# Workshop on Acquisition of Functional Categories in Asian Languages

The Chinese University of Hong Kong
December 26, 2007

## Program
## Abstracts

Organized by :

Language Acquisition Laboratory
Department of Linguistics and Modern Languages,
The Chinese University of Hong Kong

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## Alternate Papers

# A Word from the Organizers

Given that the locus of parametric variation resides in functional categories, and considerable diversity is observed in the realization of functional categories in typologically distinct languages, the present workshop has been organized to explore the properties of functional categories in Asian languages from the perspective of language acquisition, and to enhance understanding of the ontogenetic development of these categories.

We are honored to have Stephen Crain presenting a keynote address on his recent research into innate semantic properties of language, related to focus and scope of disjunction. We are also honored that Kenneth Wexler will be participating in the workshop to comment on various presentations. We wish to thank Samuel C. S. Leung, Benjamin Tsou, Chuming Wang and William Wang for chairing various sessions of the workshop.

Various presenters at the workshop will discuss aspects of the functional categories of DP, IP and CP, examined from the vantage point of different languages. We expect to have an exciting forum on functional categories drawing from the richness of Asian languages.

We wish to express sincere gratitude to the following scholars who helped us review abstracts: Hintat Cheung, Dongfan Hua, Keiko Murasugi, Mineharu Nakayama, Yi-ching Su, Gladys Tang, Virginia Yip. We received a total of 20 abstracts for the workshop, which were generally of good quality, out of which 9 were selected. Each abstract was assessed and rated anonymously by four to five scholars, and the selections were based exclusively on the reviewers' ratings and reports.

A very warm welcome to the workshop!

Thomas Hun-tak Lee
For The Organizers
Workshop on the Acquisition of Functional Categories in Asian Languages

## Organizers

Thomas Hun-tak Lee
Gloria Poon
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## Acknowledgments

We wish to thank the administrative staff and student helpers of GLOW in Asia VI for their assistance in the organization of the workshop.

We express heartfelt thanks to Zeno Wong for the design of the bookcover and workshop poster.

The generous funding support of the Haide Association and an anonymous banker is hereby acknowledged.

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# Keynote Address

# Bringing Logical Form into Focus

*Stephen Crain*
MacQuarie University

To understand sentences with a focus operator (e.g., English *only*, Japanese *dake*) language users must compute two propositions, the presupposition and the assertion (e.g., Horn 1969). The presupposition pertains to the element in focus, and the assertion is about a set of contextually established alternatives that are being contrasted with the element in focus. For example, the statement "Only Max only has a yo-yo" presupposes that Max (the focus element) has a yo-yo, and it asserts that everyone else (being contrasted with Max) does not have a yo-yo.

In certain experimental tasks, children have been found to produce non-adult responses to sentences with a focus operator, both in English and in Chinese. There are two main accounts of children's non-adult responses. One contends that children know the two meaning components of focus operators but initially associate these expressions with the verb phrase regardless of their surface position in the sentence (Crain *et al.*, 1994; Philip & Lynch, 2000). The second account supposes that children produce non-adult responses across-the-board to sentences with focus operators, because children lack the computational resources to mentally compute contrast sets (Paterson *et al.*, 2003). To adjudicate between these accounts of children's non-adult responses in previous research, we concluded a longitudinal study of two English-speaking 2-year-olds. By 2;6, both children responded correctly on a majority of trials in which *only* was associated with the VP, as in "Who only has a yo-yo?", and by 2:10, both children consistently computed the assertion of such sentences. In contrast to adults, however, these children also associated *only* with the VP in sentences like "Only Eeyore has a yo-yo," so they rejected the sentence if Eeyore had a skateboard as well as a yo-yo. In addition to this longitudinal study, we have investigated the acquisition of focus operators with Japanese-speaking children and with Chinese-speaking children. The findings of these studies, too, support the proposal that children know both of the meaning components of focus operators, but may not reveal this knowledge if they are presented with certain types of sentences, due to a non-adult association of the focus operator and the element in focus in some sentence structures. Taken together, the findings reveal that children as young as 2:10 are fully able to compute contrast sets, despite certain highly circumscribed differences between children's grammars and those of adults.

# Paper Presentations

# Processing Nominal and Verbal Suffixes by Chinese and Japanese Learners of Korean

*Hee-Don Ahn, Jeong-Im Han, Jinju Hong, Jong-Bai Hwang, Injae Lim*
Konkuk University

**1. Introduction & Goals.** It is generally assumed that morphological system can differ considerably among languages. Inflected noun and verb forms, for example, vary cross-linguistically: In isolating languages like Chinese, words are mainly uninflected, whereas in agglutinative languages like Japanese and Korean, rich and transparent inflectional morphology is employed. It has also been proposed that difference in processing inflections hinges on the typology of morphological systems (Hankamer, 1989). A related issue is how L2 learners display processing of inflectional morphology in relation to their L1: in particular, if L1 and L2 are typologically similar, like Japanese and Korean, or typologically distant from each other, like Chinese and Korean. In this regard, we aim at exploring the effect of two typologically very different L1s, Chinese and Japanese, on the on-line morphological processing of Korean nominal and verbal suffixes. In the psycholinguistics literature, there are at least two alternative ways to recognize morphologically complex words: (i) Decomposition model: recognition of an inflected word involves decomposing it into a stem plus suffixes (Pinker & Ullman, 2002), (ii) Full-listing model: every inflected word is recognized as a monomorphemic whole word (McClelland & Patterson, 2002). To address this issue, the present study investigates morphological processing of inflected nouns vs. verbs by L1 Koreans and by L2 learners of Korean.

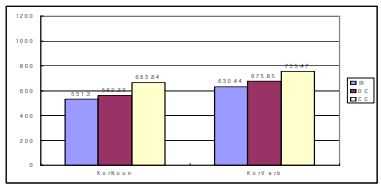
**2. Methodology.** Two groups of late L2 learners with typologically different native languages, Japanese and Chinese, as well as native Korean, participated in a visual lexical decision task, and their reaction times (RT) were measured. In the immediate repetition priming paradigm, 120 related prime-target pairs of words (nouns and verbs) and 120 fillers were created, 20 pairs of which were posited for each of the three conditions: Identical Repetition (IR) (the same words for the prime and target), Derived Condition (DC) (noun plus nominal suffix or verb stem plus verbal suffix followed by the same noun or verb), and Control Condition (CC) (two separate words for the prime and target).

**3. Results.** The results for Korean subjects showed that for nouns, there was priming in DC as much as in IR, but not in CC; however, for verbs, there were no statistically significant RT differences between IR and DC, nor between DC and CC [Figure 1-A]. These results suggest that noun plus nominal suffixes are completely decomposed, while verb and verbal suffixes showed intermediate status: they were not processed as a single, unanalyzed unit, but neither completely decomposed. The Chinese learners showed there was priming in DC for both nouns and verbs, suggesting a clear morphological decomposition in either case [Figure 1-B]. The Japanese learners showed similar priming effects to Korean and Chinese in nouns; however, in verbs the RT for DC and CC were similar, indicating full-form processing of inflected verbs [Figure 1-C].

