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UNDERSTANDING OF NEGATION

" 無 " , " 唔 " AND " 未 "

IN CANTONESE-SPEAKING CHILDREN

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ABSTRACT

Comprehension of three Cantonese negatives " 無 ", " 唔 ", and
" 未 " were investigated, with a view in exploring both the
acquisition trend and developmental order of negation. Based upon
the cognitive and linguistic complexity of each negative, it was
proposed that young Cantonese speaking children acquired the
negative markers in the order of " 無 ", " 唔 ", and " 未 ".
Twenty-seven Cantonese speaking young girls, aged 30 to 54 months,
were tested individually. The testing was conducted through
story-telling. The subjects were only required to use pointing to
indicate correct responses to the questions asked. Data were
analyzed and the findings indicated that there was significant
difference in comprehending each negative marker in all age
groups. The result supported the hypothesis that Cantonese
children acquired the negatives " 無 ", " 唔 " then " 未 ",
and developmental order followed the same trend. It was suggested
that future research on semantic form and function of Cantonese
negation should be done in comply with this study.

INTRODUCTION

Every language has negation. However, ways of expressing negation vary in different languages.

Study of children's acquisition and use of negation began in the 1960s. Early study in negation were primarily grammar based. In 1967, Bellugi traced the development of negatives in English-speaking children by focusing on the syntax of children's utterances. (Vaidyanathan, 1991). Heavily influenced by the prevailing linguistic theories of the time, Bellugi's analysis of negation focused on the development of its syntactic form, no critical analysis was done on the meaning of the negative sentences.

In 1968, McNeill and McNeill tried to link the regularities in syntax development to semantic development by studying the acquisition of different negative meaning in Japanese children. They found that early acquisition of negative marked nonexistence e.g. "There's not an apple here.", nonentailing denial e.g. "There is not an apple" when someone pointing to a pear claimed it was an apple; rejection e.g. "No, I don't want an apple." which was often overextended to include prohibition e.g. "Don't" when the child was asked which toys would he/she give away to another child; and entailing denial e.g. "No, I didn't have an apple; I had a pear." (McNeill & McNeill, 1968).

As the semantic aspect of language aroused more interest in the 1970s, the meaning of negation and the developments in negative forms became the focus of much research of the time. In 1970,

1

Bloom followed McNeill's observation and investigated the syntactic development and the emergence of syntactic negative reference. In her influential study, she identified the semantic categories of negation and proposed a taxonomy of three different meanings of negation - nonexistence, rejection and denial. It was further claimed that these semantic categories appeared in children's speech in that order and there was a corresponding development in the form of their syntactic representation (Bloom, 1970).

Since Bloom, Choi (1988) has reported a cross-linguistic, longitudinal study of the development of negation in children acquiring either English, French or Korean as their first language. The findings closely paralleled to Bloom's, but a finer distinction was made on the semantic category. A total of nine categories of negation were observed in all three languages and their development order was similar across the languages. Furthermore three types of relationship between form and function were discussed. It was claimed that at early stage, the children did not distinguish all negative function linguistically as they emerged. There was a general tendency to use the same single word "no" to express a new function, e.g. denial. Then new form emerged to express new function, e.g. "can't" for inability. Finally a new form emerged to differentiate an old category. Choi further claimed that the acquisition of new forms contributed directly to the increase of semantic categories in the child's development.

These findings were similar to Wode's (1977) survey of studies of development of negation in German. A general three-stage theory of acquisition of negation was developed. Stage I consisted of one-word negation, i.e. "no" was used singly to express all negations. Stage II was two-word negation which was developmental further divided into first anaphoric, then non-anaphoric negation. For example, "No, milk" was uttered when some other kind of fluid was offered. Later, and generally still using the same negative morpheme "no" to negate the information contained in the rest of the sentence. Stage III characterized by the appearance of negative elements inside the child's utterance and also the emergence of other negative morphemes e.g. "not".

Both Choi (1988) and Wode (1977) had found that there was no observable semantic contrast in negative forms during the earliest stage of acquisition, as the same form was used to express different functions. Subsequent development showed more mature semantic contrast as different functions were differentiated with the use of different negative forms.

There were other investigators either did not find or disagree with the distinct stages reported by Bloom and others. For example, subjects in Bowerman's study (1973) expressed denial much more often than nonexistence. Pea (1979) arguing from the level of abstractness of meaning and complexity of cognitive representation required, postulated that rejection, not non-existence should be simplest. He claimed this on the basis that rejection expresses the child's emotional attitudes towards something present in the context, and thus it requires no internal

3

representation as the child is expected to visualize something which is not present in the situation (Pea, 1979). Similarly, Lee (1982) in studying the order of acquisition of negation in a Mandarin-speaking child, reported that "non-existence" and "rejection" occurred almost simultaneously in his subject. Nevertheless, it was proposed as a universal that both the semantic category of "rejection" and "nonexistence" precede that of "denial". (Lee, 1982)

Recently, Bloom (1991) again investigated young children's acquisition of negation, on the basis of the relative frequency of sentences in the different semantic categories of negation, and the progressive development in the syntactic complexity of the sentences. She claimed that the order of acquisition for negation was specifically nonexistence, rejection and then denial.

Most of the existing developmental work on negation has concentrated on the emergence of negatives in children's spontaneous speech. Studies in the comprehension of negative form are as important as the production. As production does not imply comprehension, and vice versa, it is then possible that children can produce but not comprehend. Hence it is critical to explore the aspect of understanding in language cognition, especially important to those age ranges which may have limited language production.

Up to the present, relatively little research investigating the basic concept on the comprehension of semantic categories of negation in Cantonese has been undertaken. It would be

4

interesting to see if Cantonese-speaking young children acquire and develop negation in a similar manner as Bloom has proposed.

In Cantonese, different from English, there are three negative markers ie. " 無 ", " 唔 ", " 未 " and each serves different semantic function in different syntactic structure. The negative form " 無 " is mostly functioned as nonexistence. Similar to English "allgone", it expresses simply the absence or disappearance of an entity in general, or the expectation of the presence of an entity at a particular place is not met.

The negative form " 唔 " mostly signals "refusal or rejection or prohibition", which is corresponded to English "No/Don't". In performing the perlocutionary act, either a command is not obeyed or a request is ignored. It involves not only a simple match between the sensory data and code, like existence/non-existence, but also the ability in making inference so as to understand that an expectation has to be met.

" 未 " is an somewhat unique negative form in Cantonese, which has no direct negative correspondence in English. Semantically, it is similar to English "not yet". It contains two components which make comprehension difficult. First, inference has to be made to understand that an action that is not completed at present moment, would be completed in the near future. Secondly, one has to acquire the temporal entity to be able to change one's vantage point in time sequence.

5

The purpose of this study was to investigate the aspects of comprehension of the Chinese negative forms "無", "唔" and "未" in young Cantonese-speaking children. Both the acquisition trend and the developmental order of negative markers was explored. Mainly based on Bloom's semantic theory of negation with modification, it was then hypothesized that "無" was acquired before " 唔 " and " 未 " was the last in the acquisition order in comprehension. The developmental order of the negatives would also be following a similar trend.

The results of the study hopefully supported the developmental theory of negation in Cantonese-speaking children and gave guidance into the principles governing intervention for children with cognitive disorder in the field of speech pathology.

METHOD

One investigator was involved in all testing, which was done through story telling. This semi-natural way of testing makes it possible to minimize anxiety and place some control during free play context. Story telling insures a more natural interaction with the child and at the same time, allows for standard questions to be asked. A pretest, which consisted of a total of 24 4-choices pictures, was given prior to the story telling to check the comprehension of the vocabularies that served as the referents of the stimulus questions. This was to minimize the likelihood of failure due to the subject not knowing the meaning of the individual words.

In order to minimize the practice effect of the investigator in administering the test, children from different age groups were randomly tested on the same day.

I. Subjects

All children who participated in this study came from Cantonese-speaking families, and were born in Hong Kong. The subjects were obtained from a child day-care center, a kindergarten and through home visits. A total of 27 female children aged 30 months to 54 months were tested. They were divided into three age groups (30 to 36 months, 39 to 45 months and 48 to 54 months) with 9 children in each group.

II. Material

Two sets of hand-drawn pictures, a pretest and a story, were employed as the main materials for testing.

In the pretest, 24 cards incorporated 4 picture choices were used. Each picture contained a target stimulus, a noun or a verb, with three distracters. One was a phonological or tonal distracter, one semantic distracter and an unrelated one.

