

# **The use of child language in linguistic argumentation: Some methodological considerations\***

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## **Abstract**

Two types of linguistic evidence are generally used in linguistic argumentation: internal evidence and external evidence, the former including the distribution of linguistic forms and the syntactic/semantic properties of various representations, and the latter drawing data from child language, language change, language processing, and language disorders. On one level, child language data can provide illustrations, explications, and interpretations of a particular linguistic theory; on another level, child language can provide an empirical basis for linguistic analysis, confirming a particular theory or hypothesis, and in turn facilitate the construction of linguistic theory through the discovery of new regularities. This paper reviews a number of classic studies to observe how child language data should be used in linguistic argumentation, with an aim to explore methodological requirements. The interaction between child language evidence and linguistic argumentation is complex, and one cannot simply rely on the relative precedence or relative difficulty of particular forms as crucial evidence for a particular analysis. Specifically, this paper will critically assess the claim that child language supports the recent syntactic proposal that verbs are a subclass of nouns in Chinese, pointing out its inadequacies and its invalidity.

## **Key words**

linguistic theory, methodology, child language acquisition, nouns, verbs

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## 1. Introduction

In reading linguistics papers, we often encounter arguments in support of a linguistic analysis based on child language, typically structured as “Form A appears earlier than Form B in language acquisition” or “Form A occurs more frequently than Form B.” As a result, a particular analysis or hypothesis about adult language is purportedly confirmed, often without elaborating on exactly why there should be such a link. The use of onset of acquisition and relative frequency in child language is a familiar concept in the theory of markedness. However, as we know, how a form is acquired depends on a multitude of factors, and relative chronology and difference in frequency of occurrence are not adequate evidence for an analysis.

In this paper, I articulate some of the methodological issues one should consider when using such acquisition evidence in linguistic argumentation. In particular, I examine the way experimental evidence in child language has been used to support the view that verbs in Chinese are a subclass of nouns, a position advocated by Shen (2016). It will be demonstrated that his argument does not hold water if one looks at details of the experimental data and the logic of argumentation.

The paper is organized as follows. First, I will highlight the ways in which child language has been used in the past in linguistic argumentation, examining several classic examples drawn from different research paradigms. Next, I introduce the verbs-as-nouns hypothesis of Shen (2016), and the way child language is used in his argumentation. In the third part of my paper, I present a critique of Shen’s use of child language data, and propose some general methodological considerations for using child language in linguistic argumentation.

## 2. Using child language in linguistic analysis

Two types of linguistic evidence are generally used in linguistic argumentation: internal evidence and external evidence (Fromkin 1988), the former including the distribution of linguistic forms and the syntactic/semantic properties of various representations, and the latter drawing data from child language, language change, language processing, and language disorders (Chomsky 1981). On one level, child language data can provide illustrations, explications, and interpretations of a particular linguistic theory, as can be seen from three early classic studies which exemplify a loose link between data and theory: Halliday’s child language study based on the functionalist framework, Jakobson’s structuralist theory of phonological development, and the various transformational analyses of early child syntax in generative grammar.

### 2.1 Using early communicative behavior to illustrate the framework of systemic-functional grammar

From the early years of systemic-functional grammar, Halliday (1975) has used child language to illustrate the tenets of functional grammar, drawing from the records of his child Nigel spanning the period 9 to 18 months. In his view, the early utterances of children serve certain functions, including the instrumental function (*‘I want’*), the regulatory function (*‘Do as I tell you’*), the interactional function (*‘Me and you’*), the personal function (*‘Here I come’*), the heuristic function (*‘Tell me why’*), the imaginative function (*‘Let’s pretend’*), and the informative function (*‘I’ve got something to tell you’*), the informative function being the last to emerge. In the early stage of development, each utterance serves only one function; utterances become multi-functional in the second stage, with the various functions combining to form broader and more complex functions. For example, the child uses a sequence of syllables or a word like *stick* to indicate s/he has seen or is about to see an object; this

indicates the beginnings of making a statement, serving what Halliday calls a function for language learning, what is called the mathetic function, a result of amalgamation of the personal and the heuristic functions. These developments in the use of an utterance to express multiple functions form the foundation of the three broad functions of language in systemic-functional grammar, i.e. the ideational function, the interpersonal function and the textual function. Halliday argues that like adults, the utterances of children are no different from those of adults in their expression of meaning and functions, the difference being the absence of a lexico-grammatical level in early child vocalizations.

Looking at Halliday's use of child language with the hindsight of contemporary research methodology in language acquisition, one must admit that rather than lending support to a linguistic theory, child language here merely serves to illustrate the basic tenets of the theory. No precise criteria are given for establishing points of acquisition of functions; nor are precise quantitative data given with respect to the onset and realization of the various functions. In the case of Halliday, child language merely serves to demonstrate the promise and feasibility of a theory when applied to language development.

