

The Acquisition of Chinese Dative Constructions

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Abstract

The present paper examines the acquisition of the dative construction in Chinese, centering on issues raised in Baker's Paradox relating to how children figure out that certain syntactic rules are not completely productive (Baker, 1979; Pinker 1989). We tested 29 Chinese speaking children from Taiwan, on a forced-choice grammaticality judgment test comparing double object constructions to prepositional constructions. Results revealed that children's acquisition of the dative in Chinese is guided by a set of Narrow Range Rules that define semantic subclasses of verbs that are permitted to alternate within the language (Pinker 1989).

Introduction

Baker (1979) posed the question as to how children acquire syntactic rules when those rules apply to only a limited set of lexical items. For example, in the case of the rule in English known as Dative Alternation, it was proposed that there was a derivational relation between sentences containing dative prepositional constructions such as (1)a. and the related double-object construction (1)b. bearing approximately the same meaning.

- (1) a. John gave a book to Mary.
b. John gave Mary a book.

However, for a very similar structure such as (2)a., it turns out that the double-object construction (2)b. is ungrammatical.

- (2) a. John donated a book to the library.
b. *John donated the library a book.

Initially, Baker (1979) conjectured that children never make errors such as those in (2)b. In addition, he pointed out that children are not provided with negative evidence (teaching, corrections etc.) that would provide them with information that (2)b. is ungrammatical. He therefore postulated that children would have to learn such rules on a verb-by-verb basis, rather than as a general rule that operated over a given structural description. This approach is also called "conservative learning".

Since his original paper, it has been found that children do, in fact, make errors of using the double-object constructions for verbs that do not allow it. For example, Mazurkewich and White, (1984) report children's utterances such as *I'll brush him his hair* (see also Gropen, Pinker, Hollander, Goldberg, and Wilson, 1989; Bowerman, 1987). In addition, Pinker (1989) points out that the double object construction could not be learned conservatively since it is found on verbs that have only recently been introduced into the language, as in *fax me the letter*.

In *Learnability and Cognition*, Pinker (1989) tries to show that the seemingly arbitrary restrictions on dative alternation are, in fact, semantically motivated. In order to occur in a double object construction, the verb first needs to possess the semantic properties of a broad range rule (BRR) that characterizes the underlying semantic interpretation of the double-object construction. In this case, then, the underlying meaning of a double-object construction: *X Verb Y Z* is that *X causes Y to have Z*. Therefore, Y must be the prospective possessor of Z. If the verb fails to possess these properties then the construction cannot be grammatical. For example, we can say *He drove a car to Chicago*, but not **He drove Chicago a car*. This is because Chicago could not be the prospective possessor of the car. The semantics of the BRR are said to derive from a universal linking rule that links the first object to the goal/beneficiary theta role.

If a verb meets the thematic constraints of the BRR, then it must further possess the semantic properties of a Narrow Range Rule (NRR). NRRs define semantic subclasses of verbs that allow the dative alternation to occur. A list of such subclasses is shown in Table 1, based on Gropen et al. (1989).

For some verb classes, an additional morphophonological constraint applies which allows Germanic but not Latinate verbs to alternate. Such word origins are indicated by the syllable structure and stress pattern of the verb. Germanic or Native verbs tend to be monosyllabic or else receive initial stress (e.g., *tell*, *give*). Latin verbs, on the other hand, tend to be multisyllabic with non-initial stress (e.g., *explain*, *contribute*). This is said to explain why donate cannot dativize, even though it appears to meet the broad and narrow range rules for alternation.

According to Gropen et al. (1989), the BRR is acquired through the universal linking rules that are thought to be either innate or at least easy to learn and available to the child from very early on.

