The semantics of kara ある and the ambiguity of the teiru construction

<table>
<thead>
<tr>
<th>ジャンル</th>
<th>英米文学</th>
</tr>
</thead>
<tbody>
<tr>
<td>タイトル</td>
<td></td>
</tr>
<tr>
<td>著者</td>
<td></td>
</tr>
<tr>
<td>本文言語</td>
<td></td>
</tr>
<tr>
<td>公開日</td>
<td></td>
</tr>
</tbody>
</table>

URL: http://hdl.handle.net/10236/10861
The semantics of *kara* ‘since’ and the ambiguity of the *teiru* construction

Kiyomi Kusumoto

**Abstract:** In this paper I examine *kara* ‘since’ and the *teiru* construction in Japanese along the line of von Stechow (2002). I argue that *teiru* is ambiguous in at least three ways: progressive, experiential, and perfect of result. The three *teiru* forms behave differently with respect to the interpretation of *kara*-phrases. These behaviors show that the ambiguity of *teiru* is not reducible. The *teiru* form is decomposed into te-i-ru: te is analyzed as ambiguous between progressive, perfect, and resultative meanings; i as an aspectual morpheme similar to *have*, and ru as the present tense morpheme. The three meanings of *teiru* are compositionally derived.

**Key words:** ‘since’, ‘teiru’, aspect

1. Preliminary notes on *kara* ‘since’

Japanese *kara* have temporal and non-temporal usages, as shown below:

(1) kare-wa is-syuukan-mae-kara nbyoki-da.
   he-top one-week-before-since sick-cop
   ‘He has been sick since a week ago’

(2) kare-wa Tokyo-kara ki-ta.
   he-top from-Tokyo come-past
   ‘He came from Tokyo’

This paper only deals with temporal usage of *kara*. 
1. 1. Japanese *kara*, English *since*, and German *seit*: Differences and Similarities

In this section, some characteristic behaviors of *kara* are presented, as well as cross-linguistic comparison with English and German counterparts. First, the temporal *kara* takes a time span (such as *yesterday* and *three hours ago*) but not a duration (such as *two hours*) as its argument.

(3) * kare-wa is-syuukan-kara nbyoki-da.
     he-top one-week-since sick-cop
   ‘He has been sick since a week ago’

In this sense, it is similar to English *since* and is different from German *seit*.

(4) * John has been sick since three weeks.
(5) Ich warte seit 3 Stunden auf dich.
     I wait since 3 hours for you
   ‘I have been waiting for you for three hours’

Secondly, like German *seit*, *kara* is compatible with simple present and past tenses.

(6) a. kare-wa is-syuukan-mae-kara byoki-da.
     he-top one-week-before-since sick-cop
   ‘He has been sick since a week ago’
b. kare-wa is-syuukan-mae-kara byoki-dat-ta.
     he-top one-week-before-since sick-cop-past
   ‘He had been sick since a week ago’
(7) Dieter ist seit 1975 in Düsseldorf
     Dieter is since 1975 in Düsseldorf
   ‘Dieter has been in Düsseldorf since 1975’
(8)* John is sick since yesterday.
(Cf. John has been sick since yesterday.)

Third, it is also compatible with the future interpretation of the present tense.

(9) asita-kara mazimeni benkyoo-suru.
    tomorrow-since hard study-do-pres
    ‘(I) will study hard (starting) from tomorrow’

German seit is restricted to non-future contexts. In future contexts, ab ‘from’ is used.

(10) a.*Ich werde seit morgen arbeiten.
    I will since tomorrow work
    b. Ich werde ab morgen arbeiten.
    I will from tomorrow work
    ‘I will work from tomorrow’

Lastly, we look at a particular behavior of kara in the teiru construction. The teiru construction with accomplishment predicates in the sense of Dowty (1979) is two-way ambiguous:

(11) kare-wa ie-o ik-ken tate-teiru.
    he-top house-acc one-CL build-tei-pres
    ‘He is building a house’
    ‘He has build a house’

One is a progressive meaning, under which the event of his building a house is on going at a specific time, the speech time in this example.

1 Japanese present tense is compatible with future adverbials.
The other is an experiential perfect reading under which the event of his building a house is completed by the speech time.