## 2.2 Using child phonology to articulate structuralist phonology

Jakobson's discontinuity theory of phonological development represents a forceful application of structuralist phonology to child language, and in turn, uses child speech to confirm the tenets of the theory (Jakobson 1968 [1941], Menn 1980). In his view, the acquisition of a sound system must be conceptualized as the acquisition of a system of oppositions, i.e. phonemic contrasts. The difference between vocalizations and speech lies in the acquisition of the distinctive function of speech acquired by children when they enter the one-word stage, as such a fundamental linguistic function is absent in the babbling stage when children do not yet have conventional forms. On the basis of this conceptualization, Jakobson considers the early babbling vocalizations of children, assumed to be phonetically diverse in nature, to be essentially distinct in nature from the first words of children, whose phonological compositions are sharply restricted and develop in an orderly fashion, subject to strict "irreversible laws of solidarity." Jakobson hypothesizes that the earlier phonological system of the child is a minimal system of CV contrasts, leading to his prediction that the earliest system consists of the open vowel [a] contrasting with the bilabial plosive [p/b], constituting a minimal system of maximal contrast.<sup>1</sup> Next comes the oral/nasal split and the opposition between the open vowel [a] and a higher vowel. His phonological analysis also leads him to propose a number of implicational universals in phonological development, such as the ideas that fricatives presuppose homorganic stops, front consonants presuppose back consonants, and front rounded vowels presuppose front unrounded vowels.

The research on infant speech in the last three decades has by and large disconfirmed the discontinuity hypothesis, since the development of a phonological system in children cannot be reduced to the acquisition of a system of oppositions (Boysson-Bardies 1999, Vihman 2014 [1996]). The many important relevant factors ignored by Jakobson include the role of the lexicon (Ferguson and Farwell 1975), word frequency (Vihman and Boysson-Bardies 1994), the speech processing capacity of infants and their early sensitivity to the phonetic properties of the target language (Mehler and Dupoux 1994, Jusczyk 2000), the clear influence of target language on child speech in the first year of life (Boysson-Bardies et al. 1989), and the constraints on phonotactics and syllable structure that apply to both babbling utterances and first words (Oller et al. 1976, Oller 2000). The cross-linguistic data that run counter to Jakobson's hypothesis, to mention just a few, include the early onset of

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<sup>1</sup> Jakobson's views on phonological development are also succinctly articulated in a well-known paper "Why 'mama' and 'papa'" (Jakobson 1962).

alveo-palatals in Mandarin Chinese (Zhu and Dodd 2000), the vowels in the babbling utterances of children acquiring Arabic, English, French and Cantonese (Boysson-Bardies et al. 1989), the lack of rich diversity in early babbling in Mandarin Chinese (Chen 1997), and the paucity of syllable-initial clusters and syllable final voiced obstruents in both babbling and early words (Oller et al. 1976).

Jakobson's insights are no doubt as relevant to us today as they were when his discontinuity theory was proposed, particularly with regard to the accuracy of some of his implicational universals, his insistence on how phonology cannot be reduced to mere speech articulation and auditory perception, and how one has to account for how children progress from vocalizations to linguistically relevant speech, i.e. how a system of distinctive oppositions develops from babbling. However, Jakobson's hypothesis about discontinuity has been empirically disconfirmed, as he ignored many factors relevant to infant language development and underestimated the complexity of the link between child language and linguistic theory.

### 2.3 Using grammatical development as evidence for an early model of generative grammar

The earliest applications of generative grammar to child language can be traced to the celebrated study of negation and questions by Klima and Bellugi (1973 [1966]), in which it is reported that the development of English interrogatives can be divided into three stages: a first stage without subject-aux inversion, followed by a stage in which subject-aux inversion occurs in yes-no questions but not in *wh*-questions, and a third stage when children are able to invert the subject and the auxiliary in both yes-no and *wh*-questions, as illustrated in (1). In the development of negation, it is reported that children go through a stage in which the negator appears external to the clause before it is inserted in a clause-internal position at a later stage, as can be seen from (2). The appearance of the interrogative and negative structures in child English appears to mirror the derivation of these structures in adult English grammar, with the child initially producing the base structures and acquiring transformations to derive the surface forms at a later stage, thus lending support to some kind of theory of derivational complexity (Brown and Hanlon 1970), and in turn some of the syntactic analysis within the standard theory model of generative grammar (Jacobs and Rosenbaum 1970, Bach 1974).

#### (1) Klima and Bellugi (1973[1966]:347-351)

- a. Earliest forms of interrogative sentences  
 "See hole?" / "I ride train?" / "Who that?" / "Where kitty?" / "What cowboy doing?" / "Where horse go?"
- b. Later forms of interrogative sentences  
 "Does the kitty stand up?" / "Will you help me?" / "Can I have a piece of paper?" / "Where my spoon goed?" / "What he can ride in?" / "How that opened?" / "Why Kitty can't stand up?"

#### (2) Klima and Bellugi (1973[1966]:341-345)

- a. Earliest forms of negation sentences  
 "No the sun shining." / "No Mom sharpen it." / "No Fraser drink all tea."
- b. Later forms of negative sentences  
 "I can't catch you." / "That no fish school." / "He no bite you." / "I no want envelope."

As demonstrated in later theoretical and empirical studies, the derivational theory of complexity will need to be evaluated with respect to other assumptions about the grammatical

model. When transformations become optional rather than obligatory, and no ordering is imposed on the application of transformational rules, then the derivational complexity theory loses its logical force and ceases to be compelling. There is no reason why transformations cannot come into play at the very outset of child grammar, with the child recognizing that whenever there is an interrogative indicator at the beginning of the sentence, *wh*-movement and auxiliary inversion have to apply. The reason why subject-aux inversion may seem difficult for English-acquiring children at the outset may not be due to the unavailability of transformational operations, but may arise from properties specific to the English auxiliary system.

