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The Construction of Acquisition Pattern of Sentence-final Particles

A longitudinal study among Chinese-speaking children

Abstract: Based on a corpus of four Northern Chinese Mandarin-speaking subjects (children ranging from 1 to 4 years old), this study is intended to explore the subjects' acquisition pattern of sentence-final particles (SFPs) and the dominant factors in their acquisition by analyzing the data of their time of SFP acquisition, mean length of utterance (MLU), the output frequency of the children's SFPs, and the input frequency of the parents' use of SFPs. It is found there are nine SFPs frequently used by the subjects, and the acquisition order is: tone particles > functional modal particles > general modal particles (">" means earlier than). The dominant component affecting the overall internal language development of the subjects' SFP is the functional modal particle. There is a correlation found between parent input and subject acquisition of SFPs, but with low significance. The abstract classification structure and the dominant order of sentence-final particles use are part of the children's inherent and intrinsic linguistic knowledge and do not need to be learned. The role of adult discourse input frequency cannot exceed this principle of acquisition. It can only have a partial or individual corresponding influence on children's language acquisition.

Keywords: Chinese children; factor analysis; functional modal particles; language acquisition; SPF acquisition

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1 Introduction

Mood is a grammatical category to express complex emotions in a sentence with grammatical form (He 1992). There are various means of expressing mood including intonation, changes of sentence pattern, and use of different modal particles and other modal elements (such as modal adverbs, auxiliary verbs, and interjections). Modal particles can be regarded as a form of basic symbol of a Chinese modal category, and this grammatical form must be closed, which is a significant feature in Chinese grammar, different from other languages. In Chinese, people often use modal particles at the end of their sentences to express their attitudes and opinions toward certain behaviors or events. These uses of modal particles can also increase the emotional color of verbal communication. However, there is no lexical category as there is with modal particles in English, Russian, and other Indo-European languages, which therefore causes difficulties for foreign language students in their learning of Chinese modal particles – they often fail to use one when needed, while using one when there is no need. On the other hand, Chinese children have acquired their use of modal particles at an early stage with few errors. Therefore, it is valuable for studies to focus deeply on the reasons Chinese children are able to acquire their use of modal particles in comparatively short periods and be sensitive to the mood expressed in their mother language.

In studies of other languages, modality has been paid more attention, while mood has been treated as a grammatical category subordinate to verbs and expressed by various verbal changes. Meanwhile, language researchers have conducted studies on mood across Indo-European languages, but sparse cases of studies on mood have been found in Sino-Tibetan Languages. Research on children's use of modal particles was found mainly in Japanese (Miyahara 1974; Clancy 1985; Matsuoka 1998; Shirai et al. 2000; Fujimoto 2008; Murasugi 2013) and Korean (Clancy 1989; Choi 1991; Lee 2009), in which there is a similar category of modal particles as found in the Chinese language. These studies deliver some meaningful conclusions, such as: children began to acquire their use of modal particles with their own patterns when their MLU was 3.0, and the correlation with their mothers' input frequency of modal particles had low significance (Fujimoto 2008); from the perspective of discourse markers, the Japanese final auxiliary words “ne” and “na” are obtained earlier than the root infinitive; Korean-speaking children are prone to obtain “wh” interrogative words

based on the universality of their cognitive development (Clancy 1989); and the first functional category of Korean-speaking children is modal makers.

Chinese academic research on children's acquisition of modal particles concentrated primarily on Mandarin (Li 2005; Liu 2009; Qian 2003; Song 2013; Tao 2012; Peng 2016), Cantonese (Lee et al. 1995; Lee and Law 2001), and Taiwanese (Erbaugh 1992; Chang 1991). The above research focuses on the syntactic and semantic aspects of the sentence-final particles and has achieved certain results. Yet the common inadequacies of the above research are with the insufficient number of subjects being studied (only 2–3 children), some of the corpus not being collected according to CHILDES (Child Language Data Exchange System), the lack of underpinning theories to systematically analyze the data, the lack of overview of overall modal particle categories, and failing to put forward a general rule that can explain the results. Therefore, there are still some questions to be considered: (1) What is the acquisition order of SFPs? (2) Does adult language input affect the children's acquisition of SFPs? (3) Is it feasible to construct a model of children's SFP acquisition?

