An Analysis of the Wh–Island Effect
in Extracting Postverbal NPs*

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1. Introduction
In this paper we try to provide a unified account of severe island effects which can be observed when certain types of postverbal NPs are extracted out of a wh–island. The relevant types to be discussed below are the resultant object, the eventive object, and the postverbal (fake) object in the unergative resultative construction. I will argue that the account of the island effect of (true) cognate objects proposed in Nogawa (1995) holds also of the island effect in those constructions. The paper is organized as follows: In section 2 we will observe the island effect found with the postverbal NP in the unergative resultative construction, which has been pointed out by Rothstein (1992). Section 3 will show that some other types of postverbal NPs cannot move out of a wh–island either. In section 4 it will be shown firstly that a Case–based account and Rothstein’s (1992) account of island effects are both insufficient to explain the facts. Then I will argue that Nogawa’s (1995) analysis can give a clear account not only of the data presented in section 3 but also of the fact pointed out by Rothstein. The last section makes concluding remarks.

2. The Wh–Island Effect in the Unergative Resultative Construction
It has been observed in the literature that there is a complement–adjunct asymmetry with respect to the island effect: adjunct extraction gives a notably worse result than complement extraction, as shown in (1) (extraction from a wh–island) and in (2) (extraction from an inner (negative) island).
(1)  a. Which problem_1 do you wonder [how_2 [PRO to solve t_1 t_2]]?
b. *How_1 do you wonder [which problem_2 [PRO to solve t_2 t_1]]?
(2)  a. John didn’t solve the problem that way.
b. *How_1 didn’t John solve the problem t_1?
c. How_1 did John solve the problem t_1?

Which problem in (1a) is the complement of the embedded verb solve, whereas how in (1b) is an adjunct, and the latter example is much worse than the former.

Concerning the wh-island effect, Rothstein (1992) provides interesting data. She has shown that there is a clear contrast in acceptability of island extraction between the resultative construction based on a transitive verb (henceforth the transitive resultative) and the one based on an unergative verb (intransitive (unergative) resultative). Consider the following examples:

(3)  a. Which tables_1 do you know why_2 he wiped t_1 clean t_2?
b. Which tulips_1 do you know whether he watered t_1 flat?
c. *Which baby_1 do you know why_2 the clock ticked t_1 awake t_2? (example from Carrier and Randall)
d. *Which men_1 do you know when_2 he laughed t_1 off the stage t_2?

(Rothstein (1992: 130))

The verbs in (3a, b) are transitives, which have the ability to assign an accusative Case and a \( \theta \)-role to their objects; those in (3c, d) are unergative verbs, which do not have the ability to assign a \( \theta \)-role or an accusative Case when they are used in isolation (i.e., without resultative predicates). Thus, the NPs tables and which tulips in (3a, b) are ‘subcategorized’ and \( \theta \)-marked by verbs, whereas which baby and which men in (3c, d) are not. The contrast above clearly shows that, in the resultative construction, extraction out of a wh-island is (marginally) allowed with the transitive object, but not with the NP preceded by an unergative verb. ¹

Levin and Rappaport Hovav (1995) also observe the same (but weaker) contrast in extractability from the two kinds of resultative constructions.
(4) a. Which people do you wonder whether he punched senseless?
b. Which counter do you wonder whether the cook wiped clean?
c. Which pavements do you wonder whether they ran thin?
d. Which neighbors do you wonder whether the dog barked awake?

(Levin and Rappaport Hovav (1995: 47))

Here again, transitive resultatives show a weaker island effect, as in (4a, b), than unergative resultatives, as in (4c, d).

These observations indicate that though occupying the same position (i.e., following a verb and preceding a resultative phrase), the NPs in the transitive and the unergative resultatives differ from each other in certain respects, which yields the contrast in island extractability.

3. Resultant Objects and Eventive Objects

The contrast between (3a, b) and (4a, b) on the one hand and (3c, d) and (4c, d) on the other shows that even postverbal NP may cause a strong deviation when extracted out of an island. We will see in this section that some other types of postverbal NP complements are hardly extracted out of a wh–island either. They are the resultant object, the eventive object, and (a certain class of) the cognate object.

We start with the resultant object construction. As the following examples show, the verbs *dig* and *paint* may take either a patient object (the object of an affect verb), as in (5a, 6a), or a resultant object (the object of an effect verb), as in (5b, 6b).