Guasti (2000) analyzed the interrogative utterances of 4 English-speaking children (Adam (2;1-4;9), Eve (1;9-2;7), Sarah (1;7-3;2), and Nina (1;8-3;2)) and found that of the 2809 interrogative tokens, there were only 41 instances of *wh*-in-situ question tokens (less than 1% of the data), all being echo questions. Of all questions that involve non-subject *wh*-phrases, utterances with subject-aux inversion accounted for 93% of them, with less than 7% of the utterances being questions with declarative order. The experimental study of Santelmann et al. (2002) made use of an elicited imitation task requiring children aged between two and five ( $n = 45$ ) to imitate declaratives and yes-no questions consisting of the copula, modal auxiliaries, non-modal auxiliaries and sentences without modal auxiliaries. No significant difference was found between declaratives and yes-no questions in children's performance; children did not show difficulty in imitating sentences involving subject-aux inversion, their greatest difficulty having to do with sentences without modal auxiliaries.

(3) Children's ability to handle subject-aux inversion (Santelmann et al. 2002:820)

- a. "Kermit is eating a cookie" / "Is Minnie Mouse petting a dog?" / "Mufasa is a lion king" / "Is Miss Piggy a movie star?" / "Jasmine can hug a teddy bear" / "Can Aladdin draw a picture?"
- b. "Mickey Mouse opens a present" / "Does Bugs Bunny touch a carrot?"

The analysis of negation in child grammar also reflects the indirect linkage between data and theory, since how negative structures in child language data are described is highly dependent on the theoretical model adopted and will need to change accordingly when the model changes. In the earliest stage of generative grammar (Chomsky 1957), the surface position of the negative particle is derived transformationally, but later formulations within the Extended Standard Theory posit the negator in a sentence internal position in underlying structure, taking note of the influence of the surface position of the negator on scope relations (Chomsky 1972, Jackendoff 1972). In still later developments in syntactic theory, with the advent of the VP internal subject hypothesis (Stowell 1982, Kuroda 1988, Koopman and Sportiche 1991), it becomes possible for a negator positioned before the subject to be actually in a sentence internal position, since subjects can be in VP internal position if not raised to specifier of IP, as shown in Figure 1. In the analysis of Deprez and Pierce (1993), the classic early negative sentences of Klima and Bellugi (1966) such as "no the sun shining" are seen as instantiations of a negator before a VP internal subject; the main difference between child grammar and adult grammar lies in the possibility for the VP subject to remain in situ and only optionally raise to IP subject position. The same child language fact thus receives an entirely different description. The highly suggestive link between acquisition data and linguistic analysis as demonstrated by Klima and Bellugi (1966) suddenly vanishes.

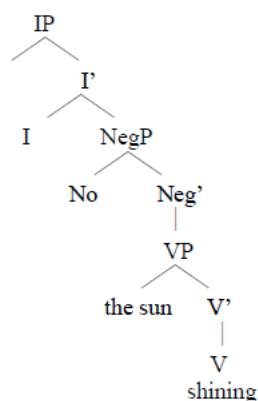


Figure 1: Structure of negation under the VP internal subject hypothesis

### 3. Two investigations in Universal Grammar in which acquisition data are closely tied to linguistic theory

In the three classic examples of use of child language data to support linguistic analysis, it has been shown that either the analysis does not have adequate empirical support from the beginning (as in Halliday’s functional account), or the analysis turns out to be empirically falsified (as in Jakobson’s discontinuity theory or Klima and Bellugi’s analysis based on derivationally theory of complexity). All three cases ignore the complex factors influencing the outcome of language learning and fail to elaborate on the link between linguistic analysis and language behavior, namely, how one may deduce the language behavior of the child based on assumptions concerning Universal Grammar, the theory of grammar, input, the situation of the learner, as well as other cognitive factors. To see how a close link between data and theory can be established, I turn to two important studies which demonstrate convincingly how child language can provide an empirical basis for linguistic analysis, confirming a particular theory or hypothesis, and in turn facilitate the construction of linguistic theory through the discovery of new regularities.

#### 3.1 Early sensitivity to the structure dependence of transformations

In Chomsky (1971), it was pointed out that the acquisition of yes-no-questions in English would pose a poverty-of-stimulus problem. The child may entertain two different hypotheses about question formation when presented with data such as (4). Hypothesis A, known as the structure-independent hypothesis, refers to linear precedence without appeal to phrase structure, or in other words, that yes-no questions in English are formed by moving the first *be* to an initial position. Hypothesis B, on the other hand, is that the child may already possess Universal Grammar and the principle requiring all movement rules to be based on phrase structure, in which case English yes-no-questions are formed by moving the auxiliary to a position before the subject of the clause. This is known as the structure-dependent hypothesis, as reference to constructs such as “auxiliary” and “subject” implies the postulation of phrase structure. The learnability problem is that when presented with data such as (4), the child will not be able to decide between Hypothesis A and Hypothesis B. The critical data that will help the child decide are sentences such as (5), in which there are two “be”s in the sentence, the first one in an embedded clause and the second in the main clause. Since auxiliary inversion is obligatory in English, if the child hears (5b) rather than (5c) used as a yes-no interrogative counterpart of (5a), the child will opt for the structure-dependent rather than the structure-independent hypothesis. The problem is that children will never come across data such as (5) in their early acquisition or in their entire life, as conjectured by Chomsky. The point is that children will not need this kind of critical evidence but jump to

the structure-dependent hypothesis in the first instance by virtue of Universal Grammar, without any need for positive evidence such as (5).