Based on the above research status of children's sentence-final particles, the longitudinal corpus of utterances from 4 children (2 boys and 2 girls selected on the basis of their gender differences and the tracking time match) was collected from a multimodal-spoken corpus of children¹. Under the condition that the children's language development is relatively complete, a systematic diachronic study on the acquisition of the sentence-final particles is made in order to supplement the existing research and explore the structure of the children's acquisition mode of sentence-final particles.

¹ The corpus was established according to CHILDES standards, and corpus entries were all recorded, transcribed, and extracted based on the standard. The corpus of the four case children in this research was collected and organized according to the standard to guarantee the reliability, validity, and sustainability of the research.

2 Methods

2.1 Research data

The longitudinal data from the four subjects in this study are from “The Longtime Tracing Oral Corpus of Typical Development Children” (Xie and Zhang 2017). The subjects were children born in Linyi City, Shandong Province, China, with normal intelligence levels, normal hearing and speaking abilities, and without any known cognitive disorders. They are also of healthy physical and cognitive development. Details of the four subjects are listed in Table 1.

Table 1: Information on the child subjects

Code	Gender	Age period	Information on parents/ caretakers	Records of data
GYC	female	1;01;06-4;01;02	Master/doctoral degree; Mandarin dominant	1 hour/ week (150 hours records)
SWK	female	1;01;12-3;12;28	Master/doctoral degree; Mandarin dominant	1 hour/ week (142 hours records)
WJH	male	1;08;20-4;06;23	Bachelor/ Master degree; Partial Mandarin, partial Chinese northern dialect	1 hour/ week (140 hours records)
WMX	male	1;03;20-4;01;05	Bachelor/ Master degree; Mandarin dominant	1 hour/ week (140 hours records)

2.2 Scope of the research

In this study, 16 monosyllabic SFPs were retrieved in the selected corpus, but frequency of occurrence for some subjects was comparatively low (fewer than 50 times, while some occurred only about 10 times), which may have caused the trend to be less obvious in the analysis of SFP acquisition. Therefore, modal particles that occurred more than 50 times were selected for the acquisition trend analysis.

As is shown in Figures 1 and 2², these modal particles are: a, ba, ne, de, le₁₊₂³, ma₁₊₂⁴, la, lou. In the two graphs, the vertical axis displays the days the SFPs were acquired, the horizontal axis shows the SFPs, and the four different lines represent trends of acquisition of these SFPs among the four subjects.

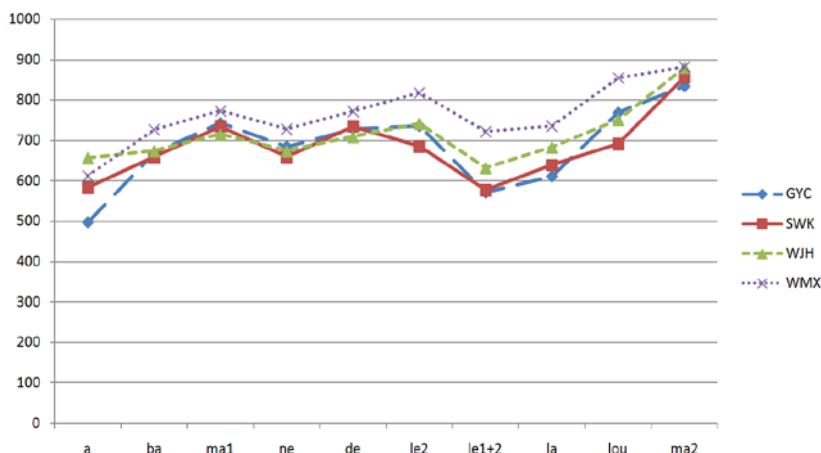


Figure 1: Trend of SFPs acquisition of the four subjects (unit: day)

2 To observe the children's acquisition of SFPs, the MLU (mean length of utterance) is applied in the study as a standard to divide the acquisition time of SFPs. MLU is a measure of linguistic productivity in children. It is traditionally calculated by collecting 100 utterances spoken by a child and dividing the number of morphemes by the number of utterances. In this study, $MLU < 2$ was categorized as the 1st stage; $MLU > 4$ was categorized as the last stage; the stages in between were categorized by 0.5.

