1. Introduction

In this paper, I will discuss the Japanese "Counter-Equi NP" (henceforth CENP) construction as shown in (1):

(1) Keisatsu-wa [doroboo-ga nigeru]-tokoro-o tsukamae-ta.
    police-TOP burglar-NOM escape-occasion-ACC arrest-PAST
    "The police arrested the burglar while he/she was trying to escape."

In the CENP construction in (1), the tokoro "occasion"-clause appears as if it were an object of the matrix verb tsukamae "arrest". The standard approach to this construction (Harada (1973), Tsubomoto (1991), Mihara (1994), Murasugi (1995), and Hoshi (1996)) assumes that the tokoro-clause in (1) is simply a circumstantial adverbial clause, and that there is a matrix non-overt pronoun "pro" as the object of the matrix verb tsukamae "arrest", as shown in (2):

(2) Keisatsu-wa [doroboo-ga nigeru]-tokoro-o pro tsukamae-ta.
    police-TOP burglar-NOM escape-occasion-ACC arrest-PAST
    "The police arrested the burglar while he/she is trying to escape."

However, under the standard assumption, one question arises as to why the tokoro-clause in the CENP construction is marked by the Accusative Case marker in example (2). Mihara (1994) among others argues that the particle -Q in (2) is a real postposition, which is different from the Accusative Case marker. However, as noticed and discussed by Tsubomoto (1991) and Hoshi (1996) among others, it should be noticed that the particle -Q in this construction exhibits a Case alternation when the potential verbal suffix -are is attached to the matrix verb as shown in (3).

(3) Keisatsu-wa [doroboo-ga nigeru]-tokoro-ga pro tsukamaer-are-ta.
    police-TOP burglar-NOM escape-occasion-NOM arrest-POT-PAST
    "The police could arrest the burglar while he/she was trying to escape."

In (3), because the potential morpheme -are is attached to the matrix verb, the particle -Q which is attached to the tokoro-clause can change to the NOM Case marker. This Case alternation is observed when we have an Accusative Case marker for the object in Japanese as illustrated in (4) to (7):

(4) Taro-wa sono-hon-o yon-da.
    TOP the-book-ACC read-PAST
    "Taro read the book."

(5) Taro-wa sono-hon-ga yom-e-ta.
    TOP the-book-NOM read-POT-PAST
    "Taro could read the book."

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For example, in (5), when the potential morpheme -g is attached to the verb yom "read", a Nominative Case marker can appear with the object instead of an Accusative Case marker. On the other hand, as shown in (6) and (7), when a non-Accusative Case marker appears with an object, it cannot alternate with a Nominative Case marker even if the potential morpheme -g is attached to a verb.

Regarding this NOM-ACC Case alternation of the tokoro-clause, the standard analysis does not give a unified account of this phenomenon, because, under the standard analysis, the particle -g which is attached to the tokoro-clause is simply a postposition and not related to ACC Case.

2. Proposal

In this paper, I argue that the tokoro-clause in the CENP construction is base-generated in the Spec of the functional category AspectP (AspP) which exists between the Higher VP and the Lower VP of the layered VP structure (Travis (1991) among others) as shown in (8):

(8) VP
    NP V'
      police AspP V
    tokoro-clause Asp' CAUSE
      VP Asp
    NP V
      pro be arrested

In the above structure in (8), following Travis (1991) and Baker (1996) among others, I assume that the head Asp assigns Accusative Case to an NP in the Spec of the AspP.

Furthermore, I propose that the tokoro-clause is a type of theta-binder of the event argument of the lower VP. This basically follows the idea of Travis (1994), which argues that Asp theta-binds an event argument of the lower VP. Under the assumption of Travis (1994), an event expressed by a single sentence consists of two sub-events. One sub-event is related to the upper VP. The other sub-event is related to the lower VP. Following Higginbotham's (1985) idea of theta-binding of an event theta role by INFL, Travis assumes that Asp theta-binds an event argument of the lower VP. In this paper, I assume that the tokoro-clause is a type of theta-binder of the event argument of the lower VP. For this reason, I refer to the proposed hypothesis as the Event Binder (EB) Hypothesis.

To be more specific, adopting Speas' (1990) idea about the theta-binder "the", I assume that the tokoro-clause has the LCS representation in (9):
Under this assumption, the argument of the *tokoro*-clause, namely $x$ in (9), is related to the property $p$. When the *tokoro*-clause combines with a VP, the argument $x$ of the *tokoro*-clause theta-binds the event argument of the VP. As a result, the set expression about an event which is denoted by the VP is identified as the property that is being restricted by the *tokoro*-clause.