(5) a. John dug the ground. [Patient]
b. John dug the small holes in the ground. [Resultant]

(6) a. Mary painted the wall. [Patient]
b. Mary painted a beautiful picture on the ceiling. [Resultant]

Note here that both the patient objects (POs) and the resultant object (ROs) may undergo (long-distance) wh–movement ((7) and (8)).

(7) a. What do you think that John dug t₁? [PO]
b. What do you think that John dug $t_1$ in the ground? [RO]
(8) a. What do you think that Mary painted $t_1$? [PO]
b. What do you think that Mary painted $t_1$ on the ceiling? [RO]

However, when these two classes of objects undergo $wh$-movement over a $wh$-island, the resulting sentences show a contrast in acceptability. Consider the following examples:

(9) a. ??What do you wonder whether John dug $t_1$? [PO]
b. *What do you wonder whether John dug $t_1$ in the ground? [RO]
(10) a. ??What do you wonder whether Mary painted $t_1$? [PO]
b. *What do you wonder whether Mary painted $t_1$ on the ceiling? [RO]

The contrasts found in (9) and (10) show that ROs (but not POs) show a strong $wh$-island effect: When extracted out of an island, only $wh$-phrases of the PO-type may, though marginally, cross a $wh$-boundary ((9a) and (10a)) while $wh$-phrases of the RO-type may not at all, making the sentences severely deviant ((9b) and (10b)). Given the natural assumption that both of the two distinct classes of object (the PO and the RO) are subcategorized and assigned a $\theta$-role by the verbs, and given the weak island effect observed in transitive resultatives (as seen in (3a, b) and (4a, b)), this contrast between POs and ROs is surprising.

The same kind of strict ban on island-extraction can also be observed with eventive objects (EOs). EOs are complements of light verbs, and include such NPs as an argument, a dash, etc. in (11).

(11) a. Bill's having an argument.
b. Mary makes a dash.
c. Michael took a long walk.
d. José gave a big laugh.

((a, b) from Quirk et al. (1985))

While EOs may undergo $wh$-movement (as in (12b) and (13b)), they cannot skip out of a $wh$-island (as in (12c) and (13c)).

(12) a. John took a (long) walk after he finished his homework.
b. How long a walk did John take?  
c. *How long a walk did you wonder whether John took? 

(13)  
a. John gave a laugh during his speech?  
b. What kind of laugh did John give during his speech?  
c. *What kind of laugh did you wonder whether John gave during his speech? 

This shows again that even EOs as postverbal NPs also show a severe *wh*–island effect.

There is still another class of postverbal NP which shows a strong island effect when extracted from a *wh*–island. It is the (true) cognate object (CO) (cf. Massam (1990)). (The relevant data will be provided and discussed in 4.3.) In Nogawa (1995) I propose an analysis of the island effect of COs. I will show in this paper that the analysis there is highly effective in dealing with both the contrast pointed out by Rothstein (1992) and the data presented in this section. Before demonstrating how the analysis will work, we will first see that a Case–based analysis cannot explain the data in Rothstein (1995) or the data in section 3. Then we will review Rothstein’s (1992) account for the island contrast between the transitive and the unergative resultative. It will be shown that although her analysis explains the contrast in the two types of resultatives, simple application of it is not enough to deal with the island effect of other classes of postverbal NPs.

4. Analysis

We have so far seen that some postverbal NPs show the same degree of deviation when extracted from a *wh*–island. The data which we want to give a unified analysis of are (i) the contrast between the transitive and the intransitive resultative, (ii) the contrast between POs and ROs, (iii) the severe island effect observed about EOs. We have also mentioned that true cognate objects also show a strong island effect. The goal of this section is to show that we can provide a unified account of these data.

4.1. A Case–based Analysis

It is obvious that a Case–based analysis is impossible. It is true that
the verbs involved in the two types of resultatives in (3) and (4) are different from each other in their (inherent) Case assigning properties: the verb in the transitive resultative has the property of assigning an accusative Case ([±Acc Case]), whereas the unergative verb in the intransitive resultative does not have this property ([−Acc Case]). Thus, we obtain the following contrast:

\[ (3') \] a. He wiped the table.
   b. He watered the tulips.
   c. *The clock ticked the baby.
   d. *He laughed those men.

\[ (4') \] a. He punched those guys.
   b. The cook wiped the counter.
   c. *They ran the pavement.
   d. *The dog barked the neighbors.