3 "le₁" functions as an aspect particle when placed before an object or a complement in a sentence; "le₂" functions as a modal particle when placed at the end of a sentence after a nominal object or a quantity complement. When "le" is placed a verb or an adjective at the end of a sentence, it functions as both aspect particle and modal particle, therefore marked as "le₁₊₂", which makes it difficult to define whether it is a tone particle or a modal particle because the general use of $t[V/Adj+le]$ pattern in Chinese is also found to be acquired early. As a result, only "le₂" is discussed in this study.

4 "吗 ma₁" and "嘛 ma₂" are similar in pronunciation /ma/ and share the same function in syntax as being the marker of a sentence or a clause (SFP). When it comes to semantics and pragmatics, they share similarities in some of their usage, and also bear significant differences. Being like a "ground builder," the core feature of "ma₁" is to express an interrogative tone, while "ma₂" is used to convey an evidential tone closely related to emotion and mood, and it is much more like a "ground evoker."

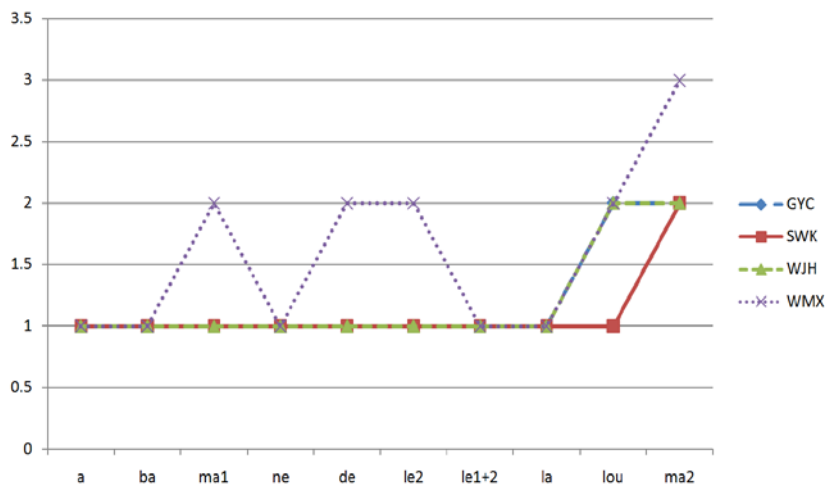


Figure 2: Trend of SFPs acquisition of the four children (unit: MLU)

As displayed in Figure 1, both the SFP development trend and time period for GYC, SWK, and WJH are very similar, and the development trend for WMX is also similar to the other three subjects, although his development time period is apparently different from the other three subjects. WMX’s modal particle development level is above that of the other subjects in the graph and rarely coincides with the other’s levels. In Figure 2, the stages of modal particle development are divided according to MLU, and the difference is shown clearly. Monosyllabic SFPs, such as “ma,” “de,” “le₂,” “ma,” and “la” of WMX are apparently higher than the others in this graph, and the monosyllabic SFP “lou” of SWK appears lower than the other subjects. What do these differences imply? To reveal the general development of Chinese children’s use of common monosyllabic SFPs, the acquisition time, acquisition order, stages of MLU, and the use frequency of these SFPs will be analyzed in detail in this study.

3 Results

3.1 Categories of modal particles

According to Liu's (2017) category, the nine SFPs “a,” “ba,” “ma₁,” “ne,” “de,” “le₂,” “ma₂,” “la,” and “lou” studied most in this research are categorized as follows:

- 1) Typical modal particles:
functional particles: “de,” “le₂,” “ma₁”
tone particles: “a,” “ba,” “ne”
- 2) General modal particles: “la,” “lou,” “ma₂” (consonant modal particle)

Typical modal particles in this study refers to the six relatively complicated modal particles which are of high frequency and wide distribution in daily use. *General modal particles* refers to relatively simple modal particles which are of low frequency and narrow distribution in daily use. Apart from typical modal particles, the other modal particles are general modal particles (Zhang 2000). This categorization has reached basic consensus among the academic field. There are two standards to distinguish between functional particles and tone particles, which are, restrictiveness and markedness. Restrictiveness and alternativeness are a pair of concepts; markedness and unmarkedness are a pair of concepts. Functional particles have a basic communicative function and relatively strong restrictiveness, and therefore have a sentence-completing function. Tone particles add the speaker's attitude to a sentence, and as they don't affect the basic communicative function of the sentence, they can be omitted. Markedness refers to the fact that functional particles can mark sentence types (e.g. declarative sentence, interrogative sentence, or etc.). That is to say that, if a particle is a functional particle, it can mark the sentence type and doesn't show at the end of all sentence types.

