Opposition Structure is not Event Structure: A Study of Cancellable Transition in Japanese V-teiru

Kentaro Nakatani
Dept of English and American Literature and Language
Konan University
kentaron@konan-u.ac.jp

The Fourth International Workshop on Generative Approaches to the Lexicon
École Normale Supérieure  May 10, 2007
Anatomy of -teiru (-te iru, -te i(-ru), etc.)

-te i-ru
Anatomy of -teiru (-te iru, -te i(-ru), etc.)

Conjunctive suffix

- widely used in other constructions
- its syntax and semantics still controversial

- te i-ru
Anatomy of -teiru (-te iru, -te i(-ru), etc.)

Conjunctive suffix
- widely used in other constructions
- its syntax and semantics still controversial

-**te i-ru**

Verb of existence
- can be used as a main verb
- behaves like an auxiliary in this construction
Anatomy of -teiru (-te iru, -te i(-ru), etc.)

Conjunctive suffix
- widely used in other constructions
- its syntax and semantics still controversial

Verb of existence
- can be used as a main verb
- behaves like an auxiliary in this construction

Present tense marker
- It is included here as a convention, because Japanese verb roots cannot be pronounced without suffixes
(In)Famous for its aspectual ambiguity

a) inu-ga hasit-te i-ru.
   dog-Nom run-TE exist-Pres
   ‘The dog is running.’ (Imperfective)

b) inu-ga sin-de i-ru.
   dog-Nom die-TE exist-Pres
   ‘The dog is dead.’ (Perfective)

Lexical Aspect (Aktionsart)

Vendler 1957, etc.

- Unbounded
  - States
    - Taro is there.
  - Activities
    - Taro ran.
- Bounded
  - Achievements
    - Taro died.
  - Accomplishments
    - Taro wrote a novel.
Deriving the ambiguity of \textit{-te iru} (Nakatani 2005, Nakanishi 2006, etc.)

- \textit{-te} is an event-sequencer ( \( e_1 <_\alpha e_2 \) or \( e_1 <^\circ_\alpha e_2 \) )

- \textit{i(-ru)} denotes an underspecified state

\[
\begin{align*}
\text{V-te i(-ru)} & \quad \text{V's partial or full completion} \\
\text{underspecified state} & \\
\text{RUN-te i-ru (is running)} & \\
\text{DIE-te i-ru (is dead)}
\end{align*}
\]
Today’s topic

The change-of-state reading of an achievement may be absent when -te iru is attached:

- **kawak(-u)** ‘to dry (unaccusative)’
  
  wet → dry

(1) **sono taoru-wa kawai-te i-ru.**
  
  that towel-Top dry-TE exist-Pres
  
  ‘The towel has dried / is dry.’

Even if *that towel* is brand-new fresh out of the factory, (1) is still true.
Today’s topic

The change-of-state reading of an achievement is obligatory when -te iru is NOT attached:

(1') *sono taoru-wa kawai-ta.*
that towel-Top dry-Past
‘The towel dried.’

If *that towel* is brand-new fresh out of the factory, (1’) is false.
Today’s topic

The change-of-state reading of an achievement is obligatory even when -te iru is attached, if the verb is transitive (causative):

(2) kare-wa sudeni sono taoru-o
he-Top already that towel-Acc
kawakasi-te i-ru.
dry(trans)-TE exist-Pres
‘He has already dried the towel.’

That towel must have undergone the change of state from being wet to being dry.
Today’s topic

The change-of-state reading of the transitive version persists even if the agent is suppressed by a pseudo-passive morpheme -te aru:

(3) **sono taoru-ga kawakasi-te ar-u.**

*that towel-Nom dry**(trans)**-TE exist-Pres*  
‘That towel has been dried.’
Cannot be solved by the previously mentioned analysis
(Nakatani 2005, Nakanishi 2006, etc.)

