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Development of serial verb constructions in Cantonese-speaking preschool children

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Abstract

Serial verb construction (SVCs), which consist of two or more verbs forming a single predicate, is one of the most important and productive construction in Cantonese (Matthews, 2000). However, little is known about its development in Cantonese-speaking children. This study investigated the use of SVCs in utterances produced during play by 70 Cantonese-speaking preschool children, ranging in age from 27-68 months. The percentage of SVCs was moderately correlated with age (r = 0.44) as well as MLU5 (r = 0.52) while the number of semantic notions expressed by the SVCs was weakly correlated with age (r = 0.35). Results showed that preschool children generally used more SVCs with diversifying semantic notions as age increased and the use of three syntactic forms of SVCs changed significantly with age. Future studies can investigate the emergence of SVCs in children younger than 27 months and compare the use of SVCs in other elicitation tasks.

Introduction

Serial verb constructions (SVCs) consist of two or more verbs forming a single predicate and these verbs must be able to function independently in their own right (Matthews, 2000). A Cantonese example is *ngo5 bong1 lei5 daa2 din6waa2* ("I help you hit telephone"= I help you to call). SVCs is one of the most important and productive patterns in Cantonese (Matthews, 2000). For instance, many of the relationships which can well be expressed by prepositions in English or European languages are mainly expressed in the form of SVCs in Cantonese, e.g. *ngo5 tung4 keoi5 sik6 faan6* ("I with him eat rice" = I have dinner with him). Besides, SVCs are given sub-labels to describe their semantic functions (Osamuyimen, 1998), e.g. a benefactive SVC describes the act of conferring aid of some sort. An example in Cantonese is *ngo5 bong1 koei5 sai2 saam1* ("I help him wash clothing" = I wash the clothes for him). In the past decade, quite a number of studies have investigated SVCs in different languages in order to work out a systematic definition or a set of restrictive criteria to classify serial verbs (Osamuyimen, 1998). Also, there has been a growing interest in recent studies to discuss the properties, types and functions of SVCs in Cantonese (Matthews, 2000; Osamuyimen, 1998; Law, 1996). However, there are very few studies investigated the course of development of SVCs in Cantonese-speaking children.

Previous studies reported that the percentage of SVCs increases as age increases in the preschool or early school years. In Tse, Kwong, Chan and Hui's (2002) study, 180 preschoolers aged 3 to 6 years were paired up in groups with one boy and one girl in a group. They were engaged in play at the free play corner using the five toy sets provided. Based on the spontaneous language

samples obtained in these child-child interactions, Tse et al. (2002) reported that children in the 3-, 4- and 5 –year-old groups used co-verbs or verbs in serial expression at 11.3%, 16.4% and 15.77% respectively. This showed a general increase with age. Difference was found to be significant between 3- to 4-year old groups (Tse et al., 2002). By dividing children aged from 27 to 68 months into seven groups, the present study further investigated the use of SVCs in a narrower age range. Besides, in the study of Wong, Au and Stokes (2004), children's use of SVCs in six instances in a story-retelling task was examined. There were one hundred children between 5 and 9 years of age participated in the study. Wong et al. (2004) concluded that among the six grammatical structures examined, SVCs turned out to be the most frequently used structures in children of the youngest, 5-year-old, group. Children over 6 years of age used these constructions more than 90% of the time. Nevertheless, there are differences in the percentage of SVCs presented in Wong et al.'s (2004) and Tse et al.'s (2002) studies since they employed different methodologies. To sum up, it was hypothesized that SVCs emerge at early preschool years and the number of SVCs increase within the preschool age range.

Kwong (1990) examined the development of syntactic complexity in Cantonese-speaking children and Zhu (1986) investigated the same topic in Mandarin-speaking children. They both reported that children's sentences refine as they develop, sharing increase in the use of modifications such as modifiers as well as in serial expressions. Concurrently, these elaborations of phrases with age naturally lead to an increase in the length of preschool children's utterances (Wong et al., 2004). For instance, the more often children use SVCs, the longer their sentences are since two or more

verbs are used to serialize the sentences. This means growth in SVCs will directly lead to an increase in MLU. Also, based on the conversational samples of 70 children reported in Fletcher, Leung, Stokes and Weizman's (2002) study, Klee, Stokes, Wong, Fletcher and Gavin (2004) examined the relation between age and mean length of utterances. It reported that MLU showed a linear relationship with age and the correlation between them was significant (r= 0.44). In this sense, SVCs' growth will be indirectly related to the increase in MLU with the age effects. However, there are very few in-depth studies looking at the syntactic development in Cantonese-speaking children and MLU's role as a general measure of syntactic development in Cantonese-speaking children is still in doubt (Tse et al., 2002). The relation between age and MLU of Cantonese-speaking children was only moderately strong when compared with those reported for English-speaking children (r=.70, .75, and .88; Blake, Quartaro, & Onorati., 1993; Klee et al., 1989; and Miller & Chapman, 1981, respectively). In a comparison of regression lines, the predicted MLU values for Cantonese-speaking children begin to decelerate from 36 months while it continues to accelerate for English-speaking children (Klee et al., 2004). Syntactic complexity, which consists of SVCs as one of its contributor, is a major indicator of syntactic development (Tse, Kwong, Chan, Hui et al., 2002). Therefore, studying the relation between MLU and SVCs will provide more insights of the factors contributing to syntactic development as age increases.

