A Modal Approach to *no*-clauses in Japanese

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1 Introduction

Classification of embedded clauses
- Factivity (Karttunen 1971, 1973; Kastner 2015)
- Root phenomena (Emonds 1970; Hooper and Thompson 1973)
- \textit{wh}-movements (Erteschik-Shir 1973; Cattell 1978)
- Mood selections (Villalta 2008; Portner 2018)

Distinction between \textit{no}-clauses and \textit{koto}-clauses
- \textit{Koto} clauses: an abstract concept
- \textit{No}-clauses: a concrete/direct event
1 Introduction

**Question:** Do *no*-clauses encode an event in the sense of Davidson (1967)?

(1) *Ore-wa* [CP[TP*monban-ga* tobira-o aker-u]-{*no/*koto}*]-o *mi-ta.*
I-TOP gate-man-NOM door-ACC open-PRS-{no/koto}-ACC see-PST
‘I saw [the gate-man open the door].’

**Distinction between *no*-clauses and *koto*-clauses**

- *Koto* clauses: an abstract concept
- *No*-clauses: a concrete/direct event

1 Introduction

**Question:** Do no-clauses encode an event in the sense of Davidson (1967)?

Naïve event analysis

**A)** **Analysis:** the complement clause depicts an event, which is existentially bound.

(3) \( \exists e \). \( \exists e'. \) \( \text{see}(e) \land \text{EX}(l, e) \land \text{STIMULUS}(e, e') \land \text{open}(e') \land \text{AG}(e', \text{the gateman}) \land \text{PAT}(e', \text{the door}) \).

(4) \( \exists e' \).

**B)** **Advantage:** the proposition expressed in the complement clause is entailed.

(2) *Ore-wa [CP[TP monban-ga tobira-o aker-u]-no]-o mi-ta-ga,*

I-TOP gateman-NOM door-ACC open-PRS-no-ACC see-PST

*tobira-wa ak-anak at-ta.*

doors-TOP open-NEG be-PST

‘I saw [the gateman open the door] but the door did not open (intended).’
2 A problem
2 Problems

**Question:** Do *no*-clauses encode an event in the sense of Davidson (1967)?

(5) [CP[TP monban-ga tobira-o aker-u]-{no/?koto}-o mat-ta.
   gatem-an-NOM door-ACC open-PRS-{no/koto}-ACC wait-PST
   ‘(I) waited [for the gateman to open the gate].’

**Naïve event analysis**

( C ) **Prediction:** The sentence in (5) entails that the door opened, which is wrong.

(3) \( \exists e. \exists e'. \text{wait}(e) \land \text{EX}(I, e) \land \text{STIMULUS}(e, e') \land \text{open}(e') \land \text{AG}(e', \text{the gateman}) \land \text{PAT}(e', \text{the door}) \)

(4) \( \exists e'. \text{open}(e') \land \text{AG}(e', \text{the gateman}) \land \text{PAT}(e', \text{the door}) \)

**Research questions**

a. Question 1: What verbs prefer to take *no*-clauses?

b. Question 2: How does the entailment property appear in (1) but not in (5)?
3 A corpus study
3 A corpus analysis

Question 1: What verbs prefer to take *no*-clauses?

a. Question 1: What verbs prefer to take *no*-clauses?
3 A corpus analysis

**Question 1: What verbs prefer to take no-clauses?**

**Method:** To examine selectional tendencies, Collect examples from a corpus which have the form of \([a \text{ complementizer} + a \text{ verb}]\).