Two stories, one "Going to the Ocean Park" and the other "A day at school" was constructed. Each story contained six pictures (a total of 12 pictures) (Appendix 1) as the stimulus material. In each picture, two questions containing negatives were asked. In pictures 1,3,4,8,10, one affirmative question was also included together with the two negation questions. This is to confirm that the subject comprehended affirmative questions, and to prevent them from responding automatically. To control for the ordering effect of the questions asked using "無", "唔" or "未" in each picture, a 3x3 Latin square design (Appendix 2.) was employed to assign a negative to a given questions in each picture for each subject. These did not interfere with the story sequence.

There was one criteria in selecting the nouns or verbs that went with the negatives in the questions. Only those that were semantically and syntactically possible as well as plausible in combination with all three negatives, with no change in meaning, were used.

III. Procedures

The children were tested individually. The tester spent a few minutes to get acquainted with the child, to establish a friendly relationship and to reduce nervousness or anxiety. Then a pretest was conducted. Each 4-choice picture was presented singly to the child. The child was required to point to the item corresponding to the noun or verb the tester said. In the case of difficulty or when a wrong response was given, the tester repeated the stimulus. If the child again failed, the tester indicated the correct response and the picture was presented again at the end of the pretest. All children had to pass all items on the pretest session before the story-telling session. Of all the children participated, non of them was excluded from the experiment.

The child was then required to look at a story books (the stimuli) with the tester. The tester went through each picture singly with the child. In each picture, two negative questions selected from " 無 " , " 唔 " or " 冇 " , with equal opportunities for each form, were asked together with an affirmative question for five pictures. The child pointed to indicate the answer. In case of a null response, hesitation or faltering, one repetition was given. If the child showed difficulty in giving an answer or was indecisive, that particular question would be set aside. Later, these questions were reread, and the response was recorded as such. If the child was still indecisive, the question was kept until the end of the testing session for a final attempt.

The whole testing took approximately 20-25 minutes to complete.

IV. Instruction

The tester told the children that they would hear a story after they have identified some pictures. In the pretest, the tester named the target picture and the child was told to point in answering the questions. There was no practice trials in this part. In the story-telling part, there was one practice trial to reinsure that pointing was used as a means of indicating the correct response. The tester then asked both affirmative and negative questions by using " 边個 " or " 边X ", similar to English WH-question words "Who" or "Which one". For example, testing comprehension of existence vs nonexistence the children would hear questions form like " 边個 戴 - - - - " ("which one wears....?") or " 边個 唔 戴 ---- " ("which one does not wear......?"). The child was then instructed to point to the part of the picture to indicate the answer to the question. A reasonable processing time period (up to 15 seconds) was allowed for the child to respond. Repetition or clarification, whether it is initiated by child or by the tester, was noted on the recording sheet.

RESULT

In this study, it was hypothesized that " 無 " was acquired before " 唔 " and " 未 ", and the developmental order of the negatives would also follow the same trend.

In the test, all of the 27 children responded correctly to the affirmative questions. Error analysis on the negative question showed that there was no case of null-response and all of the error responses fell on the affirmative counterpart.

Analysis on the correct responses given was conducted. The mean comprehension scores of each negatives (maximum score 24 i.e. 8 for each form) and standard deviations for each age group were shown in table 1.

Table 1. Mean and standard deviations of correct comprehension by subjects to each negative " 無 ", " 唔 ", " 未 ". Maximum possible Score for each negative in each age groups is 8.

Means & Standard deviations(in parentheses)

Age(months)	30-36	39-45	48-54
Negative			
" 無 "	4.11	6.44	6.44
	(.78)	(1.13)	(1.67)
" 唔 "	3.78	4.67	6.11
	(.83)	(1.80)	(1.45)
" 未 "	2.89	4.00	5.78
	(1.36)	(1.32)	(2.22)

A preliminary examination of table 1. revealed that children in the age group 30-36 months performed poorly in comprehending all three categories of negatives in comparing with the other groups.

11

The group of children 39-45 months, in general, scored higher than the younger group. The pattern of the performance across the three forms followed that of the younger group.

The group 48-54 months scored highest in all three categories of negatives as compared with the other two age groups. The same pattern of performance on the negative forms persisted across the three groups, ie. "無" score better than "唔" and "未" had the lowest score.

Figure   1.   Graphical   presentation   of   the   mean   scores   of comprehending   three   categories   of   negative   for   each groups.

Figure 1. Graphical presentation of the mean scores of comprehending three categories of negative for each groups.
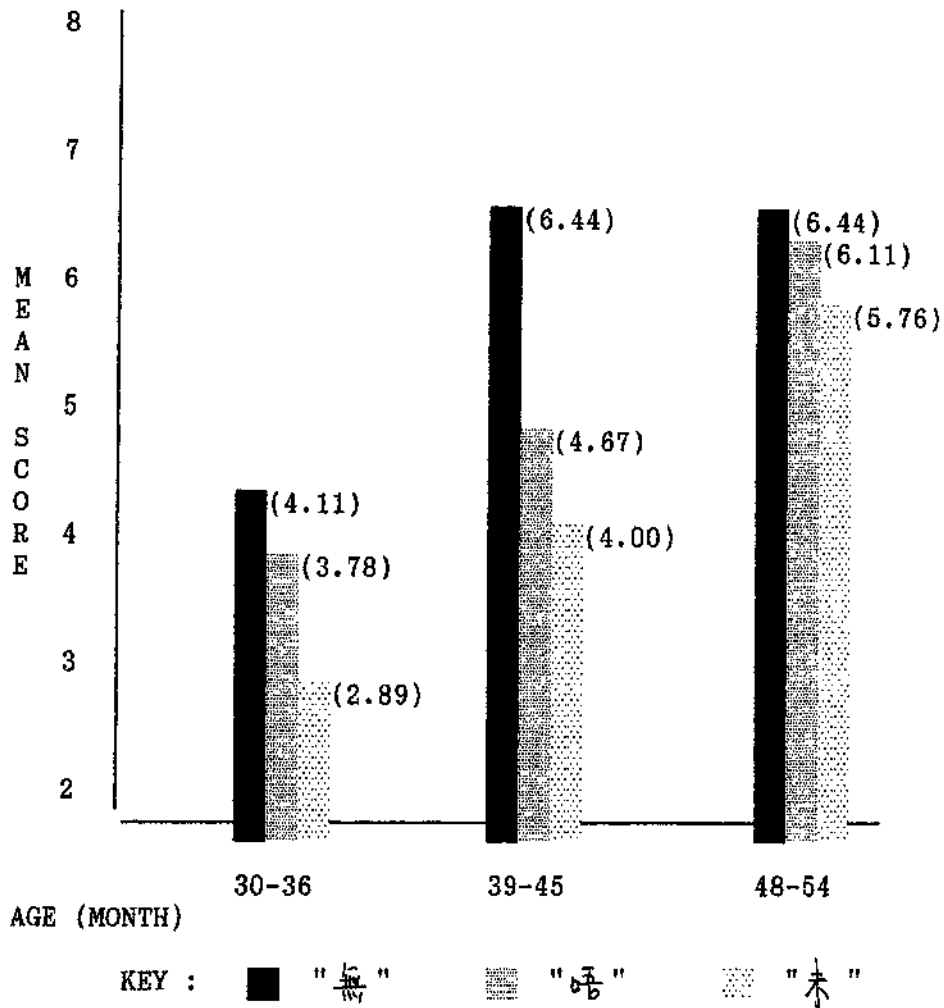
The highest mean score was 6.44 for " 無 " in both 39-45 and 48-54 months group. " 未 " has the lowest mean score of 2.89 in the youngest age group. In all age groups, " 無 " was consistently scored better than " 唔 " and " 未 ". The children aged 48-54 months performed better in comprehending all negative forms than the two younger age groups.

In order to determine whether the above observed differences in the sample mean scores were significant, an analysis of variance was carried out. It was a 3x3 factorial design. The two factors were age (3 groups of 6 months intervals) and negative ("無" , "唔" , "未")respectively. Data was analyzed and the main effects as well as the interaction between the two factors were examined.

Table 2   Summary table for the two-way ANOVA of Age by Negative.

Source	df	Sum of Square	Mean of Square	F Ratio	P
Negative	2	28.32	14.16	6.61	<.005
Age	2	86.25	43.12	20.13	<.0001
Interaction	4	9.60	2.40	1.12	.4
Within (Error)	72	154.22	2.14		
Total	8	124.17			

The results showed that both main effects for age and negatives were, in fact, statistically significant (P<0.0001 & P<0.005 respectively), but there was no significant evidence (P =0.4) for the present of interaction.