- (4) a. The man is tall.  
b. Is the man tall?
- (5) a. The man who is tall is running.  
b. Is the man who is tall running?  
c. \*Is the man who tall is running?
- (6) a. Ask Jabba if the man who is beating a donkey is mean.  
b. Is the man who is beating a donkey mean?  
c. \*Is the man who beating a donkey is mean?

The significance of this thought experiment cannot be overemphasized, as any attempt to challenge the Chomskyan paradigm will have to find some way of resolving this learnability problem, such as attempts to question the reality of the learnability puzzle (Pullum and Scholz 2002) and efforts to program machines to deduce the correct subject-aux inversion rule based purely on positive evidence (Reali and Christensen 2005; Kam 2007; Kam et al 2008).

Generative linguists tackled this problem successfully using child language data early on. In Crain and Nakayama (1987), it was hypothesized that if children are equipped with Universal Grammar, children would go for the structure-dependent hypothesis at a young age even without many years of exposure to complex sentences if given data such as (5a) and asked to form a yes-no-question based on it. This study used an elicited production task, presenting children with a picture of two figures, one beating a donkey and another carrying a tool standing beside two donkeys. The child was asked to pose questions to a toy puppet (“Jabba”) with the instruction in (6a). It was found that three-year-old children are already in command of structure-dependence, since children produced sentences such as (6b) but did not produce any of the form (6c), which would violate structure-dependence. This is an example of a study in which linguistic theory has clear predictions about child language which are then confirmed by experimental data.

### 3.2 Early sensitivity to the syntax of functional categories

Another notable example of integration of child language with linguistic argumentation comes from acquisition studies on functional categories. It is assumed in Universal Grammar that functional categories such as tense, aspect, and determiner are linguistic universals which are available to children from the onset of grammatical development. The early availability of functional categories has received empirical verification in crosslinguistic studies of child grammar. In languages in which the finite vs. nonfinite distinction is reflected in word order, as in the relative positioning of the verb and the negator in French (Deprez and Pierce 1993), or the positioning of the verb in V2 or final position in German (Poepfel and Wexler 1993), it was found that children respect the finite/nonfinite distinction from a very early stage in grammatical development.

- (7) Negative sentences with nonfinite verb in child French (Deprez and Pierce 1993:40)
  - a. *pas la poupée dormir* (1;9)  
not the toy sleep (nonfinite)0

Negative sentences with finite verb in child French

- b. *Elle a pas la bouche* (1;10)  
she has(finite) not the mouth

(8) Sentences with non-finite verb in child German (Poeppel and Wexler 1993:5-6)

- a. *Thornsten Caesar haben*  
Name-of-person Name-of-toy have (nonfinite)

Sentences with finite verbs in child German

- b. *Ich hab ein dossen Ball*  
I have(finite) one big ball

It was shown by Deprez and Pierce (1993) that in the early negative sentences of French-speaking children, the negator will appear before the verb if the verb is nonfinite, and will follow the verb if it is finite (7), since it is only in finite clauses that the verb would need to raise to the head of IP. In the case study of a German two-year-old, it was found that the child would place the verb in second position if it is finite, and in final position if it is nonfinite (8), since it is also the finite verb that would need to move to the head of IP and then to the head of CP position. The strict adherence to the finite/nonfinite distinction as reflected in word order receives further confirmation from research involving other Germanic languages such as Dutch. In a study of over 2500 relevant tokens produced by 47 Dutch-acquiring children before three years of age, 99% of the sentences containing finite verbs positioned the verb in second position, and 98% of the sentences containing nonfinite verbs showed the verb in final position (Wexler 2003). The child language findings on early sensitivity to functional categories such as inflection have not only confirmed important tenets of linguistic theory, but have also enriched the theory by pointing to new conceptions of grammar, such as the postulation of optional root infinitives (Wexler 1993, 1996).

The two examples discussed above are all based on a nativist conception of the initial state of the child and take into account the range of input likely to be encountered by children, as well as the critical evidence for acquiring the target forms. On the basis of these considerations it is deduced that very young children should show knowledge of the abstract linguistic principles concerned, such predictions then verified by empirical studies of child language. These studies thus constitute paradigm examples of how child language can be linked to linguistic theory and linguistic analysis.

#### **4. A recent use of child language data in syntactic argumentation: the case of Chinese nouns and verbs**

I now turn to the recent study of the Chinese linguist Shen Jiaxuan, who proposed a new way of looking at nouns and verbs in Chinese, advocating that verbs are a subclass of nouns in the language in a series of writings (Shen 2007, 2009, 2010, 2016; Shen and Yue 2013).

##### **4.1 The contextual dependence of word class in Chinese**

It is well known that given that Chinese is a morphologically impoverished language, and as such, the issues of word class or syntactic categories have frequently been points of contention. The prominent French-educated linguist Gao Mingkai proposed from the 1950s that since categories are highly context-dependent, one could do without syntactic category labels for lexical categories as far as the lexicon is concerned, with the category status of a particular item determined only within a sentential context. In a series of papers (Gao 1953, 1954, 1955, 1963), Gao observes that in Chinese the same form can appear as an adjective, an intensifier adverb, a verb complement, or a noun (9a). Nouns can serve as predicates in particular contexts (9b), and the same form of the verb can be used as the main verb, a



complement verb, or a subject (9c). In fact, one prominent feature of Chinese is that verbs can freely enter into subject and object positions, as in (9d). In view of the lack of morphological distinctions and the fluidity of syntactic distributions, Gao argues categorically against postulating word class distinctions for the language.