**Example:**

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Complementizer</th>
<th>Verb</th>
<th>Preference</th>
</tr>
</thead>
<tbody>
<tr>
<td>「これと似たような事件が今年起きた」</td>
<td>こと</td>
<td>を</td>
<td>おぼえ</td>
</tr>
<tr>
<td>「し、静かに帰って来ろ。」</td>
<td>の</td>
<td>を</td>
<td>待っ</td>
</tr>
<tr>
<td>「し、静かに帰って来ろ。」</td>
<td>の</td>
<td>は</td>
<td>止め</td>
</tr>
<tr>
<td>「誰か、センター試験の願書もらってくる。」</td>
<td>の</td>
<td>を</td>
<td>好ま</td>
</tr>
<tr>
<td>「そのか、桜の黒三郎に貸しがあった。」</td>
<td>の</td>
<td>を</td>
<td>忘れ</td>
</tr>
<tr>
<td>「それじゃ、寝る。」</td>
<td>の</td>
<td>は</td>
<td>やめよう</td>
</tr>
<tr>
<td>「たとえお前だろうが、お前の体を殺す。」</td>
<td>の</td>
<td>を</td>
<td>疑う</td>
</tr>
<tr>
<td>「where」</td>
<td>の</td>
<td>を</td>
<td>疑う</td>
</tr>
<tr>
<td>「お前を言う。」</td>
<td>語る</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Diagram:**

```
<table>
<thead>
<tr>
<th>to</th>
<th>koto</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```
3 A corpus analysis

Question 1: What verbs prefer to take *no*-clauses?

Method: To examine selectional tendencies, Collect examples of [a complementizer + a verb].

Example:

Goal: To identify a meaningful cluster

If a verb has the meaning $X$, it is likely to take a *no*-clause.
3.1 Data

Question 1: What verbs prefer to take no-clauses?

Corpus: BCCWJ (one of the largest annotated corpora)

Restrictions: 1) Main clause uses
- in order to avoid spurious cases

(8) [[ tasya-ga tasya-de ar-u koto]-o [yorokon-de] uketomer-u]
  others-NOM others-being COP-PRS koto-ACC become happy-being admit-PRS

‘that you happily admit that others are others’ (PB41_00164)

(9) [verb adjective auxiliary] to (+wa) verb (+teir) (+mas) [(+en) (+des) (+ta) + punctuation]

2) Punctuations
- *Commas
- *a conditional form, a negative conjectural form
- *an adnominal form, an infinitive form, or a provisional form

3) Frequency
≥ 30 times
3.2 Results

Question 1: What verbs prefer to take no-clauses?

Verb 1

Verb 1 preferences:
- to: 0.1
- koto: 0.2
- no: 0.7

Diagram showing the distribution of verbs with percentages.
3.2 Results

Question 1: What verbs prefer to take no-clauses?

(12) koto-clauses (transitive predicates)
b. modals
   (iii) epistemic predicates: 88 mitome- ‘recognize’, 94 sir- ‘come to know’, 77 miidas- ‘discover, find out (by detecting)’
   (iv) deontic predicates: 61 yoosur- ‘need’
   (v) decision predicates: 86 yurus- ‘forgive’, 86 erab- ‘select, decide’
c. aspects
   92 kurikae- ‘repeat’
(13) koto-clauses (intransitive predicates)
a. modals
   (i) decision predicates: 79 kimar- ‘be decided’
   (ii) epistemic predicates: 78 yomitor-e- ‘can be read off’, 73 ukaga-e- ‘can be inferred’, 91 wakar- ‘be known’
   (iii) ability: 64 deki- ‘can’
b. aspects: 75 nakumar- ‘perish’, 83 gozar- ‘be’, 76 ar- ‘be’, 63 ar- ‘be (archaic)’
3.2 Results

Question 1: What verbs prefer to take no-clauses?

(14) no-clause (intransitive predicates)
- perception predicates:  
  - medat- ‘stand out’,  
  - mie- ‘can see’,  
  - kikoe- ‘can hear’

(15) no-clauses (transitive predicates)
  a. verbs-of-visual perception:  
     - mituke- ‘find’,  
     - mimamor- ‘watch, care sb by watching’,  
     - nagame- ‘watch, view’
  b. intensional event predicates:  
     - huseg- ‘prevent’,  
     - yurus-e- ‘cannot allow, forgive’,  
     - mat- ‘wait’