Apart from quantitative changes, qualitative changes in terms of the syntactic form and semantic notions of SVCs are also worth investigating. Since SVCs is a kind of verb phrase expansion (Wong et al., 2004), its development is highly associated with that of verbs. Lexical

diversity grows as age increases from 27 to 55 months (Klee et al., 2004). As reported in Fletcher et al.'s (2002) study, preschoolers acquired more number of verbs and different verb types as they grow. These increases will also be evidenced in specific structures like SVCs. Initially, SVCs may involve a small set of verbs and are limited to certain forms. As age increases, the number and forms of SVCs will be affected by the development of new verbs.

Defining properties of SVCs

In this study, SVCs are operationally defined according to Matthews (2000). SVCs appearing in a single clause should be first distinguished from coordination. Coordination is usually indicated by a prosodic boundary (1), an overt coordinator such as conjunctives (2) or a verbal particle (3) according to Matthews (2000) (PRT = particle; CONJ = conjunction):

(1) A: *lei5 soeng2 zou6 mat1je5?*

you want do what

"What do you want to do?"

B: *waan2 bo1, tai2 syu1…*

play ball read books

"Playing ball, reading book…"

(2) *ngo5 sai2saam1 tung4maai4 zyu2 faan6.*

I wash clothes and (CONJ) cook rice

"I wash clothes and cook a meal."

(3) *king1gai2 laa1, da2bo1 laa1, sik6 je2 laa1…*

chat PRT hit ball PRT eat stuff PRT

"chatting, playing ball, eating…"

As mentioned earlier, verbs that appear in SVCs should be able to function independently. This means auxiliary verbs were excluded since they must co-occur with a main verb to form a complete sentence (Matthews & Yip, 1994). For example, *keoi5 ho2ji3 waan2* ("he can play" = He can play) is not regarded as a SVC. However, there are auxiliary verbs which can be used as main verbs in some circumstances (Luke & Matthews, 1998) (Appendix A). An example is *ngo5 jiu5 bui1 caa4 jam2* ("I want cup tea drink" = I want to drink a cup of tea). In the above circumstance, *jiu5* is regarded as a main verb to mean "want to". When *jiu5* is used as an auxiliary verb, it usually denotes an obligatory meaning, e.g. *ngo5 jiu5 jam2 caa4* ("I need drink tea" = I have to drink tea). Furthermore, constructions with coverbs having verbal and prepositional interpretations are counted as SVCs (Matthews, 2000). In these constructions, V1 is the restricted verb and V2 is the main verb, e.g. *ngo2 tung4 (V1) lei5 waan2 (V2) wun6geoi6* ("I with you play toy" = I play toys with you). Some of the restricted V1s are not necessarily lexical verbs (Matthews, 2000), e.g. tung4 (with) and wai4 (for the sake of).

Verbs which have become grammaticalized through use in serial constructions will not be regarded as SVCs. The following are some verbs which have been grammaticalized to encode different functions (Matthews, 2000) (ASP = aspect marker; CL = classifier; PASS = passive marker):

(1) V1: bei2 "give" encodes permissive (i) and passive functions (ii)

(i) *lei5 bei2 ngo5 tai2.*

you give I look

"Let me have a look."

(ii) go3 daan2gou1 bei2 jan4 sik6 zo2.

CL cake PASS person eat ASP

"The cake has been eaten by somebody."

(2) V1: waa6 "say" as complementizer

keoi5 gong2 waa6 m4 dak1haan4

he talk say not available

"He told that he wasn't free."

(3) V1: hai2dou6 "be here" encodes progressive aspect

ngo5 hai2dou6 ceong3ko1.

I be here sing-song

"I am (here) singing songs."

(4) gwo3 "pass" serves comparative functions

keoi5 paau2 faai3 gwo3 lei5

he run fast pass you

"He runs faster than you."

After distinguishing SVCs from other constructions based on the above guidelines, the present study will be aimed to answer the following research questions:

1. Does the percentage of SVCs change as age increases?
2. Do the syntactic structures change of SVCs change as age increases?
3. Do the semantic notions of SVCs get more diverse as age increases?
4. Does the mean length utterance (MLU) increase when children use more SVCs?

Method

Data Collection

The cross-sectional data reported in Fletcher et al.'s (2002) study was used in this study. The subjects consisted of 70 Cantonese-speaking children who were between 2;06 and 5;06 years covering the whole preschool range. The children were divided into 7 groups at 6 months interval and each group (i.e. 10 children in a group) was composed of five girls and five boys. The children had passed school entry tests of hearing and had no known neurological or cognitive deficits. Five research assistants were involved in data collection, and each child was seen by one of them. The children were administered a standardized language test followed by a standardized language sample, both of which took place in the child's school. Each child scored no lower than 1 SD below the mean on the Hong Kong version of the revised Reynell Developmental Language Scales- Cantonese (RDLS-C) (Reynell & Huntley, 1987).

The adult-child language sampling was conducted in the child's preschool during free play with a trained research assistant. Each of the conversational language samples, which lasted for approximately 20 minutes, was based on a play activity that involved familiar bath, dress, feed or sleep routines. A total of 70 recorded adult-child conversational interaction sessions were transcribed

in codes for Human Analysis of Transcripts (CHAT) format following the guidelines set out in MacWhinney (2003). The language samples were first transcribed in Chinese characters by native speakers of Cantonese. The Chinese characters were then romanized following the conventions of LSHK romanization scheme (Linguistic Society of Hong Kong, 1997).

