Analysis of Transcripts) which was created by CHILDES. One child's data is chosen for this study and the child (SWK) was born with and lives in Lanshan district, Linyi City, Shandong Province, China, and has normal intelligence, listening and speaking ability, with no cognitive impairment and well-developed physical functions. Her parents are both college teachers, with a master's degree and above. They communicate with the child in Mandarin. Longitudinal method, statistics method and analysis of corpus method are adopted in this research.

First, utterances related to motion events were selected from SWK's data from her one-year old to four-year old SWK WMX's from one year and three months old to four years old. In motion events, path information is considered the core element and is encoded by path verbs.[16][17] Zhu[18]listed 24 path verbs in Chinese, in which there 10 single verbs and 14 compound verbs (details in Table 1). These path words were adopted as the anchor to select the utterances of motion events by AntConc_3.4.4.

	上 shàng (up)	下 xià (down)	进 jìn (into)	出 chū (out)	回 huí (back)	过 guò (across)	起 qǐ (get up)	开 kaī (away)
来 laí (come)	上 来 shànglai (come up)	下来 xiàlai (descend-come)	进 来 jìnlai (come in)	出 来 chūlai (exist-come)	回 来 huílai (come back)	过 来 guòlai (come across)	起 来 qǐlai (get up)	开 来 kaīlai (open up)
去 qù (go)	上去 shàng qu (go up)	下去 xiàqu (descend-down)	进 去 jìnqu (go into)	出 去 chūqu (exist-go)	回 去 huíqu (go back)	过 去 guòqu (go across)		

Table 1 Path verbs in Chinese

In the process of corpus coding, clauses are taken as the analysis unit, that is, each clause contains only one predicate, and each predicate only expresses one situation. For the purpose of examining the diversity and frequencies of different types of motion verbs, all motion verbs used in the motion event descriptions of the corpus were identified and coded. Three categories were identified according to their meaning of motion; examples are shown as follows:

(1) Types of motion verbs

A. path verbs

B. manner verbs: e.g., *pǎo* (run)

C. cause verbs: e.g., *tuī* (push)

D. neutral verbs: e.g., *zhàn* (stand)

In Mandarin, a serial motion construction generally allows a maximum of three verb types; any of the three verbal components can also form two-component constructions, or occur alone[19]. Examples of motion verb constructions in the corpus are given below:

(2) Types of motion verb constructions

A. path +deictic path

chū-lái (exit-come) *xià-lái* (descend-come)

B. manner + path

tiào-xià (jump-descend) *fēi-qǐ* (fly-rise)

tiào-xià-lái (jump-descend-come) *fēi-qǐ-lái (*fly-rise-come)

C. cause + path

tuī-shàng (push-up) *jǔ-qǐ-lái* (hold-rise-come)

lā-jìn-lái (pull-in-go) *rēng-chū-qù* (throw-out-go)

D. neutral + path

tái-huí (carry-back) *tǎng-xià-lái* (lie-descend-come)

In this study, type C is the focus

Results and Discussion

The development of motion events The development of motion verbs in Chinese can be examnined in two ways: the development of a motion verb lexicon along with the use of different types of motion verbs (manner/cause motion verbs vs. path verbs) and the development and use of different verb constructions.

Table 3 summarizes the development of manner and path verbs in SWK's corpus from the age of 1 year to 3 years. The results do not show any significant differences in the number of manner verbs used by children in their early years. However, there were more types of motion manner/cause verbs than path verbs at different ages. This also confirms that path verbs in Chinese belong to the "closed class" with a limited number, i.e., path verbs have fewer members.

	Age		
	1-2-year old	2-3-year old	3-4-year old
Manner/Cause verbs (types)	22	20	22
Path verbs（types）	10	15	16
Total（types）	32	35	38

Table 2 The development of manner and path verbs in SWK's corpus by age

In early stage of language development, most expressions of motor events occur in immediate action. The corpus shows that children begin to use a single-verb to encode actions at about 15 to 17 months of age. Mentioned motor events include commenting on their change in posture or position, e.g., sitting down, standing up, or climbing on a chair or knee; asking an adult to help them change position or go outside; asking to be carried or picked up; expressing putting on and taking off clothes, and manipulating a variety of objects, such as, putting things in a bag, taking them out, putting blocks or beads together, and taking them apart. For example:

(SWK describes the story Little Rabbit Plucking Radish) CHI: 拔 bá (pluck). (1;3;13)

(SWK asks mom to open the lid of the box) CHI:开 kāi (open) (1;04;11)

(WMX wants to go out to play) CHI:出去 chūqù (Go out). (1;5;10)

Although Path verbs are fewer in type than manner verbs, they play a central role in children's early expressions of motion events. They appear initially as single-words and later early word combinations. This is in line with Bloom's and others' studies[20][21][22] of verb acquisition by English-speaking children, which show the existence of language universality. Most of the motion events categorized as "spontaneous movement" are used by animate beings, usually the children themselves, for autonomous movement. For example, the child use "shàng (up) and xià (down)" to express a change in the child's position, sometimes when she is assisted by an adult.