However, this difference does not account for the island effect in those resultative constructions. As is argued in Rothstein (1992), that is because both of the relevant verbs do have the Case assigning property ([±Acc Case]) in the resultative construction: transitive verbs have this property inherently whereas unergative verbs 'acquire' it when appearing in the resultative (cf. Burzio (1986)). (Notice here that in the unergative resultative, the Case-assigner is the unergative verb itself, because there is nothing else in the construction to Case-assign the postverbal NP.) Thus, the presence or absence of the inherent Case-assigning property of the verb is totally irrelevant to the account of the island contrast in (3) and (4).

Even if we claim that it is the inherent property of Case assignment that licenses \( wh \)-extraction, the Case-based analysis cannot explain the severe island effect in the RO and the EO construction. That is because both effect verbs (verbs taking a RO) and light verbs (taking an EO) inherently have the ability to assign an accusative Case to their complement NPs (thus, [±Acc Case]). On the other hand, as we saw above, unergative verbs do not have this property ([−Acc Case]). If this inherent Case-assigning property is crucial here, the effect of island extraction...
should be weaker with ROs and EO s than it actually is. However, against this prediction, island extraction in the RO ((9b) and (10b)) and in the EO construction ((12b) and (13b)) on the one hand and in the unerga-

tive resultative ((3c, d) and (4c, d)) do show the same island effect. Then, it is conjectured that the island effect has nothing to do with Case-assign-

ing properties of the verbs involved; that some other factor lies behind

the island effect in those constructions.

4.2. Rothstein's (1992) Account

Rothstein provides an analysis of the island effect of resultative con-

structions, where the notion of θ-government, which is established under 

θ-marking by the verb, plays a crucial role in it. NP complements which

are assigned a θ-role by the verbs are θ-governed, whereas those which

are not θ-assigned fail to be θ-governed. She considers that the severe is-

land effect in the resultative construction is due to the lack of θ-government (i.e., θ-assignment) by the verb. Thus, island extraction of non-θ-

governed NPs yields an ECP violation; θ-governed NPs, on the other hand, only show a weaker effect, i.e., the effect of subjacency violation, when extracted from an island (cf. Rizzi (1990)). Rothstein assumes in

her paper that unergative verbs, though being potential accusative-Case

assigners, assigns no θ-role to their internal arguments (postverbal NP).

Thus, in the resultative construction, unergative verbs do assign an ac-

cusative Case but no θ-role to the postverbal NP. Rothstein argues that the

contrast in (3) and (4) can be attributed to the presence or absence of θ-

government of the postverbal NP by the verbs. The postverbal NPs in

transitive resultatives ((3a, b) and (4a, b)) are θ-assigned and thus θ-gov-

erned by the verbs. Hence, they show only the subjacency effect. On the

other hand, unergative verbs in (3c, d) and (4c, d) do not assign θ-role to

the postverbal NPs and thus island extraction of the NPs, which are not

θ-governed, yields the ECP violation.

As we have seen in section 3, ROs and EO s also show the severe is-

land effect as (3c, d). However, this effect cannot be covered simply by

applying her analysis to the relevant constructions. That is because, as

we have pointed out in 4.1, the postverbal NPs in those constructions are
not ‘fake’ NPs but are actually subcategorized and assigned a θ-role by the verbs. Then, they are considered, by definition, to be θ-governed by the verbs. If θ-government is required, as Rothstein argues, to avoid the ECP violation, both ROs and EOs are expected to be able to avert the ECP violation and show a weaker island effect, namely the subjacency violation effect (as in (1a)), contrary to fact. Accordingly, even with Rothstein’s θ-government analysis, we cannot explain the island effect in the RO and the EO construction.

It might be possible to analyze the RO construction as having a ‘complex’ structure with an embedded small clause. Consider the following examples:

(14)  a. Stephanie burned a hole in her coat (with a cigarette).
     b. Frances kicked a hole in the fence (with the point of her shoe).

(Levin and Rapoport (1988))

The object NPs in these sentences are obviously resultant objects. Moreover, as (15) shows, the locative PPs in those sentences are obligatory constituents.

(15)  a. *Stephanie burned a hole.
     b. *Frances kicked a hole.

Then, we may say that each of these sentences has a small clause in it, consisting of a resultant object (e.g., a hole in (14a)) and a locative PP (e.g., in her coat) as a predicate (cf. Levin and Rapoport (1988)).

(14’) a. Stephanie burned [sc a hole in her coat] (with a cigarette).
     b. Frances kicked [sc a hole in the fence] (with the point of her shoe).

This means that it is not the verbs but the locative PPs that assign a θ-role to the resultative objects in (14). This small clause analysis reminds us of the structure of unergative resultatives like (3c, d) and (4c, d), where the postverbal NPs are not θ-assigned by the verbs but by the resultative predicates. If we extend the small clause analysis to the ‘pure’ RO construction (like (5b) and (6b)), we may say that even in the construction the apparent object (RO) may be said to be the subject of a small
clause representing a resulting state.  