Coding Procedures

Percentage of SVCs was calculated by dividing the number of SVCs with the number of simple sentences as the denominator. To calculate the percentage of SVCs, the experimenter reviewed every utterance in each of the 70 language samples to exclude the following types of utterances:

1. *Repetition or partial repetitions*. They do not reflect children's true ability in generating the utterances. Immediate self-repetition and repetition of exactly the same phrases, words and utterances appeared in the past two turns were not counted. *Elliptical Responses,* which are like partial repetition, were also excluded. These included responses to A-not-A questions (i) and binary-choice questions (ii):

(ii) Investigator's Question: *nei5 sik6 coi3 ding6 sik6 juk9 ?*

you eat vegetable or eat meat

"Will you eat vegetables or meat?"

Child's Response: *sik6 coi3.*

eat vegetable

"Eat vegetables."

2. Utterances which were interrupted, incomplete and unintelligible were excluded. Retracings (mazes) and symbolic noises were also excluded.
3. Rhymes, songs and greetings. These were recited or stereotyped utterances which were not regarded as spontaneous output from the children.

After excluding the above types of utterances, the experimenter identified all the simple sentences. In this analysis, *simple sentences* were defined as those with a single clause and at least one verb while subjects and objects may or may not be present. Unlike English, noun constituents in Cantonese can be easily dropped or omitted provided that they can easily be traced in the context or understood in the discourse (Matthews & Yip, 1994). Also, in Cantonese, verbless clauses with only a predicative adjective are common (Matthews & Yip 1994), e.g. *keoi5 li1pai4 hou2 hoi1sam1* ("he recent very happy" = He is very happy recently). They may appear often in younger age groups when their verb repertoire is relatively limited. However, these clauses were not counted because this study aimed at examining children's ability to serialize verbs or coverbs that occurred in a single predicate. Apart from SVCs in simple sentences, there were cases when verbs or coverbs serialized in one of the clauses in a multiple sentence. An example of such case is *ngo5 jiu3 heoi3 tai2 hei3 tung4maai4 heoi3 gung1jyn2 waan2* ("I need go watch film and go park play" = I need to watch films and go to park to play). The underlined verbs serialized to form SVCs in each of the two clasues of the above compound sentence, which is also a type of multiple sentences (Greenbaum, 2002). However, all multiple sentences were excluded in the calculation of the percentage of SVCs. One of the reasons is that multiple sentences increase with age, particularly from 4 to 5 years (Tse et

al., 2002) while simple sentences continue to be productive across the preschool age range. It is better to investigate the SVCs in simple sentences since the development of SVCs continues over the age range. Another reason is that it is complicated to code the semantic notion and syntactic form of SVCs that appear in multiple sentences and they are not comparable as those coded for simple sentences. It is inappropriate to treat SVCs in the context of multiple sentences and simple sentences as the same thing since multiple sentences are definitely more complex and advanced structures as compared to simple sentences.

Furthermore, the number of SVCs, which is coded as the nominator in the calculation of SVC percentage, does not include:

1. Exact repetition of the same SVCs produced by the child or the investigator in the last two utterances.
2. SVCs in elliptical responses since they are like partial repetition. These do not reflect the children's true ability in generating SVCs.

Semantic notions of SVCs

The semantic notions denoted in the SVCs were classified into benefactive, resultative, purpose, dative, motion, location, comitative, instrumental, existence, absence and identification. Particularly, a resultative notion describes some cause-and-effect motions; a dative notion describes the act of transferring some items to recipients; a comitative notion indicates accompaniment. Other notions are self-explanatory. An example of each of these notions is given in Table 1.

Table 1

Examples of the semantic notions of SVCs

Semantic notions	Examples	
benefactive	*nei5 bong1 keoi5 zoek3.*	"You help him to wear."
resultative	*daa2 laan6 faai3 bo1lei4.*	"Break the glass."
purpose	*hei2 san1 Faan1 hok6.*	"Wake up and go to school"
dative	*maa4maa1 maai5 Bei2 ngo5 gaa3.*	"Mum bought it for me."
motion	*ngo5 soeng2 caa4 lok6 heoi3 aa3.*	"I want to apply on it."
location	*baai2 di1 saang1gwo2 lok6 heoi3*	"Put some fruits in it"
comitative	*ngo5 tung4 keoi5 Zyu6 gaa3*	"I live with him."
instrumental	*bin1 di1 oi3 lEi4 zyu2 je5 sik6 gaa3*	"What to use for cooking."
existence	*jau5 gaau1zi2 Jung6 wo3*	"There is tape to use."
absence	*mou5 saai3 di1 je5 sik6 laa1.*	"There is no food to eat."
identification	*hai6 gam2 jeong2 giu3 gaa3*	"This is how it is called."

Syntactic forms of SVCs

They are classified into four categories:

1. *Contiguous verbs*, which involve two main verbs used in combination (x-V-V-y), e.g. *go3 faa1zun1 dit3 lok6 dei6* ("CL vase fall down floor" = The vase fell down.) (CL = classifier).
2. *Co-verbs* are not lexical verbs and they have verbal and prepositional interpretation in serial constructions as mentioned earlier in the introduction. Table 2 shows all the coverbs reported in Matthews's (2000) study.