“[I]f the child is built to formulate lexical rules as operations on lexicosemantic structure that are projected onto syntactic argument structure, the semantic constraint of possession-change is a necessary property of the broad-range dative rule that he or she will be forced to posit from the very start.” (p.246)

Table 1. Dativizable verb subclasses defined by NRRs. (Gropen et al. 1989)

Verbs that inherently signify acts of giving: *give, pass, hand, sell, pay, trade, lend, loan, serve, feed.*

Verbs of instantaneous causation of ballistic motion: *throw, toss, flip, slap, kick, poke, fling, shoot, blast.*

Verbs of sending: *send, mail, ship.*

Verbs of continuous causation of accompanied motion in a deictically-specified direction: *bring, take.*

Verbs of future having: *offer, promise, guarantee, bequeath, leave, refer, forward, allocate, allot, assign, allow, advance, award, reserve, grant.*

Verbs of type of communicated message: *tell, show, ask, teach, pose, write, sin, read, quote, cite.*

Verbs of instruments of communication: *radio, E-mail, telegraph, wire, telephone, netmail, fax.*

Verbs of creation: *bake, make, build, cook, sew, knit, toss (salad), fix (dinner), pour (drink).*

Verbs of obtaining: *get, buy, find, steal, order, win, earn, grab.*

The NRRs, however, are language specific and may take longer to figure out. If a child hears a verb used in both the double object construction and the prepositional construction, a NRR is formed based on the semantic analysis of the verb. When another verb is encountered that shares the relevant semantic properties of that NRR, it becomes licensed to appear in the relevant constructions.

Dative Alternation in Chinese Chinese has constructions that are approximately equivalent to the prepositional construction and the double object construction of English. Consider sentences (3)a. and (3)b. (The numbers in the romanized Chinese scripts indicate the four tones of Mandarin: 1 high, 2 rising, 3 falling-rising, and 4 falling.)

- (3) a. *yue1han4 huan2 le ma3li4 yi4 ben3 shu1*
 John returned PFV Mary one CL book
 “John returned Mary a book”
- b. *yue1han4 huan2 le yi4 ben3 shu1 gei3 ma3li4*
 John returned PFV one CL book *gei3* Mary
 “John returned a book *gei3* Mary”

There is little doubt that (3)a. represents the double object construction in Chinese. It is not clear, however, whether (3)b. involves a construction that is equivalent to the *to*-prepositional form in English. The word *gei3* (meaning “give” as a verb) is called a “coverb” by Li & Thompson (1981) (see also Tang, 1990; Newman, 1993; Tang, 1989). A coverb is a preposition that is also a verb or else derives from a verb. Other linguists argue that *gei3* is a serial verb in this construction (Huang & Mo, 1992). In the present paper we will adopt Li & Thompson’s view of *gei3* as a coverb. In either case, the acquisition problems remain the same, and are not significantly affected by the particular analysis of *gei3*.

In the present paper we will diverge from Li and Thompson (1981) in the manner in which we categorize verb classes. In their analysis, Li and Thompson focus on whether *gei3* is obligatory, optional or forbidden with various verbs. For example, for the class of verbs listed as “*gei3*-forbidden”, it turns out that these verbs forbid *gei3* for a variety of reasons. *Gao4su4* (tell) and *gei3* (give), for example, can only take the double object form exclusively, and not any other form. It is very likely that *gei3* (give) cannot take *gei3* as a coverb in order to avoid repetition. Verbs like *shuo1* (say), *chan4* (sing), and so on can only take a preverbal preposition, such as *dui4* (towards) or *chiao2* (facing), when two objects are involved and do not take the double object form. Another set of the verbs listed as “*gei3*-forbidden” are the deprivational verbs like *to1* (steal). In these cases, it is not that the verb cannot take the *gei3* construction, but rather that it normally does not. This is because in a sentence like (4), the meaning is that John stole a book from Mary (deprivation) rather than for Mary (transfer) as it would be in English. However, if *to1* is used with the *gei3* construction, then the reading becomes similar to the English sense of transfer from the subject to the object.

- (4) *yue1han4 to1 le ma3li4 yi4 ben3 shu1*
 John steal PFV Mary one CL book
 “John stole Mary a book” (Mary = source/loser)

In sum, there are several reasons why verbs may or may not take the *gei3* construction; it makes little sense to group all such verbs into classes defined by cooccurrence with *gei3*.

What, in Chinese, counts as the counterpart of the English dative alternation? Verbs that can occur either in the *gei3*-preposition form and the double object form certainly resemble the English alternating verbs, and the so-called “*gei3*-required” verbs definitely look like the non-alternating verbs in English. But what about the “*gei3*-forbidden” verbs that can occur either with a preverbal prepositional phrase, or the double object construction? What about those verbs for which the double object form requires a deprivational meaning?