3.2 Acquisition of SFPs in Chinese children's daily use

To study the acquisition order of the nine SFPs “a,” “ba,” “ma₁,” “ne,” “de,” “le,” “ma₂,” “la,” and “lou” of the four case subjects, their age of acquisition and MLU

are listed in Tables 3 and 4. Combining line graphs with tables, the acquisition order of the four case subjects is as follows:

- GYC: a > le₁₊₂ > la > ba > ne > de > ma₁ = le₂ > lou > ma₂
- SWK: le₁₊₂ > a > la > ba=ne > le₂ > ma₁ > de > lou > ma₂
- WJH: le₁₊₂ > a > ba=ne > la > de > ma₁ > le₂ > lou > ma₂
- WMX: a > le₁₊₂ > ba > la > ne > ma₁ > le₂ > de > lou > ma₂

Table 2: Age of the four case Children’s acquisition of the nine SFPs

	a	ba	ma ₁	ne	de	le ₂	le ₁₊₂	ma ₂	la	lou
GYC	1;04;121;10;		1;12;	1;12;	1;12;	1;12;	1;06;	2;03;	1;08;	2;02;
		04	18	04	11	18	26	15	06	28
SWK	1;07;081;09;		1;12;	1;09;	1;12;	1;10;	1;07;	2;04;	1;09;	1;10;
		25	10	25	17	20	02	08	04	27
WJH	1;09;221;10;		1;11;	1;10;	1;11;	1;12;	1;08;	2;04;	1;10;	2;02;
		09	20	09	13	24	27	30	18	10
WMX	1;08;071;12;		2;01;	1;12;	2;03;	2;02;	1;11;	2;05;	1;12;	2;04;
		02	13	28	01	28	27	02	11	05

Table 3: Stages of MLU of the four case children’s acquisition of the nine SFPs

	a	ba	ma ₁	ne	de	le ₂	le ₁₊₂	ma ₂	la	lou
GYC	1	1	1	1	1	1	1	2	1	2
SWK	1	1	1	1	1	1	1	2	1	1
WJH	1	1	1	1	1	1	1	2	1	2
WMX	1	1	2	1	2	2	1	3	1	2

Combining Figures 1 and 2 with Tables 2 and 3, reveals patterns of the four case subject’s acquisition of modal particles. The six typical modal particles “a,” “ba,” “ma₁,” “ne,” “de,” “le” and the general modal particle “la” were found to have been acquired at the first stage of MLU, but comparing the acquisition peaks of “ma₁,” “de,” and “le₂” with “a,” “ba,” “ne,” and “la,” “ma₁,” “de,” and “le₂” were found to have been acquired relatively later than the other four particles. There was an exception: the case child WMX’s acquisition of “ma₁,” “de,” and “le₂” were found at the second stage of MLU, and this exception urged us to look into the acquisition order of the six typical modal SFPs. It was found that the acquisition of “ma₁,” “de,” and “le₂” were also slower than “a,” “ba,” and “ne” in the other three subjects’ acquisition. Therefore, the six modal particles acquired at the first stage

of MLU were divided into two levels: the subjective tone particles “a,” “ba,” and “ne” in the first acquisition group in the first MLU stage belong to the first level; and the functional particles “ma₁,” “de,” and “le₂” in the second acquisition group in the first MLU stage belong to the second level.

The remaining three general modal particles “la,” “lou,” and “ma₂” were also used frequently by the four case subjects, while “la” was found to have been acquired in the first MLU stage; “ma₂” and “lou” were found in the second MLU stage. Exceptions were also found where “lou” in SWK’s corpus appeared relatively earlier and was found in the first MLU stage, and “ma₂” in WMX’s corpus appeared in the third MLU stage. These two exceptions partially proved that, in terms of the acquisition of these two general particles in the other three children, “lou” was acquired earlier than “ma₂.”