Table 2

Verbal and prepositional interpretations of coverbs taken from Matthews (2000)

Verbal and prepositional interpretations of coverbs		
Coverb	Verb	Preposition
tung4	Not applicable	with
wai4	Not applicable	for the sake of
hai2	be at	at
deoi3	treat	towards
gan1	follow	with
ging1	pass by	via
wan2	seek	with, using
jung6	use	with
bong1	help	for, on behalf of
ziu3	follow	in accordance with
doi6	replace	in place of
bei2	give	to, for

3. *Full lexical verbs* involve the serialization of two main verbs which does not appear in combination, e.g. *koei5 ceot1 gai1 daa2 bo1* ("he go street hit ball" = he goes out to play ball).

4. *Multiple verbs* involve the serialization of more than two main verbs, e.g. *koei5 daai3 ngo2 ceot1 hoei3 waan2* ("he bring I exit go play" = He brings me out to play).

The SVCs identified from the sample were classified into one of the above syntactic forms. The percentage of a particular syntactic form used by each age group was calculated by dividing the number of certain syntactic form of SVCs with the total number of SVCs in each group.

MLU5

MLU5 was defined as the mean length of the five longest utterances. MLU5 was used in this analysis instead of MLU because quite a number of the children's utterances, particularly for children in the younger groups, consisted of only one or two words. They included responses to the investigators' closed-end questions. Most of these utterances were excluded in the calculation of the percentage of SVCs since they were elliptical responses or single word utterances without a verb. Therefore, MLU5 was a more sensitive measure. The Child Language Analyses (CLAN) computer program from the CHILDES (MacWhinney, 1994) was used to calculate MLU5 for each child from the romanized transcript. Mazes were excluded from the utterance and morpheme counts.

Coding Reliability

Ten percent of children's simple sentences were randomly selected. SVCs in the selected utterances were coded by a trained research assistant. The agreement was 85%. Then, ten percent of SVCs were randomly selected and coded by another trained research assistant into one of the four syntactic forms and one of the ten semantic notions. The agreement was 90%.

Statistical Analysis

Two sets of statistical analyses were conducted on the data. First, Pearson product-moment correlation coefficients were calculated to examine the relationship between MLU5, number of semantic notions and age in months. According to Maxwell and Satake (1997), absolute value of r which is greater than 0.80 is said to be a strong correlation. If it is less than 0.04, a weak correlation is indicated while the value falls between 0.40 and 0.80 is said to be a moderate correlation

(Maxwell and Satake, 1997). Second, a one-way univariate analyses of variance (ANOVA) was conducted to detect differences in the seven age groups in the percentage of SVCs, number of semantic notions and number of different syntactic forms of SVCs respectively. Follow-up post hoc Tukey tests were used to examine the source of differences. Summary statistics for MLU, number of complete and intelligible (CI) utterances and the number of simple sentences are presented in Table 3.

Table 3

Sample size, age (mean and range), the means and standard deviations of MLU, number of utterances and simple sentences

		Age (months)		No. of CI utterances		MLU*		No. of simple sentences	
Group	*n*	M	Range	M	SD	M	SD	M	SD
29-month-old	10	29	27-30	118.7	52.5	2.5	0.8	34.4	33.5
36-month-old	10	36	35-37	135.4	54.7	3.2	1.0	48.9	20.1
42-month-old	10	42	41-43	129.3	59.7	3.0	0.6	49.6	28.6
47-month-old	10	47	46-49	153.3	39.9	3.4	0.9	59.3	24.8
54-month-old	10	54	52-55	158.2	71.9	4.0	1.4	81.7	46.1
60-month-old	10	60	58-62	160.3	60.9	4.2	1.8	70.2	45.4
66-month-old	10	66	64-68	146.3	59.5	3.9	0.8	51.7	25.0

Note. *Based on complete and intelligible utterances.

Results

Relations and Differences Between the Percentage of SVCs and Age in Months

The group means in Table 4 indicate that mean percentage of SVC dropped from 13.4% to 10.6%, from 29-month-old group to 42-month-old group. It was followed by a general increase from 10.6% to 23.5%, from 42-month-old group to 66-month-old group. Meanwhile, the greatest increase occurred from 60-month-old group to 66-month-old group, from 16.6% to 23.5%.

Table 4

The mean and standard deviation of MLU5, the number and percentage of SVCs and the number of different semantic notions

	MLU5*		No. of SVCs		% of SVC		No. of different semantic notions	
Group	M	SD	M	SD	M	SD	M	SD
29-month-old	6.5	2.7	5.8	7.2	13.4	7.2	2.4	2.1
36-month-old	9.2	4.4	6.2	6.0	11.6	6.0	3.3	2.6
42-month-old	8.8	3.7	6.1	4.9	10.6	4.8	3.2	2.4
47-month-old	12.5	3.8	10.0	7.5	14.9	10.9	5.7	2.1
54-month-old	11.7	4.0	15.3	11.1	16.6	6.0	5.4	2.5
60-month-old	15.2	3.8	11.1	6.0	16.6	10.8	5.0	1.9
66-month-old	13.8	3.0	13.5	11.0	23.5	9.4	4.1	1.5

Note. * Based on complete and intelligible utterances.