In order to deal with this variability in form, we need to reconsider the notion of alternation. Since the dative BRR derives solely from the outcome of linking the argument structure and the thematic roles of the *double object construction*, it is reasonable to construe the BRR as licensing a verb’s dativizability (i.e., use in the double-object construction), rather than licensing its alternation between the double object and prepositional constructions. Goldberg (1992), in an approach known as “Construction Grammar”, takes a similar approach to this issue by focusing on individual forms rather than alternations. She points out that malefactive verbs like *cost*, *envy*, and *deny*, while appearing in the double object construction, cannot occur in the prepositional construction in English. By focusing on the double object construction, which is central in the issue of dative alternation, the problems can be reduced to a large degree.

When considered in this light, there are interesting parallels and differences between English and Chinese with regard to the dativizability of different subclasses of verbs. For example, in Chinese, like English, verbs of giving (e.g., *gei3* = 'give', *mai4* = 'sell'), verbs of communication (e.g., *gao4su4* = 'tell', *jiao1* = 'teach'), verbs of obtaining (e.g., *to1* = 'steal', *mai3* = 'buy') all occur in the double object construction, although the latter class involves deprivation rather than transfer. Verbs of consuming (e.g., *chi1* = 'eat', *he1* = 'drink', *yong4* = 'use', *hua1* = 'spend') can occur in the double object form in Chinese but not in English (again, the meaning is deprivational). Other subclasses that dativize in English do not dativize in Chinese. For example, motion verbs, regardless of temporal or directional properties, do not dativize in Chinese (e.g., *diu1* = 'throw', *ti1* = 'kick', *na2* = 'take', *dai4* = 'bring'), nor do verbs of creation (e.g., *zuo4* = 'make', *dao4* = 'pour') or verbs of sending (e.g., *ji4* = 'send', *chuan2zhen1* = 'fax').

Interestingly, the Chinese verb for *donate* (*juan1*) also does not allow the double object construction. This is puzzling since the explanation for this in English had to do with Latinate origins, yet clearly there are no etymological or morphophonological factors restricting dativization in this case. Therefore, there must be something in the semantics of *donate* that contributes to its non-occurrence in the double object construction. Note that *donate* also fails to dativize in Arabic (Al-Osaili, 1993). We suspect that since the first object of *donate* is constrained to be an institution of some sort, then it is possible that this argument is linked to a location role rather than a recipient role, thus failing to meet the BRR for the dative.

Research Questions

Broad Range Rules: A major issue in considering the role of the BRR in dative acquisition concerns significance of the deprivational interpretation of the double object construction in Chinese. In (4), which is restated below in (5), *ma3li4* (Mary) cannot be linked to a *goal/beneficiary* role. Rather, it is linked to a *source/loser* role.

(5) *yue1han4 to1 le ma3li4 yi4 ben3 shu1*
 John steal PFV Mary one CL book
 "John stole Mary a book" (Mary = source/loser)

This alternative role assignment for the first object appears to violate the "universal" linking rule that forms the basis of Pinker's BRR requiring that the first object be the prospective possessor.

It is possible that Chinese simply violates the universal linking rules for this set of verbs, or it may be that linking rules are not actually universal (Bowerman, 1990). In any case, one must first determine whether verbs like *to1* ('steal') are merely exceptions, and should not be taken too seriously. It turns out that the pattern of linking associated with this set of verbs is actually the rule rather than the exception. By this,

we mean, not that it is the most frequent form, but that it is the default. That is, if the situation denoted by a verb in the double object construction is ambiguous as to whether the first object should be the recipient or the source, then source is always the preferred assignment. Thus, the situation denoted by *to1* (= 'steal') is ambiguous as to whether the person other than the agent is being robbed or being robbed for. In such cases, the assignment in Chinese is the person being robbed or the source.

If it is the case that Chinese differs significantly from the putative universal pattern of linking rules, then one prediction might be that such exceptional linking for Chinese might be acquired late. For example, one might hypothesize that children would initially assume that linking proceeds from the universal pattern, and only slowly learn that Chinese violates this general pattern in significant ways. In order to test this hypothesis, we used several verbs that show the exceptional pattern to see if these verbs were particularly problematic for young children. These include the verbs of obtaining (*to1* = 'steal', *ying2* = 'win', *qian3* = 'rob'), and the verbs of consuming (*chi1* = 'eat', *he1* = 'drink', *yong4* = 'use').