- *-te* is an event-sequencer ($e_1 < \alpha e_2$ or $e_1 < \circ \alpha e_2$)
- *i(-ru)* denotes an underspecified state

```
V-te i(-ru)

partial or full completion

underspecified state

\[
e_1 < \alpha e_2
\]

*s-DRY(inch)-te i-ru*
(Perfective)
```
Intensional Approach

- Dowty 1979, Landman 1990, etc.

- *He is writing a novel*

  --The completion of the novel is assumed in the “speaker’s mind” (=intensional context), but it may not be fulfilled in the “actual world” (=extensional).

  \[
  \text{the writing process} \rightarrow \text{the completion} \\
  w \rightarrow w' \text{ (intensional context)}
  \]

- Kusumoto 2003
  - taoru-ga kawai-te i-ru ‘That towel is dry’
  - The towel becomes dry\rightarrow\text{The towel is in the state of being dry} \\
    w' \text{ (intensional context)} \rightarrow w
Problems of Kusumoto 2003

1. Unfalsifiable: Abuse of the intensional context?
2. Change of state in an intensional world?
   -- Intuitively dubious.
Problems of Kusumoto 2003
Problems of Kusumoto 2003

1. Suppose that there is a flood, and a Japanese native speaker is desperately looking for a dry towel in a flooded grocery store;
1. Suppose that there is a flood, and a Japanese native speaker is desperately looking for a dry towel in a flooded grocery store;

2. Most towels in the store are wet, but he finally finds a dry product, and utters (1).
Problems of Kusumoto 2003

1. Suppose that there is a flood, and a Japanese native speaker is desperately looking for a dry towel in a flooded grocery store;

2. Most towels in the store are wet, but he finally finds a dry product, and utters (1).

3. In such a case, does he think that the towel used to be wet and has undergone a drying process in some hypothetical world?
Problems of Kusumoto 2003

1. Suppose that there is a flood, and a Japanese native speaker is desperately looking for a dry towel in a flooded grocery store;

2. Most towels in the store are wet, but he finally finds a dry product, and utters (1).

3. In such a case, does he think that the towel used to be wet and has undergone a drying process in some hypothetical world?

4. I do not think so.
Problems of Kusumoto 2003

1. Unfalsifiable: Abuse of the intensional context?
2. Change of state in an intensional world?
   -- Intuitively dubious.
Problems of Kusumoto 2003

1. Unfalsifiable: Abuse of the intensional context?
2. Change of state in an intensional world?
   -- Intuitively dubious.
3. Causative Problem:
   Not clear why the change-of-state reading persists in the transitive version of the same verb.
Alternative: A Cancellation Approach

• Simpler (simple-minded?) solution: When *te iru* is attached to an achievement verb, the presupposition of the achievement event may be cancelled.

• This solution of course works at the descriptive level.

• The question is whether this idea is better-motivated.
Event Types and Event Structure


- $e^P$: process (=activity)
- $e^S$: state

\[
\begin{align*}
walk & \quad e^P \\
\mid & \\
walk\_act(x) & \\
\hline
love & \quad e^S \\
\mid & \\
love(x,y) &
\end{align*}
\]
Change of State and Event Structure

\[ \text{kill} \]

\[ \begin{array}{c}
\text{e} \\
\text{e}_P \\
\text{kill\_act}(x,y) \\
\text{e} \\
\text{e}_S \\
\text{dead}(y) \\
\end{array} \]

Accomplishment
Change of State and Event Structure

\[ \text{kill} \]

\[ e^T \]

\[ e^P \]
\[ \text{kill_act}(x,y) \]
\[ e^S \]
\[ \text{dead}(y) \]

Accomplishment
Change of State and Event Structure

- Accomplishment
  - \( \text{kill} \)
    - \( e^P \)
      - \( \text{kill}_\text{act}(x,y) \)
    - \( e^S \)
      - \( \text{dead}(y) \)