The second reading disappears when a \textit{kara}-phrase is added.

(12) kare-wa nisen-nen-kara ie-o ik-ken tate-teiru

he-top two-thousand-year-since house-acc one-CL build-tei-pres

‘He has been building a house since 2000’

But NOT: ‘He has build a house since 2000’

The sentence cannot mean that between 2000 and now there is a (complete) event of his building a house.

In this paper, I adopt the semantics of \textit{seit} in German proposed by von Stechow (1992) for \textit{kara} in Japanese. By doing so, I derive the properties of \textit{kara}-phrases based on the analysis of the \textit{teiru} construction. Specifically, I propose that the \textit{te} morpheheme in the \textit{teiru} construction is three ways ambiguous. This ambiguity accounts for the (in)compatibility of \textit{kara}-phrases with certain predicates and readings of the \textit{teiru} construction.

2. The meaning of \textit{kara}

Japanese \textit{kara} is similar to German \textit{seit} in that it is compatible with simple tenses. Thus I adopt von Stechow’s (2002) semantics of \textit{seit} for \textit{kara}.

(13) \([\text{[kara]} (t) = \lambda P \lambda t’ \equiv t”[\text{XN}(t”, t’) & \text{LB}(t, t”) & P(t”)], \text{where P is homogeneous.}\]

---

2 The semantics presented here is for what von Stechow calls the positional \textit{seit}, which behaves similar to Japanese \textit{kara}. German \textit{seit} can also take a durational phrase as its argument, which von Stechow claims to be semantically ambiguous.
The semantics of *kara ‘since’* and the ambiguity of the *teiru construction* 243

XN(t, t’) means that t is a final subinterval of an interval t’ and LB(t, t’) means that t is a left boundary of t’.

The homogeneity requirement is to explain the ungrammaticality of the following sentences.

(14) a.*kare-wa kyonen-kara Tokyo-ni it-ta
    he-top last-year-since Tokyo-to go-past
    Intended: ‘He has gone to Tokyo (once) since last year’

b.*kyonen-kara marason-o hasit-ta
    last-year-since marathon-acc run-past
    Intended: ‘(I) have run a marathon (once) since last year’

Predicates with the homogeneous property go well with this semantic of *kara*.

(15) kare-wa is-syuukan-mae-kara byoki-da
    he-top one-week-before-since sick-cop
    ‘He has been sick since a week ago’

The sentence entails that the relevant states hold from the time specified by the argument of *kara* and up to the time specified by the tense (the speech time). Thus the following continuation gives rise to a contra-

3 These sentences slightly improve when adverbials like *four times* are added or become almost perfect further added with *until*-phrases or already.

i) a.? kyonen-kara yon-kai Tokyo-ni it-ta
    last’year-since four-time Tokyo-to go-past
    ‘I went to Tokyo four times since last year’

b. kyonen-kara ima-madeni/sudeni yon-kai Tokyo-ni it-ta
    last’year now-until/already four-time Tokyo-to go-past
    cf. kyonen-kara yon-kai Tokyo-ni it-teiru
    last’year-since four-time Tokyo-to go-tei-pres
    ‘I have gone to Tokyo four times since last year’

I will discuss the contribution of adverbials like *four times* and *until*-phrases later.
diction.

(16)#kare-wa isyuukan-mae-kara byoki-da-ga ima-wa genki-da
  he-top one-week-before-since sick-cop-but now-top fine-cop
  'He has been sick since a week ago but is now fine'

3. Tense/Aspect Architecture

I assume the following functional projections around the tense/aspect region.

(17)

\[
\begin{array}{c}
\text{TP} \\
\text{T'} \\
\text{PerfP} \\
\text{Perf'} \\
\text{AspP} \\
\text{Asp'} \\
\text{VP} \\
\text{Asp}
\end{array}
\]

Ontologically, I assume the following:

(18) Semantic domains

\[
\begin{align*}
D_i & = \text{the individuals} \\
D_t & = \{0, 1\} \\
D_w & = \text{the worlds} \\
D_t & = \text{the time intervals} \\
D_e & = \text{the eventualities}
\end{align*}
\]
Tense are assumed to be pronominal, and thus just like free pronouns, their interpretations are assignment dependent. (See Partee 1973, Heim 1994, Kratzer 1998 among others.)