It was of interest to further investigate the specific differences of sample mean scores in comprehending negative forms between each age groups. One-way ANOVA and multiple-comparison by Scheffé's method were performed to each of the negative forms.

Table 3   Summary table for the one-way ANOVA of " " by Age.

Source	df	Sum of Square	Mean of Square	F Ratio	P
Between (Age)	2	32.6667	16.3333	10.50	.0005
Within (Error)	24	37.3333	1.5556		
Total	26	70.0000			

According to this Global ANOVA F test (table 3), there was highly significant difference (P < 0.0005) between the comprehension of " " between different age groups.

Table 4   Summary table of Scheffé's method for " " by Age.

Mean	Age	Age (39-45)	Age (48-54)
4.11	(30-36)	* (.01)	* (.01)
6.44	(39-45)		n.s.
6.44	(48-54)		

(*) Denotes pairs of groups significantly different at .050 level, (n.s.) denotes statistically not significant at .050 level.

In summary table 4, there were pairwise significant differences between children aged 30-36 months & 39-45 months, as well as children aged 30-36 months & 48-54 months for comprehending negative " ". This supported the preliminary observation that the two elder age groups performed better than the youngest group.

15

Table 5   Summary table for the one-way ANOVA of "v^3_b" by Age.

Source	df	Sum of Square	Mean of Square	F Ratio	P
Between (Age)	2	24.9630	12.4815	6.1835	.0068
Within (Error)	24	48.4444	2.0185		
Total	26	73.4014			

In table 5, there was high significant difference (P = 0.0068) between mean scores of comprehending negative "v^3_b" between each age group.

Table 6   Summary table of Scheffé's method for "v^3_b" by Age.

Mean	Age	Age (39-45)	Age (48-54)
3.78	(30-36)	n.s.	* (.02)
4.6667	(39-45)		n.s. (.14)
6.1111	(48-54)		

(*) Denotes pairs of groups significantly different at .050 level, (n.s.) denotes statistically not significant at .050 level.

In table 6, there was pairwise significant difference only between children aged 30-36 months and 48-54 months for comprehending negative "v^3_b". The differences between the groups aged 39-45 months & 48-54 months was not significant (P = 0.14), and there was no difference between the mean score of children aged 30-36 months & aged 39-45 months.

16

Table 7   Summary table for the one-way ANOVA of " 未 " by Age.

Source	df	Sum of Square	Mean of Square	F Ratio	P
Between (Age)	2	38.2222	19.1111	6.7013	.0049
Within (Error)	24	68.4444	2.8519		
Total	26	106.6667			

In table 7, sample mean scores of comprehending the negative " 未 " between each age group were statistically significant differences (P = 0.0049).

Table 8   Summary table of Scheffé's method for " 未 " by Age.

Mean	Age	Age (39-45)	Age (48-54)
2.89	(30-36)	n.s.	* (.02)
4.00	(39-45)		n.s. (.12)
5.78	(48-54)		

(*) Denotes pairs of groups significantly different at .050 level, (n.s.) denotes statistically not significant at .050 level.

The pattern of comprehending negative " 未 " (table 6) was repeated in summary table 8. There was pairwise significant difference only between children aged 30-36 months & 48-54 months for comprehending the negative " 未 ". The pairwise differences between aged 39-45 months & 48-54 months was not significant (P = 0.14), and there was no significant difference between the mean score of children aged 30-36 months & aged 39-45 months.

17

To summarize, according to the above one-way and two-way ANOVA, there was highly significant difference (Global ANOVA F test $P < 0.01$) in the comprehension of negative forms between each of the age groups. However, the result of multiple-comparison showed that pairwise significant differences only appeared between children aged 30-36 months and 48-54 months in the comprehension of "唔係" and "未", but not between 30-36 months & 39-45 months as well as between 39-45 months & 48-54 months.

Nevertheless, it can be observed that the negative term "冇" can be relatively well comprehended from age group (39-45) and up. The negative term "唔係" and "未" can only be comprehended well by age group (48-54). There was a trend of developmental order on comprehending the three categories of negative was "冇", "唔係", "未".

This was coincided with the hypothesis that "冇" emerges before "唔係" and "未" was the last to appear among the three.

18

DISCUSSION

As previously stated, the three negatives in Cantonese,
" 無 ", " 唔 ", " 未 " posses different features which differentiate
one from the others.

To account for the results of the study, the three negatives
will be discussed in respect to the cognitive and linguistic
aspects respectively.

I. " 無 "

The negative " 無 " implies non-existence. The existence-
nonexistence category requires here and now external evidence of
things being available to the sense or not. As such, the meaning
of such negation requires a simple match between sensory data and
code. (Shapiro & Kapit, 1978) Therefore, it is less cognitively
demanding.

Linguistically, " 無 " is "marked" in respect to
" 有 ". According to Clark & Clark (1977), children learn the
meaning of a word by semantic markers, from general marker to
specific ones; and in learning word pairs with contrasting
meanings, they learn unmarked words before their marked
counterpart. As a result, children first learn the term " 有 "
before " 無 ". As the children have acquired the term " 有 ", it
becomes a comparison and contrast to aid the learning of " 無 ".
Thus, having a counterpart to refer and contrast to, it makes the
acquisition of " 無 " relatively easy.

19

II. " 嗎 "

" 嗎 " is cognitively more complex for it requires cognitive
ability in making inference of reasoning, which is in an abstract
level.   According to   Piaget's   cognitive development theory,
children from sensorimotor to operational stage gradually increase
their ability to generalize the situation and to abstract the
canonical form from a particular context. The thinking of the
children is perceptually based, and can deal with one
relationship at a time. Egocentrism and concatenative   thinking
exists which make the child fails to coordinate individual
thoughts or ideas into an integrated sequence. (Solso,1988) Thus,
younger children have   relatively limited capability cognitively
to comprehend " 嗎 ".

From the linguistic point of view, word pairs share the same
semantic marker e.g. actor/actress save one. Having a linguistic
counterpart makes comprehension easier. Unlike " 無 " which has a
counterpart i.e. " 有 " to refer to and contrast to, " 嗎 " does not
have one.   Therefore one has to learn this   word without   the
benefit of relating it to a known counterpart, thus, this
specificity in meaning make it harder to comprehend.

III. " 未 "

" 未 " has two components that make it difficult to comprehend
cognitively. Firstly, it requires the ability to make inference.
One has to infer that things that are not done at the moment of
speech, would be completed at a later stage in time, somehow.
Children of preoperational stage process very limited abstract

20

thinking ability as their thinking are still very primitive and perceptually salient. Secondly, it has a temporal entity which relates past, present and future. Projection of image forward is needed to foresee what it would be at the stage of completion. Thus, coordination of sequence of events along the time frame is needed. Furthermore, future is a hypothetical event, as distinguished from an actual event for it has the intention property. (Clark & Clark, 1977) Comprehension of statements of a hypothetical nature are based on the ability to move one's viewpoint about in time, therefore requires more complex cognitive capabilities. (Cromer,1991) For younger children, their thoughts concentrate on the present. Relative temporal location is more difficult for young children than absolute time. Young children fail relative problems involving reference time. (Weist, 1991) They can seldom correlate with the past, not to mention future. It takes time for children to acquire the notion of non-present; then the past, event that they have experienced; and a bit later, the notion of future, event that have not yet experienced. (Taylor & Taylor, 1990) Therefore, to integrate three events ie. Past, Present, & Future together is a difficult task in the part of young children. As a result, " 未 " is cognitively heavily loaded.

Linguistically, future and past is marked with respect to present, which is unmarked. Children first learn the present, then non-present, past and finally future. Therefore, "未" is not only cognitively demanding, but also linguistically loaded.

21

Accounting to the relative complexity of each negative " 無 ", " 唔 " & " 未 ", it is then expected that young children acquiring negatives in the order of " 無 ", " 唔 " & " 未 ". In this experiment, there were evidences to support the above analysis. The mean scores of " 無 " were consistently higher than that of " 唔 " and " 未 " in all age groups. This indicate that of " 無 " was easier than " 唔 " and " 未 ". Children learn language to express prelinguistic concept (Piaget, 1962), at 30-36 months, children has already past through the sensorimotor stage. As a result, it is relatively easy for them to make concrete inference on function like existence/nonexistence. By 39-45 months, it can be observed that the comprehension of " 無 " has been markedly improved as the children mature.

As for " 唔 " & " 未 ", because of the linguistic and cognitive loading, comprehension becomes problematic at younger age. These were reflected in very low mean scores at aged 30-36 months. The mean score of " 唔 " has been markedly improved by aged 39-45 months. That was because as the children grow more mature cognitively and linguistically, they moved into a stage which they were more capable cognitively and linguistically.