Pearson product-moment correlation coefficients were computed for the relations between the percentage of SVCs and age in months. The percentage of SVCs and age was moderately correlated with each other, $r(68) = 0.37$, $p < 0.05$. The scatter plot of the percentage of SVCs and age for all 70 children shown in Figure 1 indicated that the percentage of SVCs increases with age.

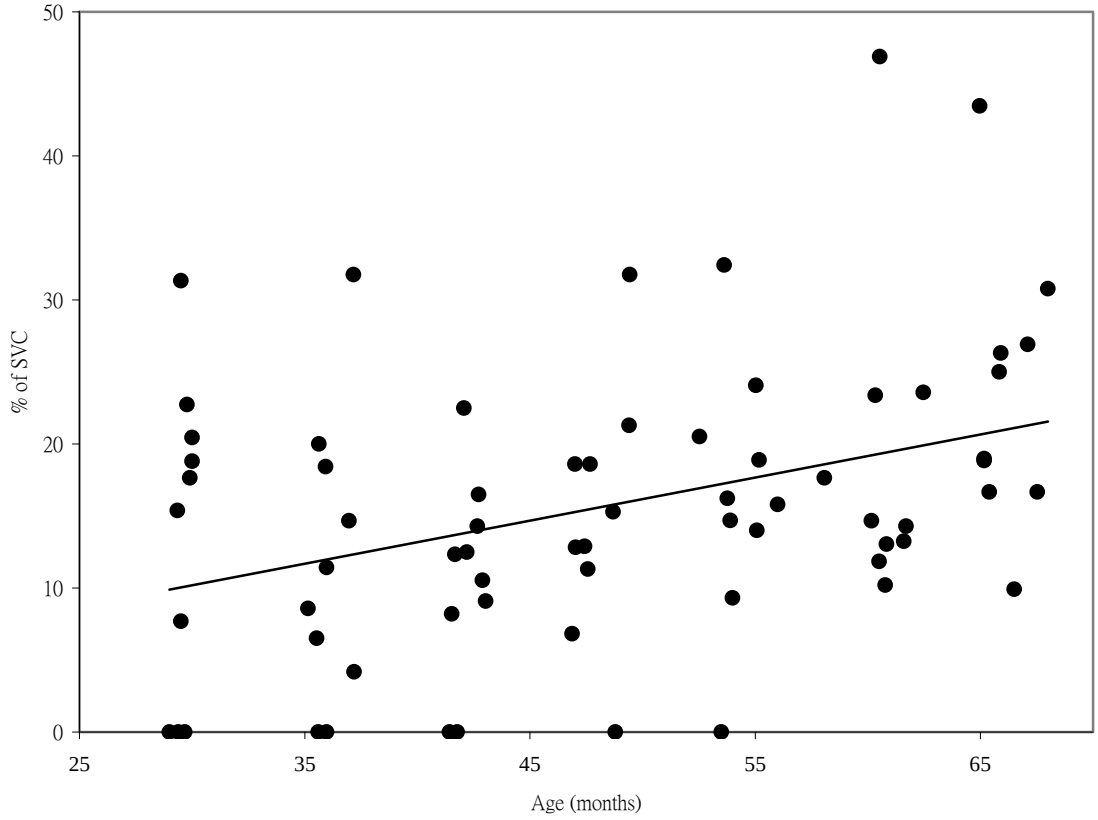

Figure 1. A scatter plot of age and the percentage of SVCs, with a linear regression line

A one-way ANOVA on age and the percentage of SVCs confirmed that there were age group differences in the mean percentage of SVCs, $F(6, 63) = 2.23$, $p < 0.05$. Follow-up post hoc Tukey tests revealed differences between group pairs did not turn out to be significant ($p > 0.05$).

Relation Between the Percentage of SVCs and MLU5

The scatter plot shown in Figure 2 illustrated a linear relationship between the percentage of SVCs and MLU5. There was a moderate positive correlation between the percentage of SVCs and MLU5, $r(68) = 0.52$, $p < 0.05$. Since MLU5 and the percentage of SVCs were also correlated with age, the correlation between them was computed after removing the effect of age. The partial correlation was moderately significant, $r(67) = 0.40$, $p < 0.05$, indicating that when the variance due

to age was removed , there was still significant statistical relationship between the percentage of SVCs and MLU5.