(9) Contextual dependence of word class in Chinese

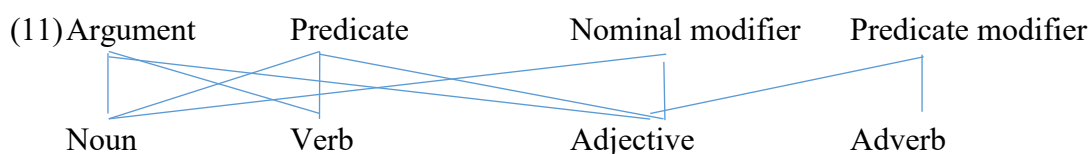
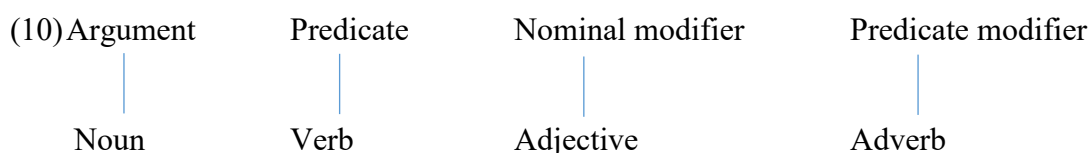
- a. **hao** ren / **hao** gui / xiu **hao** / jiu **hao**  
 good person / good expensive / repair good / old good  
 “good person” / “very expensive” / “repair well” / “old friend”
- b. Ta jianzhi hua de **shan** bu **shan**, **shui** bu  
 s/he to-say-the-least paint COMP mountain not mountain, water not  
**shui**, **yu** bu **yu**, **ren** bu **ren**  
 water, fish not fish, person not person  
 “To say the least, she painted (it) with the result that a mountain does not look like a mountain, water does not look like water, a fish does not resemble a fish, and a human does not look like a human.”
- c. Ta **lai** le/  
 s/he come asp  
 “S/he came.”  
 Ta yuanyi **lai**  
 s/he willing come  
 “S/he is willing to come.”  
**Lai** keyi liaojie qingkuang  
 come can understand situation  
 “Coming can (allow one) to understand the situation.”
- d. Ta zai **diaocha** qingkuang  
 s/he PROG investigate situation  
 “S/he is investigating the situation.”  
**Diaocha** hen jishi  
 investigate very time-consuming  
 “Investigating is time consuming.”  
 Zhejian shi xuyao **diaocha**  
 this-CL matter need investigate  
 “This matter requires investigation.”

The contextual dependence of Chinese word class has also led some contemporary linguists to question X-bar theory and propose an abandonment of the [ $\pm$ N] and [ $\pm$ V] features in favor of a system that only postulates arguments, predicates and predicate modifiers (Tai 1982). Most Chinese linguists are not as radical as Tai and see the need for word class despite the fluidity of word class boundaries. A standard analysis of nouns and verbs in Chinese, due to Zhu (1982), can be summarized in the following way. First, content words are divided into two large subclasses: substantives (*tici*) and predicatives (*weici*), where substantives primarily function as subject and object in a sentence and generally do not function as predicates, while predicatives generally function as predicates, but can also function as subject and object. Therefore, in his taxonomy, nouns are substantives which can be modified by Numeral-Classifier combinations, but cannot be modified by adverbs. Meanwhile, verbs

are predicatives that cannot be modified by the intensifier *hen* (‘很’) and can take objects. Additionally, verbs can occur in A-not-A structures, can be negated, take aspect markers, and can be modified by adverbs.

#### 4.2 The verbs-as-nouns hypothesis

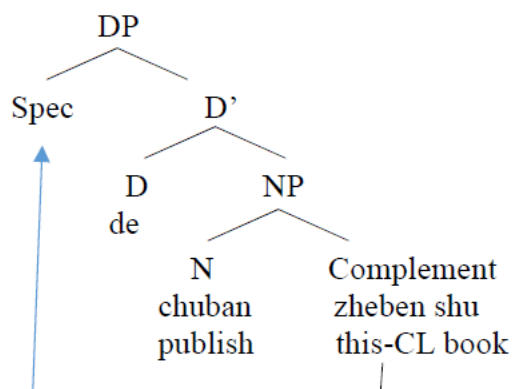
In a series of publications (Shen 2007, 2009, 2010, 2016; Shen and Yue 2013), Shen Jiaxuan made the provocative claim that Chinese verbs should be seen as a subclass of nouns. Borrowing the insights of Zhu (1982), Shen observes that an essential difference between Chinese and English lies in the fact that because of morphological markings on syntactic categories, a clear one-to-one mapping can be observed in English between syntactic categories and grammatical functions, as illustrated in (10): arguments (subject and object) map to nouns, predicates map to verbs, noun modifiers map to adjectives and predicate modifiers map to adverbs. The situation in Chinese is not one of one-one mapping between categories and functions, as can be seen from (11). Instead a word class can be mapped to multiple grammatical functions. In this skewed mapping, there is a great deal of overlap between nouns and verbs, with verbs having a slightly more restricted distribution than nouns. Shen argues that this overlap between nouns and verbs can be captured by analyzing verbs as a subclass of nouns. If verbs are a subclass of nouns in Chinese, it comes as no surprise that verbs in the language can occupy argument positions.