By aged 48-54 months, the mean score for " 未 " was relatively high in compare with the other two age groups. This shows that as the children grow, they are progressively better in master the most difficult negatives " 未 ". The mean score of " 無 " remains high relative to " 唔 " and " 未 ". This further confirms that " " is the easiest among the three. At the age of four to four

22

and a half, children are relatively proficient in comprehending
" 無 ". The ability of understand " 唔 " and " 未 " has also
developed gradually. However, it seem that further improvement can
be expect when children growth older than four and half year old.

LIMITATION

There were several limitations to this study. Firstly, the
research design was context bounded.   A more natural testing
environment may yield more conclusive result to the study.
Secondly, only young girls in a limited age range were tested.
Therefore, the ability to make generalization to all children is
limited. Finally, the ambiguous pairwise comparison results
indicated that the sample sizes (9 children / age group) or the
procedure (8 questions / negative forms), was not sensitive enough
to distinguish the subtle improvement of comprehension of
negation. This was one of the limitations of this study. Repeating
analysis with a larger data set might help to clear up this
ambiguity.

CONCLUSION & RECOMMENDATION

In conclusion, this study has indicated an evidence of the existence of an acquisition order of comprehending Cantonese negatives "無", "哈" and "未". It suggested that according to the cognitive capacity and language capacity, children's ability to comprehend different negative terms is different at different ages. In general, the acquisition and developmental order of Cantonese negative marker "無" concurs with Bloom's data on the developmental priority of the nonexistence category, and "未" was difficult for all. This information is helpful to in case of planning for language intervention. Appropriate language input of negation according to the comprehension ability of the children facilitates language development.

Confirmed by the results, there was significant difference between "無" and "未" in all three group, but not for the case of "哈" and "未". This implies that the difference between "哈" and "未" in the acquisition phase is too small to be distinguished as which one is prior to the other by this study. A more detail or comprehensive design is needed in further research to explore this aspect.

This study only aims at the comprehension of negative markers in Cantonese. Data on the semantic category of these negatives, and the actual usage of negative by children has not been investigated. A study in the form and function of negative production would also be useful in compliment this study.