(16)  

a. John dug [sc small holes in the ground].  
b. Mary painted [sc a beautiful picture on the ceiling].  

Under this analysis the pure RO constructions would be analyzed as being derived from the PO constructions in (17). For example, the sentence in (16a) is derived by dropping the ‘original’ object c-selected by the verb (assigned a patient role as in (17a)) and being combined with the resultative phrase.  

(17)  

a. John dug the ground.  
b. Mary painted the wall.  

This small clause analysis can be considered parallel to the resultative constructions in (18).  

(18)  

a. John ate [sc himself sick].  
b. They drank [sc the teapot dry].  
c. John sang [sc his throat soar].  

The verbs in (18) are transitive and select an object NP as in (19).  

(19)  

a. John ate some apples.  
b. They drank the apple tea.  
c. John sang the song.  

The verbs also allow intransitive uses with an unspecified object interpretation (e.g., John ate). In constructing resultative sentences ((18)), the verbs drop their ‘inherent’ objects and are followed instead by a small clause representing a resulting state. If we take a small clause analysis like this for the pure RO construction, it amounts to saying that ROs are also ‘fake’ NPs (in the sense that they are not assigned an inherent θ-role by the verbs). In other words, the θ-role of ROs is not an inherent one but a derived one introduced through the operation of, say, lexical subordination (cf. Levin and Rapoport (1988)).  

Now, let us turn to the island effect of the RO construction. If we try to explain the island effects of ROs under this line of analysis, Rothstein's account seems promising: the θ-role assigned to ROs (whether pure ROs or peripheral ones as those in (14)) are not assigned from the verbs thus θ-government does not hold and, as a result, yields an ECP viola-
tion. However, this account of island effects of ROs is not tenable. That is firstly because the post–RO predicates are completely optional.

(20) a. John dug [sc a hole (in the ground)].
    b. Mary painted [sc beautiful flowers (on the ceiling)].

This fact poses a question to the claim that the locative PP in the RO construction assigns a \( \theta \)–role to the RO. Then, we must say that even ROs are assigned their \( \theta \)–role from the verb and expect that their island extraction should be possible. Moreover, the optionality of locative PPs suggests that it is unnatural to posit a resultative construction for sentences involving a pure effect verb: we do not at all need to assume a small clause for the pure RO construction. As we have seen above, it was the obligatory post–RO constituent that has suggested the small clause analysis (see (14)–(15)). The resultative constructions involving a verb with an unspecified object (as those in (17)) also obligatorily require the resultative predicate, as shown in (21).

(21) a. *John ate [sc himself \( \phi \)].
    b. *They drank [sc the teapot \( \phi \)].
    c. *John sang [sc his throat \( \phi \)].

On the other hand, as we have seen in (20), the locative PP in the pure RO construction is an optional constituent and does not necessarily appear. Thus, we cannot assume that ROs and locative PPs constitute small clauses. Lastly, the small clause account of island effects seems more difficult to apply to the EO construction. This account would require the following representation of the EO construction in (12a):

(22) John took [sc a long walk [Pred \( \phi \)]] after he finished his homework.

The EO construction does not need any post–EO predicate, thus it is unnatural to assume that as in (22) a certain implicit constituent is predicated of the EO a long walk. Then, here again, the light verb is the only candidate for \( \theta \)–role assignment. To sum up, we must say that (pure) ROs and EOs are assigned a \( \theta \)–role from the verbs alone, and that these object NPs cannot be regarded as subjects of small clauses. Then we conclude that Rothstein’s \( \theta \)–government–based account is not enough to cover
all the data presented above.\textsuperscript{7}

4.3. \textit{Nogawa (1995)}

I suggest in this subsection that the analysis of island effects proposed in Nogawa (1995) can give a clear and unified analysis of the data presented above, including the contrast in the resultative constructions ((3) and (4)).

