The Issue

(1)

  Hanako-NOM persimmon-ACC Taro-DAT handed
  S DO IO V

b. Hanako-ga Taro-ni kaki-o watasita.
  Hanako-NOM Taro-DAT persimmon-ACC handed
  S IO DO V

‘Hanako handed a persimmon to Taro.’

Differing views exist on underlying VP-internal argument order for Japanese ditransitives based on various syntactic tests.

Example: Forward/backward pronominal-binding, the Chain Condition, and inchoative alternation (Hoji 1985, Takano 1998, Miyagawa and Tsujioka 2004, Matuoka 2003, among many)
The Questions

• Could we investigate VP-internal argument order from a different perspective? What about looking at information-structure?

• Are there correlations between information structure and basic word-order in Japanese ditransitives, as indicated in other studies? (Kaiser & Nakanishi 2001, Imamura 2014)
The Experiments

- Two online experiments, which were designed to test **the information status of DO and IO**, examined participants’ interpretation of elided objects.

- The results
  - diverge significantly from a previous study that offered support to a DO-IO base-structure view.
  - suggest that VP-internal scrambling is informationally neutral.
  - show that interpretation of an elided object is affected by various factors.
Roadmap

• Background : Given-New Principle / Neutral Base Hypothesis
• Experimental Paradigm
• Experiment 1
• Experiment 2
• Discussion & Conclusion
Background: Information Structure (IS) and Word Order

• Natural language tends to place old (given) information before new information

(2) a. They have all of these pots in the kitchen, and
b. all of the pots are sitting in a great big tank.
c. in a great big tank are sitting all of the pots.

(p. 208, Birner 2012)
Background: Information Structure (IS) and Word Order

**Given-New Principle (GNP)**

Given information tends to appear closer to the beginning of a sentence, whereas new information tends to appear closer to the end of a sentence (Birner 2012, p. 210; see also Halliday 1967)
Background: Information Structure (IS) and Word Order

The effect of GNP on word order (Czech):

(3) SVO: 

Chlapec našel lízáko.

\( \text{boy}_{\text{NOM}} \) \text{found} \( \text{lollipop}_{\text{ACC}} \)

a. ‘A boy found a lollipop.’ New \( \rightarrow \) New
b. ‘This boy found a lollipop.’ Given \( \rightarrow \) New
c. ‘This boy found this lollipop.’ Given \( \rightarrow \) Given
d. * ‘A boy found this lollipop.’ New \( \rightarrow \) Given

In order to express the (2d) interpretation, Czech requires the object ‘lízáko’ (‘lollipop’) to be fronted.

(4) OVS: 

Lízáko našel chlapec.

\( \text{lollipop}_{\text{ACC}} \) \text{found} \( \text{boy}_{\text{NOM}} \)

‘A boy found this lollipop.’

\( \rightarrow \) Derived order satisfies Given-New Principle.
Background: Information Structure (IS) and Word Order

The Czech example shows:

• **SVO order** is *informationally unmarked* in that S and O can be either New or Given information, as long as Given precedes New, or both arguments are New/Given.

• **OVS order** is *informationally marked* in that O has to be Given.

→ Suggests a relationship between informational markedness and syntactic structure

Neutral Base Hypothesis (NBH):
The syntactic base-order of a given sentence is informationally neutral.
Exploring ditransitive word order from an informational perspective

Kaiser & Nakanishi’s Preliminary Study (2001)
Investigated the information status of DO and IO in ditransitive sentences in Japanese in order to determine the base-structure of ditransitives. KN adapt a paradigm introduced in Kitahara (1993).
Exploring ditransitive word order from an informational perspective

Key Assumption:
“when an antecedent DP is specific, its deleted counterpart refers to the antecedent DP.” (Kitahara 1993, p.183).

While I have heard [that $S_1 \emptyset V$], it seems [that $S_2 \emptyset V$] too.