24

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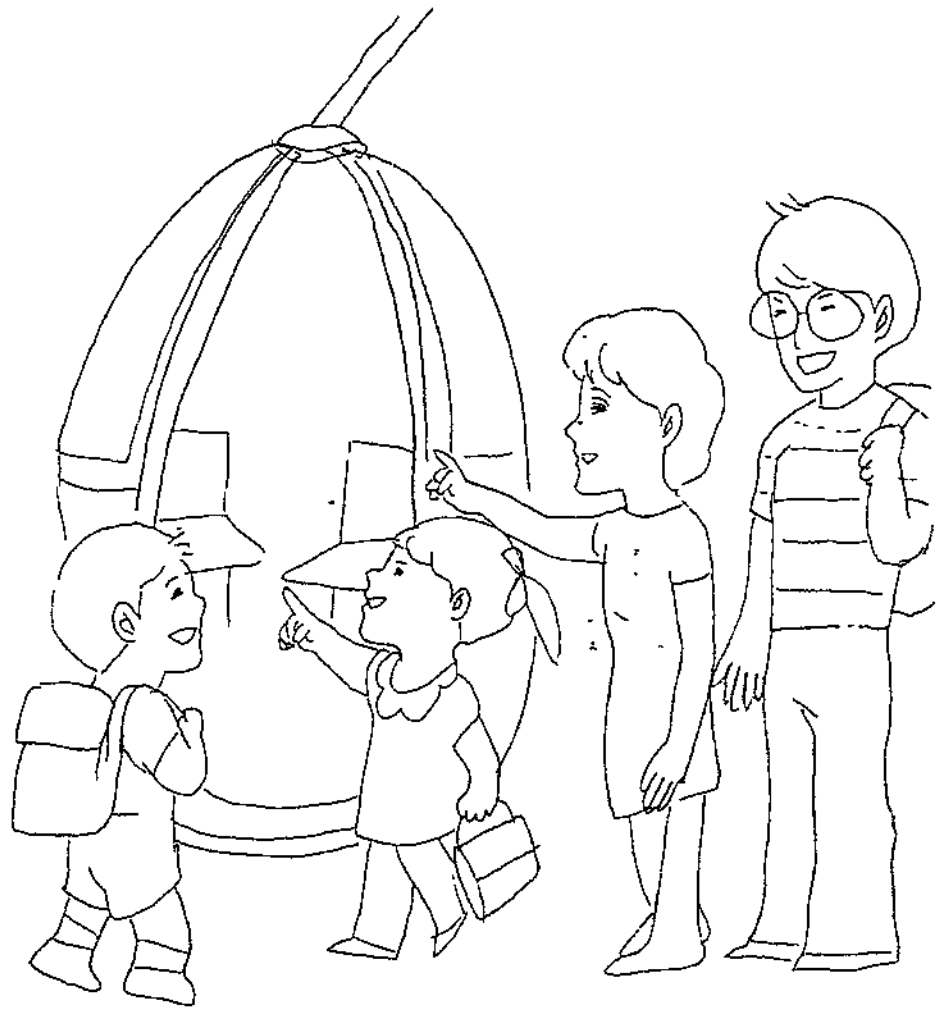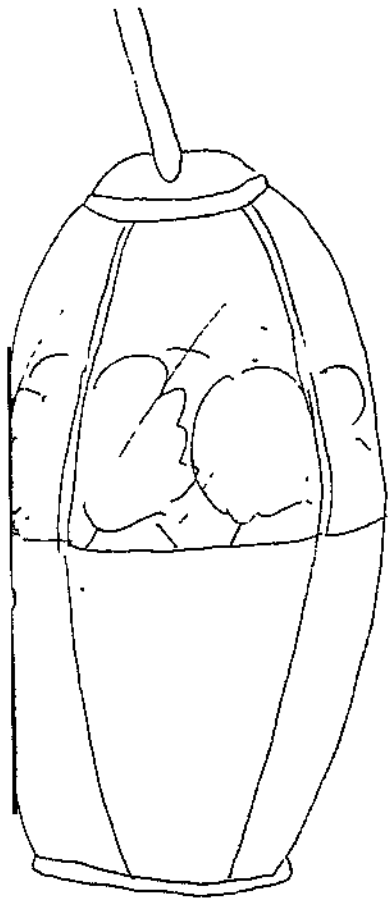Negation.<u>Journal of Children Language 4,</u> 87-102.
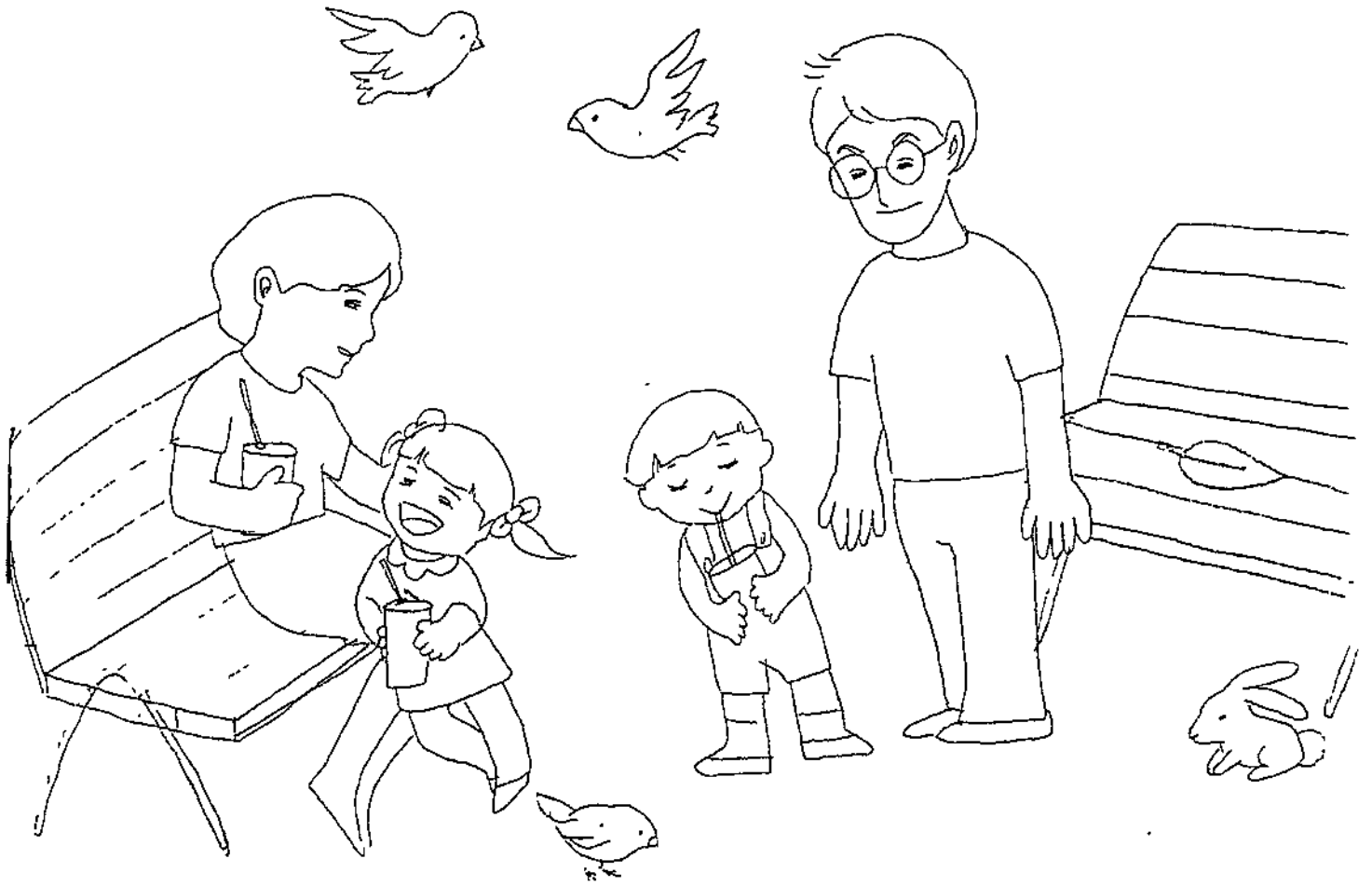
APPENDIX
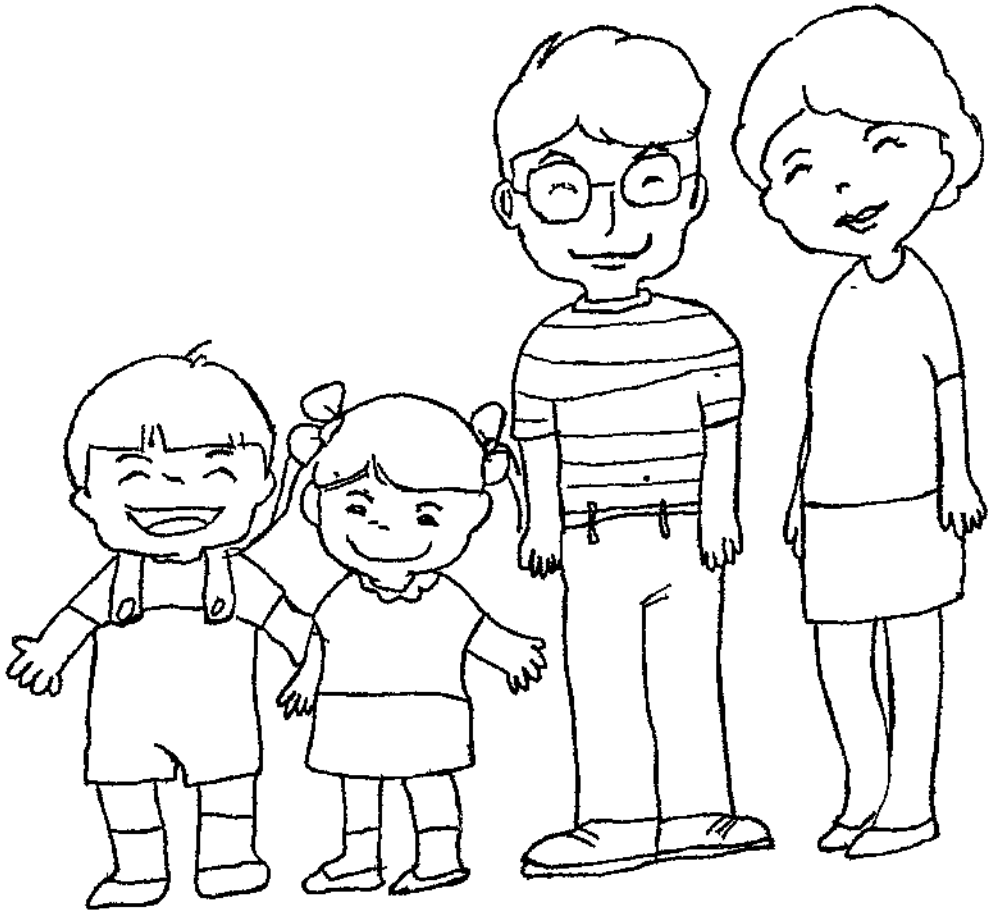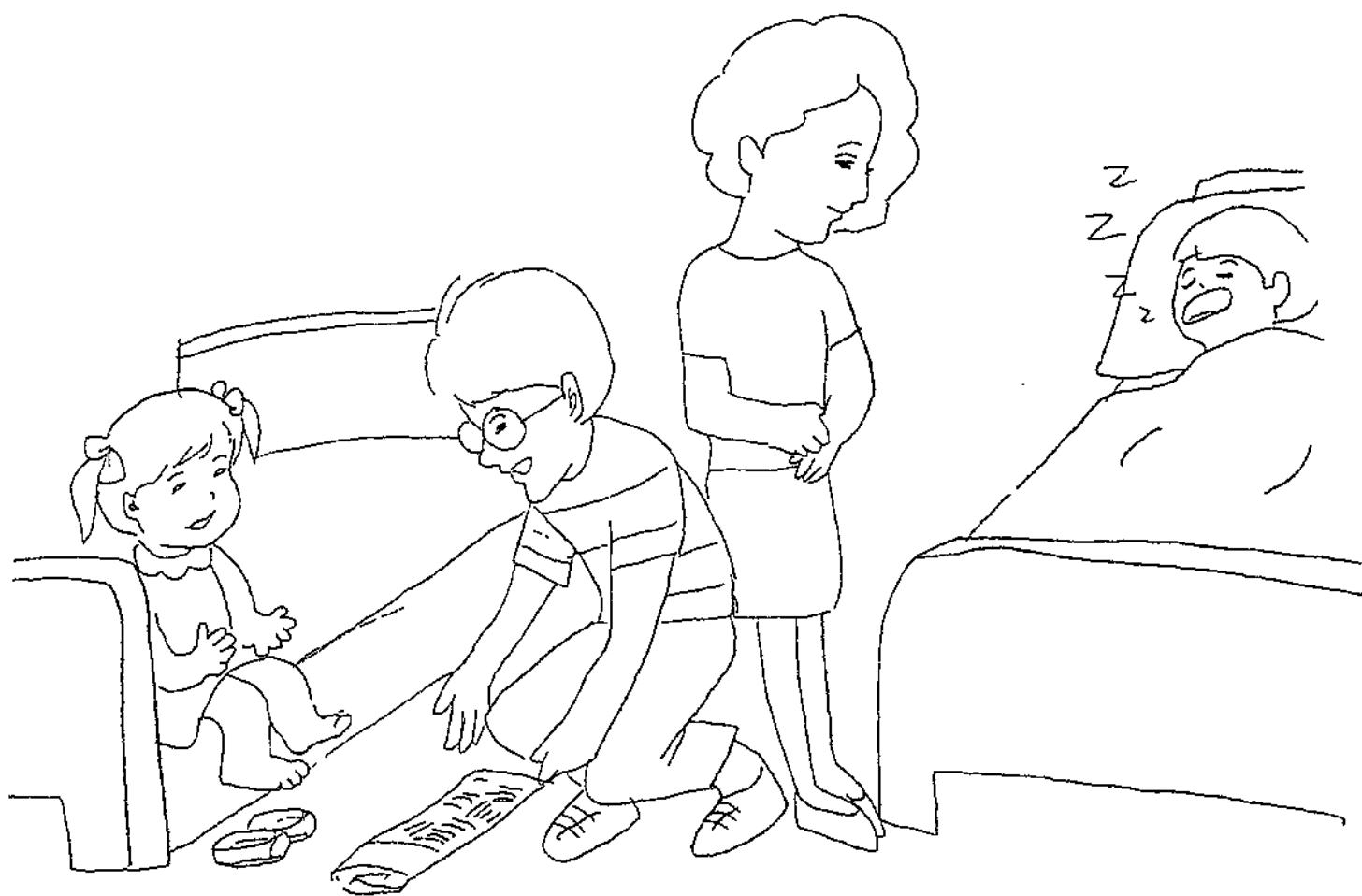
邊個 無唔未 著鞋 ？

