

Semantics in Children's Production of Ditransitives

Shin-Ichi Tamura^{1· 5}, Masatoshi Koizumi^{1· 5}, Takuya Goro^{1· 2· 5}, Natsuko Katsura^{1· 5},

Yoshiaki Kaneko^{1· 5}, Jiro Gyoba^{1· 5}, Noriaki Yusa^{3· 5} and Hiroko Hagiwara^{4· 5}
(1 Tohoku University, 2 University of Maryland, 3 Miyagi Gakuin Women's University, 4 Tokyo Metropolitan University, 5 RISTEX, JST)

Conference on Ditransitive Constructions

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Overview

- ▶ Two distinct classes of Japanese ditransitive constructions
 - The lexical meanings of ditransitive verbs determine the syntactic frames.
- ▶ Research question:
 - Is the distinction reflected in child language?
- ▶ Experimental findings:
 - Japanese children's production of ditransitive sentences is sensitive to the distinction.

Japanese

- (1) a. Taro-ga sono ringo-o tabeta
Taro-NOM the apple-ACC ate
- b. Sono ringo-o Taro-ga tabeta
the apple-ACC Taro-NOM ate
- ‘Taro ate the apple.’
-

— Japanese is a “free” word-order language.

Dat-Acc⇒OK! Acc-Dat⇒OK!

- (2) a. Taro-ga Hanako-ni hon-o ageta.
Taro-NOM Hanako-DAT book-ACC gave
- b. Taro-ga hon-o Hanako-ni ageta
Taro-NOM book-ACC Hanako-DAT gave
- ‘Taro gave a book to Hanako.’
-

—The two objects of Japanese ditransitive constructions can swap their linear positions.

Word order and scrambling

- Simple transitive sentences: The NOM-ACC is the base word-order, and the ACC-NOM order is derived by scrambling operation (e.g., Saito 1985)
- Then, what about ditransitive sentences?

“Base” order of ditransitive arguments?

- ▶ Hoji (1985): DAT – ACC = Base order
ACC – DAT = Scrambling

(3) a. Taro-ga Hanako-ni hon-o ageta
Taro-NOM Hanako-DAT book-ACC gave

b. Taro-ga hon-o Hanako-ni ageta
Taro-NOM book-ACC Hanako-DAT gave

‘Taro gave a book to Hanako.’

“Base” order of ditransitive arguments?

- ▶ Miyagawa (1997): Dat – Acc = Base order
Acc – Dat = Base order

(4) a. John-ga Mary-ni piza-o ageta
 John-NOM Mary-DAT pizza-ACC gave

b. John-ga piza-o Hanako-ni ageta
 John-NOM pizza-ACC Hanako-DAT gave

‘Taro gave a book to Hanako.’

Acquisition studies

- ▶ Suzuki et al. (1999):
 - Japanese, 4- to 6-year-old children (N=30)
 - Act-out task
 - ACC-DAT > DAT-ACC
 - Pragmatics
- ▶ Sugisaki & Isobe (2001):
 - Japanese children (N=20, Age=3;11-5;0, Mean=4;6)
 - Truth value judgment task
 - DAT-ACC > ACC-DAT
 - Syntax

Question

- What about Semantics?
 - Are children sensitive to the meaning of ditransitive verbs?

Two types of ditransitive verbs

- ▶ Kishimoto (2001)

- Japanese ditransitive constructions are divided into two classes:

- i) Verbs which take dative arguments as indirect objects (i.e. DP)

- Change of possession verbs

- ii) Verbs which take dative arguments as *to*-datives (i.e. PP)

- Change of location verbs

change of possession verbs

(5) Taro-ga Hanako-ni hon-o ageta.
Taro-NOM Hanako-DAT book-ACC gave
'Taro gave a book to Hanako.'

- ▶ *watasu* 'hand', *ageru* 'give', *wariateru* 'assign', etc.
- ▶ change of ownership
- ▶ [x causes y to possess z]
- ▶ The *-ni* marked phrase: case-marked DP

(cf. Kishimoto 2001)

change of location verbs

(6) Taro-ga Jiro-ni tegami-o okutta.
Taro-NOM Jiro-DAT letter-ACC sent
'Taro sent a letter to Jiro.'