Narrow Range Rules: In Pinker's theoretical framework, the NRRs define semantic subclasses that license the occurrence of verbs in the double-object construction. Unfortunately, there is no direct empirical evidence for the role of NRRs in the acquisition of the dative construction. While Gropen et al. (1989) have collected evidence for the BRR and the morphophonological constraint, they did not attempt to validate the role of NRRs in the acquisition process.

If NRRs are indeed instrumental in defining semantic subclasses that license occurrence in the double object construction, then once a particular NRR is defined, the dativizability of verbs within its subclass should occur in parallel, assuming the child correctly analyzes the semantic components of the relevant verbs. Therefore, we should predict that children's judgments about the dativizability of verbs should show a high concordance for verbs within the same subclass, but not for those between subclasses.

Methods

Subjects. Thirty-seven children from Chao-sheng-ci kindergarten and Chi-shien elementary school in Kaoshiung, Taiwan were recruited through school teachers. Eight children did not pass four or more training items of each task and were later excluded, leaving fifteen boys and fourteen girls in the final data analysis. These twenty-nine children were then divided into three age groups: 4 year olds (mean age = 4;8, n = 8), 5 to 6 year olds (mean age = 5;6, n = 9), and 7 to 8 year olds (mean age = 8;1, n = 12)

Procedure

A. The Syntactic Task

Training phase. Children from the same class were tested in a group. The groups consisted of one class of 7 to 8 year olds, two classes of 5 to 6 year olds, and one class of 4 year olds. All children were tested in groups of eight to twelve in a quiet classroom accompanied by their teachers. In the grammaticality judgment task five training items were used. For each item, a story was told along with a picture of the context. This was

followed by the presentation of two choice sentences. One of the choices was a grammatical sentence, and the other one contained all words of the grammatical sentence but was scrambled in word order. An example of the training items is given below:

Wang2 bo2bo lai2 jia1li3 he2 ba4ba liao2tian1, ma1ma jiu4 shuo1,

“Mr. Wang came to chat with dad, so mom said:”

Good: *Da4ming2, na2 yi4bei1 guo3zhi1 lai2 gei3 Wang2 bo2bo he1.*

“Da4ming, give Mr. Wang a cup a juice to drink.”

Silly: **He1 Wang2 bo2bo lai2 gei3 yi4bei1 guo3zhi1 na2 Daming2*

“*Drink Mr. Wang to a cup of juice give Da4ming2.”

Two experimenters presented each of the test sentences with a different puppet, Cookie monster and Winnie the Pooh. The order of presentation was counterbalanced across subject groups. Each child had a response booklet with one blue box for Cookie Monster and one yellow box for Winnie the Pooh on each page. The children were instructed, with a modeling demonstration, to reward the puppet that said a “good” (grammatical) sentence by putting a sticker on the color box that corresponded to the that puppet. For each item, the experimenters repeated the choices at least three times, and would not move to the next choice until all children had responded. Two other experimenters looked over the children, making sure they did not talk to each other or look at each other’s answers. They also made certain that all children were on the right page of the response booklet.

Test phase. Twenty-two verbs were selected to represent various semantic subclasses of Chinese dative or deprivational verbs. The procedure of the test phase was similar to that of the training phase where the children were presented with a short context and then a choice of a grammatical or ungrammatical sentence. The choice sentences for each item always included one double object construction. The other was either a matching *gei3* construction or some other prepositional construction. In some cases the double object construction was grammatical, in other cases the other construction was grammatical. A list of the verbs, the subclasses each of them belongs to, and the choice constructions are listed in Table 2 and 3 for the dativizable and non-dativizable verbs respectively.

Table 2. Chinese dativizable verbs tested in the current study, the subclasses they belong to, and forms they were tested in.

Semantic Subclass	Verb	Form tested		
		Gei	DO	preV
Verbs of giving	<i>mai4</i> (sell)			*
	<i>gei3</i> (give)	*		
Verbs of communication	<i>gao4xu4</i> (tell)	*		
	<i>wen4</i> (ask)	*		
	<i>jiao1</i> (teach)	*		
Verbs of consuming	<i>chi1</i> (eat)	*		
	<i>he1</i> (drink)	*		
	<i>yeng4</i> (use)	*		
	<i>hua1</i> (spend)	*		

Verb-form combinations that were untested are shaded.