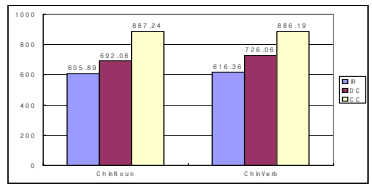
**4. Interpretation and Discussion.** For native Koreans, inflected nouns prime their stems, hence supporting decomposition model (i), whereas inflected verbs are not fully decomposed, thereby the status of verbal suffixes neither supports full decomposition nor full-listing with respect to morphological processing models. Our experiments further reveal the strong effects of L1 on the recognition of L2 Korean inflected nouns and verbs: The magnitude of the priming effects is the same for all inflected categories by the Chinese speakers, while priming effects are detected only for inflected nouns by the Japanese speakers. Thus, processing inflected nouns always employs morphological decomposition irrespective of L1. By contrast,

in morphological processing routes on verbs, no uniform results are obtained: Chinese speakers employ full decomposition processing, while the Japanese employs no decomposition. We propose that L1 structure plays a crucial role in processing inflected verbs for Chinese and Japanese speakers. In other words, this asymmetry hinges on the typological differences between these two languages: i.e., analytic features for Chinese verbs vs. agglutinative (and somewhat fusional) features for Japanese verbs. We suggest that the Chinese speakers' tendency originates from the very analytic feature of Chinese morphology, while the Japanese speakers' result shows the discrepancy between inflected nouns and verbs. To explore the possible reason for the problematic result, their data were further examined according to their proficiency levels. Figure 2 and Figure 3 show that in the beginning level of Japanese subjects, there are no priming effects at all in DC and CC for both inflected nouns and verbs, but the advanced Japanese subjects uniformly show a morphological processing cost for both inflected nouns and verbs. We suggest that for the beginning level of Japanese speakers some "fusional" property of verbal morphology in their native language is directly transferred to them, hence consequently, they process inflected verbs in Korean as unanalyzed full forms. Note that transferring the fusional feature from L1 Japanese verbal morphology disappears in the advanced level, and in fact, parallel to Chinese speakers, advanced Japanese learners of Korean decompose inflected verbs more robustly than native Koreans, which supports the general view that L2 morphological processing seems to be more susceptible to compositional processing than L1. In sum, the present experimental study shows that L1 transfer of morphological systems seems to occur extensively, and it takes place more strongly in the beginning stage of L2 acquisition.

## [List of Figures]



IR DC CC IR DC CC
.999 .041 .999 .271
[A]




IR DC CC IR DC CC
.874 .001 .509 .027
[B]

IR DC CC IR DC CC
.789 .000 .049 .227
[C]

Figure 1. Pooled reaction time data (ms) of the Korean native speakers [A], the Chinese learners [B], and the Japanese learners [C] (IR=identical repetition, DC=derived condition, CC=control condition). P-values were given for each case.

IR DC CC IR DC CC
.001 .000 .000 .000

Figure 2. Pooled reaction time data (ms) of the beginning level of Japanese learners

IR DC CC IR DC CC
.085 .000 .095 .000

Figure 3. Pooled reaction time data (ms) of the advanced level of Japanese learners

# Undifferentiated Functional Categories in Child Japanese: Classifiers and its Syntax

*Dansako Masahiko*
Kyushu University

This study aims at clarifying how Japanese-speaking children develop the system of noun-related functional projections. Focusing on the wide variety of word orders in the so-called classifier construction, we present new perspective about acquisition of functional categories which should be analyzed as the process of differentiation of undifferentiated categories. In Japanese, numeral-classifier combination can be variously placed in the vicinity of the head noun as described in (1). (Words in the parentheses represent the order of the relevant parts indicated by boldface.)

(1) a. John-wa **hon san-satsu-o** katta. (N + numeral-classifier + case)
John-TOP book 3-CL-ACC bought

b. John-wa **san-satsu-no hon-o** katta. (numeral-classifier + GEN + N + case)
c. John-wa **hon-o san-satsu** katta. (N + case + numeral-classifier)
d. Jonn-wa **san-satsu hon-o** katta. (numeral-classifier + N + case)
'John bought three books.'

The question is why Japanese allow various word orders in the classifier construction. This construction is closely examined in Watanabe (2006), which tackles the above-mentioned question and claims it is necessary to assume the existence of noun-related functional projections, specifically, #P, CaseP, QP, and DP in adult syntax and of DP-internal phrasal movement driven by EPP feature of each functional head. The important point of this analysis to note here is that whether this movement takes place or not is a source of parametric variation. If this is the case, what children must do is to set the appropriate value corresponding to their language in the course of language development. The question of this study then arises about how they acquire functional categories proposed by Watanabe (2006). In order to settle this question, we discuss the acquisition order in light of two well-known hypotheses: Strong Continuity Hypothesis (Whitman et al. 1991) and Weak Continuity Hypothesis (Radford 1996). Because the former holds that children have functional categories as well as adults have, all relevant patterns of utterances should be expected to be produced at the same time. Adopting the latter option, we expect functional projections to be acquired in a bottom-up fashion (#P > CaseP > QP > DP), and therefore the specific acquisition order, (1a) > (1b) > (1c), to be observed. This is because, in Watanabe (2006), #P and CaseP are necessary to derive (1a) and #P, CaseP and QP must be projected to generate (1b). In a similar fashion, DP including its lower projections is necessary for (1c). In order to verify these hypotheses, we analyze the production data of six children obtained from CHILDES database (MacWhinney 2000). The result of our survey suggests that there are at least three stages on the development of classifier construction as shown in (2). Each stage is based on observations of first appearance of each construction.

(2) a. Stage 1: N + numeral-classifier

b. Stage 2: N + case + numeral-classifier, numeral-classifier + N + case
c. Stage 3: numeral-classifier + GEN + N

In Stage 1, we find, for example in 1;9, "*chunchun mit-tsu*" ((sparrow 3-CL) 'There are three sparrows.') which is classified into the pattern of [N + numeral-classifier]. Then, in Stage 2, the two patterns appear: [N + case + numeral-classifier] and [numeral-classifier + N + case]. For instance, the former type is "*otochan odeki-ga futa-tsu dekita*" ((father boil-NOM 2-CL had) 'Father, I had two boils.' observed in 2;5), which corresponds to (1c), and the latter type is "*futatsu-mo eki-ga aru-ja-nai*" ((2-CL-also station-NOM have-COP-NEG) 'Aren't there two stations?' uttered in 2;7) corresponding to (1d). As development proceeds to Stage 3, the pattern [numeral-classifier + GEN + N] equal to (1b) is observed in 3;3: "*okaachan boku hito-tsu-no hai korositan-yo*" ((mother I 1-CL-GEN mosquito killed-SFP) 'Mother, I killed one mosquito.') Two important points can be found from these stages: (i) Not all the relevant patterns appear; (1a) is not attested and (ii) observed acquisition orders are (1c) > (1b), which means they are not acquired at the same time. Interestingly, these points can not be analyzed by either Strong Continuity Hypothesis or Weak Continuity Hypothesis. Then, how should we capture this acquisition process? We propose that two types of classifiers exist in Japanese. The first type of classifier, appearing from first stage of language development, has the head property, but its categorial label is underspecified F, so it does not take one specific complement unlike usual categories (e.g., V selects NP and I selects VP). Therefore, this underspecified head can take NP and CaseP as its complement. Given that Japanese is a so-called head-final language, the structure of sentence uttered in Stage 1 and 2 can be described as in $[_{FP}\ [_{NP}$ chunchun] $[_{F}$ hitotsu]], $[_{FP}\ [_{CaseP}$ odeki-ga] $[_{F}$ futatsu]] respectively. This assumption seems not unnatural. Considering the acquisition of numeral classifier is relatively late (cf. Yamamoto and Keil 2000), it seems possible that they regard numeral-classifier combination as one word not composed of numeral plus classifier. Therefore it is not until that they acquire specific numeral classifiers that they can find these expressions are composed of numeral-classifier combination. This process is differentiation of undifferentiated functional categories we propose. This combination, the second type numeral-classifier in our analysis, is derived in the syntax via the application of Merge, constitutes phrase and adjoins NP or VP. Introducing this system lets us derive the structure $[_{VP}$ futatsu $[_{VP}$ eki-ga aru]] and $[_{NP}$ hitotsu no $[_{NP}$ hai]] in Stage 2 and 3 respectively. It should be concluded, from what has been said above, that the acquisition of functional categories should be analyzed as the process of differentiation of undifferentiated functional categories. Our proposals, unlike Watanabe (2006), imply the possibility of deriving the wide variety of word orders in classifier construction without postulating DP-internal phrasal movement.