邊個戴眼鏡 ？

邊個 無唔未 起身 ？

邊 架 吊 車 無唔未 載 人 ？

邊 架 車 門 無唔未 打 開 ？

邊個　無唔未　搓汽水？

　　　　　　　　　　　　　邊隻係白兔？

邊隻雀仔　無唔未　飛走？

邊個 　無唔末　 餵羊仔？

邊個影相？

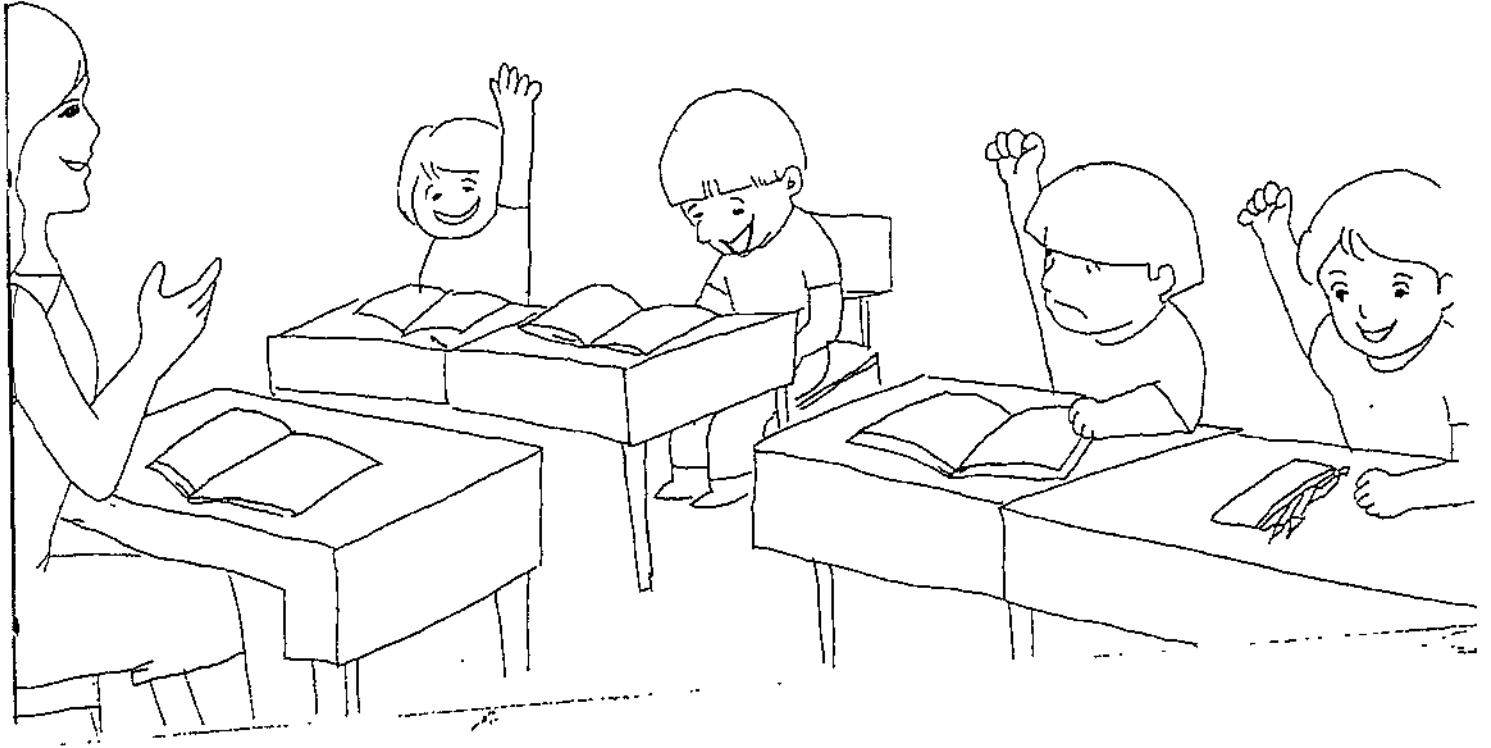邊隻羊仔 無唔末 食野？
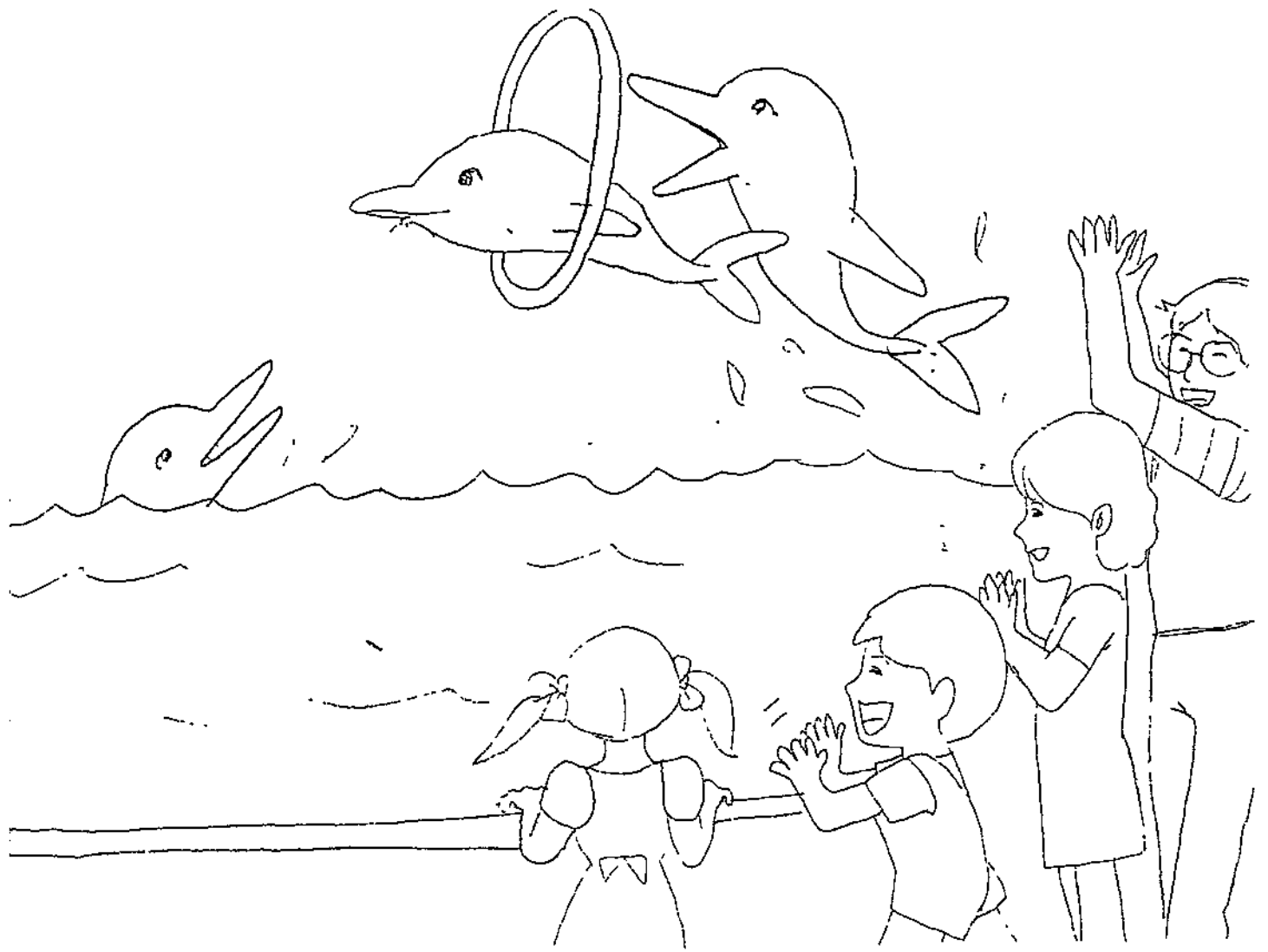
邊個 無唔未 拍手？