* Ungrammatical use

Table 3. Chinese non-dativizable verbs tested in the current study, the semantic subclasses they belong to, and the forms they were tested in.

Semantic Subclass	Verb	Form tested		
		Gei	DO	preV
Verbs of creation	<i>zuo4</i> (make)		*	
	<i>gai4</i> (build)		*	
	<i>dao4</i> (pour)		*	
Verbs of motion	<i>diu1</i> (throw)		*	
	<i>dai4</i> (bring)		*	
	<i>la1</i> (pull)		*	
other	<i>juan1</i> (donate)		*	

Verb-form combinations that were untested are shaded.

* Ungrammatical use

B. The Semantic task

The semantic task was designed to evaluate if children understood the deprivational use of double object construction. Obtaining verbs were used for this test. These verbs can be used in both the double object construction (indicating deprivation) and in the *gei3* construction (indicating subject-object transfer). For example, (6)a. means that John stole the purse *from* Mary, but (6)b. means that John stole the purse *for* Mary.

- (6) a. *yue1han4 to1 le ma3li4 yi4 ben3 shu1*
 John steal PFV Mary one CL book
 “John stole Mary a book” (Mary is robbed)
 b. *yue1han4 to1 le yi4 ben3 shu1 gei3 ma3li4*
 John steal PFV one CL book gei3 Mary
 “John stole a book *for* Mary”

Training Phase. Five training items were created to familiarize children with the focus of the semantic task. Specifically, we wanted them to know that, unlike the syntactic task, both sentences were now grammatical but only one of them was appropriate to the context. The experimenters acted out a brief context with puppets and other objects such as coins, star fruit and books. Two sentences were then presented that described the context. One appropriately described the context, while the other was

semantically inappropriate. The child was again instructed, with a modeling demonstration, to reward the puppet that said the “good” (semantically appropriate) sentence. An example of the training follows:

Egghead is playing with wolf, who sits on Egghead’s tummy.

Good: *Da4yie3lan2 zuo4 zai4 Guai4to2 shen1 shiang4*

“The wolf is sitting on Egghead”

Silly: *Guai4to2 zuo4 zai4 Da4yie3lan2shen1 shiang4*

“Egghead is sitting on the wolf.”

Test Phase. The procedure was identical to that of the training phase except that the choice sentences consisted of a double-object construction (appropriate) and a *gei3* construction (inappropriate). The verbs tested were *mai3* (buy), *to1* (steal), and *na2* (take).

Results

A. The Syntactic Task

Tests of correlation for semantic subclasses

To test the predictions based on the Narrow Range Rules, we ran correlations on all pairs of verbs tested. Responses were scored as 1 if the child was correct on that verb, and 0 if they were incorrect. If children use the semantic subclasses to license use of a particular verb in the double object construction, then we should find high correlations in their judgments between pairs of verbs within the same semantic subclasses. On the other hand, we do not predict that such correlations should occur for pairs of verbs from different subclasses. Therefore, we were looking for patterns of significant and non-significant correlations that would reflect the semantic subclasses determined by the NRRs.

Before inspecting the data, one question concerns the predictions for verb classes that do not allow the double object construction. Within Pinker’s theory, the NRRs are used to license verbs that dativize. While non-dativizable verbs may also fall into semantic subclasses, such semantic properties are not generally considered to be explanatory. Hence, we would not predict that the semantic subclasses of verbs that fail to dativize would show significantly high correlations within those subclasses. This is a particularly strong test of the current data, since a confirmation of this prediction would rule out the possibility that the intra-class correlations were simply a reflection of semantic similarity rather than a reflection of the role played by NRRs in licensing the double object construction.

Table 4 is a summary of the correlations for dativizable verbs, and Table 5 is a summary of the correlations for non-dativizable verbs. In each table, the checked numbers in bold represent the within-subclass correlation coefficients, which are expected to be higher than the rest in Table 4 but not Table 5.