(19) a. $[[\text{Pres}]]^{e,c} = \text{the speech time}$

   b. $[[\text{Past}]]^{e,c}$ is defined only if $g(i)$ precedes the speech time.

   When defined $[[\text{Past}]]^{e,c} = g(i)$

I follow Klein 1994, Kratzer 1998, and von Stechow 2002, and assume the following three distinct categories for what is often called ‘viewpoint aspects’.

(20) $X[[\text{N-Perfect}]] = \lambda P \lambda t \exists t'[XN(t', t) \& P(t')]$

(21) a. $[[\text{PFV}]] = \lambda P \lambda t \exists e [\tau(e) \subseteq t \& P(e)]$

   b. $[[\text{IMP}]] = \lambda P \lambda t \exists e [t \subseteq \tau(e) \& P(e)]$

Now let us exemplify how the meaning of these functional elements are compositionally composed, using the following example.

(22) a. kare-wa is-syuukan-mae-kara byoki-da

   he-top one-week-before-since sick-cop

   ‘He has been sick since a week ago’

   b. $[\text{TP} [\text{since a week ago} [\lambda e [\text{he be sick}]] \text{IMP}] [\text{Pres}]]$

The semantics goes via functional application as shown below:

(23) a. $[[\text{he be sick}]] = \lambda e [\text{sick(he)(e)}]$

   b. $[[\text{IMP he be sick}]] = \lambda t \exists e [t \subseteq \tau(e) \& \text{sick(he)(e)}]$

   c. $[[\text{since a week ago IMP he be sick}]] =$

   $\lambda t \exists t'[XN(t', t) \& \text{LB(a-week-ago, t')} \& \exists e [t' \subseteq \tau(e) \& \text{sick(he)(e)}]]$

   d. $[[\text{PRES [since a week ago [IMP he be sick]]}]] = $
\[ \exists t'[XN(t', \text{NOW}) \& LB(\text{a-week-ago}, t') \& \exists e[t' \subseteq \tau(e) \& \text{sick}(e)(e)] \]

From the last line we correctly predict that his sickness started a week ago and continues to include the speech time.

4. Perfect in Japanese?: the teiru construction

In this section, I examine the teiru construction. This is because of the comparison between kara and since. As is well-known, since is not compatible with simple tenses but only with perfect construction. It is said that there are different kinds of perfect constructions. In English, at least three distinct meanings are observed.

(24) a. He has (always) lived in London. Universal
    b. He has been in London (before). Experiential
    c. He has (just) left for London Resultative

All three interpretations may be expressed using the teiru construction in Japanese.

    2000-year-since (always) linguistics-acc study-tei-pres
    ‘(I) has been studying linguistics since 2000’
    b. (izen-ni) marason-o hasit-teiru Experiential
    (before-at) marathon-acc run-tei-pres
    ‘(I) have run a marathon (before)’
    c. sono-mise-wa (mada) ai-teiru Resultative
    the-store-top (still) open-vi-tei-pres
    ‘The store is (still) open’
Now let us examine the *teiru* construction itself and its compatibility with different types of predicates. First, the *teiru* construction is impossible with stative predicates.

(26)  

a. kare-wa heya-ni i-ru  
   he-top room-in be-pres  
   ‘He is in the room’

b. *kare-wa heya-ni i-teiru  
   he-top room-in be-tei-pres

It is compatible with other types of predicates but depending on the predicate types and other co-occurring phrases, the *teiru* construction is ambiguous:

(i) It has a progressive reading. In this case, it is compatible only with activity and accomplishment predicates.