**Selected References**

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Watanabe, Akira (2006) "Functional Projections of Nominals in Japanese: Syntax of Classifiers," *Natural Language and Linguistic Theory* 24, 241-306.

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# The Acquisition of Aspects in Japanese and its Implications for Acquisition Theory

*Chisato Fuji and Keiko Murasugi*
Nanzan University

This paper discusses the acquisition of so-called aspectual *-te iru* construction in Japanese in (1) and its implication for the Null Functional Head Hypothesis (Murasugi 2007), which proposes that the children's "errors" reflect the intermediate acquisition stage where children have difficulty in assigning appropriate phonetic content to the functional head occurring in strings of the form "Verb-Functional Head."

(1) a. Kare-wa hon-o yon-de iru / doru (progressive)
he -TOP book-ACC read-*te iru* / *toru* 'He is reading a book.'
b. Yuki-ga tumot -te iru / toru (perfective)
snow-NOM lay *-te iru* / *toru* 'The snow lay.'

The aspect marker *-te iru,(*or *–toru* and *-yoru* in such dialects as Setouchi dialect in the west part of Japan) is an affix that attaches to verbal elements in the adult Japanese. The construction allows two different kinds of interpretation: the progressive interpretation (1a) and the perfective interpretation (1b) (Kindaichi 1950, Okuda 1985, Jacobsen 1992, Mihara 1997, Ogihara 1998, Aono 2006, among others).

In this paper, based on our analysis of CHILDES corpus of SUMIHARE (MacWhinney 2000) from 1;07 to 4;11 and the data presented in the previous researches (Okubo 1967, Ito 1990, Murasugi and Hashimoto 2004, Murasugi, Hashimoto and Fuji 2007, among others), we first report two empirical findings regarding the aspectual phrases. First, *-te iru* (*-toru*) sentences start to appear both in progressive and perfective contexts at around 2;2 to 2;3 of age as shown in (2a-d).

(2) a. Akatyan -ga mi -te-ru yo (2;2) (progressive)
baby -NOM see-*te-(i)ru* INT 'The baby is watching (me).'
b. Kaatyan nani chi-toru n? (2;3) (progressive: Setouchi dialect)
Mommy what do-toru Q 'Mommy, what are you doing?'
c. Batyu -ga yappari kon -de-ru ne (2;2) (perfective)
bus -NOM surely be crowded *-te-(i) ru* INT
'The bus is crowded as I expected.'
d. Mada nokot -toru (2;2) (perfective: Setouchi dialect)
still remain *-toru* 'There are still some left over.'

Second, before *-te iru (-toru*) appears, the aspectual head realizes phonetically null; utterances like (3a,b) are found.

(3) a. Mada nai-#ta (2;2) (adult form: nai-te iru)
still cry-PAST '(He) still cried.'
Intended meaning: (He) is still crying.
b. Child: #Nak-u #nak-u (2;1) (adult form: nai-te iru)
cry -PRES cry -PRES '(He) cries, cries.'
Intended meaning: (He) is crying.

Father:Dare-ga nai-te-iru no?
who-NOM cry-*te-iru* Q 'Who is crying?'
("#" indicates that the produced form is not appropriate in the discourse context.)

In (3), the predicate is in the simple present or past tense form, though the meaning of the sentence is clearly that of its *-te iru(-toru)* counterpart. (3a) is particularly telling in that the adverb *mada* (still) would require that the predicate be *nai-teiru* (cry-Aspect) instead of *nai-ta* (cry-Past) in adult Japanese. This type of error suggests that the aspectual head is phonetically null in children's grammar while it is present in their syntactic representations.

Then, we compare these results with the intermediate acquisition stages of other constructions such as potentials, causatives, passives, and simple transitives/intransitives, and discuss that the property in question is ***not*** limited to the acquisition of *-te iru*. Murasugi and Hashimoto (2004) report that the causative suffix *-sase* is often omitted in child Japanese as in (4), and that children make errors in transitive-intransitive alternation as in (5).

(4) Aririn -ga Yuutyan-ni pazyama -o *#kigae* -*ta*. (4;3)(adult form: kigae-sase-ta)
-Nom -Dat pajamas -ACC change -PAST
'Aririn changed clothes to Yuu.'
Intended meaning: Aririn made Yuu change her clothes. (Murasugi and Machida 1999)

(5) Oniityan-ga *#aka* nai. (2;9) (adult form: ake nai)
brother-Nom be-opened not 'Brother is not opened (the door).'
Intended meaning: Brother does not open (the door). (Ito 2005)

In (5), the intransitive form of the verb meaning 'open,' *ak-*, is present even though the transitivizer *-e* is required as in *ak-e* (open-Transitivizer). They analyze that given that lexical causative *-sase* and (in)transitivizers are kinds of the functional category *v* (Murasugi and Hashimoto 2004, Harley 1995, 2006), **the nature of these errors can be understood if children have difficulty in assigning appropriate phonetic content to the functional head occurring in strings of the form "Verb-Functional Head."** Errors we find in the acquisition of the *-te iru* construction have exactly the same property, given that *-te iru* creates a functional head.

Our analysis of non-adult-like utterances like those in (3-5) supports the Null Functional Head Hypothesis (Murasugi 2007), and provides a new perspective on the small clause hypothesis (Radford 1990). **Those acquired late are not functional categories per se, but their mophophonological realizations, contra the small clause hypothesis.**

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# Acquiring Number and Referentiality in a Classifier Language

*Miao-Ling Hsieh*
National Taiwan Normal University

In general, the syntactic acquisition of a nominal by a Chinese speaking child is of typological interest because of the following three characteristics in a Chinese nominal. First, Chinese does not have definite/indefinite articles such as *the* and *a* in English. Second, as a classifier language a Chinese noun cannot be counted without the use of a classifier. Third, Chinese seems to lack plural morphology. Fundamentally, those characteristics are related to two major issues: number and referentiality. The former refers to the notion of singularlity/plurality in grammar, while the latter concerns how a noun phrase is interpreted: definite/indefinite/non-referential. As the theoretical studies of a nominal develop, the focus on the syntactic acquisition of a nominal also shifts. As far as number is concerned, if it is correct that plural morphology and classifiers occupy at the same syntactic position, i.e. Cl(assifier)P, as argued in Borer (2005), it may be interesting from a typological view to see how the acquisition of classifiers in Chinese are parallel/unparallel to the acquisition of plural morphology in a language such as English. In terms of referentiality, a typological issue is to see whether the acquisition of referentiality is harder for a Chinese speaking child than an English speaking because a noun phrase in Chinese is subject to more possible interpretations, bare or not so bare (Cheng & Sybesma 1998, 1999, Yang 2001, Chen 2004, Hsieh 2005, 2007, Tang 2007, among others). The ultimate concern, of course, is whether there is evidence showing an acquisition theory works better than others.