For the dativizable verbs in Table 4, a t-test revealed that the within-subclass correlation coefficients were significantly higher than the between-subclass correlation coefficients. ($t(34) = 3.96$, $p < .0005$). The result is consistent with the prediction that the dativizability of verbs in the same subclasses is realized concurrently.

Table 4. Correlation coefficients of dativizable verbs.

	<i>gei3</i> (give)	<i>mai4</i> (sell)	<i>gao4shu4</i> (tell)	<i>wen4</i> (ask)	<i>jiao1</i> (teach)	<i>chi1</i> (eat)	<i>he1</i> (drink)	<i>yong4</i> (use)	<i>hua1</i> (spend)
<i>gei3</i> (give)									
<i>mai4</i> (sell)	0.65 √								
<i>gao4shu4</i> (tell)	0.09	-0.2							
<i>wen4</i> (ask)	0.31	0.35	0.4 √						
<i>jiao1</i> (teach)	0.24	0.16	0.59 √	0.5 √					
<i>chi1</i> (eat)	0.51	0.34	0.21	-0.19	0.26				
<i>he1</i> (drink)	0.16	0.34	0.21	-0.19	-0.2	0.45 √			
<i>yong4</i> (use)	0.15	-0.2	0.49	-0.09	0.31	0.21	0.2		
<i>hua1</i> (spend)	0.24	-0.2	0.31	-0.02	0.39	0.26	-0.2	0.87 √	

√ Coefficients of verbs from same subclasses.

Table 5. Correlation coefficients of non-dativizable verbs.

	<i>juan1</i> (donate)	<i>zuo4</i> (make)	<i>gai4</i> (build)	<i>dao4</i> (pour)	<i>diu1</i> (throw)	<i>dai4</i> (bring)	<i>la1</i> (pull)
<i>juan1</i> (donate)							
<i>zuo4</i> (make)	0.34						
<i>gai4</i> (build)	0.21	0.1 √					
<i>dao4</i> (pour)	0.69	0.55 √	-0.12 √				
<i>diu1</i> (throw)	20/22	18/22	20/22	21/22			
<i>dai4</i> (bring)	0.69	0.55	-0.11	1.00	20/22 √		
<i>la1</i> (pull)	0.21	0.1	0.48	-0.11	17/22 √	-0.11 √	

√coefficients of verbs from the same subclasses.

Fractions represent the number of children out of the total who made contingent responses (correct or wrong on both verbs). Correlation coefficients could not be calculated due to overly homogeneous data for the verb *diu1* ('throw').

For the non-dativizable verbs in Table 5, there were problems in obtaining correlation coefficients for all cells. Because the data for the verb *diu1* (throw) was too homogeneous (only one child failed this item), we were unable to calculate correlations for it with any other verbs. Therefore, we calculated the number of children who made contingent responses for both verbs (correct or wrong on both verbs) and

divided it by the total number of children, 22. The resulting fractions serve the same purpose of evaluating acquisition contingency. It is not difficult to see that the checked values indicating within subclass contingency are not consistently higher than coefficients for between-class correlations. This suggests that the previous results indicating high within-class correlations genuinely reflect the action of the Narrow Range Rules in licensing the double object construction.

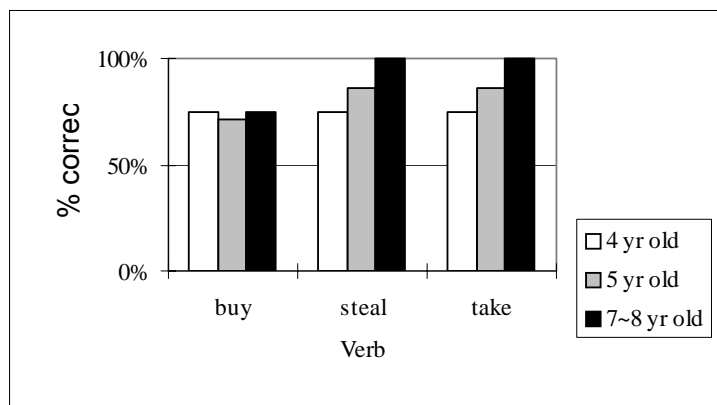
B. The Semantic Task

Do children understand the deprivational sense of the double-object construction?

