Early Constructions of the English Dative Alternation: A Corpus-Based Study

Nobuyo Fukaya, Niigata Agro-Food University, Japan

The Asian Conference on Language 2022
Official Conference Proceedings

Abstract
This study aims to investigate the early constructions of the dative alternation produced by four L1 English-speaking children and focuses on how it emerges. The dative verbs such as *give* can take two alternating constructions: double object constructions (*John gave Mary his book*) and prepositional dative constructions (*John gave his book to Mary*). In this study, utterances with a prototypical verb for the dative alternation *give*, were extracted from the CHILDES database, by means of the kwal command in the Browsable Database. The data were then divided into four types: double object constructions, prepositional dative constructions, constructions missing the direct object (verb-indirect object), and those missing the indirect object (verb-direct object). The data show that the children produce verb-indirect and verb-direct object constructions before they acquire the dative alternation. For example, while Aran's first production of double object constructions was at 2 years and 6 months (*he give me a nana*), that of verb-indirect object constructions was at 2 years and 3 months (*give that lady*). While Adam's first production of prepositional dative constructions was at 3 years and 11 days (*give that to me*), that of verb-direct object constructions was at 2 years, 3 months, and 4 days (*I may give some*). Therefore, this study argues that before children acquire the double object construction or the prepositional dative construction, they first produce its simple version.

Keywords: Dative Alternation, Double Object Constructions, Prepositional Dative Constructions, CHILDES

iafor
The International Academic Forum
www.iafor.org

Introduction

The purpose of this paper is to investigate the dative alternation produced by the L1 English-speaking children to explore whether the early production of the dative alternation is affected by another construction. The dative alternation is where dative verbs such as *give* can take on two alternating constructions, as in (1).

(1) a. Double object construction: John gave Mary his book.
b. Prepositional dative construction: John gave his book to Mary.

(1a) is called the double object construction, in which two objects of the verb appear. On the other hand, (1b) is the prepositional dative construction and the indirect object of the verb in (1a), Mary, is placed immediately after the preposition *to*. While dative verbs such as *give*, *send*, and *show* require the preposition *to*, others such as *buy*, *cook*, and *make* require the preposition *for* in prepositional dative constructions. Examples of the dative verb *cook* are given below:

(2) a. Double object construction: John cooked me dinner.
b. Prepositional dative construction: John cooked dinner for me.

Although dative verbs can take two patterns, children do not acquire them at the same time. According to Campbell and Tomasello (2001), 5 out of the 7 children examined, produced double object constructions earlier than prepositional dative constructions, as Table 1 shows. It is important to note that in this paper, I use the notation, x; yy. zz, which indicates years; months. days. For instance, 1;11.29 stands for 1 year, 11 months, and 29 days, respectively.

	Double-object constructions	To-datives (Prepositional dative constructions)	For-datives (Prepositional dative constructions)
Eve	1;06	1;10	1;11
Nina	1;11.29	2;00.17	2;01.15
Peter	2;01.21	2;00.07	2;01.21
Naomi	2;01.07	2;05.03	2;03.19
Adam	2;03.04	2;11.13	2;10.30
Abe	2;06.14	2;06.18	2;05.20
Sarah	2;09.29	3;02.23	3;00.18

Table 1: Ages of the Initial Production of Each Construction
(Campbell & Tomasello, 2001, p. 256)

For example, Eve's first production of double object construction was at 1 year and 6 months, while her fist production of *to*-datives was at 1 year and 10 months. There were two children who produced prepositional dative constructions earlier than double object constructions: Peter and Abe. Peter's initial production of double object construction was at 2 years 1 month and 21 days, while his initial production of *to*-datives was at 2 years and 7 days. On the other hand, Abe developed *for*-datives earliest among the three constructions.