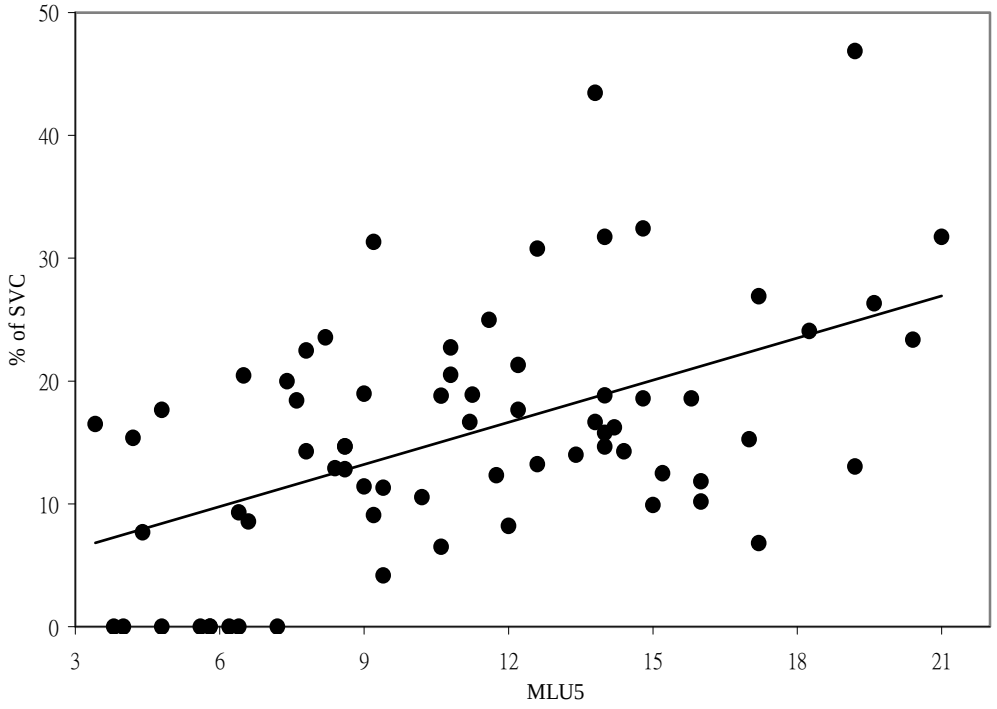

Figure 2. A scatter plot of MLU5 and the percentage of SVCs, with a linear regression line

Relation and Difference Between the Number of Semantic Notions and Age in Months

The number of semantic notions used and age was weakly correlated with each other, $r(68) = 0.35$, $p < 0.05$. Also, the group means in Table 3 indicate that mean number of semantic notions generally increased from 2.4 to 5.0, from 29-month-old group to 60-month-old group. There were some minor ups and downs in mean values but the greatest increase occurred between 42-month-old group to 47-month-old group, from 3.2 to 5.7. However, there was a drop from 5.0 to 4.1 in the mean number of semantic notions in the oldest groups (from 60- to 66-month-old group). A one-way ANOVA on age and the number of semantic notions further confirmed that there were significant

age group differences in the number of semantic notions, $F(6, 63) = 2.22$, $p < 0.05$. Whereas, follow-up post hoc Tukey tests revealed that differences between group pairs did not turn out to be significant ($p > 0.05$).

Development in Syntactic Forms of SVCs

A one-way ANOVA on age confirmed that there were significant age group differences in the number of coverbs, $F(6, 63) = 2.50$, $p < 0.05$, the number of full lexical verbs $F(6, 63) = 2.40$, $p < 0.05$, and the number of multiple verbs, $F(6, 63) = 2.52$, $p < 0.05$. However, there was no significant age group difference in the number of contiguous verbs. The post hoc Tukey tests revealed that the differences were not significant between group pairs in the number of coverbs, full lexical verbs and multiple verbs respectively. Figure 3 shows that coverbs accounted for the highest mean percentage of SVCs in every age group. The mean percentages of coverbs showed large ups and downs with two slumps occurred in 36-month-old and 60-month-old groups. Apart from coverbs, the other three syntactic forms used by each age group shared a similar proportion, varying from 10% to 25%. There were two exceptional cases -multiple verbs used by 42-month-old group accounted for 8.2% and contiguous verbs used by 66-month-old group only accounted for 7.5%. On the other hand, four out of seven groups (29-month-old, 42-month-old, 47-month-old and 54-month-old groups) used multiple verbs with the lowest mean percentages. Except rises observed in 36-month-old group and 60-month-old group, children generally used less contiguous verbs from 18.6% to 7.8% across the age groups. Meanwhile, the use of full lexical verbs increases steadily across the groups, from 15.3% to 26.7%.