When motion events are encoded, [motion] can be coded with [path] or [manner] or [cause] semantic elements so [path], [manner] and [cause] should be explored. Manner expressions contain a way verb followed by one or more path verbs, e.g., run, run to, run out) i.e., satellite frame expressions. Path expressions contain only path verb expressions, e.g., up, up and down, i.e., verb frame expressions. Neutral expressions contain non-motion neutral verbs followed by one or more path verb expressions causing motion events, e.g., put, put in, and put in. The tendency of language types can be seen in the type, number, and frequency of the three expression patterns.

		Type Frequencies	Token Frequencies
Motion events with a serial verb construction	Path+ Path	237	576
	Manner/Cause + Path	22	289
	Neutral Verbs+ Path	61	208
	Total	320	1073
Motion event descriptions with a verb alone	Manner verb alone	23	255
	Path verb alone	9	123
	Neural verb alone	10	39
	Total	42	417

Table3 Distribution of Verb patterns of Motion Events

Table 4 shows the use of different verb patterns in the description of motor events of SWK. Two observations can be drawn. First, 175 different types of linking verb constructions (i.e., two or three verbs in a clause in conjunction) were used to express motion events, and a large proportion of them (237 or 74% of 320) involved pattern of V-language. Second, serial verb constructions were frequently used to describe motion events. Specifically, the figures in the leftmost column show that 72% of the motion event expressions (1073 out of 1490 motor event descriptions) are in combination of two or three verbs in a single clause. Based on the specific expression patterns of the three expressions, we examined their development at different ages of children.

The results in Figure1 shows that the percentage of path expressions is higher than the percentage of manner expressions until child was two years old, an age when children tend to express motion events with a single path and fewer serial verbs structures. After age 2, the expressions of manner expressions gradually become more frequent than the path expressions, with more serial verbs structures. After age 3, percentage of manner expressions is significantly higher than that of path expressions, indicating that Chinese children form a specific preference for language that encodes ways to describe motion events, although they can use both manner and path expressions.
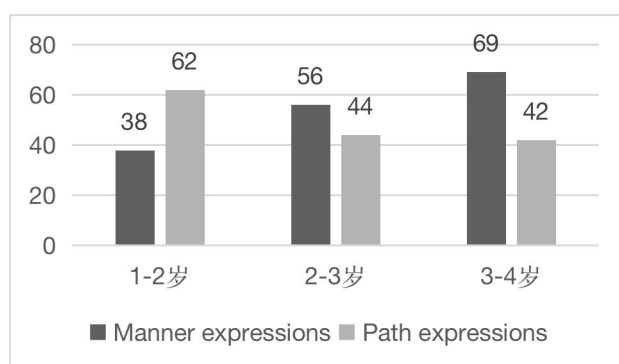
Figure 1. Frequency distribution of manner and path expressions

Discussion The results of studies on how Chinese children acquire motor events suggest that children develop specific patterns early on. First, by the age of 3, Chinese children have developed a characteristic pattern of sattelite-framed language. Specifically, the formation of a serial verb structure, where the manner verb occupies the first verb slot (such as *pǎo* in *pǎo-chū-lái*, run out) becomes the dominant patterns for expressing motion events. The satellite-framed structure is prominent in adult speech and is easily understood by children learning Chinese. Berman and Slobin[23] (1994, 624) argue that "if a language form is highly comprehensible, its functional development may be accelerated." After reviewing a number of empirical studies on the emergence of grammar, Tomasello[24] concluded that in the early stages, children use language mostly in the same way as they hear adults use it, and they developed an item-based inventory of discourse patterns. Frequent exposure to and practice of the same verb order (or serial verb structures) in a child's experience helps the child feel more comfortable and fluent with such structures. In other words, such verb order are defined by frequency. On the other hand, the variety of compound verbs that children experience creates "grooves" in the item-based construction. The frequency of the types of satellite-framed language that Chinese children are exposed to, and the universal learning mechanisms, both lead to the early emergence of satellite framed language patterns.