This analysis also focuses on the production of the dative alternation by L1 English-speaking children. Therefore, it can be compared and contrasted with the Campbell and Tomasello's (2001) analysis. One of the similarities is the subjects being examined. Both studies

scrutinized the utterances produced by L1 English-speaking children. Moreover, both studies collected the data from the Child Language Data Exchange System (CHILDES) database (MacWhinney, 2000). An important difference between the two studies is what they focus on. Campbell and Tomasello's (2001) interest is exploring the initial construction i.e. they investigated whether children first produced double object constructions or prepositional dative constructions. In addition, they examined the initial verb appearing in the production of the dative alternation. In contrast, this paper focuses on the constructions that the early dative alternation is based on i.e. the way which the production of the dative alternation develops in the early stages of language development. Therefore, this paper addresses the following research questions:

(3) a. Do children produce different constructions before they acquire the dative alternation?
b. If the answer to the question (3a) is *yes*, how long do children produce such constructions?

1. Data from the CHILDES database

To address these research questions (3), data were collected from four L1 English-speaking children using the CHILDES database. The four children included in the study were Adam (Brown, 1973), Aran (the Manchester corpus), Naomi (Sachs, 1983), and Nina (Suppes, 1974). Three preliminary steps were undertaken before analyzing the data, as shown in (4).

(4) Procedures
Step 1: Collect all utterances with the verb *give*.
Step 2: Classify the data into Brown's stages based on MLU.
Step 3: Divide the data into four types.

In this study, all the utterances produced by the children that contain the verb *give* were first collected. The verb *give* is considered a prototypical verb for the dative alternation; therefore, we can expect that children produce utterances with *give* even in the early stages of language development. Further, the data were divided into several stages based on Brown's (1973) MLUs to make a longitudinal analysis. Brown (1973) proposed that individual language development should be based on the Mean Length of Utterance (MLU), not on the age. MLU is based on morphological development. For example, (5) produced by Adam (3;04.18) contains 6 morphemes because the word *lips* can be broken down into *lip* and *-s*.

(5) Who gave me some lips? (Adam 3;04.18)
1 1 1 1 2
MLU values are calculated by dividing the total number of morphemes by the total number of utterances. Therefore, if there are 100 morphemes in the 50 utterances that a child produced, the child's MLU is calculated by dividing 100 (the total number of morphemes) by 50 (the total number of utterances). The result is 2.0. Based on Brown (1973) and Bowen (1998), the ranges of the MLU values for each stage are as shown in Table 2.

Stage	MLU range
Stage I	1 – 1.99
Stage II	2.00 – 2.49
Stage III	2.50 – 2.99
Stage IV	3.00 – 3.74
Stage V	3.75 – 4.49
Stage V+	4.50 –

Table 2: Brown's Stages

MLU values can be calculated by hand, but the Browsable Database in the CHIDLES project provides us with the mlu command, as in Figure 1.

```
From file <childes/Eng-NA/Brown/Adam/020304.cha>
MLU for Speaker: *CHI:
  MLU (xxx, yyy and www are EXCLUDED from the utterance and morpheme counts):
        Number of: utterances = 1239, morphemes = 2728
        Ratio of morphemes over utterances = 2.202
        Standard deviation = 1.299
```

Figure 1: An Example of MLU Calculations

This information tells us that the number of utterances observed was 1,239 when Adam was 2 years, 3 months, and 4 days old and the utterances consist of 2,728 morphemes. Therefore, the MLU value at that time was 2.202, which suggests that Adam was in Stage II. Step 3 is to divide the data into the following four types.

Type	Pattern
A	SVO_1O_2 John gave Mary his book.
B	SVO_2 to O_1 John gave his book to Mary.
C	SVO_1 John gave Mary.
D	SVO_2 John gave his book.

Table 3: Four Types and Their Patterns

The fist classification is Type A, which is the double object construction. Type B is the prepositional dative construction. In addition to these, two more types are relevant here: Type C and Type D. Type C and Type D are the constructions that lack the direct object and the indirect object, respectively. In this analysis, utterances that involve phrasal verbs like (6) were left out. Utterances in which *give* appears in a relative clause or in a *wh*-question were also excluded due to a difficulty in judging whether the children really intended either of the two constructions: the double object construction or the prepositional dative construction. Representative examples are given in (7).