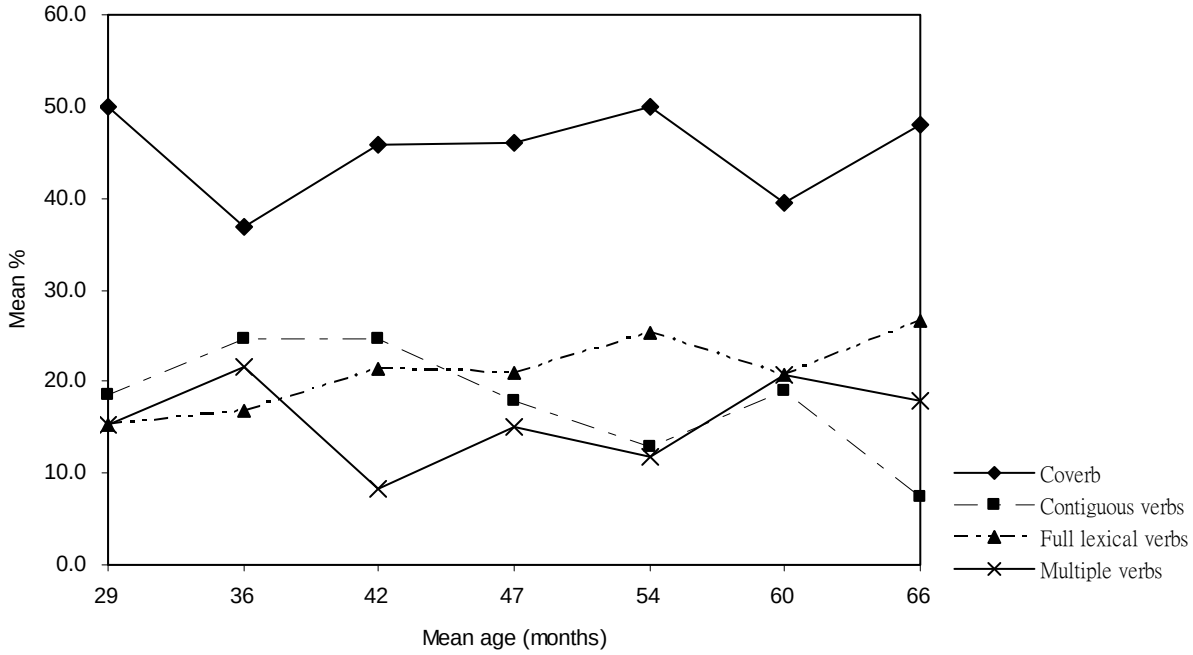

Figure 3. A line graph with the mean age of each group against the mean percentage of different syntactic forms of SVCs.

Discussion

Relation Between the Percentage of SVCs and Age

This study showed that SVCs emerged as early as in 29-month-old group and its percentage increased generally from means of 13.4% to 23.5% of all the simple sentences. There were one to three children who did not use any SVCs in the first three age groups (29- to 42-month-old groups) while all of the children aged from 4;06 and older used SVCs. This was generally coincident with the study of Tse et al. (2002), which also showed that coverbs and verbs in serial expression increased significantly in proportion from the age groups of 3.5 to 5.5 years (11.3% to 15.7%).

Similar to Tse et al.'s (2002) study, there was a sudden increase in the percentage of SVCs from

42- to 47-month-olds in this study. This may be related to Tse et al.'s (2002) claim that the period between 3- to 4-year-olds is critical for syntactic development with many linguistic changes occurred in this time. Whereas, the age range used in the study of Tse et al. (2002) may not be wide enough to show the development from 60-month-old group to 66-month-old group. In this study, there was further increase Similarly, Wong et al. (2004) that SVCs were frequently used by children in the 5-year-old group (62- 69 months). SVCs was the most popular among the six grammar structures (i.e. relative clauses, passive constructions, coordinate clauses, subordinate clauses and pretransitive clauses) used by this age group of children.

Relation Between the Percentage of SVCs and MLU5

Kwong (2000) found that verbs in serial expression are one of the indicators of increase in syntactic complexity and they grow with age in the early years. Though MLU was found to be moderately correlated with age (Klee et al., 2004), there were very few studies attempted to investigate the relationship between syntactic development and MLU in Cantonese. This study showed that SVCs and MLU5 were positively correlated with the age effects partialled out. This finding suggests that MLU5 may be related to the syntactic development. However, it is important to note that the mean of MLU5 begins to drop while the mean percentage of SVCs continues to increase. This implied that MLU is no longer a sensitive index of syntactic development as the children grow older. Advancement of syntactic development in older preschoolers is more than simply the lengthening of utterances. Besides, this was coincident with Klee et al.'s (2004) finding that MLU increases less significantly in older preschoolers (48 – 66 months). Klee et al. (2004)

explained this with the unique grammatical features of Cantonese. For instance, sentence length may be reduced in Cantonese because it allows certain non phrase arguments to be dropped (Wong et al., 2004). It was reported by Lee (2000) that Cantonese-speaking children aged around 3 years old drop about 60% of subject noun phrases and 40% of object noun phrases. Future studies can find out how the other grammatical structures together with SVCs and MLU5 contribute to syntactic development as age increases.

Development of Semantic Notions

Though SVCs appear as early as in the youngest group (29-month-old group), master of semantic richness appears protracted. This can be explained by the expanding word repertoire as the children grow (Wong et al., 2002). Children use more different words to fulfill their increasing communication functions according to Langacker's (1987) functionally based account of nouns and verbs development. This is evidenced by the diversifying semantic notions across age groups. Similar to the development of classifiers, Cantonese-speaking children do not show adult competency in semantic knowledge of the approximately 60 classifiers until 6;06 (Stokes, & So, 1997). When the children's repertoire of classifiers is still small at en early stage of emergence, they defaultly use *go3* to substitute other classifiers (Stokes, & So, 1997). Nevertheless, there was a drop of the number of different semantic notions in the oldest group. However, without a decrease in the percentage of SVCs, it was deduced that some of the semantic notions were expressed by older children in some complex sentences which were excluded in this study. Besides, another interesting finding was observed in the two youngest groups (27- 37 months). In both groups, benefactive and

instrumental SVCs were predominantly used over the other notions. This phenonmenon may be due to the sampling contexts. As Scott and Stokes (1995) pointed out that linguistic structures are not syntactically obligatory but rather motivated by the context of the ongoing discourse. That was why younger children used benefactive notion more often because they were less independent or willing to take risks, so that they preferred to seek help in unfamiliar situations. Also, the children often used instrumental SVCs to respond to the investigators' commands and questions related to the tools.