Kaiser & Nakanishi (2001) strengthened this to biconditional.
→ When an elided counterpart has the same referent, the antecedent DP is specific.
Exploring ditransitive word order from an informational perspective

Specific/nonspecific = Given/new

• Given Information = presupposed, or known to the hearer, or evoked previously in the discourse, or inferable from it.

• Specificity = a constituent that is “linked to a previously established referent” (Kaiser & Nakanishi 2001, p.13)
Exploring ditransitive word order from an informational perspective

If we find that one of the two objects (DO and IO) in a ditransitive must be specific, we can relate that to the Neutral Base Hypothesis:

(IO) – DO Case:

While I have heard [that $S_1 \text{ IO DO V}$], it seems [that $S_2 \emptyset \text{ DO V}$].

Neutral Base Hypothesis (NBH):
The syntactic base-order of a given sentence is informationally neutral.

⇒ (IO) - DO order ⇒ informationally constrained order ⇒ syntactically non-base order
Exploring ditransitive word order from an informational perspective

The test scheme described in Kaiser and Nakanishi (2001)

a. (IO) - DO
   While I have heard [that $S_1$ IO DO V], it seems [that $S_2$ $\varepsilon_{IO}$ DO V].

b. DO - (IO)
   While I have heard [that $S_1$ DO IO V], it seems [that $S_2$ DO $\varepsilon_{IO}$ V].

c. IO - (DO)
   While I have heard [that $S_1$ IO DO V], it seems [that $S_2$ IO $\varepsilon_{DO}$ V].

d. (DO) - IO
   While I have heard [that $S_1$ DO IO V], it seems [that $S_2$ $\varepsilon_{DO}$ IO V].
Exploring ditransitive word order from an informational perspective

Neutral Base Hypothesis (NBH):
The syntactic base-order of a given sentence is informationally neutral.

If...

**IO-DO order:**

IO - Specific (Given) - DO

Specific/Nonspecific (Given/New)

**DO-IO order:**

DO - Specific/Nonspecific (Given/New) - IO

Specific/Nonspecific (Given/New)

We observe that **IO - DO order** is informationally constrained, thus we conclude that it is a non-base syntactic order under NBH.

This is what Kaiser & Nakanishi (2001) found in their preliminary study.
Exploring ditransitive word order from an informational perspective

Kaiser & Nakanishi (2001):

• Only eight informants were consulted
• Variables (object types, word order, and verb types) were not counterbalanced among the target sentences;
  “introduce” -> elided IO  “show” -> elided DO
• Possible animacy effect
Experiment 1

• Online survey software Qualtrics was used

Participants
• 80 participants (50 females and 30 males, Ave. age = 37.52 years ($SD = 9.84$).
• Large between-subject variability: response with no variability was excluded*
• Analysis was conducted on data from 59 subjects.

Items
• 8 items with “show” & “introduce” verbs including the exact same items from Kaiser & Nakanishi (2001)
• Sentences with individual names as antecedent are included as baseline item (specific)
• 4 items in each verb group varied in terms of object types and question types.
• Each item was presented in four conditions and a Latin square design was used.
Experiment 1

Example stimulus: (IO)-DO (Elided IO) condition

A: Mamoru-ga Todai-no gakusei-ni Manami-o shokaishita-to kiita kedo, Naoya-mo Ø Manami-o shokaishita rashii-yo
Mamoru-NOM [Tokyo University-GEN gakusei]-DAT Manami-ACC introduced that heard but Naoya-also Ø Manami-ACC introduced seems-like

“While I heard that Mamoru introduced Manami to a student/students of Tokyo University, I also heard that Naoya introduced Manami to (a student/students of Tokyo University) too.”

B: toiukoto-wa, Naoya-ga dare-ni Manami-o shokaishita-no? that-means-TOP, Naoya-NOM who-DAT Manami-ACC introduced-Q?

“That means..., who did Naoya introduced Manami to?”

A: __________________

Given answer choices for item 2 (Written in Japanese):

1. The same student(s) of Tokyo University Mamoru introduced to Manami.
2. Different student(s) of Tokyo University to whom Mamoru introduced to Manami
3. The same or different student(s) of Tokyo University to whom Mamoru introduced to Manami. (Both are possible).