The patterns of the subject’s modal particle acquisition can be approached by synthetically considering the acquisition time, MLU stages of acquisition, and acquisition order. The acquisition stages of the four case subjects did not closely coincide because of individual differences, although the acquisition time and order were to some extent similar. For example, the acquisition time and order of tone particles “a,” “ba,” and “ne” were found earlier than functional particles “ma₁,” “de,” and “le₂” in the three case subjects GYC, SWK and WJH, while the analysis of WMX’s corpus had found the acquisition MLU stage of “a,” “ba,” and “ne” were also earlier than “ma₁,” “de,” and “le₂.” The acquisition order of the general modals “la,” “lou,” and “ma₂” was found to be “la” > “lou” > “ma₂”: “la” was found to have been acquired in the first MLU stage of all four case subjects; “lou” was found to have been acquired in the second MLU stage of three children, but in the first stage of the other subject; “ma₂” was found to be acquired in the second MLU stage in three children but the third stage of the other subject. Though there were exceptions in the acquisition MLU stage of “lou” and “ma,” these can also partially prove that “lou” was acquired earlier than “ma₂.” Therefore, the general modal particle acquisition order of the four case subjects is as follows:

- (1) Typical modal particle: tone particles (a, ba, and ne) > functional particles (ma₁, de, and le₂);
- (2) General modal particle: la > lou > ma₂ ;
- (3) Pattern of modal particle acquisition: a, ba, ne, la > ma₁, de, le₂ > lou, ma₂

3.3 Reasons for daily SFP acquisition patterns of Chinese subjects

What is the mechanism behind the patterns of the subjects’ SFP acquisition? Or, what is the main factor for the reasons of acquisition? Does the internal law of child language development or parent language input determine the subject's modal particle acquisition?

The frequency and mean values of modal particle use by the case subjects and their parents are demonstrated in Table 4 and Figures 3 and 4, and typical modal particles were found to be uttered more frequently both in the subjects’ and parents’ corpus than were the general modal particles, which conforms to the categorization of modal particles in this study. Due to the complexity of the data, further research on the internal law of children's use of modal particles and parent influence on the subjects’ modal particles acquisition was discontinued. Thereby, SPSS was applied to analyze the Pearson (R) correlation between the use frequency of modal particles for the four case subjects and their parents (Table 4).

Table 4: Mean values of modal particle use for the four case subjects and their parents (unit: time/copy)

	a	ba	ma ₁	ne	de	le	la	lou	ma ₂
GYC	5.43	11.95	5.38	5.85	3.04	27.59	2.38	0.82	0.76
GYCJZ	63	63	27.92	15.99	23.28	37.95	5.39	0.6	1.43
SWK	3.56	9.14	8.05	7.37	2.6	20.83	6.26	0.55	0.79
SWKJZ	58.38	31.46	16.43	15.9	30.45	40.15	12.42	1.77	1.36
WJH	4.58	13.25	8.23	3.02	4.02	24.22	5.54	0.77	0.76
WJHJZ	77.14	66.51	31.58	7.76	26.1	25.74	13.14	1.18	5.73
WMX	3.08	11.42	14.48	11.02	3.17	31.39	2.02	0.98	0.84
WMXJZ	41.06	35.79	28.94	10.9	18.25	20.31	6.14	1.31	2.86

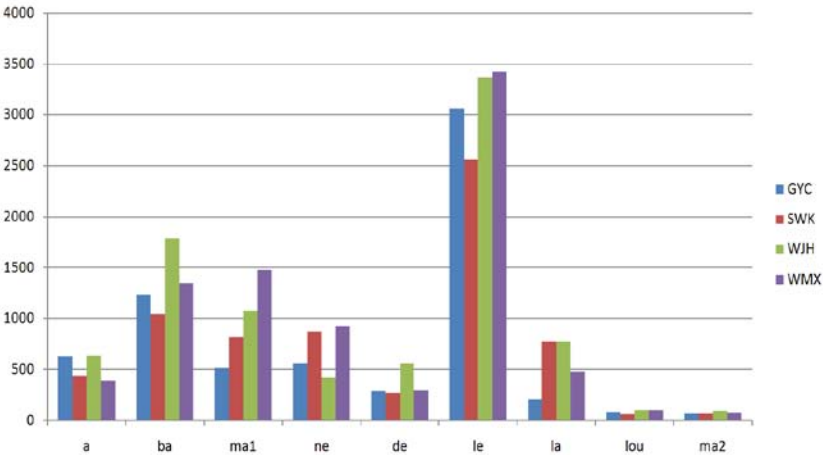


Figure 3: Frequency of the children’s use of the nine modal particles (unit: time)