To begin to explore the above issues, this paper focuses on the use of classifiers and the related issue of number and referentiality. Based on the spontaneous data of a Mandarin speaking child collected since he was 1;0 till 4;1 (up to now) (including diaries and recorded data every other week for 50-60 minutes each session), some of the initial findings of this paper are given as follows:

1. Though *zhe ge* appears very early on, yet it is until later that *zhe ge* actually occurs with a head noun. This may indicate that *zhe ge* is first used as an unanalyzed *pro*-form, arguably occupying a D(eterminer) position. (cf. Chang-Smith 2007)
2. The child may begin to form the grammatical notion of number early:

(1) liang ge zhege (2;0)
two CL this ‘these two’

(2) liang ge wuawu (2;6)
two CL car:with:siren ‘two cars with siren’

3. In addition to the general classifier *ge*, the second classifier *ben* (a classifier for nouns denoting texts) occurs at 2;3. Moreover, by the age of 4;1, more sortal classifiers are acquired than mensural classifiers.

4. Sortal classifiers such as *ben* (a classifier for nouns denoting texts), *jian* (a classifier for articles such as clothing), *tiao* (a classifier for long, slender objects), *pian* (a classifier for flat objects) are found to be used as nouns starting the age of 3;0.

(3) Wo qu na [da ben] (3;0)
I go take big CL 'I'll go get the big one.'

(4) chuan [biede jian] (3;3)
'wear other CL 'wear others'

(5) nian [na yi ge ben] ? (3;6)
read which one CL CL 'Which one to read?'

5. Even up to 3;10, the child still makes mistakes in supplying inappropriate classifiers or leaving out classifiers:
a. Errors of overextension, e.g.

(6) [zai yi zhang] (2;10) (asking for a piece of tape) (cf. zai yi duan)
again one CL 'one more piece of tape'

b. A kind is referred to as an individual, e.g.

(7) Wo yao zuo [na ge chezi] (3;6) (cf. na zhong chezi)
I want ride that CL car 'I want to ride in that car.'

c. The general classifier *ge* is used instead of a more specific one, e.g.

(8) [yi ge mi] (3;7) (cf. yi li mi)
one CL rice 'one grain of rice'

d. Not correctly associating with how the object is divided, e.g.

(9) Wo yao zai chi [yi ke dan] (3;7)(cf. yi kuai dan)
I want again eat one CL egg 'I want to eat one piece of egg.'

e. Not using a classifier for a numeral when the number is big, e.g.

(10) [yibai zhadan] (3;10) (cf. yibai ke zhadan)
one-hundred bomb 'one hundred bombs'

6. Though numerals are used early on to occur with classifiers, yet the referential function of a numeral is not yet fully acquired.

(11) [yi tiao yu] zhen haochi, [yi tiao yu] wo zui xihuan chi (3;7) (cf. zhe tiao yu/yu)
one CL fish really delicious one CL fish I mot like eat
'I like to eat the fish. I like fish the best.'

The above findings and others are discussed and compared to the acquisition data of English. Their significance in the acquisition of related functional categories is also included. For example, it is found that while the time that the child starts to use classifiers productively is quite similar to the acquisition of the plural suffix in English in terms of age (e.g. Brown 1973), the mastery of the classifier system takes time because each of the classifiers has its own meaning in addition to being a divider. On the other hand, the child's acquisition of referentiality is a lot slower compared to that of articles in English (e.g. Brown 1973). This again may have to do with the fact that a noun phrase is subject to more possible interpretations due to he lack of definite/indefinite articles, which makes it harder for a Chinese child to fully develop his D(eterminer) head. Overall, we conclude that the appearance of a functional category may be early across languages, but the mastery of them may take time depending on the specific demand of a functional category in a language. Our findings may in some sense support the Weak Continuity Hypothesis, but not the Strong one.

# The Emergence of DE in Mandarin-speaking Children's Early Nominals

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Since Brown's (1973) observation of 'telegraphic speech' in child English, optional or no use of functional markers including inflectional markers and determiners in early language development have been well documented in English (Radford 1990) and in many other languages such as French (Pierce 1989), German (Wexler 1994) and Dutch (Weverink 1989). There exist different views of the acquisition phenomenon, reflecting a lack of consensus on the status of functional categories in early child grammar. One view attributes children's omissions of functional morphemes to absence of full functional structures like DP, IP or CP, arguing that early grammar is 'asyntactic', with only lexical projections similar to adults' small clauses (Radford 1990). Another view attributes children's variable or null use of functional items to some deficits in syntactic representations in early child grammar, such as no projection of the functional category of TP in all clauses at the optional infinitive stage (Wexler 1994) or truncation of functional structure below CP (Rizzi 1994). Such views adopt a maturational perspective of syntactic development: child syntax matures. In contrast to the maturational perspective, some researchers argue that functional categories of early child grammar are continuous with adults'. In this view, functional categories are represented in child grammar from the beginning, though they may be phonologically null (Whitman et al 1991), or underspecified (Hyams 1994, 1996), or omitted for metrical reasons (Demuth, 1994). This heated debate over functional categories in early child grammar reveals the significance of functional categories in grammatical development as they represent many crucial aspects of syntactic structure. A deeper understanding of this issue may be obtained from a cross-linguistic perspective. Indeed, there are findings indicating cross-linguistic variations in early functional categories, with overt functional categories found in early grammar of many languages, such as Korean, Hindi, Italian, and Sesotho (see references cited in Lust 2006). It is evident that cross-linguistic studies are crucial not only in determining which theoretical models could best explain early functional categories but also in helping us understand how acquisition of functional categories is linked to acquisition of specific language grammars and how changes in functional categories acquisition might be brought about by interaction of UG and the target grammar.

The present study explores the availability of functional categories in early child grammar by looking at the emergence of nominal DE in two Mandarin-speaking children's early language development. It's generally agreed that DE in Mandarin is a functional category marking nominalization or modification though it is a much debated issue as to what type of functional categories it is: for instance, Huang (1982), Cheng (1986) and Ning (1993) treat it as a complementizer, Simpson (2002) takes it as a determiner and Rubin (in prep. cited in Sio 2006) analyzes it as a Mod (short for modification) distinct from any existing functional category. Whether DE is the head of a DP or a CP or a ModP within SP (Sio 2006), it will still be a functional element. Therefore, its occurrence and non-occurrence in early child Mandarin will shed light on whether functional categories in children's early nominals exist, which, compared to IP in children's early clauses, is relatively less clear. The specific questions for the present study are as follows. Firstly, is DE available to early child grammar and if yes, how early is the availability? Secondly, what is the distribution of DE in early child production? Thirdly, given the fact that children of many languages undergo a stage of no use or optional use of functional markers, does such a stage exist in early child Mandarin?