(6) I give up. (Adam 4;10.23)

(7) a. Everything you give him. (Adam 5;02.12)
b. What did I give them? (Nina 3;01.04)

2. Results

Table 4 and Figure 2 display the results of the four types of constructions produced by the children. Representative examples of each type are given in Table 5 - Table 8. Note that Stage I is left out here because the children produced none of the four types during Stage I.

	Type A	Type B	Type C	Type D	Total
Stage II	7	1	9	19	36
Stage III	36	7	6	10	59
Stage IV	61	6	0	6	73
Stage V	102	31	3	8	144
Stage V+	96	17	3	4	120
Total	302	62	21	47	432

Table 4: Numbers of the Four Types by MLU Stages

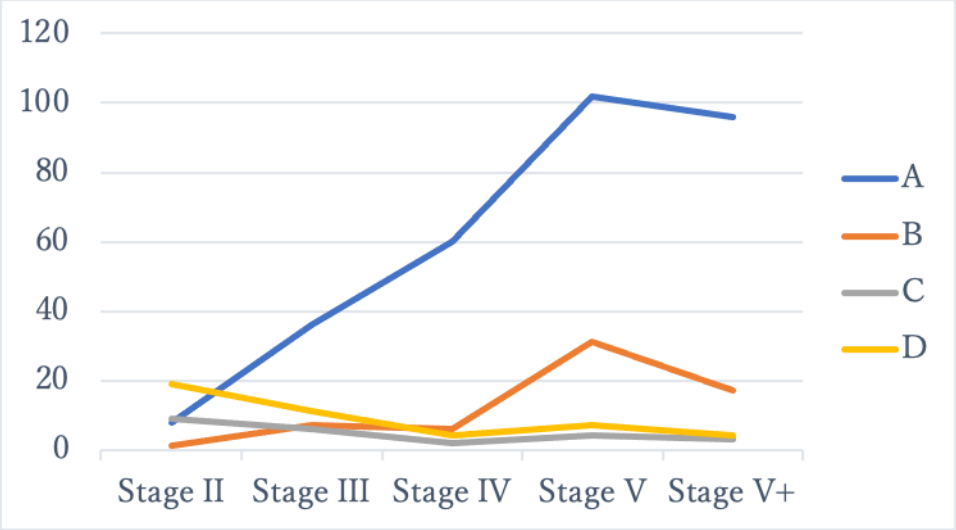

Figure 2: Changes of the Four Types by MLU Stages

Stage	Examples
II	Give me screwdriver. (Adam 2;03.04)
	Give me baloney. (Naomi 2;01.07)
	Daddy gave it my ball? (Nina 2;00.24)
III	Give me one. (Adam 2;10.16)
	Nobody will give him a carrot. (Aran 2;07.07)
	Give me a diaper. (Naomi 2;05.08)
	Give me lollipop. (Nina 2;01.29)
IV	I going give you one. (Adam 2;11.28)
	My Mum will give you another ice cream. (Aran 2;10.07)
	I gave her a kiss. (Naomi 3;05.07)
	Let's give him coffee. (Nina 2;03.18)
V	I going give you these. (Adam 3;05.01)
	I wanna give her some food. (Naomi 4;07.29)
	Give me the scissors. (Nina 2;11.12)
V+	Give me that bracelet. (Adam 5;02.12)
	She gave me strawberry. (Nina 3;03.08)

Table 5: Examples of Type A by MLU Stages

Stage	Examples
II	I give that to you. (Nina 2;01.15)
III	Who gave it to me? (Aran 2;05.17)
IV	Give that to me. (Adam 3;00.11)
	Let me give that to Poy now. (Nina 2;09.26)
V	Give it to me. (Adam 3;03.04)
	Your Mommy gave it to the hospital. (Naomi 4;09.03)
	Give it to you. (Nina 2;11.06)
V+	and then she give it to me? (Adam 5;02.12)
	Nonna gave them to you for Christmas. (Nina 3;02.12)