(27)  

a. kare-wa (ima) hasit-teiru  
   activity  
   he-top (now) run-tei-pres  
   ‘He is running now’

b. kare-wa (ima) ie-o tate-teiru  
   accomplishment  
   he-top (now) house-acc build-tei-pres  
   ‘He is building a house now’

(28)  

kare-wa sin-deiru  
   achievement  
   he-top die-tei-pres  
   ‘He is dead’ (resultative), NOT ‘He is dying’

---

4 In order to express a progressive meaning with achievement predicates, we use different auxiliary morphemes *tutu-aru* or *kake-teiru*, both of which should be translated into something like be about to.

i) kare-wa sini-tutu-aru  
   he-top die-about’to-be

kare-wa sini-kake-teiru  
   he-top die-about’to *teiru*  
   ‘He is about to die’
(ii) It has an experiential reading. This reading is compatible with any predicate types as long as they are compatible with teiru. Unlike English but like German, the construction allows past-denoting adverbials like yesterday.

(29) kare-wa kinoo marason-o hasi-teiru
    he-top yesterday marathon-acc run-tei-pres
    ‘He has run a marathon yesterday’

(iii) It has a resultative (perfect of result) reading. Only the eventive predicates that specify a target state allow this reading.

(30) sono-mise-wa (mada) ai-teiru
    the-store-top (still) open-tei-pres
    ‘The store is (still) open’

(iv) Finally, it has a habitual reading.

(31) a.? kare-wa (mainiti) densya-de gakko-ni ik-u
    he-top (every’day) train-by school-to go-pres
    b. kare-wa (mainiti) densya-de gakko-ni it-teiru
    he-top (every’day) train-by school-to go-tei-pres
    ‘He goes to school by train’

(32) a.*watasi-wa daigaku-de eigo-o osieru
    I-top college-at English-acc teach-pres
    b. watasi-wa daigaku-de eigo-o osie-teiru
    I-top college-at English-acc teach-tei-pres
    ‘I teach English at a college’
5. *kara* in the *teiru* construction

5.1. The structure of *teiru*

Morphologically, the *teiru* construction has a structure like [e [[V- te]- i]- (r)u]]. The *V-te* form is often called a gerundive form and appears in other constructions as well. The morpheme *-i-* , when used as the main predicate of a sentence, is a stative verb of existence.

(33) kare-wa heya-ni i-ru/ta

he-top room-in be-pres/past

‘He is/was in the room’

The morpheme *-ru* is often recognized as a present tense morpheme that combines with verbs.

I argue that *-te* is at least four ways ambiguous, giving rise to progressive, resultative, habitual and experiential readings. I also argue that *-i-* is ambiguous; one is semantically vacuous, and the other is something similar to auxiliary *have/haben* in perfect constructions in English and German.

5. 2. Progressive, resultative, and habitual *teiru*

The progressive, resultative, and habitual readings of *teiru* are compatible with the universal interpretation.

(34) a. kare-wa san-zikan-mae-kara hasit-teiru progressive

he-top three-hour-before-since run-ten-pres

‘He has been running since three hours ago’

b. ano-mise-wa kesa siti-zi-kara ai-teiru resultative

that-store-top this-morning seven-o’clock-since open-ten-pres

‘That sore has been open since 7 o’clock this morning’

c. watasi-wa ni-sen-nen-kara eigo-o osie-teiru habitual
I argue that this is expected since the progressive, resultative, and habitual readings of *teiru* all subsume under the current analysis of *kara*, as these predicates all have subinterval (homogeneous) property.

I propose the following structure for these three interpretation of *teiru*.

(35)

The *te* morpheme is ambiguous in the following three ways:

(36)  $[[\text{te}_{\text{prog}}]] = \lambda P_{<e' <e, t>} \lambda e \lambda w [\text{PROG}(P)(e)(w)]$

$[[\text{PROG}(P)(e)(w)]]^{e} = 1$ iff $\exists e' \exists w' [e', w' \in \text{CON}(g(e), w) \& P^{e'}(w') = 1,$

where $\text{CON}(g(e), w)$ is the continuation branch of $g(e)$ in $w$. (Landman 1990)

(37)  $[[\text{te}_{\text{result}}]] = \lambda P_{<e' <e, s> <s, t>} \lambda s_{st} \lambda w \exists e_{ev} [P(e)(w) \& \text{TARGET}(e)(s)(w))]$

$[[\text{te}_{\text{result}}]](P)(e)(w)$ is undefined when $\text{TARGET}(e)$ is undefined for all $e$ such that $P(e)(w) = 1$. (Kusumoto 2001)