Shen also claims superiority in his analysis of what looks like “derived nominals.” In some formal analyses of Chinese noun phrases in which a verb serves as the head of the nominal, some kind of gerundive analysis is given, to the extent that the verb in head position is said to have a derived nominal status, as shown in (12-13) (Fu 1994, Cheng 1999). Shen argues that this kind of formal analysis goes against economy principles and represents an inconsistent methodology due to the fact that if syntactic categories are given by distribution in the absence of morphological cue, then there is no need for postulating a covert nominalization process. Just as we do not say that predicate nominals are derived verbs, we do not need to argue that these verbs functioning as heads of noun phrases are nominalized verbs. For Shen, the simpler analysis is to see them as nouns because verbs are a subclass of nouns.

(12) Zhe    ben    shu    de    chuban  
       this    CL    book    NOM    publish  
       “the publication of this book”

(13)



A third argument given in support of the verbs-as-nouns hypothesis stems from the asymmetry between nominalizations and denominal verbs across languages. Functionalist scholars have earlier observed an asymmetry between verbs functioning as nouns and nouns functioning as verbs (Hopper and Thompson 1984), in that when verbs function as nouns, the denotation of the nominalized verb is the action or activity designated by the verb conceptualized as a concrete entity. On the other hand, when nouns surface as verbs, the denotation of the denominal verb is not an action or activity designated by the noun but rather an action or activity in which the referent of the noun plays some role. This asymmetry is illustrated in (14), drawn from Clark and Clark (1979), with parallel examples from Chinese given by Shen (2010) in (15). As observed by Tai (1997), the general lack of conventionalized denominal verbs in comparison to the productivity of these forms in English presents a stark contrast and an interesting language difference that needs to be captured.

- (14)a. Jane blanketed the bed.  
 b. Kenneth kenneled the dog.  
 c. Julia summered in Paris.  
 d. John butchered the cow.  
 e. Edward powdered the aspirin.  
 f. John bicycled into town.

- (15)a. Wo ye lai shunü yixia  
 I too come lady asp  
 “Let me act like a lady also.”  
 b. Wo ye dakuan guo yihui  
 I also big-money EXP once  
 “I spent money like a big-money spender once.”  
 c. Ta ke zhenneng Akiu ziji  
 s/he really can Akiu self  
 “He can really delude himself like Akiu.”  
 d. Wo hai meiyou boke guo  
 I still not-have blog EXP  
 “I’ve not had the experience of having a blog.”

In the cognitive grammar accounts of Lakoff (Lakoff and Johnson 1980) and Langacker (1987), it is more natural to use verbs as nouns rather than the other way round, because one conceptualizes something abstract in terms of something concrete and not the other way round. The asymmetry will follow if one assumes that the meanings of verbs are more

abstract than those of nouns. Shen makes use of the insights of cognitive grammar to justify his treatment of verbs as nouns.

It should be observed that Shen's account does not answer the Chinese-English difference observed by Tai (1997) since all of Shen's examples are highly context-dependent, innovative, and not conventionalized. While English denominal verbs are highly productive, Chinese denominal verbs are sharply restricted, as can be seen from the fact that it is difficult to have a transitive denominal verb even though there is a strong functional need to do so, as can be seen from the difficulty of using nouns such as *dianhua* 'phone' and *chuanzhen* 'fax' as verbs. In fact, all of Shen's examples are intransitive denominal verbs.

In addition to the above arguments related to the skewed mapping between syntactic categories and grammatical functions, the simpler analysis of verbs functioning as nominal heads, and the cognitive primacy of nouns, Shen proposes a somewhat obscure distinction of "realization" (*shixian guanxi*) vs. "constitution" (*goucheng guanxi*) to justify his analysis. He observes that in English, for a verb to function as a noun, or for a noun to function as a verb, there must be morphological licensing. Nouns in English also have to receive morphological marking in order to realize their denotational function, as nouns in English need to have the modification of articles or number marking in order to refer to individuals or kinds. On the other hand, Chinese verbs do not need any special marking to realize their roles as arguments; unlike English, bare nouns in Chinese can refer to individuals and kinds without any modification. Shen argues that the relationship between nouns and verbs and the positions they occupy in the sentence is one of constitution rather than realization. A morphological process of word class derivation is therefore unnecessary.

#### 4.3 The relevant child language evidence

Shen Jiakuan's verbs-as-nouns hypothesis is original and provocative, and his arguments can be critically evaluated. What concerns us is the way child language is said to lend support to his word class hypothesis, as he cites the experimental findings of Imai and her colleagues on the learning of novel nouns and verbs in Mandarin, Japanese, and English (Haryu et al 2005; Imai et al. 2005, 2006, 2008) as supportive of his analysis. In brief, the findings of the Imai team show that while it was generally more difficult for children to learn the distribution of novel verbs than that of novel nouns across the three languages, Mandarin-acquiring children performed particularly poorly on novel verb tasks compared to their performance on novel nouns; while they were able to extend novel nouns to new situations at three years of age, they failed to extend novel verbs to new situations as late as 7 years of age. For Shen, the finding suggests that since verbs are a subclass of nouns in Chinese, it is difficult for Mandarin-speaking children to distinguish them from nouns, hence their difficulty with novel verbs.