Table 6: Examples of Type B by MLU Stages

Stage	Examples
II	Give doggie. (Adam 2;03.04)
	Give me. (Naomi 1;11.21)
	Ellie gave him. (Nina 2;00.24)
III	Gave Ursula? (Adam 2;06.17)
	Give that lady. (Aran 2;03.02)
	Give me. (Naomi 2;05.08)
V	I give you. (Adam 3;04.18)
	She's gonna give you. (Nina 3;00.03)
V+	Give me. (Adam 4;06.24)

Table 7: Examples of Type C by MLU Stages

Stage	Examples
II	Give paper pencil. (Adam 2;03.04)
	Ellie gave my balloon. (Nina 2;00.03)
III	Who gave it? (Adam 2;09.04)
	Because grandpa's give naughty kisses. (Aran 2;08.19)
	Give that. (Nina 2;02.06)
IV	I will give cheese in the plate. (Nina 2;03.14)
	Give bread too? (Nina 2;09.13)
V	Gave some more. (Adam 3;01.26)
	You give nice lollipops. (Naomi 4;09.03)
V+	Give our carrots. (Nina 3;02.12)
	Because he gives milk. (Nina 3;03.21)

Table 8: Examples of Type D by MLU Stages

There were 432 cases and out of the 432 cases, 302 (69.9%) belonged to Type A. The results also show a clear distinction between Type A and Type B on the one hand and Type C and Type D on the other. Type A and Type B increased as time proceeded: the number of Type A jumped from Stage II to IV, while that of Type B rose from Stage IV. On the other hand, Type C and Type D were observed in the early stages and were rarely attested thereafter. Let us look at the following tables to see that the early production of Type C and Type D is observed in every child.

	Type A	Type B	Type C	Type D	Total
Stage II	3	0	6	3	12
Stage III	23	0	3	3	29
Stage IV	7	2	0	0	9
Stage V	54	10	1	4	69
Stage V+	70	11	3	0	84
Total	157	23	13	10	203

Table 9: Adam's Production of the Four Types

	Type A	Type B	Type C	Type D	Total
Stage II	0	0	0	0	0
Stage III	7	7	2	3	19
Stage IV	10	0	0	0	10
Stage V	0	0	0	0	0
Stage V+	0	0	0	0	0
Total	17	7	2	3	29

Table 10: Aran's Production of the Four Types

	Type A	Type B	Type C	Type D	Total
Stage II	2	0	1	0	3
Stage III	3	0	1	2	6
Stage IV	8	0	0	2	10
Stage V	5	3	0	1	9
Stage V+	0	0	0	0	0
Total	18	3	2	5	28

Table 11: Naomi's Production of the Four Types

	Type A	Type B	Type C	Type D	Total
Stage II	2	1	2	16	21
Stage III	3	0	0	2	5
Stage IV	36	4	0	4	44
Stage V	43	18	2	3	66
Stage V+	26	6	0	4	36
Total	110	29	4	29	172

Table 12: Nina's Production of the Four Types

These tables provide evidence for the fact that the children produced more Type C and Type D cases in the early stages. However, there is a need to scrutinize the data closely. This is because the initial production of Type C was at the same stage as that of Type A: Adam, Naomi, and Nina started to produce Type A and Type C at Stage II, while Aran started to produce the two types at Stage III. Table 13 presents the initial production of the four types for each child.

	Type A	Type C	Type B	Type D
Adam	2;03.04	2;03.04	3;00.11	2;03.04
Aran	2;06.17	2;03.02	2;05.17	2;03.02
Naomi	2;01.07	1;11.21	4;09.03	2;02.25
Nina	2;00.24	2;00.24	3;03.01	1;11.29

Table 13: Initial Production for Each Child by Ages

Comparison between Type A and Type C revealed that Aran and Naomi produced Type C earlier than Type A. For example, Aran's first production of Type C was at 2 years, 3 months, and 2 days, while his first production of Type A was at the age of 2 years, 6 months, and 17 days. Adam and Nina produced both types at the same point of language development. What is important here is that there was no child who produced Type A earlier than Type C. A comparison between Type B and Type D shows that the development of Type B came much later than the initial production of Type D. For example, Adam's first production of Type D was at the age of 2 years, 3 months, and 4 days, while his first production of Type B was at the age of 3 years and 11 days.