Under the EB Hypothesis, the *tokoro*-clause theta-binds the event argument of the Lower VP since the Lower VP is governed by the head Asp and since the head Asp has a Spec-Head agreement relation with the *tokoro*-clause, as illustrated in (10):

(10) 
\[
\begin{array}{c}
\text{AspP} \\
\text{tokoro-cl} \\
\text{Asp'} \\
\text{VP} \\
\text{Asp}
\end{array}
\]

Because of this event argument-binding, the event argument of the Lower VP is identified and discharged even though the Lower VP has a variable "pro".

Under the EB Hypothesis, the content of "pro" is identified when the event argument of the lower VP is bound by the *tokoro*-clause. For the sentence in (11), Kratzer (1996) gives the semantic denotation in (12):

(11) We bought your slippers in Marrakesh.

(12) \[ \exists e [ \text{bought(your slippers)(e1)} \land \text{Agent(we)(e2)} \land \text{in(Marrakesh)(e3)} ] \]

In (11), "your slippers" is the internal argument of the head "bought", "we" is the internal argument of the head "Agent" and "Marrakesh" is the internal argument of the head "in".

Furthermore, each of those heads has $e_1$, $e_2$, and $e_3$ as an external argument. Thus, it is considered that each of these internal arguments corresponds to a unique event $e_1$, $e_2$, and $e_3$ through each head. For example, the internal argument "your slippers" of the head "bought" corresponds to the event "$e_1$". The internal argument of the head "Agent" corresponds to the event "$e_2$". The internal argument of the head "in" corresponds to the event "$e_3$". The event of a whole sentence is realized by the event identification among $e_1$, $e_2$, and $e_3$. In other words, $e_1$, $e_2$, and $e_3$ constitute a single event "e", which is bound by the existential quantifier in (12). Applying Kratzer's idea to the EB Hypothesis, I assume that the lower VP of the sentence in (13) is given the denotation in (14):

(13) Keisatsu-wa doroboo-o tsukamae-ta.
    police-TOP burglar-ACC arrest-PAST
    "The police arrested a burglar."

(14) \[ \exists e [ e(VP1)((burglar\text{ arrested}\ (e1))] ] \]

The formulation in (12) has a problem. Strictly speaking, in the formulation, there are no binders for $e_1$, $e_2$, and $e_3$. Kratzer's assumption is that there is an event identification among $e_1$, $e_2$, and $e_3$. As a result, we have an event "$e$", which is bound by the existential quantifier in (12). I need more research on the accurate formulation of (12) in my future research.
In (14), the internal argument "burglar" of the head "arrested" corresponds to the event "e1". The sub-event $e_{(VP)}$ of the lower VP binds this event "e1". When we turn to the denotation of the lower VP of the Counter-Equi NP construction in (15), I assume the denotation in (16) for (15):

(15) Keisatsu-wa [doroboo-ga nigeru]-tokoro-o pro tsukamane-ta. police-TOP burglar-NOM escape-occasion-ACC arrest-PAST
"The police arrested the burglar while trying to escape."

(16) $\exists e [ e (tokoro) e_{(VP)} (\text{pro arrested} (e_1))]$

In (15), since pro is a variable, I assume that the event argument "e1" in (16) which is associated with the variable pro is an event variable. The sub-event of the lower VP, namely, $e_{(VP)}$ is also an event variable, since it contains the event variable $e_1$. In this paper, I suggest that, when the event of the tokoro-clause binds the event variable $e_{(VP)}$, the event of the tokoro-clause identifies the value of the event variable $e_{(VP)}$ and also the value of the variable $e_1$ through the $e_{(VP)}$.

3. Argument for the EB Hypothesis

This section gives four arguments for the EB Hypothesis.

3.1. Solution for Case-alternation

The EB Hypothesis gives a unified account of the Case-alternation in (3). Under the EB Hypothesis, the tokoro-clause is base-generated in the Spec of AspP, in which an object usually receives ACC Case. Therefore, the particle -タ in (1) is a manifestation of an Accusative Case and it exhibits a Case-alternation when the potential verbal suffix -タア is attached to the matrix verb of the CENP construction.