- Achievement
  - \( \text{die?} \)
    - \( e^P \)
      - \( \text{die}_\text{act}(x) \)
    - \( e^S \)
      - \( \text{dead}(x) \)
Change of State and Event Structure

\[
\text{kill} \quad \begin{array}{c} \ \ \ e^T \\ \ \ \ e^P \\ kill\_act(x,y) \end{array} \quad \begin{array}{c} \ \ \ e^S \\ \text{dead}(y) \end{array}
\]

\[
\text{die?} \quad \begin{array}{c} \ \ \ e^T \\ \ \ \ e^P \\ die\_act(x) \end{array} \quad \begin{array}{c} \ \ \ e^S \\ \text{dead}(x) \end{array}
\]

Accomplishment \quad \text{Achievement}
Change of State and Event Structure

Accomplishment

```
kill
  \[ e^P \]
  \[ \text{kill}_\text{act}(x,y) \]
  \[ e^S \]
  \[ \text{dead}(y) \]
```

Achievement

```
die\_?
  \[ e^P \]
  \[ \text{die}_\text{act}(x)\? \]
  \[ e^S \]
  \[ \text{dead}(x) \]
```

Accomplishment

Achievement
Change of State and Event Structure

**Accomplishment**

- kill
  - kill\_act(x,y)
  - dead(y)

**Achievement**

- die?
  - dead(x)
Change of State and Event Structure

Pustejovsky’s (2001) *Opposition Structure*

\[
\begin{array}{c}
e
\end{array}
\]

\[
\begin{array}{c}
es \quad es
\end{array}
\]

\[
\begin{array}{c}
\neg \phi \\
\phi
\end{array}
\]
Change of State and Event Structure

Pustejovsky’s (2001) *Opposition Structure*

```
kill
  e
  e^p  e^s
  kill_act(x,y)  dead(y)
  ¬dead(y)
  e^s  e^s
  OS
```
Change of State and Event Structure

Pustejovský’s (2001) Opposition Structure

\[
\text{kill}
\]

\[
\begin{array}{c}
\text{kill}_\text{act}(x,y) \\
\neg\text{dead}(y)
\end{array}
\]
Change of State and Event Structure

Pustejovsky’s (2001) Opposition Structure

\[
\begin{array}{c}
\text{kill} \\
\text{die?}
\end{array}
\]

\[
\begin{array}{c}
k\text{l}\_a\text{c}_t(x,y) \\
\neg\text{dead}(y) \\
\text{e} \\
\text{e} \\
\text{e}^P \\
\text{e}^S \\
\text{e}^S \\
\text{e} \\
\text{e}^S \\
\text{e}^S
\end{array}
\]

\[
\begin{array}{c}
\text{dead}(y) \\
\neg\text{dead}(y) \\
\text{d}\text{ead}(y) \\
\neg\text{dead}(y) \\
\text{d}\text{ead}(y)
\end{array}
\]
Change of State and Event Structure

Pustejovsky’s (2001) Opposition Structure

\[
\text{kill} \\
\text{e} \\
\text{e} \\
\text{e}^p \quad \text{e}^s \\
\text{kill}_\text{act}(x,y) \quad \text{dead}(y) \\
\neg\text{dead}(y)
\]

\[
\text{die?} \\
\text{e} \\
\text{e}^s = \text{state?} \\
\text{e}^s \quad \text{e}^s \\
\neg\text{dead}(y) \quad \text{dead}(y)
\]
Transition as a primitive type

To capture the contrast between an accomplishment and an achievement, and between an achievement and a state, we need to assume that transition is an ontological event type.

\[
\llbracket \text{kill} \rrbracket = \text{kill}_\text{act}(e^P, x, y) \land \text{dead}(e^T, y)
\]
\[
\llbracket \text{die} \rrbracket = \text{dead}(e^T, y)
\]
Opposition structure is not event structure

Transition is an ontological event type.

→ This means that transition (opposition structure) is NOT consisted of two states in the sense of the event-structure composition.
Opposition structure is not event structure

Transition is an ontological event type.

→ This means that transition (opposition structure) is NOT consisted of two states in the sense of the event-structure composition.

die

$$\text{die}$$

$$e^T$$

$$\langle \alpha \rangle$$

$$e^S$$

$$\langle \alpha \rangle$$

$$e^S$$

$$\neg \text{dead}(y)$$

$$\text{dead}(y)$$
Opposition structure is not event structure

Transition is an ontological event type.