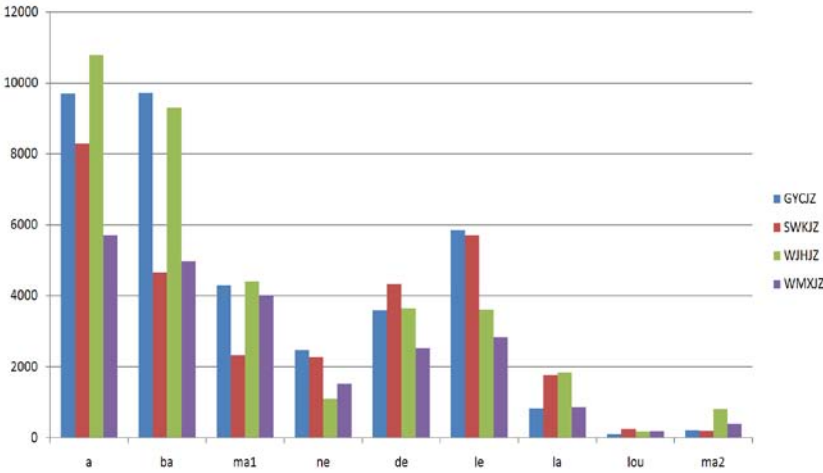


Figure 4: Frequency of use of the nine modal particles by the parents (unit: time)

Table 5: Pearson (R) correlations between the use frequency of the modal particles for the four case subjects and their parents (N=8)

Index	Mean	SD	Independent t-test	Pearson correlation sig. of the children (2- tailed) (p)	Pearson Correlation (R)	Pearson correlation sig. between children and parents (2- tailed) (p)
GYC	7.02	8.43	2.5	.037		
GYCJZ	26.51	24.14			.488	.182
SWK	6.57	6.20	3.18	.013		
SWKJZ	23.15	18.70			.400	.286
WJH	7.15	7.48	2.87	.021		
WJHJZ	28.32	26.84			.312	.414
WMX	8.41	9.78	2.58	.033		
WMXJZ	18.40	14.45			.279	.467

Note: $p>0.05$ means correlation is not significant; $0.01<p<0.05$ means correlation is significant; $p<0.01$ means correlation is extremely significant. R is correlation coefficient, and when it is between [-1,1], the higher it is, the closer the correlation is.

Table 5 shows that the correlation sig. of the children’s modal particle use frequency is $p<0.05$, which may imply that the frequency of use is determined by internal factors of language development.⁵ The range of correlation significance between the parents’ and the subjects’ frequency of modal particle use is $0<0.279-0.488<0.5$, which shows there should be a certain correlations between the parents’ input of modal particles, but $p>0.05$ indicates the correlation is not very significant. This result might provide evidence that input of parents’ modal particle should not be the main factor in deciding the subjects’ use of modal particles.

If it is true that the subjects’ use frequency of modal words is decided by internal factors, then what internal factor might play the dominant role? To try to find out the answer, the frequency⁶ of each case subject’s modal particle

⁵ The correlation between children was not analyzed, as there is no need. Only the correlation between the parents and children is analyzed.

⁶ Month is taken as the unit of time instead of day because some children started to use modal particles after 2;01. Based on weighting process, one time of utterance was taken as default, therefore will not affect the result of analysis.

occurrences among their 2;01-3;12 (24 months) was analyzed through factor analysis. The frequency situation is displayed in Table 6.