Object in the first clause = Specific

non-specific
Results

“introduce” verbs:

Item replicating Kaiser & Nakanishi’s (2001) stimuli (a student/students of university as elided IO) + elided DO (a student/students of university)

• More people chose nonspecific (new) interpretation of the elided object. -> opposite from their results.
• No information status asymmetry between IO and DO with regard to the two word orders.
• A similar pattern was observed for the sentences with “show” verb that replicated their stimulus.
Results

Baseline Item ("introduce"):

When individual names were elided:
• Eliding the first or second object in the first clause affected the interpretation of the elided object ($p < .05$).

⇒ GNP is influencing the interpretation
Results for “to show”

A similar pattern was observed for “show” verb when:

- an individual (IO) or ‘book’ (DO) was elided.
- (IO): Does it have to refer to the same individual or can it be someone else?
- (DO): Does it have to refer to ‘a book’ or could refer to something different?

⇒ Given-New Principle Effect (p. < .05)
⇒ The elided DO in the two cases did not share the same notion of ‘same referent’ yet similar pattern was observed.
Discussion

• Divergent pattern from Kaiser & Nakanishi (2001).
• Some items showed the location of antecedent influencing the interpretation of the elided object.

  ➡ GNP effect on interpretation.
• ‘Specific’ DP of the first clause in baseline items did not always elicit the same-referent-as-the-antecedent interpretation of the elided counterpart.
  ➡ What’s relevant is NOT ‘specificity’ but whether or not the antecedent is interpreted as Topic (Given).
  ➡ When the DP in the first clause is Topical, the elided counterpart must have the same referent.
Possible Confounds

• Absence of asymmetry might have been due to verb type.
• Participants were exposed to multiple stimuli with the same verb.
Experiment 2

- Overcoming the potential confounds of Experiment 1:

  "give" type of verb:
  multiple synonymous words available → possible to create stimuli that are maximally different from each other yet focusing on the verbs that are assumed not to differ in their syntactic structures

- 95 participants were recruited through Qualtrics.
- The same exclusion criteria was used which left 80 participants for analysis.
- 16 items with 8 "give" type verbs
Experiment 2: Results

- Two word orders did not show differences in information encoding.
- However, post-hoc analysis revealed that the stimuli could be divided into two groups (IO = individual names or bare nouns)
Experiment 2: Results

Group 1:
IO = an individual (i.e. Hanako)
DO = an object (i.e. book(s))

Group 2:
IO = bare nouns (i.e. student(s))
DO = an object (i.e. book(s))

Choice of IO/DO as elided object ($p < .01$)
Discussion & Conclusion

Are there correlations between information structure and basic word-order in Japanese ditransitives, as indicated in other studies?

There was no differences in information status encoding between IO-DO/DO-IO orders.

This gives support to the view that:

- no strong relationship exists between syntactic order and information packaging for Japanese ditransitives and that information structure does not license scrambling in Japanese. (in line with Miyamoto 2008)

- the information status of an argument has a weaker effect on VP-internal scrambling. (in line with Imamura 2014)
Discussion & Conclusion

Could we investigate VP-internal argument order from an information-structural perspective?

- Given-New Principle exerts its effect in Japanese ditransitives but does not seem to interact with VP-internal word order difference (IO-DO/DO-IO).
- Different tests utilizing GNP might help determine the syntactic base structure of Japanese ditransitives.
- When constructing such tasks to elucidate participants’ interpretations of a word/phrase/sentence to determine its syntactic structure, various factors (choice of noun types etc.) need to be given careful consideration.
Selected References:


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The nature of the nouns affected how people interpret the referent of the object when it is elided.
a. (watashi-wa) keji-ga Taro-no ie-ni kita-to kiita-kedo I-top detective-nom Taro-gen house-dat came-comp heard-while

∅ Hanako-no ie-ni-mo kita-rashiiyo Hanako-gen house-dat-too came-seem

‘While I have heard that a detective came to Taro’s house, it seems that (a detective) came to Hanako’s house, too’