邊條海豚 無唔未 擘大口？

邊 個 唔
無
末 坐 低 ？

邊 個 唔
無
末 睡 覺 ？

邊個 唔(無)(末) 戴帽？

邊個 唔(無)(末) 咩書包？

邊　個　無唔末　舉　手？
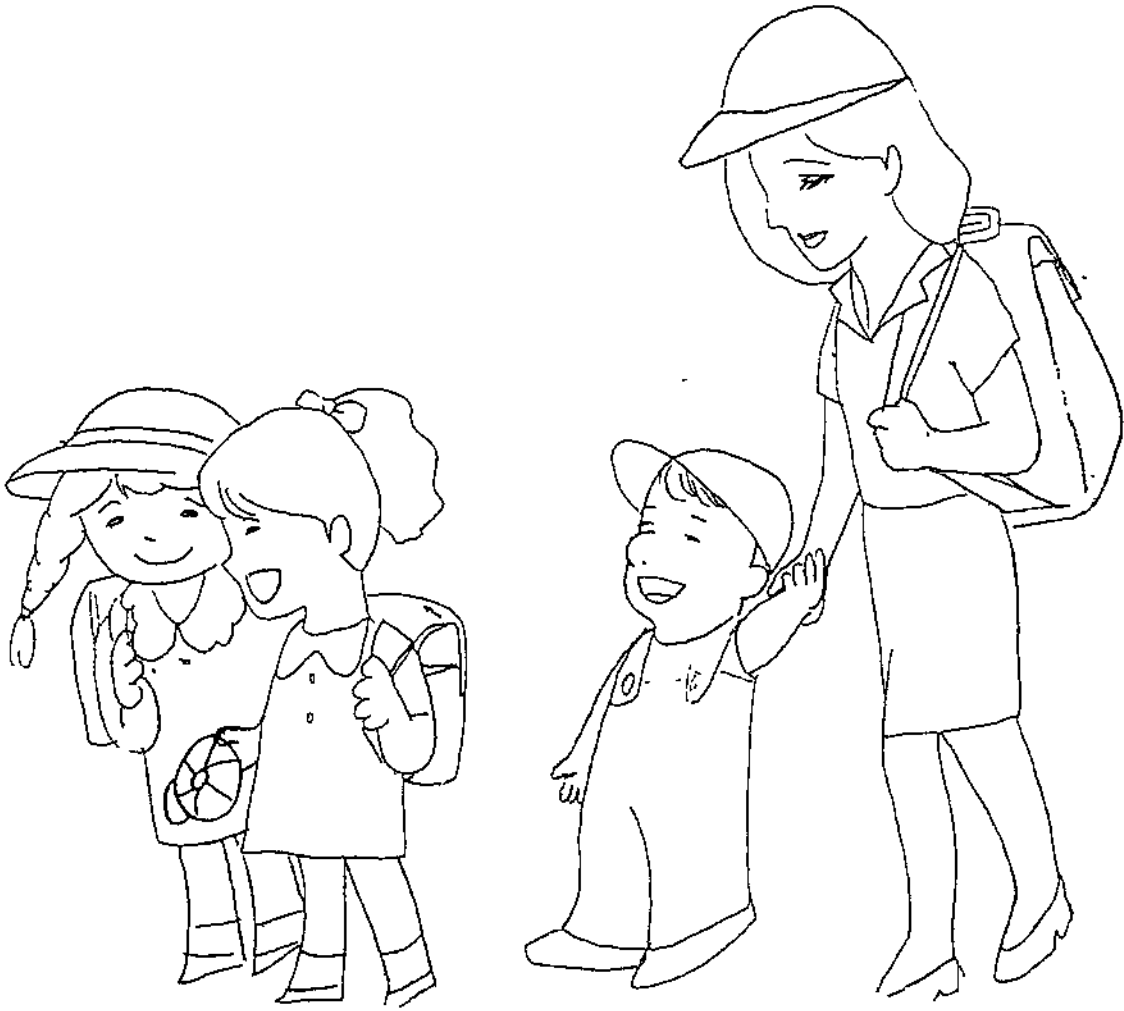
　　　　　　　　　　邊　個　係　先　生？

邊　個　無唔末　笑？

邊 個 無唔未 踢 波？

邊 個 無唔未 著 長 褲？
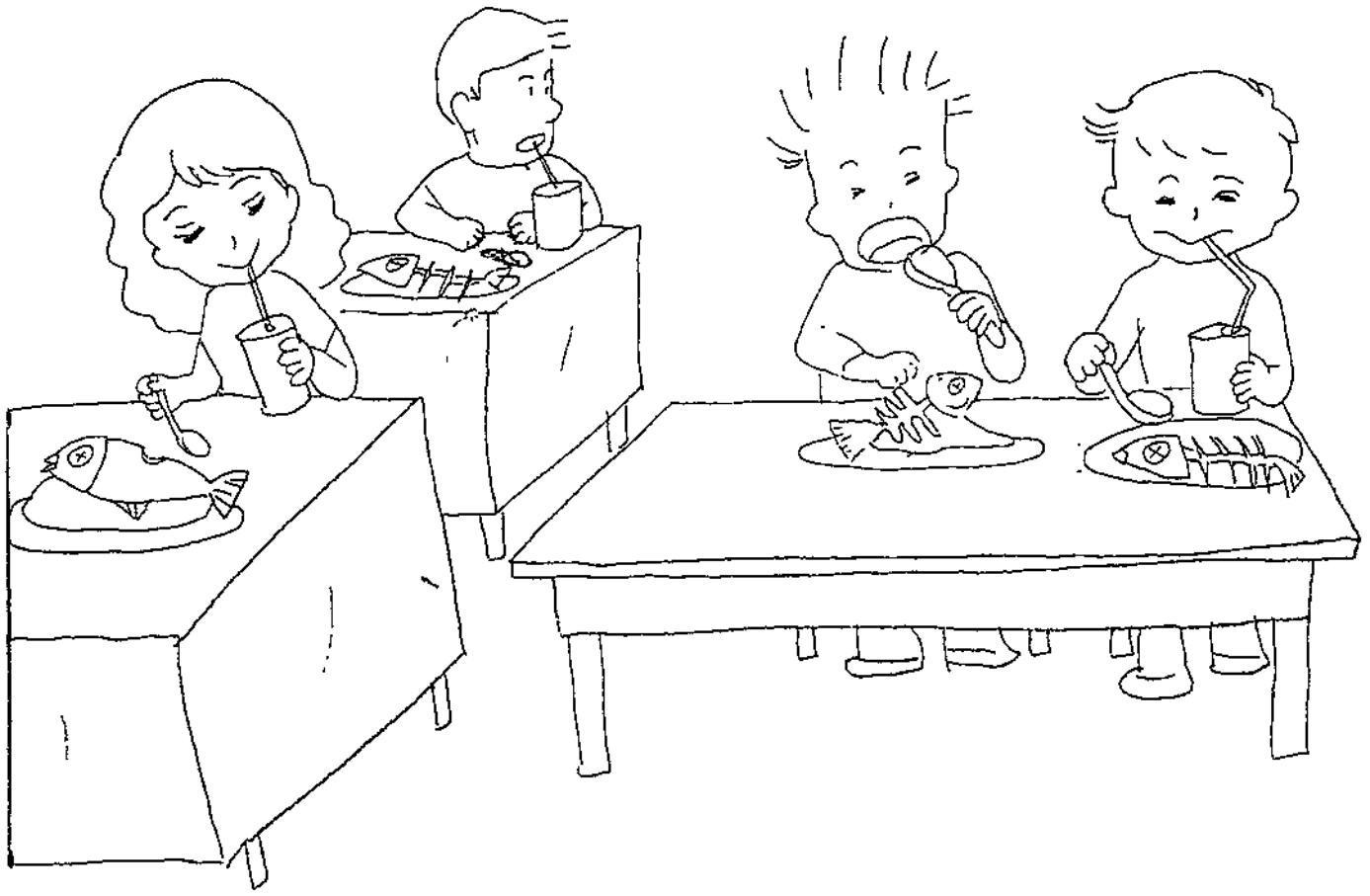
邊 個 無/唔/未 食晒 條 魚？

　　　　　　　　　　　　　　邊 個 係 女 仔？

邊 個 無/唔/未 飲 汽 水？

邊 個 無 唔 撮 花 ？
　　　　 未

邊 個 無 唔 唱 歌 ？
　　　　 未

邊　個　無　拜　拜　？
　　　唔
　　　未

邊　個　無　排　隊　？
　　　唔
　　　未
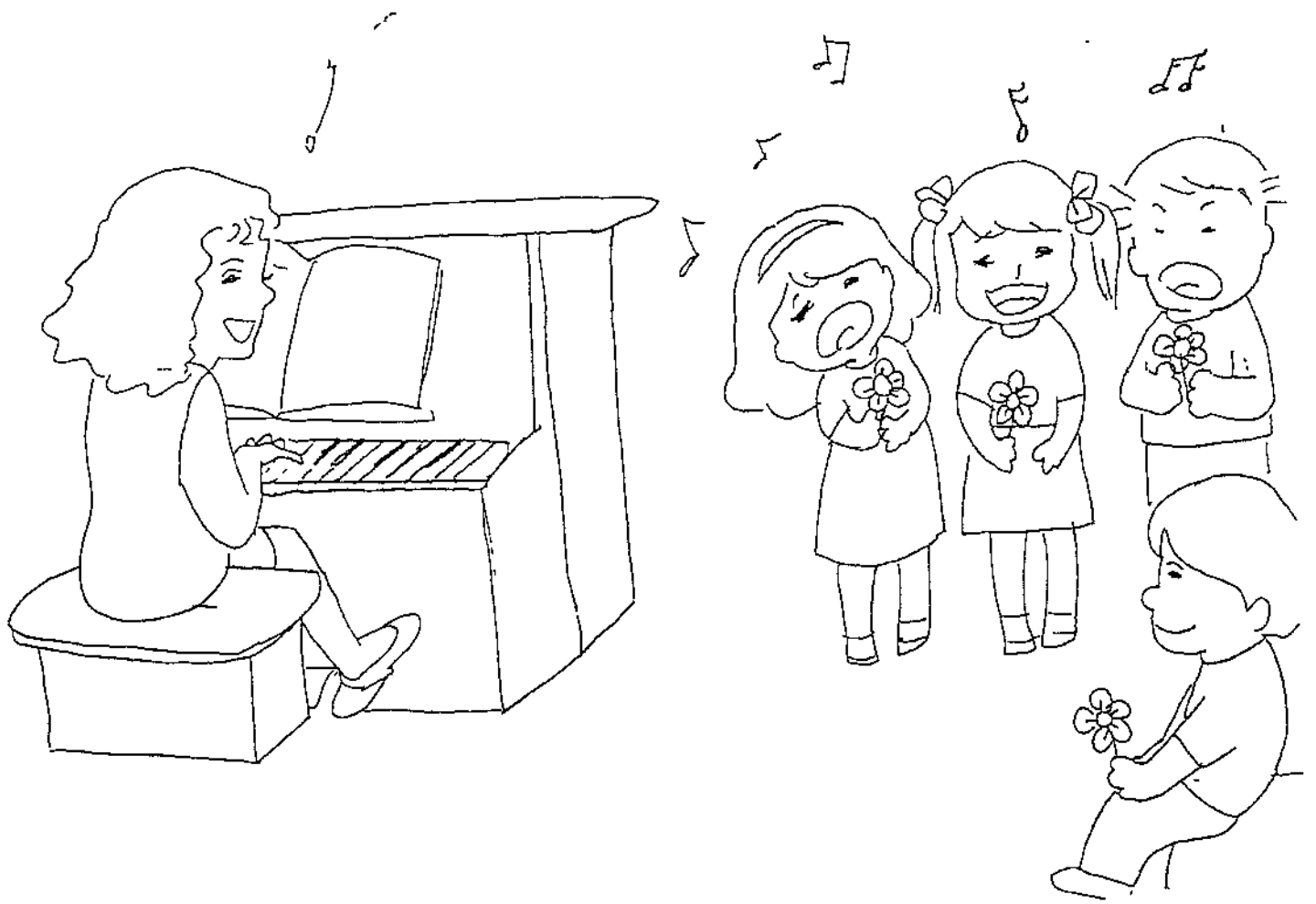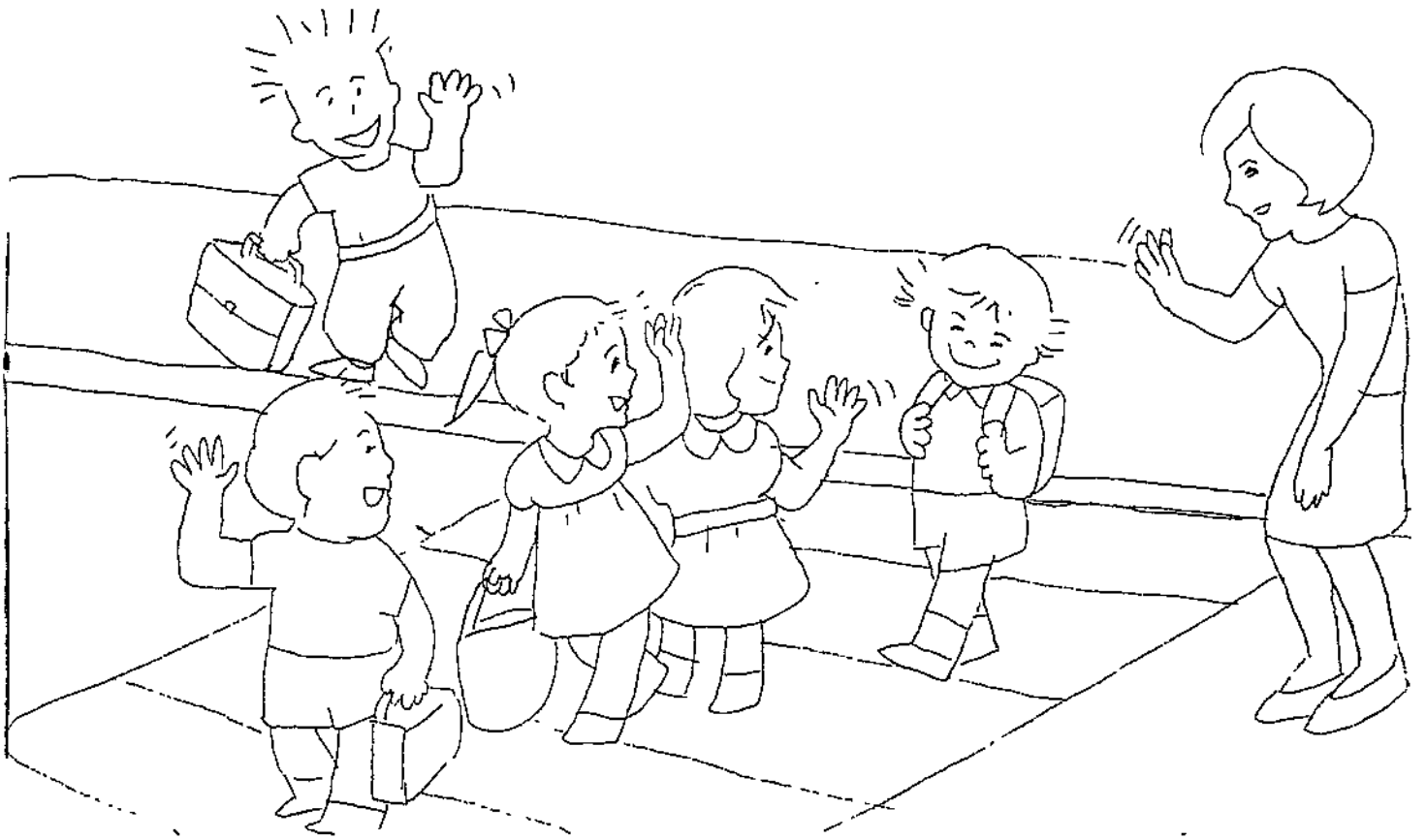
APPENDIX 2. LATIN SQUARES IN ASSIGNING THE THREE NEGATIVE

FORMS FOR EACH QUESTION

"無"　　　　　"唔"　　　　　"未"

1ST CHILD	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
2ND CHILD	P9	P10	P11	P12	P1	P2	P3	P4	P5	P6	P7	P8
3RD CHILD	P5	P6	P7	P8	P9	P10	P11	P12	P1	P2	P3	P4

"無"　　　　　"唔"　　　　　"未"

4TH CHILD	P1	P5	P9	P11	P2	P3	P6	P10	P4	P7	P8	P12
5TH CHILD	P4	P7	P8	P12	P1	P5	P9	P11	P2	P3	P6	P10
6TH CHILD	P2	P3	P6	P10	P4	P7	P8	P12	P1	P5	P9	P11

"無"　　　　　"唔"　　　　　"未"

7TH CHILD	P3	P5	P8	P12	P1	P6	P7	P10	P2	P4	P9	P11
8TH CHILD	P2	P4	P9	P11	P3	P5	P8	P12	P1	P6	P7	P10
9TH CHILD	P1	P6	P7	P10	P2	P4	P9	P11	P3	P5	P8	P12