Conclusion

Through examining description of motion events in the everyday life of SWK (1;00;12-3;11;28) and WMX (1;3;20-4;0;5), Chinese children's acquisition of express motion events was investigated. At age 3, Chinese children began to express motion events primarily using the serial verb structure, that is, manner + path pattern, in which only one piece of information about the context of the movement (target, source, or path marker) in a single clause is mentioned. It was found that children's motion event expression grew progressively more extensive with age. Chinese children follow the S-language pattern early on. These results suggest that modern Chinese exhibits the characteristics of a satellite-framed language. So these authentic language use corpora and the features found based on them prove that Chinese is a satellite-framed language.

REFERENCES

[1].Talmy, L.(1985). Lexicalization patterns: Semantic structure in lexical forms. In: Shopen, T. (Ed.), Language Typology and Syntactic Description. Cambridge University Press, New York, NY, pp57–149.

[2]. Slobin, D.I. (2004). *The Many Ways to Search for a Frog: Linguistic Typology and the Expression of Motion Events*. In: Strömqvist, S., Verhoeven, L. (Eds.), Relating events in narrative, Vol. 2. Typological and contextual perspectives. Lawrence Erlbaum Associates Publishers, pp 219–257.

[3]. Talmy, L. (2000). Toward a Cognitive Semantics: Volume I. Concept Structuring Systems. MIT Press, Cambridge, MA.Cobanoglu, C., & Cobanoglu, N. (2003).

[4]. Chensong, Y.(1998).*Lexicalization Patterns of Motion Events--A Comparative Study on English-Chinese*. Journal of PLA University of Foreign Languages, (6), 8-12

[5]. Jiaxuan S.(2003) *A Typological Study "Verb Complement Structure"of Modern Chinese*. Chinese Teaching in the World,(3), 17-23.

[6]. Wenlei Sh. (2012) *An Overview of the Study of Chinese Motion Events Lexicalization Typology*. Contemporary Linguistics, (1), 49-65.

[7]. Chen, L. & Guo, J. (2009) *Motion events in Chinese Novels:Evidence for an Equipollently-framed language.* Journal of Pragmatics (9),1749-1766.

[8]. Ji,Y. (2009) *The Expression of Voluntary and Caused Motion Events in Chinese and in English Typological and Developmental Perspectives.* Doctoral dissertation, University of Cambridge.

[9]. Zhehua K. (2010) *Exploring the Typology of Lexicalization of Chinese Motion Events*. Contemporary Linguistics, (2), 126-135.

[10]. Choi, S., Bowerman, M. (1991). *Learning to express motion events in English and Korean: The influence of language-specific lexicalization patterns*. Cognition 41 (1-3), 83–121.

[11]. Hohenstein, J., Naigles, L., Eisenberg, A. 2004. Keeping verb acquisition in motion: A comparison of English and Spanish. In: Weaving a lexicon. MIT Press, pp 569–602

[12]. Choi, S. 2011. *Language-specificity of motion event expressions in young Korean children*. Lang., Interact. Acquis. 2 (1), 157–184.

[13] Hickmann, M., & Hendriks, H. (2006). *Static and Dynamic Location in French and English*. First Language, 26 (1),103-135.

[14]. Yonghong Z & Chen Zh. (2016). *An Empirical Study of the Lexicalization Pattern of Chinese Motion Events*. Journal of Shaoyang College, 15(4), 79-85.

[15]. Hongxia J. (2009). *A Case Study of Mandarin-speaking Children's Development of Spatial Category Expressions*. Doctoral dissertation, Chinese Academy of Social Sciences.

[16]. Ji, Y., Hendriks, H., Hickmann, M. (2011)a. *The expression of caused-motion events in Chinese and in English: Some typological issues*. Linguistics, 49 (5), 1041–1077.

[17]. Ji, Y., Hendriks, H., Hickmann, M. (2011)b. *How children express caused motion events in Chinese and English: Universal and language-specific influences*. Lingua 121 (12), 1796–1819.

[18]. Dexi, Zh. (1982). Chinese Grammar (in Chinese). The Commercial Press, Beijing.

[19]. Wen X, & Xinxin Sh. (2021). *The adventure of a third way: Motion events in Mandarin*. Language Sciences, (85), 1-24

[20]. Bloom, L. (l973). One word at a time: The Use of Single-Word Uterances Before Syntax. The Hague: Mouton.

[21]. Gopnik, A. (1980). *The development of non-nominal expressions in 12-2 month old children*. Unpublished doctoral dissertation. Oxford University.

[22]. Tomasello. M. (1987). *Learning to use prepositions: A case study*. Journal of Child Language, (14), 79-98.

[23]. Berman, R. A., & Slobin, D. (1994). Relating events in narrative: A crosslinguistic developmental study. Hillsdale, N. J.: L. Erlbaum Associates, 624.

[24]. Tomasello, M. (2000). *First steps toward a usage-based theory of language acquisition*. Cognitive Linguistics, 11(1&2), 61-82