→ This means that transition (opposition structure) is NOT consisted of two states in the sense of the event-structure composition.

\[
die
\]

\[
\begin{array}{c}
\neg \text{dead}(y) & \text{dead}(y) \\
\end{array}
\]

\[
e^T
\]

\[
e^S
\]

\[
e^S
\]

\[
<_{\alpha}
\]

\[
\]
Opposition structure is not event structure

Transition is an ontological event type.

→ This means that transition (opposition structure) is NOT consisted of two states in the sense of the event-structure composition.

\[
\begin{align*}
die & \\
\neg \text{dead}(y) & \quad \text{dead}(y) \\
\end{align*}
\]
Opposition structure is not event structure

Transition is an ontological event type.

→ This means that transition (opposition structure) is NOT consisted of two states in the sense of the event-structure composition.
Presupposition as Conventional Implicature
(From previous studies)

1. [[ The door opened ]]
   \[ e^T \]
   \[ e_1^S \quad e_2^S \]
   closed(the door) open(the door)

2. [[ The door did NOT open ]]

Gazdar (1979), Givon (1972), Karttunen (1973), Karttunen and Peters (1979) and Levinson (1983)
Presupposition as Conventional Implicature
(From previous studies)

1. [[ The door opened ]]  

\[ e^T \]

\[ e_1^S \]
\[ e_2^S \]

\[ \text{closed}(\text{the door}) \]
\[ \text{open}(\text{the door}) \]

2. [[ The door did NOT open ]]

\[ \neg e^T \]

\[ e_1^S \]
\[ e_2^S \]

\[ \text{closed}(\text{the door}) \]  
\[ \neg \text{open}(\text{the door}) \]

Gazdar (1979), Givon (1972), Karttunen (1973), Karttunen and Peters (1979) and Levinson (1983)
Presupposition as Conventional Implicature
(From previous studies)

1. [[ The door opened ]]

\[
\begin{align*}
\text{e}^T \\
\text{e}_1^S & \quad \text{e}_2^S \\
\text{closed(} \text{the door}\text{)} & \quad \text{open(} \text{the door}\text{)}
\end{align*}
\]

2. [[ The door did NOT open ]]

\[
\begin{align*}
\text{\neg e}^T \\
\text{e}_1^S & \quad \text{e}_2^S \\
\text{closed(} \text{the door}\text{)} & \quad \text{\neg open(} \text{the door}\text{)}
\end{align*}
\]

- Presupposition is *not* part of semantic entailment;
  It is part of conventional implicature.

Gazdar (1979), Givon (1972), Karttunen (1973), Karttunen and Peters (1979) and Levinson (1983)
The Semantics of Transition

Assuming time is discrete:

(7) \( \exists e_1^T [ P(e_1^T) \text{ at } t ] \) entails \( \exists e_2^S [ P(e_2^S) \text{ at } t + 1 ] \)

(8) \( \exists e_1^T [ P(e_1^T) \text{ at } t ] \) presupposes \( \exists e_2^S [ \neg P(e_2^S) \text{ at } t - 1 ] \)

- \( \exists e_1^T [ \text{dry}(e_1^T) \text{ at } t ] \) entails \( \exists e_2^S [ \text{dry}(e_2^S) \text{ at } t + 1 ] \)
- \( \exists e_1^T [ \text{dry}(e_1^T) \text{ at } t ] \) presupposes \( \exists e_2^S [ \neg \text{dry}(e_2^S) \text{ at } t - 1 ] \)

*Presupposition is cancellable under certain conditions.
Qualia Structure and -te iru (Nakatani 2005)

AGENTIVE → CONST → TELIC

Bringing about

FORMAL

[[ kawai-ta ]]

dry-Past
e^T

Goal
Qualia Structure and -te iru (Nakatani 2005)