Further support related to Case comes from the following fact. As discussed by Kuroda (1992) and Watanabe (1996), when a matrix verb assigns Dative Case to an object, the tokoro-clause is also assigned Dative Case when it appears with the verb which has the Dative Case assigning ability as shown in (17) and (18):

(17) Hanako-wa gakusei-ni at-ta. TOP student-DAT come across-PAST
"Hanako came across students."

(18) Hanako-wa [gakusei-ga hashit-te iru]-tokoro-ni at-ta. TOP student-NOM run-ing occasion-DAT come across-PAST
"Hanako came across students when they was running."

If we assume that Dative Case in Japanese is also a structural Case following Baker (1988) and that it is assigned in the Spec of AspP, then the EB Hypothesis correctly predicts that the tokoro-clause is assigned DAT case when it appears with a matrix verb which has the ability to assign Dative Case. That is because the tokoro-clause exists in the Spec of AspP, which is the place for Case-assignment.
3.2. *takusan* "a lot"

The second piece of evidence for the EB Hypothesis comes from the interpretation of *takusan* "a lot" within the *tokoro*-clause. When the adverb *takusan* "a lot" appears in the *tokoro*-clause, it can multiply the event of the whole CENP construction as illustrated in (19). In other words, under the assumption of Krifka (1990) and Doetjes and Honcoop (1997) among others, the sentence in (19) can have both an "object-related" reading, i.e., "many burglars" reading and an "event-related" reading, i.e., "many events or many different occasions" reading. In contrast, when the adverb *takusan* appears in the time adverbial *toki* "when"-clause, the whole sentence with the *toki* adverbial clause allows the object-related reading, but not the event-related reading as shown in (20).

(19) Keisatsu-wa [doroboo-ga *takusan* nigeru]-tokoro-o tsukamae-ta.
    police-TOP burglar-NOM a lot escape-occasion-ACC arrest-PAST
    (event-related) "The police arrested burglars on many different occasions during which they tried
to escape."
    (object-related) "The police arrested many burglars on one occasion during which they tried to
escape."

(20) Keisatsu-wa [doroboo-ga *takusan* nigeru]-toki-ni tsukamae-ta.
    police-TOP burglar-NOM a lot escape-time-at arrest-PAST
    (event-related) *"The police arrested burglars on many different occasions during which they
tried to escape."
    (object-related) "The police arrested many burglars on one occasion during which they tried to
escape."

In (19), because *takusan* "a lot" is within the *tokoro*-clause, the sentence can have the interpretation of multiple events. In this interpretation, there are many events, in each of which the police arrested burglars. On the other hand, the sentence in (20) cannot have the multiple event interpretation. In the interpretation that sentence (20) can have, there is one event in which the police arrested many burglars.

The EB Hypothesis gives a unified account of the above phenomena. Under the EB Hypothesis, by event-binding, each event of the Lower VP has the eventual property of the *tokoro*-clause. This means that the multiplication of the event of the *tokoro*-clause triggers the multiplication of the event of the Lower VP, which leads to the multiplication of the event of the whole CENP construction. On the other hand, the standard analysis assumes that the *tokoro*-clause is simply an adverbial clause like *toki* "when"-clause. Therefore, it does not give a unified account of the above difference between (19) and (20).

3.3. Aspectual word

The third piece of evidence comes from the fact that CENP constructions are usually observed when the meaning of the "adverbial" clause is related to an aspectual meaning such as *shunkan* "the moment" and *chu" in the middle of" as shown in (21):

(21) Hanako-wa [Taro-ga suugaku-no *benkyoo*]-chu-o tatai-ta.
    TOP NOM mathematics-GEN study(N)-middle-ACC hit-PAST
    "Hanako hit Taro when he was in the middle of studying mathematics."

The standard analysis simply assumes that, in the CENP construction, the *tokoro*-clause is a circumstantial adverbial clause. However, this analysis does not give a unified account of why
only the aspectual adverbial clause appears with a structural Case related to the matrix verb in this construction, since, under the standard analysis, the tokoro-clause is simply an adverbial clause.

On the other hand, the EB Hypothesis gives a unified account of this property. The adverbial clause in the CENP construction appears in the Spec of AspP, which should be related to an aspectual feature of the head Aspect, and also which is the place where a structural Case associated with a verb is assigned to an NP. Therefore, in the CENP construction, the adverbial clauses which are related to an aspectual meaning appear with a structural Case associated with a matrix verb.

3.4. Interpretation of pro

The fourth piece of evidence comes from the fact that the CENP construction does not exhibit a Weak Crossover phenomenon, when a wh-word appears as the subject of the tokoro-clause, as illustrated in (22):

(22) Keisatsu-wa [darei-ga nigeru]-tokoro-o proi tsukamae-ta-no?
police-TOP who-NOM escape-occasion-ACC pro arrest-PAST-Q?