Data for the semantic task are shown in Figure 1. As we can see, there is a clear developmental trend showing improvement for two of the three verbs, but even at the earliest ages, the children are performing at 75% accuracy. Unfortunately only four of the youngest group continued through this part of the test, and so statistical testing is not possible. However, if we combine their data into a 4- to 6-year-old group, then the performance is significantly greater than chance ($t(10) = 3.2$, $p < .01$) as is that of the 7 to 8 year olds ($t(11) = 10.72$, $p < .0001$).

While somewhat primitive, these data do not show signs that children find the deprivational sense of the double object construction particularly difficult to acquire. Such data do not support the notion that children might be expecting the universal linking rules to be in effect, although it would probably be wise to investigate this aspect of the problem in more detail.

Figure 1. Percentages of correct responses for each verb in the semantic task.



Discussion

The results from the present study are varied and suggestive. A large part of the significance of this study is simply the range of interesting linguistic properties that have been revealed by comparing Chinese to English within the context of the learnability paradox outlined by Baker (1979) and extended by Pinker (1989). The present data represent strong evidence both in favor of and against many of the propositions found in Pinker's solution to the paradox.

These results suggest the following:

1. The Broad Range Rules defining the lexical-semantic properties underlying syntactic alternations may not be completely universal.

2. Children do not seem to have difficulty in acquiring linking rules that violate the pattern found in most languages.
3. The Narrow Range Rules that license semantic subclasses of alternating verbs can differ significantly across languages. However, the basic underlying structure is remarkably similar for languages as different and diachronically independent as English and Chinese. It is as much the similarity as well as the differences reveals the underlying structure of the human mind.
4. Not only do the Narrow Range Rules define similar subclasses across disparate language communities, but they also figure prominently in helping the child to acquire a productive system that seems arbitrarily restricted.

As we exit the second decade in which research has focused on Baker's Paradox, we see that the questions remain ripe and fruitful. We believe that the careful study of cross-linguistic patterns of acquisition and grammar will be particularly enlightening in telling us about the general patterns in which the mind operates when confronted with a linguistic system of partial productivity.

Endnotes

1. In all of the examples in this paper, we will be referring to Mandarin Chinese only.

References

- Ahrens, K. (1995) The meaning of the double object construction in Chinese. *Proceedings of the Sixth North American Conference on Chinese Linguistics*. GSIL:USC.
- Al-Osaili, Abdulaziz (1993) The acquisition of dative alternation in English by native speakers of Arabic. Unpublished dissertation.
- Bowerman, M. (1987) The 'no negative evidence' problem: How do children avoid constructing an overly general grammar? In J. A. Hawkins (Ed), *Explaining language universals*. Oxford: Basil Blackwell.
- Bowerman, M. (1990) Mapping thematic roles onto syntactic functions: are children helped by innate linking rules? *Linguistics*, 28, 1253-1289.
- Goldberg, A. (1992) The inherent semantics of argument structure: The case of the English ditransitive construction. *Cognitive Linguistics*, 3(1), 37-74.
- Gong, C.-Y. (1983) The serial verb construction induced by V-gei and its variations. *Zhongguo Yuwen*, 3, 241-249.
- Gropen, J. et al. (1989) The learnability and acquisition of the dative alternation in English. *Language*, 65(2), 203-257.
- Huang, C.-R. & Mo, R.-P. (1992) Mandarin ditransitive constructions and the category of *gei*. *BLS*, 18, 109-122.
- Li, C. N. & Thompson, S. A. (1981) *Mandarin Chinese: A functional reference grammar*. Berkeley: University of California Press.
- Mazurkewich, I. & White, L. (1984) The acquisition of the dative alternation: Unlearning overgeneralizations. *Cognition*, 16, 261-283.
- Newman, J. (1993) A cognitive grammar approach to Mandarin GEI. *Journal of Chinese Linguistics*. 21(2), 313-335.
- Pinker, S. (1989) *Learnability and Cognition*. Cambridge, Mass: MIT Press.
- Tang, C.-C. (1990) *Chinese phrase structure and the extended X'-theory*. Unpublished Dissertation.
- Tang, T.-C. (1989) Guanyu hanyu de cixu leixing (On the word order typology of Mandarin Chinese). *Hanyu cifa jufa lunji (Studies on Chinese Morphology and Syntax)*, 449-537. Taipei: Student.