(16) [CP Iki-o korae-te himei-ga more-ru-no]-o husei-da.

  (she) prevented [her scream from going out (from her mouth) by holding her breath]. (OB3X_00119)

(17) Watasitati-wa [CP obaatyan-ga santakuroosu-ni tegami-o kak-u-no]-o tetudat-ta.

  ‘We helped [our gramma to write a letter to Santa Claus].’ (LBs9_00297)
4 Analysis
4 Analysis

Question 2: How does the entailment property appear in (1) but not in (5)?

Proposal

Claim: no-clauses denote a set of events

Remark: $e$ is not $\exists$-bound yet.

(A) The no-clause does not entail its proposition.

(B) Additional restrictions can be added to $e$.

(18) $\text{[monban ga tobira o akeru no]}$

$= \lambda e. \lambda w. \text{open}(e, w) \land \text{PAT}(e, w, \text{the door}) \land \text{AG}(e, w, \text{the door man})$
4 Analysis

Question 2: How does the entailment property appear in (1) but not in (5)?

Proposal

Claim: no-clauses denote a set of events

Remark: $e$ is not $\exists$-bound yet.

(A) The no-clause does not entail its proposition.  
(B) Additional restrictions can be added to $e$.

(A) The sensitivity comes from MP, which introduces an $\exists$-operator and can provide a MB.

\begin{align*}
\lambda a. \lambda e. \lambda s. \text{EX}(e, s, a) \\
\wedge \exists e'. [\lambda w. \text{open}(e', w) \wedge \text{PAT}(e', w, \text{the door}) \wedge \text{AG}(e', w, \text{the door man}) \wedge \exists x. \text{AG}(e', w, x) \wedge a \neq x] \\
\end{align*}

\begin{align*}
\text{(18) [monban ga tobira o akeru no]} \\
= \lambda e. \lambda w. \text{open}(e, w) \wedge \text{PAT}(e, w, \text{the door}) \\
\wedge \text{AG}(e, w, \text{the door man}) \\
\end{align*}

\begin{align*}
\text{(19) [mi 'see']} \\
= \lambda p. \lambda a. \lambda e. \lambda s. \text{EX}(e, s, a) \\
\wedge \exists e'. [p(e') \wedge \exists x. \text{AG}(e', w, x) \wedge a \neq x] \\
\end{align*}
4 Analysis

Claim: *no*-clauses denote a set of events

Remark: \( e \) is not \( \exists \)-bound yet. (A) The no-clause does *not* entail its proposition. \( \rightarrow \) (A) MP is responsible for the entailment. (B) Additional restrictions can be added to \( e \).

(A) The sensitivity comes from MP, which introduces an \( \exists \)-operator and can provide a MB.

\[
\lambda a. \lambda e. \lambda s. AG(e, s, a) \land \forall w \in R_{\text{cir}}(s).
\]

\[
\exists e'. \left[ \begin{array}{c}
\text{Sim}_w (\lambda w. \text{open}(e', w) \land \text{PAT}(e', w, \text{the door}) \land AG(e', w, \text{the door man})) \\
\text{<stereotypical, bouletic, s}
\end{array} \right]
\]

\[
\text{no-clause}
\]

(18) [monban ga tobira o akeru no]

\[
= \lambda e. \lambda w. \text{open}(e, w) \land \text{PAT}(e, w, \text{the door}) \land AG(e, w, \text{the door man})
\]

\[
\lambda p. \lambda a. \lambda e. \lambda s. AG(e, s, a) \land \forall w \in R_{\text{cir}}(s).
\]

\[
\exists e'. [\text{Sim}_w (p(e')) < \text{stereotypical, bouletic, s} \ 	ext{Sim}_w (\neg p(e'))]
\]

\[
\land \exists x. AG(e', w, x) \land a \neq x].
\]
4 Analysis

Question 2: How does the entailment property appear in (1) but not in (5)?

Proposal

Claim: no-clauses denote a set of events

Remark: $e$ is not $\exists$-bound yet.

(A) The no-clause does not entail its proposition.  ← (A) MP is responsible for the entailment.