Development of different syntactic forms of SVCs

Tomasello (2003) suggested that children's early utterances are organized around concrete and particular words and phrases, rather than any system-wide syntactic categories or schemas. Abstract and adult-like syntactic categories are observed to emerge only gradually and in piecemeal fashion during preschool years. This may explain why the emergence sequence of different syntactic forms of SVCs can hardly be determined in this study. When the means of SVCs' syntactic forms were plotted against age, it was observed that there were fluctuations in the line graphs across age groups.

Results from this study supported Scott and Stokes's (2004) conclusion that grammatical structures are lexically or discourse motivated. Recall that children in all groups used coverbs with the highest proportion. This can be caused by the frequent use of benefactive and instrumental notions by the children as mentioned earlier since benefactive and instrumental notions were usually associated with the use of *bong1* "help" and *jung6* "use" which are coverbs. Besides, the decreasing use of contiguous verbs can be explained by the restrictive semantic notions denoted by this form of

verbs since contiguous verbs are mainly verb-verb compounds which describe the cause-effect resultative motions.

An interesting finding is noted in the youngest group (29-month-old group) Children in this group preferred to use particular verbs in one certain construction. They often used the verb *maai5* “buy” together with a coverb *bei2* “give” for dative constructions. Apart from the effects of sampling context, this phenomenon may relate with Tomasello (2003)’s verb-island hypotheses. Children around two years of age centered on a few verbs in the early stage acquisition of construction. They prefer to use verbs locally and depend on a small group of them for multiple purposes and functions. They gradually create more broadly based categories as they grow.

Limitations

Since the language samples were collected in a conversational context using a free play activity, the forms of SVCs elicited were susceptible to individual variability. Particularly, different children have different familiarity with the toy sets and they have different styles in interacting with the unfamiliar investigators. Also, children’s use of SVCs depended very much on the investigator’s questions and commands, e.g. the more the yes-no or A-not-A questions were asked, the less the SVCs will be elicited. The tokens and the number of different semantic notions (n= 10) appeared in the language samples are too small to reflect the development pattern of SVCs in preschoolers.

Further Studies

As the current study examined the use of SVCs under conversational context, further study

can investigate the use of SVCs in narrative contexts. Narratives elicited via retelling of a story are more conductive to the use of complex linguistic structures. It is because children have to plan at discourse-level instead of utterance-level when they are producing narratives (Hadley, 1998). When children produce a narrative, they have to plan for several sentences in a cohesive fashion. In this way, more tokens or different forms of SVCs can be elicited with semantic or pragmatic motivations (Wong et al., 2004). Besides, comparing the use of SVCs upon different contexts can motivate further studies to discover how communication functions contribute to syntactic development.

In this study, language samples included children aged from 27 months. However, it is likely that SVCs emerge before 27months of age since 70% of children in the youngest group of this study used at least one SVC. Therefore, it is worth investigating the emergence of different types of SVCs before 27 months of age. Furthermore, to track the development of SVCs, longitudinal study and intensive sampling of a small number of children is recommended. In this way, individual differences can be minimized when looking at the semantic notions and syntactic forms of SVCs.

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		Uses	Examples

Appendix A

Circumstances when verbs used as auxiliaries or main verbs

要 *jiu3*	Main verb	Want	keoi5 jiu3 caa4 (“he want tea” = He wants tea)
	Auxiliary verb	Have to	keoi5 jiu3 jam2 caa4 (“he have-to drink tea” = He has to drink tea.)
係 *hai6*	Main verb	Identification	keoi5 hai6paai4kau4deoi2 ge3 deoi2jun4 (“he be volley-ball team GE member” = He is a member of the volleyball team.)
		Definition	syu1bau1 hai6 naam4 sik1 (“schoolbag be blue color” = The schoolbag is blue.)
	Auxiliary verb	Question	nei5 hai6-m-hai6 hou2 tou5ngo6 (“you be-not-be very hungry” = Are you very hungry.)
		Negation	keoi5 m4 hai6 hou2 ming4 (“he not be very understand” = He doesn’t quite understand.)
		Emphasis	keoi5 hai6 zung1ji3 tai2 syu1 (“he be like read book” = He likes reading books.)
有 *jau5*	Main verb	possession	keoi5 jau5 sap6 bun2 jing1man4 ci4din2 (“he have ten CL English dictionary” = He has ten English dictionaries.)
		existence	ni1 tiu4 gaai1 jau5 sap6 gaan1 uk1 (“this CL street have ten CL house” = There are ten houses in this street.)
	Auxiliary verbs	Indicate past events	keoi5 jau5 heoi3 tou4syu1gun2 (“he have go library” = He has gone to the library.)
		questions	Keoi5 jau5-mou5 heoi3 gaai1 (“he have-not go street” = Did he go shopping?)
冇 *mou5*	Main verb	absence	ni1 tiu4 gaai1 jau5 mou5 ce1 (“this CL street no car” = There are not any cars in this street.)
	Auxiliary verb	Indicate past events	keoi5 mou5 heoi3 tou4syu1gun2 (“he no go library” = He didn’t go to the library.)
俾 *bei5*	Main verb	dative	Ngo5 lo2 di1je5 bei2 nei5 (“I get something give you” = I’ll bring you something.)
	Auxiliary verb	permissive	Tou4syu1gun2 m4 bei2 jap6 Library today not allow enter

			No one is allowed into the library