To evaluate whether Imai's findings can be taken to support Shen's analysis, one would need to go into the design of Imai's experiments in some detail. The findings of Imai with regard to Chinese children's command of verbs call for scrutiny, given the fact that we know verbs appear as early as nouns in the production data of child Mandarin from the research of Tardif and her colleagues (Tardif 1996; Tardif, Shatz and Naigles 1997; Tardif, Gelman, and Xu 1999). We also have evidence from distributional analysis of child Mandarin (Xiao, Cai and Lee 2006; Cai 2006) that 80% of the verbs in the naturalistic speech of Mandarin-acquiring two-year-olds match the verbs used by adults using a frequent frame analysis similar to that of Mintz (2003). Given these findings from spontaneous production, it would be puzzling to see children confusing verbs and nouns as late as 7 years of age.

The methodology used by Imai's team (Haryu et al 2005; Imai et al 2005, 2006, 2008) is based on a video selection task. For the Mandarin component of their study, they tested 36 three-year-olds, 38 five-year-olds, and comparable numbers of seven-to-nine year-olds and

adults. The same experimental methodology was used with three-year-old and five-year-old Japanese-speaking children and English-speaking children. Each child viewed 6 sets of videos, each set consisting of a reference event and two experimental events. The reference event shows a woman performing a novel action on a novel object repeatedly. For example, a woman taking a sword-like object with a spherical metal frame at the tip of the object, thrusting the object forward in a jabbing-like action. When viewing the reference event, a novel word is introduced in a noun frame for the novel noun condition, and in a verb frame for the novel verb condition. A between-subjects design was used, with one group of children tested in the noun condition, and another group tested in the verb condition. The noun frame and the verb frame used for English are given in (16) and those for Mandarin in (17). For the English test, the noun frame would be “Look, there is an X,” and the verb frame “Look, she is X-ing it.” For the Mandarin test, the noun frame would be *Ni kan! zheli you ge X* (‘Look, there is an X’), and the verb frame *Ni kan! Ayi zai X yi ge dongxi* (‘Look, auntie is X-ing a thing’).<sup>2</sup>

(16) Sentence frames used for English and test questions asked (Haryu et al. 2005; Imai et al 2005, 2006, 2008)

Noun frame: “Look, there is an X”  
 Test question: “Where is the X? Can you point to the X?”  
 Verb frame: “Look, she is X-ing it”  
 Test question: “Where is she X-ing it?”

(17) Sentence frames used for Mandarin and test questions asked (Haryu et al 2005; Imai et al 2005, 2006, 2008)

Noun frame: Ni kan! zheli you ge X  
 You look here have CL X  
 “Look, there is an X.”  
 Test question: Na zhang tuli you ge X  
 which CL picture-in have CL X  
 “In which picture is there an X?”  
 Verb frame: Ni kan! Ayi zai X yi ge dongxi  
 you look aunt PROG X one-CL thing  
 “Look, auntie is X-ing a thing.”  
 Test question: Nazhang tuli Ayi zai X yige dongxi?  
 which-CL picture-in aunt PROG X one-CL thing  
 “In which picture is aunt X-ing a thing?”

After listening to the novel word when viewing the reference event at the same time, the child was then be shown two videos showing two different test scenarios. In one test scenario, the action was the same as the reference event but a different object is involved, for example, a carpet-like object made of white plastic material that is rolled up and being thrust forward in the same jabbing action as that in the reference event. Let’s label this scenario the V type (same action, different object). In another test scenario, the object remains the same as that in the reference event, but another action is involved, for example, the auntie lifting her right leg to move the sword-like object with the knee. Let’s label this scenario the N type (same object, different action). The children tested in the noun condition were asked “Where is the X? Can

<sup>2</sup> Our account of the test sentences, experimental protocol and results of the Imai experiments is largely based on Imai et al (2006: 454-460).

you point to the X?” or *Na zhang tu-li you ge X?* (‘In which picture is there an X?’). If the child understands X to be a nominal, the expected choice would be the N type scenario (same object, different action). The child tested in the verb condition was asked “Where is she X-ing it?” or *Na-zhang tu-li Ayi zai X yi-ge dongxi?* (‘In which picture is auntie X-ing a thing?’). If the child understands X to be a verb, the expected correct answer should be the V type scenario (same action, different object).

The experimental findings (Imai et al. 2006:460) show that 86% of the English-speaking children who were trained in the noun condition correctly picked the N type scenario (same object, different action), but only 40% of the English-speaking children trained in the verb condition correctly picked the V-type scenario in the test phase (same action, different object). These respective percentages rose to 91% and 70% respectively for the five-year-olds. With respect to the Chinese children, 85% of the subjects trained in the noun condition correctly chose the N-type video (same object, different action), and this figure increased to 94% by five years of age. However, only 8% of the three-year-olds trained in the verb condition chose the V-type scenario (same action, different object), with this percentage increasing to 20% for the five-year-olds and only 50% for the seven-year-olds.