(B) Additional restrictions can be added to $e$.  ← (B) MP introduces an additional restriction.

(A) The sensitivity comes from MP, which introduces an $\exists$-operator and can provide a MB.

(B) The embedding predicate can impose a condition on the theta-role.

> the AGENT-OBVIATION EFFECT (cf., Farkas 1992)

$\lambda a. \lambda e. \lambda s. \text{EX}(e, s, a) \land \exists e'. [\lambda w. \text{open}(e', w) \land \text{PAT}(e', w, \text{the door}) \land \text{AG}(e', w, \text{the door man}) \land \exists x. \text{AG}(e', w, x) \land a \neq x]$

106 *huseg* - ‘prevent’

105 *yurus-e* - ‘cannot allow, forgive’

110 *tetudaw* - ‘help’

114 *mat* - ‘wait’

(A) The sensitivity comes from MP, which introduces an $\exists$-operator and can provide a MB.
4 Analysis

Question 2: How does the entailment property appear in (1) but not in (5)?

Agent-obviation effects

✓ (23) Requirement on Agent obviation: the agent of the embedded event must not be the same as the external argument of the matrix clause.

✓ (24) Requirement on Subject obviation: the subject of the embedded event must not be the same as the external argument of the matrix clause.

(25) [Watasi] [Haru-o mat-u-yooni] [mata GLAY-ni raibu-de a-e-ru-no]-o mat-u].

Spring-ACC wait-PRS-as again GLAY-DAT live concert-at meet-can-no-ACC wait-PRS

‘Just like I wait for the Spring to come, I wait [for me to see GLAY at a live concert again] (lit.).’ (OY04_01880)
5 Conclusion
5 Conclusion and remaining issues

Summary

(7) Research questions
a. Question 1: What verbs prefer to take no-clauses?
b. Question 2: How does the entailment property appear in (1) but not in (5)?

Entailment is sensitive to the EP, because $\exists$-operator and a MB come from the EP.
This analysis predicts that the EP can introduce a condition on an $e$.
The prediction is borne out! = the agent obviation effect
5 Conclusion and remaining issues

**Remaining problems**

( A ) *koto*-clauses

Do *koto*-clauses also denote an event?

On one hand, ...

(i) perception predicates repel *koto*-clauses
(ii) some verbs in (12)b, e.g., *sir*-‘know’ and *mitome*-‘acknowledge,’ do not show an obviation effect
(iii) some verbs allow tense-distinction but others do not.

On the other hand, ...

(i) Some have a condition on the theta-role of the event of the complement clause;
   - *deki*-‘can’ and *tikaw*-‘swear’
   - *negaw*-‘wish’
(ii) Some verbs take both *no*- and *koto*-clauses.

> Perhaps, *koto*-clauses also denote an event but there are other semantic/syntactic factors regulating the selection.
5 Conclusion and remaining issues

Remaining problems

(B) **yurus-** and **yurus-e-**

The presence of other morphemes in the matrix clause (-e ‘can’ and -nai) affects the clause selection.

```
(26) [tensu-de  hito-no  nooryoku-o  kimer-u-no]-ga yurus-e-nak  at-ta.
    socore-by  person-GEN  ability-ACC  decide-PRS-GEN-FOC  forgive-can-NEG  be-PST
```

‘I could not tolerate (their) determining one’s ability based on one’s score.’

Though I cannot give a reasonable account for this problem, it is also a problem to any theory that tries to explain the clause selection *w.r.t.* the *c/s*-selectional property of the embedding predicate.
Thank you very much for listening!
References


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