We analyzed the spontaneous production data of two Mandarin-speaking children, namely CY and ZTX, drawn from the corpus of the Chinese Early Language project (CELA). CY and

ZTX were observed from around 1 year to 2 and a half years weekly or biweekly, whose naturalistic interactions with adults were audio-and video-taped, resulting in 66 and 52 one-hour recordings respectively. All complex nominals were extracted for analysis. Repetitions, imitations and nursery rhymes were not counted. DE nominals were then classified into various types based on pre-DE elements (NP modification, VP modification, or AP modification), the relationship between pre-DE elements and post-DE elements (possessive or not) and whether post-DE NP was overt (headed or headless):

The data show that DE appeared in CY and ZTX's production as early as 1;07 and was already quite productive before 2. During the period observed, CY produced a total number of 115 DE nominals and ZTX 145 DE nominals, the majority of which were of the [NP DE (NP)] or [VP DE (NP)] form. Similar to findings from Packard (1987) and Hu (2007), headless DE nominals occurred more in [VP DE (NP)] than in [NP DE (NP)] for both kids. To determine whether there is a no-DE or optional-DE stage, we analyzed complex NPs produced before the first occurrence of DE. It is found that the use of DE in possessive nominals underwent three stages: before 1;09, DE was omitted in these nominals in obligatory contexts; then came the stage where DE was optionally used. Finally the kids' use of DE became adult-like after 2. These findings thus suggest availability of functional categories in early child Mandarin and a stage of optional use of functional categories in nominals. The findings will be discussed with respect to the interaction of UG and language-specific grammars in early language development.

# Null Objects in Child Mandarin

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This paper reports an experimental study on Mandarin-speaking children's sensitivity to the animacy effect in their use of null objects. The experimental results suggest that the Mandarin-speaking children's null objects should be analyzed as empty pronouns rather than variables. Thirty children of three age groups (mean age: 3;6, 4;7 and 5;9) and 6 adults participated in the study. Two types of stories were used to elicit children's production of null objects. Type I consisted of three picture-stories, each of which involved a single object entity which repeatedly occurred in the story so as to elicit more use of null objects. Type II consisted of three video-stories, each of which involved several object entities which changed from time to time so that the chances of using the null objects would become less. The objects involved in each type of the story were of three animacy properties: [-Animate], [+Animate/-Human], and [+Human]. Only positions where null objects can optionally occur were coded according to whether the objects were in null, pronominal or nominal forms.

The findings showed that children were sensitive to animacy in their use of null objects. In terms of Type I stories, children as well as adults didn't use null pronominals to refer to human objects (cf. Figure 1). Instead, they tended to use null pronominals to refer to inanimate objects. In contrast, children strongly preferred to use overt pronouns to refer to human objects, but rarely to inanimate objects (cf. Figure 2). With respect to the use of null objects, a significant animacy distinction was found between [-Animate] vs. [+Animate/-Human] and [-Animate] vs. [+Human] properties for all age groups. With respect to the use of pronominal objects, a significant animacy distinction was found between [+Human] vs. [-Animate] and [+Human] vs. [+Animate/-Human] properties in the 3- and 4-year groups (cf. Table 1). The results of Type II stories demonstrated similar referential tendency of the null/overt pronominals with respect to children's use of null objects.

Assuming that animacy features can be used to define pronouns but not variables, then null objects in Mandarin should not be treated as variables, contra Huang's (1984, 1989) analysis and the relevant views in child language studies (Hyams 1992; Hyams & Wexler 1993). It should be noted that subjects, different from objects, are free in taking their null forms, regardless of the relevant animacy features. A plausible account is that null subjects can be either variables or pronominals, but null objects can only be pronominals. Since variables can be associated with either animate or inanimate entities in interpretation, the highly restricted occurrence of human-referring null forms in the object position suggests that they are not variables. For the same reason, their free occurrence in the subject position suggests that they can be variables in that position. We think that it is the division of labor between overt pronouns and null pronouns in Mandarin that accounts for the fact that overt pronouns in the object position tend to refer to human beings whereas null pronouns in the same position are mainly used to refer to inanimate objects. The present account can explain not only why human-referring expressions seldom take null forms in object positions, but also why there are more null subjects than null objects in the relevant data. If we follow Huang (1982) in assuming that variables are ultimately bound by a null topic, the non-occurrence of variables in the object position can be derived from the fact that it is less possible for the null object

to be linked to a null topic in interpretation, given that the occurrence of null topics are constrained by a topic continuity condition, and that null subjects are more likely to be linked to a null topic regulated by the topic continuity condition.

Figure 1.

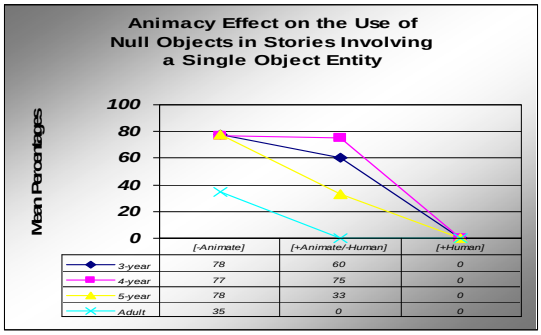


Figure 2

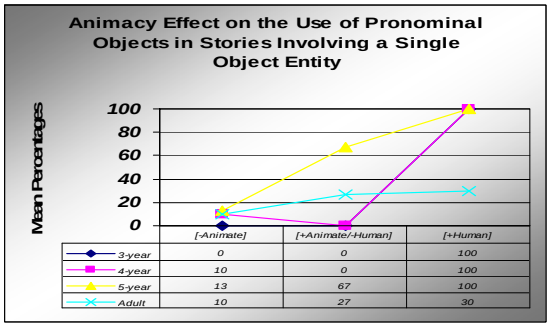


Table 1. A Comparison between Animacy Properties by Tukey Tests for Type I Stories

| AGE GROUP | [-ANIMATE] VS. [+ANIMATE/-HUMAN] | | | [-ANIMATE] VS. [+HUMAN] | | | [+ANIMATE/-HUMAN] VS. [+HUMAN] | | |
|---|---|---|---|---|---|---|---|---|---|
| | Null | Pron. | Nom. | Null | Pron. | Nom. | Null | Pron. | Nom. |
| 3-year | * | -- | -- | * | * | -- | -- | * | -- |
| 4-year | * | -- | -- | * | * | -- | -- | * | -- |
| 5-year | * | -- | -- | * | -- | -- | -- | -- | -- |
| Adult | * | -- | -- | * | -- | -- | -- | -- | -- |

Significance level: *$p$<.05

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# Resolving Children's Comprehension Difficulties on Chinese OO Relative Clauses

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National Tsing Hua University

Previous studies on preschool children's comprehension of Chinese relative construction (e.g., Chang 1984, Lee 1992, Cheng 1995, Chiu 1996) have all found OO relative clauses to be the most difficult for children. Since children around 5 to 6 years old have already demonstrated adult-like patterns on various types of relative construction regarding the use of gaps and resumptive elements in production (Su 2004), this study aims to explore the factors affecting children's comprehension difficulties on OO relative clauses from a processing perspective. Three experiments were conducted using a truth value judgment task to investigate how children interpret Chinese OO relative sentences like (1).

(1) xiaoxiong Weini daizou wupo bao guo de xiaogou
Winnie the Pooh take witch hold ASP COMP dog
"Winnie the Pooh took the dog that the witch held."