(38)  $[[\text{te}_{\text{habit}}]] = \lambda P_{<e' <e, t> <s, t> <s, t> <s, t>} \lambda e \lambda w \exists_{\text{many}} e' [\tau(e') \subseteq \tau(e) \& P(e)(w)]$

(Stechow 2004)
This yields the three-way ambiguity among the progressive, resultative, and habitual interpretations of the teiru construction. The -i morpheme in these construction is semantically vacuous. The imperfective aspect above the upper VP turns properties of eventualities into properties of time intervals, to which kara-phrases can adjoin and appropriately be interpreted.

5. 3. Experiential teiru and kara
I analyze te- in this construction as a perfective marker, and -i- as a morpheme similar to English have as defined in von Stechow (2002). This results in the following structure.

The denotations of these morphemes are given below:

\[
\begin{align*}
(40) & \quad \llbracket -i\text{-XN-Perf} \rrbracket = \lambda t \exists t' [XN(t', t) \land P(t')] \\
(41) & \quad \llbracket \text{te}_{\text{perfective}} \rrbracket = \lambda t \exists e [\tau(e) \subseteq t \land P(e)]
\end{align*}
\]

Now let us calculate the semantics of the following sentence.

(42) kare-wa (izen) marason-o hasi-teiru
    he-top (before) marathon-acc run-tei-pres
    'He has run a marathon (before)'

(43) a. \llbracket[[he run a marathon] -te(PFV)]\rrbracket = \lambda t \exists e [\tau(e) \subseteq t \land run(e)(he)]
    b. \llbracket[[[he run a marathon] -te(PFV)] -i-(XN-Perf)]\rrbracket
As stated above, the experiential reading of *teiru* is incompatible with a *kara*-phrase. The following sentence is three-ways ambiguous between resultative, experiential and habitual readings.

(44) kare-wa Tokyo-ni it-teiru  
he-top Tokyo-to go-tei-pres  
‘He has gone to Tokyo (and is not here now)’  
‘He has gone to Tokyo (before)’  
‘He has been going back and forth between Tokyo and here’

The experiential reading disappears when a *kara*-phrase is added.

(45) kare-wa ni-sen-nen-kara Tokyo-ni it-teiru  
he-top two-thousand-year-since Tokyo-to go-tei-pres  
‘He has gone to Tokyo since 2000 (and is not here now)’  
‘He has been going back and forth between Tokyo and here since 2000’

This restriction may be given a straightforward explanation because of the homogeneity requirement of *kara*. For type reasons, *kara* can only be adjoined to AspP or PerfP. Neither of their denotations have the sub-interval property.

6. *kara* is ambiguous: Non-XN introducing *kara*

So far, we have argued that the semantics of *kara* is the following:

(46) \[ [kara(t)] = \lambda t \exists t'[\text{XN}(t', t) \& \exists e[\tau(e) \subseteq t' \& \text{run}(e)(\text{he})]] \]
kara introduces an interval (called an extended now) and defines its left boundary. There are examples, however, that show that kara does not always introduces an interval this way.

Firstly, kara may be used in future contexts.

(47) asita-kara mazimeni benkyoo-suru
tomorrow-since hard study-do-pres
‘(I) will study hard (starting) from tomorrow’

The meaning of the sentence should more or less be something like the one in b not that in a.

(48) NOT a. ∃t[s*<t & \exists t'[XN(t', t) & LB(tomorrow, t') & work-hard(I)(t')]]
    BUT b. \exists t[s*<t & LB(tomorrow, t) & work-hard(I)(t)]

If this is correct, there is another kara, which only marks the left boundary but does not introduce an extended now.

A second example suggesting the ambiguity of kara is the following:

(49) kinoo watasi-wa rokuzi-kara zutto hatarai-tei-ta
    yesterday I-top six-o’clock-since always work-tei-past
    ‘Yesterday I was working from 6 o’clock on’

As pointed out by Arnim von Stechow, kara seems to only mark the left boundary.