- ▶ *okuru* 'send', *nageru* 'throw', *hakobu* 'carry'
- ▶ movement of an entity
- ▶ [x causes y to move toward z]
- ▶ The *-ni* marked phrase: Postpositional phrase

(cf. Kishimoto 2001)

Question on language development

- Previous studies on the acquisition of Japanese ditransitive constructions (e.g., Suzuki et al. 1999; Sugisaki and Isobe 2001) did not take Kishimoto's classification into account.
- Are Japanese children sensitive to the distinction between change-of-possession and change-of-location?
 - Does the distinction have an effect on the word-order in child language?

Experiment

- Participants: Japanese children (N=105, Age=3;11-4:11, Mean=4;6)
- Task: Elicited production task
- Test × 8 + Filler × 8 + Training

Target sentences

- ▶ Change of possession × 4

(7) a. Kitune-ga gorira-ni kamera-o ageta
fox-NOM gorilla-DAT camera-ACC gave

b. Kitune-ga kamera-o gorira-ni ageta.
fox-NOM camera-ACC gorilla-DAT gave
'A fox gave a camera to a gorilla.'

Target sentences

- ▶ Change of location × 4

(8) a. Usagi-ga Iruka-ni itigo-o butuketa.
 rabbit-NOM dolphin-DAT strawberry-ACC threw

b. Usagi-ga itigo-o iruka-ni butuketa.
 rabbit-NOM strawberry-ACC dolphin-DAT threw
 ‘A rabbit throw a banana to a dolphin.’

Procedure

- ▶ Each of the trials involves three characters and two objects.
- ▶ Characters and objects used in the experiment were all selected from three-mora-words.
 - e.g. *ki-tu-ne* ‘fox’, *i-ru-ka* ‘dolphin’, *ba-na-na* ‘banana’, *i-ti-go* ‘strawberry’).

Change of possession



- Target sentence:

Kitune-ga gorira-ni kamera-o ageta.
fox-NOM gorilla-DAT camera-ACC gave

Kitune-ga kamera-o gorira-ni ageta.
fox-NOM camera-ACC gorilla-DAT gave

‘A fox gave a camera to a gorilla.’

- Situation:

- There are a fox, a whale and a gorilla.

- **The fox has a camera and a clock.**

Change of possession



- The fox moves towards the whale and the gorilla.
- The fox says “Ageru!” (“*I’ll give (it to you)*”).
- The fox gives the gorilla the camera, and the gorilla says, “Wow, thank you!”

■ Experimenter:

“Kitune-ga dō sitano?”

“What did the fox do?”

Change of location



- Target sentence:

Usagi-ga iruka-ni itigo-o butuketa.
rabbit-NOM dolphin-DAT strawberry-ACC threw

Usagi-ga itigo-o iruka-ni butuketa.
rabbit-NOM strawberry-ACC dolphin-DAT threw

‘A rabbit throw a strawberry to dolphin.’

- Situation:

— There are a rabbit, a crow and a dolphin,
and **a banana and a strawberry are on
the ground.**

Change of location



- The rabbit moves towards the others, and says “Butukeru-zo” (“*I’ll throw (it to you)*”).
- The rabbit picks up the strawberry and throws it to the dolphin.
- The strawberry hits the dolphin **and rolls down on the ground.**

■ Experimenter:

“Usagi-ga dō sitano?”
‘What did the rabbit do?’

Results

- # of elicited ditransitive sentences: 448 (241 change of possession verbs + 207 change of location verbs)
- Each set of sentences was divided into two categories according to the word-order.

Results

(9)

	DAT-ACC	ACC-DAT
Change of possession	155 (64%)	86 (36%)
Change of location	95 (46%)	112 (54%)

— change of possession vs. change of location

$\chi^2 (1)=15.32, p<.001$

Interim summary

- Children's word-order preferences in production of ditransitive sentences reflect the distinction between change-of-possession and change-of-location.
- Specifically, the DAT-ACC order is preferred significantly depending on the existence of a specific entailment: change-of-possession
- In change-of-location, there is no significant difference between the two word-orders.