The first and the second experiments probed whether children adopted the NVN word order strategy and the conjoined clause strategy, respectively, to interpret OO relative clauses. The stories of the experiments were designed in such a way that the interpretations by using the above strategies were true in the scenarios. That is to say, for the sentence in (1), in the story of the first experiment, Winnie the Pooh took the witch, and the witch held the dog, and in the second experiment, Winnie the Pooh took the witch and also held the dog. The results showed that adults correctly rejected the sentence in (1) to be a right description of the story over 92% of the time, but children rejected the sentence only around 67% to 74% of the time, which were significantly different from adults. In the third experiment, the scenario of the story was that Winnie the Pooh took a dog, but the dog was not the one the witch held, and Winnie the Pooh did not took the witch. Both children and adults correctly rejected the sentence over 93% of the time.

The findings of the three experiments were taken to show that children's non-adult interpretations in OO relative clauses reflect a garden-path effect (i.e., wrongly take the subject NP of the relative clause to be the object of the matrix verb) similar to the patterns found from adults in on-line sentence processing experiments (e.g., Xiang et al. 2003).

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# Early Acquisition of Animacy Agreement in Japanese

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Mie University

**1. Introduction:** One of the striking findings from the recent cross-linguistic investigations of child languages is that children acquire specific morphosyntactic properties of the target language at an extremely early age. They immediately converge on the adult grammar in the domain of verb-second phenomenon, null arguments, and even in the domain of agreement. This pervasive property of the acquisition process is referred to as *Early Morphosyntactic Convergence* (EMC; Hoekstra & Hyams 1998, Hyams 2002). Yet, the evidence so far comes from the acquisition of "rich" agreement languages such as Italian, Catalan, and Spanish. In light of this background, this study presents a novel piece of evidence that EMC holds even for the acquisition of agreement in Japanese, a language with extremely poor agreement.

**2. Animacy Agreement in Japanese:** Japanese is a language that has traditionally been assumed to have no agreement at all (e.g. Fukui 1986). Yet, there is a single pair of verbs which alternate depending on the property of their nominative phrases: The locational verbs *aru* (inanimate) and *iru* (animate) agree in animacy with their nominative phrases. These verbs express possessive meanings when they are used transitively, and locative-existential meanings when used intransitively. The animacy alternation that occurs between *aru* and *iru* is conditioned by the subject of an intransitive locative-existential verb, and by the object of a transitive possessive verb.

(1) Locative-existential sentences: DAT(adjunct)- NOM(subject)-V

| | | | | |
|---|---|---|---|---|
| a. | Asoko-ni | kodomo-ga / | *isi-ga | iru. |
| | *there-DAT* | *child-NOM* | *stone-NOM* | *be-AN(IMATE)* |
| b. | Asoko-ni | * kodomo-ga / | isi-ga | aru. |
| | *there-DAT* | *child-NOM* | *stone-NOM* | *be-IN(ANIMATE)* |

'The child/The stone is there.'

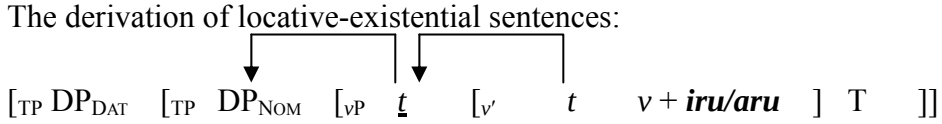
(2) Possessive sentences: DAT(subject)- NOM(object)-V

| | | | | |
|---|---|---|---|---|
| a. | Taroo-ni | kodomo-ga / | *okane-ga | iru. |
| | *Taroo- DAT* | *child-NOM* | *money-NOM* | *have-AN* |
| b. | Taroo-ni | kodomo-ga / | okane-ga | aru. |
| | *Taroo- DAT* | *child-NOM* | *money-NOM* | *have-IN* |

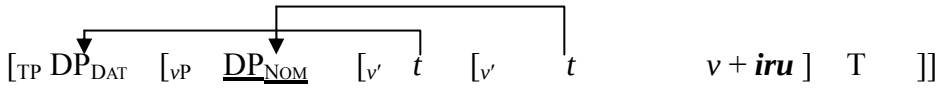
'Taroo has a child/money.'

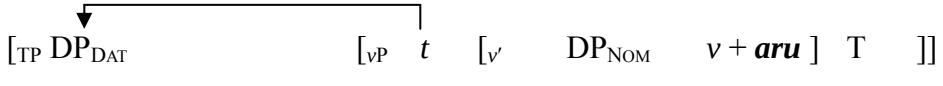
As illustrated in (1) and (2), animacy agreement in Japanese is generally obligatory, but when the inanimate verb *aru* is used transitively (2b), agreement does not obtain. A detailed syntactic analysis by Kishimoto (2000) argues that this peculiar behavior of animacy agreement follows straightforwardly if we assume that this verb alternation is an instance of object agreement mediated by the light verb *v*. More specifically, Kishimoto proposes that overt object shift to the specifier of *v* is mandatory with *iru*, but not with *aru*, and that instantiation of agreement is contingent upon whether or not the nominative phrase is overtly raised to [Spec, *v*]. In the case of locative-existential construction, since the nominative phrase (which is an underlying object) surfaces as the subject occupying [Spec, TP], it necessarily goes through *v*P in overt syntax, and thereby agreement is obligatory.

(3) The derivation of locative-existential sentences:




(4) The derivation of possessive sentences:

a. 


b. 

**3. Acquisition of Animacy Agreement in Japanese:** In order to determine whether the acquisition of animacy agreement in Japanese falls under EMC, I analyzed three longitudinal corpora (Aki, Ryo, and Tai; Miyata 2004) from the CHILDES database (MacWhinney 2000), which provide a total sample of more than 66,000 lines of child speech. The CLAN program Combo, together with a file that contains present- and past-tense forms of *aru* and *iru*, was used to identify potentially relevant child utterances, which were then searched by hand and checked against the original transcripts to exclude imitations, repetitions, and formulaic routines. When the nominative phrase is a null pronominal in the child utterance, I determined its animacy status by analyzing its context (more specifically, preceding utterances).

The results were as follows. The first clear use of *aru*/*iru* appeared at the age of 2(years);1(month) in Aki corpus, at 1;10 in Ryo corpus, and at 1;5 in Tai corpus. Virtually all instances of *aru* and *iru* in children's speech were locative-existential constructions as in (1). Then, if children have adult-like knowledge of agreement, both *aru* and *iru* should necessarily match in animacy with the nominative phrase. As shown in Tables 1-3, this expectation is in fact borne out. Across children, agreement errors are under 5%, which precisely coincides with the results obtained from the acquisition of "rich" agreement languages (Hoekstra & Hyams 1998).

| | | Nominative Phrase | |
|---|---|---|---|
| | | inanimate | animate |
| Verbs | aru | 148 | 9 |
| | iru | 1 | 31 |

($p$<.0001 by two-tailed Fisher Exact Test)

Table 1: The number of *aru*/*iru* in Aki corpus

| | | Nominative Phrase | |
|---|---|---|---|
| | | inanimate | animate |
| Verbs | aru | 105 | 0 |
| | iru | 2 | 17 |

($p$<.0001 by two-tailed Fisher Exact Test)

Table 2: The number of *aru*/*iru* in Ryo corpus

| | | Nominative Phrase | |
|---|---|---|---|
| | | inanimate | animate |
| Verbs | aru | 258 | 4 |
| | iru | 6 | 59 |

($p$<.0001 by two-tailed Fisher Exact Test)

Table 3: The number of *aru*/*iru* in Tai corpus

**4. Conclusion:** The results of this study convincingly show that Japanese-learning children exhibit correct animacy-agreement from the earliest observable stages, which demonstrates that EMC holds even for the acquisition of an extremely poor agreement language. Furthermore, if Kishimoto's (2000) analysis of animacy alternation is on the right track, these results suggest that the functional category of *v* is already in the grammar of very young children. This finding casts serious doubt on the view that there is a developmental stage in which functional categories are lacking altogether (e.g. Radford 1990), and lends further support to the Full Competence view of Poeppel & Wexler (1993), which claims that phrase structure in the grammar of two-year-olds is already equipped with a full array of functional categories.