→ The detective who came to Hanako’s house and the one who came to Taro’s may be different.
Kitahara’s Original Test (1993, p. 182-183)

b. (watashi-wa) Jiro-no office-ni denwa-o shita keiji-ga Taro-no ie-ni
   I – TOP Jiro-GEN office-DAT call-ACC made detective-NOM Taro-GEN house-DAT
   kita-to kiiteita-kedo Hanako-no ie-ni-mo kita-rashiiyo.
   came-COMP heard-while Hanako-GEN house-DAT-too came-seem

‘While I have heard that a detective who made a call to Jiro’s office came to Taro’s house, it seems that (a detective who made a call to Jiro’s office) came to Hanako’s house, too.’

→ The detective who came to Hanako’s house and the one who came to Taro’s are the same.

Indefinite DP in (7b) is made specific by its relative clause.
→ “when an antecedent DP is specific, its deleted counterpart refers to antecedent DP.”
   (p. 183, Kitaraha 1993)
Results for “to show” 1

Elided Object:
• IO: Individual name (IO)
• DO: ‘book on Linguistics’ (DO)

Participants were asked if the elided object have the same referent as the antecedent:
• IO: the same student
• DO: the same book on Linguistics
Example Stimuli & Qualtrics

A：直人（なおと）が麻里奈（まりな）を東京大学の学生に紹介したと聞いたけど、悠馬（ゆうま）も麻里奈を紹介したらしいよ。
B：ということは、悠馬が麻里奈を誰に紹介したの？
A：____________________

○ 直人が紹介したのと同じ学生
○ 直人が紹介したのとは違う東京大学の学生
○ 直人が紹介したのと同じ学生か、もしくは別の東京大学の学生（どちらもあり得る）
Syntactic Argument 1

a. *Kimi-wa [NP [S e_i e_j okuttekita] hito_i]-ni nani-j-o okurikaesita no. you-TOP sent.over person-DAT what-ACC sent.back Q
   ‘What did you send back to the person that had sent it to you?’

a’. Kimi-wa nani-j-o [NP [S e_i e_j okuttekita] hito_i]-ni okurikaesita no. you-TOP what-ACC sent.over person-DAT sent.back Q

b. Kimi-wa [NP [S e_i e_j okuttekita] hon_j]-o dare-i-ni okurikaesita no. you-TOP sent.over book-ACC who-DAT sent.back Q
   ‘Who did you send back to the person that had sent it to you?’

b’. Kimi-wa dare-i-ni [NP [S e_i e_j okuttekita] hon_j]-o okurikaesita no. you-TOP who-DAT sent.over book-ACC sent.back Q
Syntactic Argument 2

Miyagawa (1997: p. 4-5).

(1) a. ??? [John-to Mary]-o_i otagai-ga t_i mita.
   John-and Mary-ACC each.other-NOM saw
   ‘John and Mary, each other saw.’

   b. [John-to Mary]-o_i otagai-no sensei-ga t_i mita.
   John-and Mary-ACC each.other-GEN teacher-NOM saw

(2) a. John-ga [Hanako-to Mary]-ni (paatii-de) otagai_i-o syookaisita.
   John-NOM Hanako-and Mary-DAT party-at each.other-ACC introduced
   ‘John introduced each other to Hanako and Mary (at the party).’

   b. (?) John-ga [Hanako-to Mary]-o (paatii-de) otagai_i-ni syookaisita.
   John-NOM Hanako-and Mary-ACC party-at each.other-DAT introduced
   ‘John introduced Hanako and Mary to each other (at the party).’
Imamura (2014)

• Quantitative corpus analysis of OSV order sentences.
• Givenness and heaviness “have a high explanatory power for the usage of SOV order”
• Referential Distance (RD) was measured (the gap between a referent in the current clause and its antecedent)
Ferreira & Yoshita (2003)

• Speakers did encoding and recalling task of IO-DO/DO-IO order.
• The results showed that speakers produced either of the two orders so that given information comes before the new information.