Table 6: Frequency of the case subjects' use of modal particles (N=24)

	Mean	SD
a	17.31	5.61
ba	54.07	14.75
ma ₁	30.59	12.05
ne	32.32	13.89
de	13.14	4.79
le ₂	25.89	10.35
ma ₂	2.93	1.56
la	21.17	9.44
lou	3.41	2.36

Then a feasibility analysis of the data was performed: KMO (Kaiser-Meyer-Olkin) test⁷ results are greater than 0.7 and $p < 0.01$ in the sig. of the Bartlett Test, which means factor analysis is preferable and applicable. The sum of initial consistency is 1 when factors are extracted by the Principal Component method, and the consistency of all variables is more than 0.6 (> 0.5). Therefore, the extracted factors can reflect the information of the original variables. Furthermore, the total variance of the children's SFP was extracted. There are three total initial eigenvalues greater than 1, and the corresponding cumulative percentage is 74.192%. Therefore, three components are extracted, and their cumulative percentage is 74.192%. This might be explained as 74.192% of factors in the male subjects' modal particles development were decided by three components. So, to find out the dominant order of the three factors the component matrix analysis is needed (table 7)

⁷ The objective of the KMO test is to determine whether the data are applicable to factor analysis. When the results are close to 1, factor analysis can be performed. If the results are close to 0, factor analysis cannot be performed.

Table 7: Total component matrix of the four case subjects’ modal particles.

	Component		
	1	2	3
a	.786	-.397	.104
ba	.684	.428	.354
ma ₁	.857	.645	-.149
ne	.351	-.116	-.281
de	.669	-.049	.583
le ₂	.877	-.108	-.028
ma ₂	.451	.269	-.696
la	.034	.798	-.050
lou	-.246	.667	.331

Table 7 shows that, among the four case subjects’ use of modal particles, the most outstanding particles in the total component are “ma” and “le₂,” which are greater than 0.8; the second outstanding particle is “la”> 0.7; and the third outstanding particle is “de”>0.5. Therefore, it can be concluded that, in the development of internal overall language of the four case subjects, the dominant components are functional modal particles “ma,” “le₂,” and “de,” and a general modal particle “la.”

4 Discussion

4.1 Linguistic features

The Chinese children’s basic modal particle acquisition order is tone particle > functional modal particle > general modal particle, and functional modal particles are dominant components of the internal language development of children’s modal particles. However, there’s one exception: the general modal particle “la” is acquired as a tone particle and is also one of the dominant components. The reason might be that “la” is a combined sound of the functional particle “le” and the tone particle “a.” In addition, “le₁₊₂” and “a” are also acquired in the early stage of children’s acquisition of modal particles, which may also lead to the early acquisition of “la.” Considering “le” is a dominant functional modal particle component, and “le” and “a” are the first two acquired functional modal and tone

particles, this might be the main reason that “la” becomes one of the dominant components. But, why is the acquisition rule of children’s modal particles like this? It can be explained from the perspectives of the meaning and syntactic features of modal particles.

First, to explain the acquisition order (tone particle > functional modal particle > general modal particle), tone particles including “a,” “ne,” and “ba” are mainly used to express speakers’ feelings, which might be subjective and arbitrary, and the semantic meaning of tone particles is void and vacant. Therefore, at the early stage of children’s language development, it is easy for them to add a modal particle to the end of a sentence to show their feels or emotions, which might explain why tone particles are acquired earlier than functional and general particles. Functional particles are acquired earlier than general particles, but later than tone particles. The reason for this might be that the functional modal particles “de,” “le₂,” and “ma₁” have a certain sentence-completing function and reflect speakers’ communicative purpose.

In formal syntax, these functional modal particles are operators. The particles “de” and “le₂” can be used as IP operators constraining and governing their variables in scope; “ma₁” can be used as a CP operator, and the variables constrained and governed by it are propositions, which can be turned into non-interrogative sentences (Hu and Shi 2005). Compared to tone particles, “de,” “le₂,” and “ma₁” can more likely mark the sentence structure, being used mainly to mark the syntactic classification of declarative sentences and interrogative sentences.

The semantic meaning of functional modal particles is more solid and more objective than that of tone particles. However, it is also because a functional modal particle has a syntactic function and can mark syntactic classification. It also has a solid semantic meaning that the development of the children’s SFPs in their internal language exceeds the void meaning of tone particles and the narrow range of use of general modal particles, and it becomes the dominant component. As the general modal particle, it cannot become an internal dominant component of children’s modal particles because the *use frequency* is relatively low, and the *range of use* is narrow. And thus, it does not affect the syntactic function.