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# Acquisition of perfective aspect in Hong Kong Sign Language: The case of FINISH

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Grammaticalization is one of the many productive processes for a language to acquire new grammatical structures. In this process, some lexical items gradually evolve into functional categories. Signed languages are no exception. Recent work on American Sign Language (ASL) has shown similar processes of grammaticalization on a number of lexical items. One of them is FINISH, a perfective marker that has its origin from a verb (Fischer and Gough 1972):

(1) YOU HAVE EAT FINISH SWALLOW+ ONE, TWO, THREE, FOUR?
"You had and ate and swallowed one? 2? 3? 4?

Similar processes have been reported in Israeli Sign Language (ISL) where the adverb ALREADY has become a perfective marker (Meir (1999), as in (2). Another example is the noun PERSON that has gradually become a case-marked pronoun for the grammatical objects that bear the feature [+human] (Meir 2003), as in (3).

(2) MOVIE $INDEX_i$ | ALREADY WATCH
"I have seen this movie."

(3) $INDEX_1$ BE-DISAPPOINTED $PRO_{bC/3}$ NEVER
"I have never been disappointed with him"

It is also possible during the intermediate stages that the source word exists alongside the grammaticalized morpheme, resulting in forms that share the same phonological properties with a common etymology. In ASL, FINISH as a verb still exists; in ISL, ALREADY is still an adverb if it occupies a sentence final position.

In this paper, we will focus on the acquisition of FINISH by a deaf child of Hong Kong Sign Language (HKSL). Similar to ASL, FINISH in HKSL may assume either a grammatical, lexical or discourse function and all these functions share some common semantic characteristics: completion or termination (Lee 2002). As a lexical item, FINISH is a verb, and sometimes an adjective; as a grammatical item, it serves as a perfective marker; as a discourse marker, FINISH serves as a linker for a sequence of events and actions. As a perfective marker, however, FINISH is not consistently marked on the verb because the spatial modality encourages other means for marking termination and completion of the event, which allows the

signer to view the event in its entirety.

From the perspective of language acquisition, how deaf children differentiate the different functions of FINISH and assign the sign to different grammatical categories is a moot point. Equally important is the development of FINISH as a functional category. While lexical categories generally develop earlier than functional categories in child language, young children do show early sensitivity to functional categories and morphosyntactic dependencies (Lust 2006). In the case of FINISH, one research question is how deaf children acquire knowledge of it being a functional category when its lexical counterparts also occur in the input.

In studies about the acquisition of grammatical aspect in L1 and L2 cross-linguistically, an interaction between the acquisition of tense and aspect on the one hand, and grammatical and lexical aspect on the other hand has been reported. Philips (1995) proposes that young children do have a temporal system although they do not produce overt tense marking initially; in this case an aspectual marker may be adopted to provide temporal information. Meanwhile, Li and Shirai (2000) observe that perfective aspect first occurs with achievements or accomplishments and correlates with past tense. Imperfective aspect occurs with states or activities and correlates with the present tense. With data from story retelling by a deaf child, Tang (2006) argues that acquiring the prosodic features to mark lexical aspect in HKSL appears to be earlier than acquiring the perfective marker FINISH. Unlike the native signer, the deaf child produced FINISH more for discourse than grammatical function.

In this study, the data came from a deaf child's longitudinal corpus with age between 1;9;27 and age 5;8;24. A total of 525 tokens of FINISH were recorded during this period, some produced during spontaneous conversations and some during story retelling. The contexts were also extracted and the verbs associated with the production of FINISH were identified and classified according to the four common situation types. The results show that FINISH shows up initially most frequently as a lexical verb or a discourse linker. In these contexts, FINISH occurs independently as a prosodic unit (i.e. a phonological word), as in (4) which shows that FINISH was used to end an ongoing activity – picture/object naming:

(4) %xgl1@CHI … BLACK.. BLACK.. FINISH…. YELLOW.. (2;1;9)
"..Black…Black… It's over…. Yellow.."

(5) %xg11@CHI ONE FINISH, ONE FINSH, FINISH. (2;2;0)
"One is enough! One is enough! Enough!"

(4) and (5) show that FINISH is used independently as a lexical item, either as a verb or a predicative adjective. Yet, in subsequent stages, FINISH occurs after a verb, as in (6):

(6) %xg11@CHI INDEX HOME HAVE, WATCH FINISH. (4;10;20)
"This one (VCD), I have at home; I have watched it."

(6) shows that there is gradual grammaticalization of the sign FINISH into a perfective marker during the process of acquisition, giving evidence for a functional projection of aspect phrase, in line with the structure building approach to language acquisition. If tense is not marked morphologically in HKSL, the perfective aspect marker may carry tense information. In this case, aspect may stand between the lexical and functional domains of the temporal-aspectual chain.

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# Alternate Papers

# Early Acquisition of Multiple Scrambling in Japanese

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In Japanese, scrambling can be iterated multiple times, while English preposing (e.g., (1)) cannot be iterated. This difference is illustrated in (2) and (3). In this paper, I show that Japanese children can comprehend multiple scrambling like (2d) as soon as they become old enough to comprehend single scrambling of equally complex sentences like (2c), and discuss the implication of this finding by adopting Fukui's (1986) parameter of functional categories.

In previous literature, Sugisaki (2003) examined the acquisition of multiple scrambling. In his paper, it is suggested that Japanese children at first comprehend only single scrambling and multiple scrambling is acquired at some point later in development. However, Otsu (1994) reports that Japanese 3/4-year-olds need appropriate previous discourse and a definite marker *sono* 'the/that' on the preposed Object phrase to show good comprehension of Japanese OSV (i.e., single scrambling) sentences. In Sugisaki's experiment, neither previous discourse nor a definite marker *sono* 'the/that' were provided in testing single/multiple scrambling. Thus, I carried out a new experiment by changing this point.

The method of the experiment is the truth-value-judgment-task (Crain and Thornton 1998). Half of the stimulus sentences are for a matching condition (acceptance) and the other half are for a mismatching condition (rejection). In the mismatching condition, the semantic roles of two animate NP's are reversed. Following Otsu (1994), I provided a discourse as in (4) for each stimulus sentence, and the topic NP introduced in the discourse is accompanied by the definite marker *sono* 'the/that' in the latter part of the stimulus sentences, as in (5) and (6).