"The police, on the occasion in which who tried to escape, arrested him?"

Following discussions by Nishigauchi (1990) and Cho (1987) among others, in (22), even if the adverbial tokoro-clause containing a wh-word is pied-piped and moves to the Spec of Comp as shown in (23), the wh-word dare within the tokoro-clause must also move to the Spec of Comp position or somewhere within the tokoro-clause where a wh-feature is checked. The LF-representation will be schematically represented as in the following in (23):

(23) [IP Keisatsu-wa | proj tsukamae-ta | wh· [Spec [WH (dare)i .. t1 nigeru-tokoro-oj] le· [IP Keisatsu-wa t1 proi tsukamae-ta] le no] |]??

However, this movement of the wh-word dare (WH1 in (23)) leaves a trace coindexed with the wh-word, namely the bold t1 in (23). This trace should cause a problem under assumptions of Saito (1985) and Cho (1987) that a variable cannot be the antecedent of a pronoun it does not c-command. The variable t1 in the subject position of the adverbial tokoro-clause in (23) cannot c-command pro in the matrix clause. Therefore, the binding relation between the variable and pro in (23) should not be able to be realized. However, in fact, the sentence in (22) is grammatical.

The EB Hypothesis correctly predicts the above phenomenon in (22). Since, under the EB Hypothesis, event-binding plays a crucial role in identifying the reference of the matrix pro in the CENP construction. The coreferential relation between the matrix pro and the antecedent t1 within the tokoro-clause is not realized based on a binding relation. Therefore, the failure to realize the variable binding relation between a variable left by the wh-word within the tokoro-clause and pro in the matrix clause does not affect the identification of the matrix pro in the CENP construction.

4. Conclusion

In this paper, I have argued that the tokoro-clause of the Japanese Counter Equi NP construction is not simply an adverbial clause following Tsubomoto (1991) and Hoshi (1996) among others. Furthermore, I have proposed that the tokoro-clause of the CENP construction is base-generated in the Spec of the AspectP.
One implication of the proposed analysis goes to the so-called Japanese "head-internal relative clause". It has been often pointed out by several scholars such as Mihara (1994), Murasugi (1995), and Hoshi (1996) among others that the Japanese head-internal relative clause construction and the CENP construction are similar to each other regarding one property. In both the head-internal relative construction in (25) and the CENP construction in (24), an NP within the embedded clause is also interpreted as the object of the matrix verb.

CENP construction

(24) Keisatsu-wa [doroboo-ga nigeru]-tokoro-o tsukamae-ta.
       police-TOP burglar-NOM escape-occasion-ACC arrest-PAST

"The police arrested the burglar while he/she was trying to escape."

Head-Internal Relative Clause

(25) Keisatsu-wa [doroboo-ga nigeru]-no-o tsukamae-ta.
       police-TOP burglar-NOM escape-Nominalizer-ACC arrest-PAST

"The police arrested the burglar trying to escape."

In both (24) and (25), the NPs doroboo "burglar" within the embedded clauses are interpreted as objects of the matrix verbs tsukamae "arrest".

When we compare the Japanese head-internal relative clause and head-internal relative clauses in other languages, there seem to be some differences between them.

(i) the internal head of head-internal relative clauses must be an indefinite noun, in at least several languages such as Lakhota, Moore, and Yuman languages (Diegueno, Cocopa, and Mojave) (Williamson (1987), Tellier (1989), and Basilico (1996) among others). On the other hand, this kind of restriction on the definiteness of the internal head is not observed in the Japanese head-internal relative clause.

(ii) the Japanese head-internal relative clause requires a temporal sequence between the embedded event and the matrix event (Kuroda (1992) and Ohara (1996)). On the other hand, it seems that this kind of restriction is usually not observed in head-internal relative clauses in other languages (Culy 1990).

As also discussed by Ohara (1996), these facts suggest that the Japanese head-internal relative clause is a little different from head-internal relative clauses in other languages. Since the Japanese head internal relative construction does not have any restriction on the definiteness of the internal head and it requires a peculiar relation between the events of the embedded clause and the matrix clause, it seems that we need the event-binding type approach even for the Japanese head-internal relative clause as also discussed by Ohara (1996) concerning the importance of event relation between the matrix clause and the embedded clause.

REFERENCES