4.2 Language input

The results from the SPSS analysis revealed a non-significant correlation between the adults' input and the children's use of modal particles, which may indicate the acquisition and development of children's modal particles are decided by their overall internal language development while some details of development are related to adults' input. However, the frequency of adult discourse input affects the order in which children's SFPs are obtained. "a" and "ba" are the two-tone particles with the highest frequency of adult input. Children get the first two words, then acquire "ne" and "la". Although the input frequencies of "ma₁," "de," and "le" are higher than "ne" and "la," children do not acquire "ma₁," "de," and "le" before "ne" and "la." The reason is that this is subject to the internal principle of SFPs, that is, the tone particle is obtained earlier than the functional particle.

Looking at the order in which the functional particles are obtained, in general, the input of "ma₁" is more than "de" although it is not very significant, which leads to the acquisition of "ma₁" earlier than "de." Because the situation of "le" is more complicated, we only examined the acquisition time of "le₂," and there is no further division when using the frequency of statistical particles. It will not be discussed here. There are also individual developmental details of children that are related to adult input. Taking the acquisition of tone particles, for example, some subjects acquired "ne" initially while others acquired "ba" initially, and general modal particles might be one of the factors affecting children's language development. However, these would not break the rules of the language development itself. For example, functional modal particles could not be acquired before tone particles were acquired, and general modal particles could not replace functional modal particles to become the dominant component.

4.3 The acquisition pattern of children's SFPs

This article clarifies the role of different factors in the acquisition of children's sentence-final particles. The acquisition pattern of children's SFPs can be concluded as tone particles > functional modal particles (the dominant component) > general modal particles. The dominant component affecting the overall internal language development of children's sentence-final particles is the functional modal particle. The abstract classification structure and the dominant

order of sentence-final particles use are part of children's inherent and intrinsic linguistic knowledge, and do not need to be learned. That is to say, the operating mechanism behind the sentence-final particles in Chinese-speaking children is not affected by the surrounding speech input. This is also consistent with the conclusions concerning Japanese children's language acquisition (Fujimoto 2008). The role of adult discourse input frequency cannot exceed this principle of acquisition. It can only have a partial or individual corresponding influence on children's language acquisition. It can also be said that the frequency of adult discourse input is a non-dominant factor for children's language acquisition and is a secondary factor.

5 Conclusion

This study was designed mainly to investigate the SFP acquisition time and frequency of use of typical development children to identify the acquisition pattern of SFPs in children. This pattern model can be applied to instruction and intervention for children with language disorders. In this study, age and MLU were combined to divide the SFP acquisition stages because age cannot be used as the only factor to divide the language acquisition stages of developmental disordered children. Thus, the results from this study might be applied to compare the acquisition stages of children with language disorders. The language development of children with language disorders is not much different from that of typical development children. The trend and order of their language acquisition might be similar, but the language development of disordered children would be comparatively slow, and their language level might be lower when compared to typical development children. Therefore, parents and special education workers could measure the MLU of language disordered children and compare it with the SFP acquisition stages of typical development children to guide the language intervention for language disordered children (especially children with autism spectrum disorders) according to the SFP acquisition order found in this study.

Functional modal particles were found as a dominant component affecting Chinese children's SFP development, and the use frequency of functional modal particles should be increased in language intervention deserving special attention. The reason SFP acquisition should be enhanced in language intervention in children with ASD is because their language deficiencies are present in both language

structure (speech sound, meaning, and syntactic structure) and pragmatic function (discourse, context, and text), which largely leads to their social disorder. SFP, an inevitable lexical category in Chinese daily communication, usually expresses speakers' subjective feelings and the semantic meaning tends to be absent. If children with ASD fail to understand the subjectivity of SFPs, they may misunderstand the speaker's meaning, therefore leading to failure in social communication. This would greatly discourage their social activities and lead to further failure in developing their social skills.

The study is based on "the Chinese Children's Multi-modal Oral Corpus" with the long-term tracking of four children's linguistic data for the past three years, in order to gain an overall view of sentence-final particle acquisition in Chinese-speaking children. Monosyllable sentence-final particles used by children of 1–4 years old were exhaustively extracted. Taking the common SFPs as the research focus, the language acquisition principle of the SFPs was fully constructed, including the acquisition order, dominant factor, secondary factor, and acquisition pattern.

Future studies will include a more detailed categorization of the SFPs used commonly by Chinese children. In addition, our research will include conducting a detailed analysis of the SFP acquisition time in different types of sentences and the degree of subjectivity of SFPs from a pragmatic perspective to construct a network of pragmatic functions.

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