The subjects are 20 Japanese-speaking monolingual children (age 3;9-5;7, mean 4;8). I tested their comprehension of single scrambling such as (5) and multiple scrambling such as (6). There are six items for each of them. The group result is given in (7). As for the individual data, I set a passing criterion of giving correct answers for more than five items out of six, and classified each child by checking whether the child passes/fails in the single/multiple scrambling test. The result of this classification is given in (8). As you can see, there is no child who passed the single scrambling test and failed in the multiple scrambling test. Thus, unlike Sugisaki's previous study, multiple scrambling is acquired without delay in children's acquisition of Japanese; when a Japanese child is old enough to handle the relevant base-line sentence and the basic operation (i.e., single scrambling), the child can successfully comprehend sentences of multiple scrambling.

What does our finding imply for the theory of Universal Grammar? Some languages like Japanese allow multiple scrambling, while some other languages like English do not (i.e., they allow only single preposing), so in UG, there must a parameter regarding this difference. Fukui (1986) argues that the difference follows from a parametric difference on whether there are functional categories in the language under consideration: in Japanese, there are no functional

categories, including I, and hence adjunction to V' can take place multiple times, while in English, there are functional categories, including I, and adjunction to IP can take place only once by UG (Guéron and May 1984). Now, by adopting the parametric proposal by Fukui, let us compare our observation with Sugisaki's. According to Sugisaki's report, Japanese children at first take the English value. Since the input from Japanese adults contains no clue for positing functional categories under Fukui's theory, if Japanese children at first take the English value, it must be because English is the default value of the parameter. In contrast, our observation does not require the English value to be the default; given our observation, the Japanese value can be the default value. (If the default is the Japanese value, English children can switch to the English value based on the positive evidence in the input from adults, such as agreement on *be*, before they start to produce preposing.) In this way, the acquisition of multiple scrambling can tell us about the default setting in the parametric variation regarding the functional categories.

(1) That book, I read.

(2) a. John-ga teeburu-ni sono hon-o oita.
-Nom table onto that book-Acc put
'John put that book on the table.'
b. teeburu-ni$_i$ John-ga $t_i$ sono hon-o oita.
c. sono hon-o$_j$ John-ga teeburu-ni $t_j$ oita.
d. sono hon-o$_j$ teeburu-ni$_i$ John-ga $t_i$ $t_j$ oita.

(3) a. John put that book on the table.
b. on the table$_i$, John put that book $t_i$.
c. that book$_j$, John put $t_j$ on the table.
d. *that book$_j$, on the table$_i$, John put $t_j$ $t_i$. (see Fukui 1986 for (2) and (3))

(4) Burokku-asobi siteiru tokoroni, kuma-ga kita yo. (Lead-in)
block-play doing place-to bear-Nom came
"When (animals) were playing with blocks, a bear came"

(5) Sono kuma-o buta -ga burokku-ni noseta yo. (*sono*OSLocV: single scrambling)
the bear-Acc pig-Nom block onto put
"The bear, a pig put on a block."

(6) Sono kuma-o burokku-ni buta -ga noseta yo. (*sono*OLocSV: multiple scrambling)
the bear-Acc block onto pig-Nom put
"(*The bear, on a block, a pig put.)"

(7) correct response rates for single scrambling and multiple scrambling: group result

| | G1 (N=10, age 3;9-4;7) | G2 (N=10, age 4;8-5;7) |
|---|---|---|
| single scrambling (8) | 71.7% (43/60) | 88.3% (53/60) |
| multiple scrambling (9) | 88.3% (53/60) | 95.0% (57/60) |

(8) 2x2 Table for the acquisition of single scrambling and multiple scrambling

| | | single scrambling | |
|---|---|---|---|
| | | Pass | Fail |
| Multiple Scrambling | Pass | 11 | 6 |
| | Fail | 0 | 3 |

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# Topicalization and the Semantic Constraints in English Speakers' L2 Chinese Grammars

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This study focuses on the English speakers' L2 acquisition of Chinese topicalization that derived via movement. As Rizzi (1997) argues that the CP layer can be split into a series of functional projections including Topic Phrases (TopP) and the projection of TopP is a property of Universal Grammar (UG), it is reasonable to maintain that Chinese topicalization also has a projection of TopP.

Concerning the syntactic-semantic interface properties, topicalization is always subject to certain semantic constraints. Firstly, a topic must be definite or generic in both English and Chinese. An indefinite topic is not allowed, such as:

(1) a. * One book, I have read. (English)
b. *Yi ben shu, wo kanguo. (Chinese)
One-CL-book, I read-PAST.
One book, I have read.

Secondly, topicalization is also arguably determined by the selectional properties of the main verb. The different underlying verb-argument relations of different types of verbs are reflected in their different syntactic structures and consequently affect the grammaticality of the topicalized structure.

The first type of verb constraint is the relation between an *include*-type verb and topicalization. In a basic structure in English, a canonical sentence with an *include*-type verb such as "include", "become" as its main verb does not allow the extraction of the object to the topic position. The same is true of topicalization in Chinese basic structures with main verbs such as "baokuo" (include), "chengwei" (become). With respect to this *include*-type verb constraint, Chinese and English share a similar syntactic-semantic pattern in constraining topicalization.

(2) a. * My friend, Miss Wang becomes. (English)
b. * Wo de pengyou, wanglaoshi chengwei. (Chinese)
I DE friend, Wang teacher become
My friend, Miss Wang becomes.

The second type of verb constraint is the telicity constraint in a complex NP. A complex NP is parametrically realized by different structures in English (head-initial) and Chinese (head-final) because of their different functional features on C. Correspondingly, the topicalization in a complex NP is not allowed in English because of the syntactic constraint, namely, the Subjacency violation while the complex NP topicalization is possible in Chinese due to the semantic permission. In Chinese the telicity aspect feature of the verb in a complex NP determines the extraction of its object. A verb of [+telic] type licenses the topicalization of its object in a complex

NP while an atelic verb renders this type of syntactic operation impossible. For example:

(3) a. * This book, people who read has come. (Subjacency violation)
b. * zhe ben shu, du de ren lai le. (atelic verb)
This-CL-book, read DE people come PERF
This book, people who read has come. (telic verb)

c. zhe ben shu, dong de ren lai le.
This-CL-book, understand DE people come PERF
This book, people who understand has come.

Based on the theoretical analysis of the English and Chinese topicalization, the empirical study is designed in the spirit of the Interface Hypothesis (Sorace and Filiaci 2006). They argue that in L2 acquisition the syntactic properties in the narrow sense, namely the TopP in this study, can be fully acquired in spite of its significant developmental delays at different stages while the interface properties may not be acquired eventually.

The result of the acceptability judgment test is summarized as follows:

Table 1 *Summary of English speakers' judgment of different syntactic distribution and semantic constraints of topicalization*

| | *basic topicalization* | *CNP topicalization* | *Definiteness constraint* | *Include*-type verb *constraint* | *Telicity constraint* |
|---|---|---|---|---|---|
| beginners | √ | ? | ? | ? | × |
| intermediate | √ | ? | √ | ? | ? |
| advanced | √ | ? | √ | √ | ? |
| native Chinese | √ | √ | √ | √ | √ |

Note: "√" = accept; "X"=reject; "?"= indeterminate and variable.

In view of the investigation and its results reported above, it is sufficient for us to arrive at the following remarks: the surface TopP is relatively easy to acquire, as predicted by the Interface Hypothesis. If a semantic constraint is realized similarly in both L1 and L2, it is easy for learners to acquire because of the transfer. If a semantic property does not exist in L1, the L2 input and the processing strategy plays a more significant role. It is necessary to view the course of development of syntactic-semantic interface properties as independent from the development of the narrow syntactic representation.

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