AGENTIVE  →  CONST  →  TELIC

Bringing about

FORMAL

[[ kawai-ta ]]

dry-Past

\[ e^T \]

[[ kawai-te ]]

dry-TE

\[ e^T \]

i-ru ]]

exist-Pres

\[ e^S \]
Bringing about Goal

[[ kawai-ta ]]
dry-Past $e_T$

[[ kawai-te ]]
dry-TE $e_T$

[[ i-ru ]]
exist-Pres $e^S$
Cancellation of transition in -te iru

AGENTIVE → CONST → TELIC

Bringing about

FORMAL

[ [ kawai-ta ] ]
dry-Past
\( e^T \)

[ [ kawai-te ] ]
dry-TE
\( e^T \)

[ [ i-ru ] ]
exist-Pres
\( e^S \)
Cancellation of transition in -te iru

AGENTIVE

Bringing about

CONST

TELIC

Goal

FORMAL

[[ kawai-ta ]]

dry-Past

\( e^T \)

[[ kawai-te ]]

dry-TE

\( e^T \)

i-ru ]]

exist-Pres

\( e^S \)
Cancellation of transition in -te iru

AGENTIVE  →  CONST  →  TELIC

Bringing about

Goal

FORMAL

[[ kawai-ta ]]
dry-Past
e^T

[[ kawai-te ]]
dry-TE

i-ru ]
exist-Pres
e^S
Cancellation of transition in -te *iru*

Bringing about

Being not part of the FORMAL, the presupposition can be cancelled

[[ kawai-te ]]  
dry-TE  
*e^T*

[[ kawai-ta ]]  
dry-Past  
*e^T*

[[ i-ru ]]  
exist-Pres  
*e^S*
Kindaichi’s (1950) “Type Four” Verbs
Kindaichi’s (1950) “Type Four” Verbs

(21) **miti-ga magat-te i-ru.**

road-Nom bend(inch)-TE exist-Pres

‘The road does not run straight (bends to some direction).’

 PROGMEM CANCELLED
Kindaichi’s (1950) “Type Four” Verbs

(21) miti-ga magat-te i-ru.
    road-Nom bend(inch)-TE exist-Pres
    ‘The road does not run straight (bends to some direction).’

(22) kugi-ga magat-te i-ru.
    nail-Nom bend(inch)-TE exist-Pres
    ‘The nail is bent.’
Kindaichi’s (1950) “Type Four” Verbs

(21) \textit{miti}-ga \ magat-te \ i-ru.
\textit{road}-Nom \ bend(inch)-TE \ exist-Pres
‘The road does not run straight (bends to some direction).’
\footnote{PRESUPPOSITION CANCELLED}

(22) \textit{kugi}-ga \ magat-te \ i-ru.
\textit{nail}-Nom \ bend(inch)-TE \ exist-Pres
‘The nail is bent.’
\footnote{PRESUPPOSITION PERSISTS}

(23) *\textit{miti}-ga \ magat-ta.
\textit{road}-Nom \ bend(inch)-Past
\footnote{PRESUPPOSITION CANNOT BE CANCELLED}
The Causative Problem

- Achievement (unaccusative) + -te iru
  
  (1) *sono taoru-ga* kawai-te i-ru
      that towel-Nom dry-te exist-Pres

- Accomplishment (causative) + -te iru
  
  (2) *sono taoru-o* kawakasi-te i-ru
      that towel-Acc dry(cause)-te exist-Pres

```
act(x,y)  dry(y)
```

```
e^{P•T}

 e^P  e^T
```

Conclusions

- Transition is an ontological type.
- Transition does not have a complex event structure. (Opposition structure is not event structure)
- It entails a result state, and it presupposes the negation of that result state.
- Presupposition can be cancelled under certain conditions. (Gazdar (1979), Karttunen (1973), etc.)
- 
  - *te iru* degrades the semantics of the V it is attached to into AGENTIVE of the derived qualia.
- In AGENTIVE, presupposition can be cancelled.
- Semantic entailment cannot be cancelled
  → The causing event in an accomplishment cannot be cancelled