Semantics in Children’s Production of Ditransitives

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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.
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?

  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.’

CDC_Tamura et al.
“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?
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.
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:

“What did the fox do?”

“Kitune-ga dō sitano?”
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.
— 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)

<table>
<thead>
<tr>
<th></th>
<th>DAT–ACC</th>
<th>ACC–DAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change of possession</td>
<td>155 (64%)</td>
<td>86 (36%)</td>
</tr>
<tr>
<td>Change of location</td>
<td>95 (46%)</td>
<td>112 (54%)</td>
</tr>
</tbody>
</table>

— 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.’
Syntactic causatives

   fox–NOM duck–DAT lemon–ACC eat–CAUS–PAST

   ‘A fox made a duck eat a lemon.’

   fox–NOM lemon–ACC duck–DAT eat–CAUS–PAST
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

$X^2(1)=1.524, \text{n.s.}$
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: \( \text{DAT (DP)} - \text{ACC (DP)} - V \)

- Change-of-location: \( \text{DAT (PP)} - \text{ACC (DP)} - V \)
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

\[ \chi^2 (1) = 2.912, \text{ n.s.} \]
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.
References


Thank you for listening!

Any questions and comments…
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