Question

- Are our participants really sensitive to the meaning of ditransitive verbs?
- How about other DAT-ACC sentences?

Another DAT-ACC type construction

- Japanese causatives
 - also have the Dative and the Accusative element
 - the DAT-ACC is base word-order

(10) John-ga Mary-ni piza-o tabe-sase-ta.
John-NOM Mary-DAT pizza-ACC eat-CAUS-PAST
'John made Mary eat pizza.'

Method

- ▶ Participants: Japanese children (N=47, Age=4;7-6;6, Mean=5;6)
- ▶ Task: Elicited production task
- ▶ Test × 8 + Filler × 8 + Training
- ▶ Target sentences: Lexical causatives × 4
Syntactic causatives × 4

Target sentences

- ▶ Lexical causatives

(11) a. Usagi-ga hiyoko-ni tegami-o miseta.
 rabbit-NOM chick-DAT letter-ACC showed

 b. Usagi-ga tegami-o hiyoko-ni miseta.
 rabbit-NOM letter-ACC chick-DAT showed
 ‘A rabbit showed a letter to a chick.’

Target sentences

- ▶ Syntactic causatives

(12) a. Kitune-ga ahiru-ni remon-o tabe-sase-ta.
fox-NOM duck-DAT lemon-ACC eat-CAUS-PAST

b. Kitune-ga remon-o ahiru-ni tabe-sase-ta.
fox-NOM lemon-ACC duck-DAT eat-CAUS-PAST
'A fox made a duck eat a lemon.'

Results

- # of elicited ditransitive sentences: 313 (158: lexical causative situations + 155: syntactic causative situations)
- Each set of sentences was divided into two categories according to the word-order.

Results

(13)

	DAT-ACC	ACC-DAT
Lexical causative	118 (75%)	40 (25%)
Syntactic causative	106 (68%)	49 (32%)

— Lexical causative vs. Syntactic causative

$X^2(1)=1.524, n.s.$

Discussion

- Our children significantly preferred the DAT-ACC order in both lexical causative and syntactic causative situations.
- The difference on children's word-order preferences in Japanese ditransitive sentences is affected by the meanings of ditransitive verbs.

Discussion

- Why do children show different preferences depending on the meaning of ditransitive verbs?
- Kishimoto (2001): different Semantics, different Syntax
 - Change-of-possession: DAT (DP) - ACC (DP) - V
 - Change-of-location: DAT (PP) - ACC (DP) - V

Discussion

- English:

- Double object construction

(14) John gave Mary a book. (DAT=DP)

- Dative construction

(15) John gave a book to Mary. (DAT=PP)

Discussion

- In Japanese, the lexical meaning of ditransitive verbs determines not only syntactic frame but the word-order?
- We need further research.

Question

How about adults?

Method

- Participants: graduate or undergraduate students in Sendai, Japan (N=20, Age=19;8-28:2, Mean=22;5)
- Task: Elicited production task
- Test × 8 + Filler × 8 + Training
- Target sentences: Change of possession × 4
Change of location × 4

Results

- # of elicited ditransitive sentences: 157 (80 change of possession verbs + 77 change of location verbs)
- Each set of sentences was divided into two categories according to the word-order.

Results

(16)

	DAT-ACC	ACC-DAT
Change of possession	68 (85%)	12 (15%)
Change of location	57 (74%)	20 (26%)

— change of possession vs. change of location
 $\chi^2 (1)=2.912, n.s.$

Discussion

- In contrast to children, adults preferred the Dat-Acc order in both change of possession and change of location situations.
- What is the source of the difference between children and adults?

Factors that affect adults' word-order preferences

- Syntax (i.e., base word order)
- Phonology
- Discourse structure
- **Animacy**

- Our target sentences: Dat-object = animate;
Acc-object = inanimate

- The effect of animacy to word-order preference is stronger to adults than to children?

Conclusion

- Japanese children around the age of 4 are sensitive to the semantics of verbs in producing ditransitive sentences.
- Different preference patterns emerged depending on the existence of a meaning component: **change-of-possession**.
- The results support the view that there are two types of ditransitive constructions in Japanese.

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Thank you for listening!

Any questions and comments...
tamuwo@sal.tohoku.ac.jp