One question raised by the results is why the ungrammatical forms were observed in a limited period of time. It can be argued that this is related to the development of cognitive abilities. Let us look at Type C, focusing on the use of the indirect objects. Out of the fifteen cases attested during Stage II and Stage III, eight cases involved pronominal indirect objects as shown in (8), and four cases involved proper nouns as can be seen in (9). This shows that the conversation took place in a familiar context, and therefore, the listener (in this case, the mother) could guess the children's intention and what the object was even if it was not mentioned in the utterance.

(8) a. Give me. (Naomi 2;05.08)
b. Ellie gave him. (2;00.24)

(9) a. Give Cromer. (Adam 2;03.18)
b. Gave Ursula? (Adam 2;06.17)

The same thing can be said regarding Type D. Out of the 29 cases of Type D in Stage II and Stage III, 16 involved pronominal direct objects as in (10) and 3 involved determiners as in (11). The use of pronouns and determiners implies that the object was shared between the child and the mother; therefore, the mother could understand who the object was given to.

(10) a. Linda gave it. (Nina 2;00.24)
b. Give that. (Nina 2;02.06)

(11) a. giving the flower. (Nina 1;11.29)
b. Ellie gave my balloon. (Nina 2;00.03)

3. Conclusion

This study examines the English dative alternation produced by the L1 English-speaking children. Moreover, it focuses not only on double object constructions and prepositional dative constructions, but also on the ungrammatical constructions that lack either direct or indirect objects. Let us examine the research questions (3a) and (3b), repeated here as (12a) and (12b).

(12) a. Do children produce different constructions before they acquire the dative alternation?
b. If the answer to the question (12a) is *yes*, how long do children produce such constructions?

The answer to the research question (12a) must be *yes*, since the data provide evidence that the children produced simple constructions (Type C and Type D) before they acquired the

dative alternation. Let us move on to the research question (12b). As the numbers of Type C and Type D decreased, those of Type A and Type B increased. This suggests that Type C and Type D were produced during Stage II and Stage III. To put it precisely, these types lasted for 3-12 months depending on the child, as displayed in Table 14.

Name	Age range
Adam	2;03.04-2;11.13
Aran	2;00.09-2;08.19
Naomi	1;11.02-2;11.10
Nina	1;11.16-2;02.12

Table 14: Age Ranges for Stage II and Stage III

However, further research is required to see whether children produce Type C and Type D for other dative verbs such as *take* and *show* before they acquire the dative alternation.

References

Ambridge, B, & Wagner, L. (2021). Testable theories of core first language acquisition. *Journal of Child Language*, 48, 859-861.

Bowen C. (1998). Brown's Stages of Syntactic and Morphological Development. www.speech-language-therapy.com/index.php?option=com_content&view=article&id=33 (2.20. 2020).

Brown, R. (1973). *A First Language*. Cambridge: Harvard University Press.

Campbell, A. L., & Tomasello, M. (2001). The acquisition of English dative constructions. *Applied Psycholinguistics,* 22, 253-267.

MacWhinney, B. (2000). *The CHILDES Project: Tools for Analyzing Talk Vol.2*. (3rd ed.). New Jersey: Lawrence Erlbaum Assoc Inc.

Sachs, J. (1983). Talking about the There and Then: The Emergence of Displaced Reference in Parent-Child Discourse. In: K. E. Nelson (Ed.), *Children's Language* Vol. 4. (pp. 1 - 28). New Jersey: Psychology Press.

Suppes, P. (1974). The semantics of children's language. *American Psychologist*, 29, 103-114.

Contact email: nobuyo-fukaya@nafu.ac.jp