(50) NOT a. ∃t[t<s* & t≤yesterday & \exists t'[XN(t', t) & LB(t')=6 AM & I work at t']]
    BUT b. ∃t[t<s* & t≤yesterday & LB(t)=6 AM & I work at t]

Thirdly, the verb hazimaru ‘begin’ can easily combine with kara with
simple tenses.

(51) eiga-wa yozi-kara hazimat-ta  
movie-top four-o’clock-since begin-past  
‘The movie started since 4 o’clock’

In fact, the sentence does not seem different from the following one.

(52) eiga-wa yozi-ni hazimat-ta.  
movie-top four-o’clock-at begin-past  
‘The movie started at 4 o’clock’

Both sentences can be uttered when the relevant movie is already over. The third case also suggests that non-XN introducing kara does not have the homogeneity requirement, since begin is not a homogeneous verb.

Thus I propose that kara is ambiguous between XN-introducing and non-XN-introducing ones. The following is the denotation of the non-XN-introducing kara.

(53) \[ \text{[kara}^{\text{Non-XN}}]\!(t) = \lambda P \lambda t’[\text{LB}(t, t’) \& P(t’)] 

cf. \text{ab}(t) = \lambda P \lambda t’ \Theta t”[t” \subseteq t’ \& \text{LB}(t, t”) \& P(t”)] \quad (\text{von Stechow 2002})

Our task from here is to examine the distribution of the two karas. A first approximation would be that XN-introducing kara corresponds to English since and German seit, and non-XN-introducing kara to English from and German ab. As mentioned before, since and seit are restricted to non-future contexts. Thus if kara is ambiguous between XN-introducing one like since/seit and non-XN-introducing one like temporal from/ab, this behavior is easily explained.

\footnote{5 In German, there is also von ‘from’. German translation of from yesterday till tomorrow is von gestern bis morgen.}
This ambiguity thesis may seem to be problematic to our previous explanation as to why experiential readings of the teiru construction are not compatible with kara-phrases. Recall that the following example has an experiential reading depicted below:

(54) kare-wa Tokyo-ni it-teiru
    he-top Tokyo-to go-tei-pres
    ‘He has gone to Tokyo (before)’

(55) a. [TP [Perf [Asp [VP he go-to-Tokyo]-te]-i]-ru]
    b. $\lambda w \exists t'[XN(t', s^*) \& \exists e[\tau(e) \subseteq t' \& go-to-Tokyo(e)(he)(w)]$

But this reading disappears when a kara-phrase is added.

(56) kare-wa ni-sen-nen-kara Tokyo-ni it-teiru
    he-top two-thousand-year-since Tokyo-to go-tei-pres
    ‘He has been to Tokyo since 2000’ NOT: ‘He has gone to Tokyo (once) since 2000’

This is not predicted if we can use the non-XN-introducing kara in this example, as below.

(57) a. [TP [Perf [sinceNon-XN 2000 [Asp [VP he go-to-Tokyo]-te]-i]-ru]]
    b. $\lambda w \exists t'[XN(t', s^*) \& \exists t''[t'' \subseteq t' \& LB(2000, t'') \& \exists e[\tau(e) \subseteq t'']$
       \& go-to-Tokyo(e)(he)(w)]

The structure is interpretable and is predicted to mean that he has been to Tokyo (once) since 2000. Is this a wrong prediction? I’d like to argue that it is not. Consider the following examples which contain additional temporal modifiers such as four times or until-phrases. And with the help of these modifiers, the sentences can easily be interpreted as experiential sentences.
This is also the case with simple past tenses.

Similar facts can be observed in both English and German, where certain predicates yield an experiential reading only when certain temporal modifiers are added.

(60) a.*Ich bin seit dem letzten Jahr nach Tokyo gefahren.
    I am since the last year to Tokyo driven
b. Ich bin seit dem letzten Jahr bisher/schon viermal nach
    I am since the last year up-to-now/already four-times to
Tokyo gefahren.

Tokyo driven

(61)  

 a. I have lost my glasses since last Monday

 b. I have lost my glasses three times since last Monday

The exact mechanism of how resultative readings are preferred to experiential readings in these circumstances is not obvious at this point, but it is clear that the grammatical sentences should be analyzed with the non-XN-introducing since / seit / kara.

References