### **5. A critique of Shen’s use of acquisition data**

The findings of the Imai team seem to be at odds with what we know about the grammatical competence of five-to-seven-year-olds, who are using a range of complex constructions ranging from verb complementation and relative clauses to passives and conditional sentences. They also do not tally with the distribution of verbs in early child grammar, which by and large matches that of verbs in adult grammar. The findings of Imai deserve more careful scrutiny to see what may underlie this kind of unexpected finding. First, to what extent can we argue that these findings support the verbs-as-nouns hypothesis of Shen Jiaxuan? Second, is the experimental design a valid test of Mandarin-speaking children’s command of nouns and verbs? Here I observe three fallacies in Shen’s use of child language data to support his syntactic analysis.

First of all, there does not seem to be any deductive link between child language data and syntactic analysis. Even if we accept the validity of Imai’s findings, it is unclear why these findings should support Shen’s verbs-as-nouns hypothesis. At a descriptive level, the results show only that it is difficult for verbs to be distinguished from nouns given the distributional overlap of the two word classes. One could equally use such data to argue for the salience of the verb in the language, or the “verbiness” of the language, as in the proposal of Liu Danqing (2010). If one would like to link Imai’s results to his particular hypothesis, one will have to show how it is that assuming verbs to be nouns would make it difficult for Chinese children trained in the verb condition to extend it to a new situation, such that they would fail to pick the correct V-type video when asked *Na-zhang tu-li Ayi zai X yi-ge dongxi?* (‘In which picture is auntie X-ing a thing?’). If verbs are seen as a subclass of nouns, why should a noun subclass be more difficult than the canonical nouns in terms of acquisition? These questions must be addressed before the child language argument will carry force.

A second problem with Shen’s proposal is that despite the results of the Imai group on late verb acquisition by Mandarin-acquiring children, Shen will have to account for the robust verb salience effects in various other studies of early child Mandarin. There is reason to believe that all other things being equal, nouns may be easier to acquire than verbs because of the differences in mapping nouns to objects compared with mapping verbs to actions and events. As observed by various psycholinguists, the denotations of nouns are typically objects with boundaries and internal cohesion, whereas the denotations of verbs are actions, events and relations that are perceptually more diffuse and less salient (Gentner 1978, 1982). Even if the concepts of nouns and verbs are both accessible to us, it remains more difficult to map

verbs to the events and actions they describe than to map nouns to their referents (Snedeker and Gleitman 2004). However, it is also an undisputed fact that verbs are prominent in Chinese and do not necessarily appear later than nouns, though that fact depends on various factors such as how the data are sampled, whether it is longitudinal data or cross-sectional data one is examining (Peng 2004), and the type of activity the child is engaged in when recorded (Tardif 1996; Tardif, Shatz and Naigles 1997; Tardif, Gelman and Xu 1999). Compared to child English, a greater percentage of verbs is found in the naturalistic speech of Mandarin-speaking children than in that of English-speaking children. How can one tally verb prominence in early child Mandarin with their poor performance in learning novel verbs compared to their English-speaking counterparts?

A third weakness of Shen's use of child language data is that no attempt was made to examine the details of Imai's methodology to look for possible causes of the unexpected results. In this connection, one should point out that the test questions for the verb condition in the experiment are not exactly equivalent for English and Chinese, which may potentially bias the task against verb learning. The test question for the verb condition in English is "Where is she X-ing it?" whereas the test question for the verb condition in Mandarin is *Na-zhang tu-li Ayi zai X yi-ge dongxi?* ('In which picture is auntie X-ing a thing?'). In the English test question a pronominal clitic 'it' is used, whereas in Chinese, it is an indefinite noun phrase *yi-ge dongxi* ('a thing'). Presumably the fact that pronouns are generally not used to refer to inanimate objects poses a problem for Imai in experimental design, so an indefinite nominal is used instead. However, it is well known that indefinite noun phrases introduce referents into discourse, so while "it" in English can be deictic or anaphoric, "a thing" in Chinese will signal the introduction of a referent. If the Mandarin-speaking child trained in the verb condition listens to the test question containing the novel verb, it is possible the use of the indefinite nominal will distract him in cueing him to look for a new object, interfering with the child's potentially correct use of the novel verb just learned. It is highly plausible that such differences in the linguistic structure of parallel test questions have given rise to the puzzling findings of the Imai experiments.

## **6. Conclusion: Some methodological considerations in using child language data for linguistic analysis**

In this paper, I have reviewed the relationship between child language data and linguistic analysis drawing from a number of classic studies in various schools of thought, from Halliday's child language study based on the functionalist framework to Jakobson's structuralist theory of phonological development, to the transformational analyses of early child syntax couched in various generative models, as well as more recent empirical investigations of Universal Grammar. In particular, I have analyzed in detail a recent attempt to use child language to argue for the hypothesis that verbs in Chinese are a subclass of nouns, and have shown the argumentation of the proposal to be faulty. The interaction between child language evidence and linguistic argumentation is complex, and one cannot simply rely on the relative precedence or relative difficulty of particular forms as crucial evidence for a particular analysis. In using child language to confirm a linguistic analysis, a model of language acquisition and its initial state (Universal Grammar) would need to be presupposed before valid connections can be established between theory and evidence. One will have to elaborate on the deductive links between theory and data, specifically how a particular pattern of child language behavior can be predicted based on one's assumption about Universal Grammar, the learner, the input and the acquisition process. One will also have to attend to the details of methodology when one makes use of child language as evidence for a linguistic hypothesis, as the evidence is valid only insofar as the methodology is sound.

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