In Nogawa (1995), I have proposed an analysis of the island effects of the two types of the so-called cognate object: true cognate objects (COs) and transitivized objects (TOs) (cf. Massam (1990)). The former class includes NP complements of verbs such as \textit{laugh, live, sleep, smile, sneeze}, and the latter \textit{sing, dream, dance}.\textsuperscript{8} I have pointed out there that COs and TOs show a clear asymmetry when they are extracted from an island. Consider the following examples:

\begin{enumerate}
\item[(23)] \textit{Wh}–island:
\begin{enumerate}
\item[\textit{a}]. \textsuperscript{*}What sort of smile \textsubscript{i} do you wonder [whether [Hitler smiled \textsubscript{t\_i} in front of Chamberlain]]? [CO]
\item[\textit{b}]. \textsuperscript{?}What sort of song \textsubscript{i} do you wonder [whether [John sang \textsubscript{t\_i} at the party]]? [TO]
\end{enumerate}
\item[(24)] \textit{Inner} island:
\begin{enumerate}
\item[\textit{a}]. \textsuperscript{*}What sort of smile \textsubscript{i} didn’t Hitler smile \textsubscript{t\_i} in front of Chamberlain? [CO]
\item[\textit{b}]. \textsuperscript{?}What (sort of song) \textsubscript{i} didn’t John sing \textsubscript{t\_i} at the party? [TO]
\end{enumerate}
\end{enumerate}

As (23a) and (24a) show, COs show a severer island effect than TOs.

In order to account for the contrast between the severe island effect of COs and the weak effect of TOs, I have attributed the former to the ECP violation and the latter to the subjacency violation. The specific tools adopted there were Rizzi’s (1990).

In explaining the complement–adjunct asymmetry in island effect (e.g., (1a) vs. (1b)), Rizzi appeals to the requirement on the relation between \textit{wh}–operators and their variables (traces). He appeals to binding of referential indices for explaining the (marginal) extractability of elements which are assigned a referential (argumental) \(\theta\)-role, and to a government chain for explaining the unextractability of the other elements, which are
not assigned a θ-role or assigned only a nonreferential (quasi–argumental) θ-role. Rizzi defines ‘referential’ θ-roles as participant roles and ‘non-referential’ θ-roles as non-participant roles (cf. Cinque (1990)).⁹ The basic idea of his account is that NPs which are assigned a referential θ-role can be unboundedly moved by \( wh \)-movement operation: they are free from island constraints and can be extracted from a \( wh \)-island. On the other hand, nonreferential θ-assigned NPs (and non-θ-assigned constituents) are restricted to clause bound movement, and long distance movement is licensed only when a government chain is formed through step-by-step movement operation. If this kind of operation is blocked by an intervening \( wh \)-phrase (i.e., \( wh \)-island), the resulting sentence will be ruled out. (See Rizzi (1990: 3.5, 3.6) for detailed discussion.)

The analysis of CO–TO contrast proposed in Nogawa (1995) largely depends on Rizzi’s, adopting the two devices (binding of referential indices and formation of a government chain), though slight modifications are made to the original definitions of referential and nonreferential θ-roles. I defined them as in the following manner (Nogawa (1995: 131)):¹⁰

(25) The referential θ-role is a pre-existent participant in the event described by a verb. The nonreferential θ-role is a non-pre-existent participant or a non-participant in the event.

This differs from Rizzi’s in that it limits the possible range of referential θ-role assignees: the referential θ-role is restricted only to ‘pre-existent’ participants. Accordingly, only pre-existent participants are subject to the referential-index binding, and other NPs are to the severer constraint, namely the government chain.

Given the definition of nonreferential θ-role in (25), we can explain the severe island effect found with COs. COs do not refer to some referents which are presupposed to be pre-existent, but represent the processes of the activities denoted by the verbs. In other words, the ‘referents’ of COs, if any, are particular instances of the activities denoted by the verbs, which can naturally be regarded as non-pre-existent (see Massam (1990) and Nakau (1994)). Then again, by the definition in (25), COs are assigned a nonreferential θ-role. Following the island analysis summa-
rized above, then, *wh*-moved COs must form a government chain to avoid the ECP violation.

Now COs (as well as TOs) are allowed to be unboundedly moved as in (26), where step-by-step movement of the *wh*-phrases comes to form a government chain.

(26)  
   a. What sort of death$_1$ do you think [$_t_1$' (that) [John died $t_1$]]?  
   b. What sort of smile$_1$ do you think [$_t_1$' (that) [Hitler smiled $t_1$ in front of Chamberlain]]?  
   c. What sort of life$_1$ do you think [$_t_1$' (that) [Nixon lived $t_1$]]?  
   d. What sort of sleep$_1$ do you think [$_t_1$' (that) [Nixon slept $t_1$ the day before his resignation]]?

On the other hand, if the embedded CP–Spec is already occupied by another *wh*-phrase (as in (23a) and (24a)), the desired pattern of movement is impossible and the *wh*-phrase must skip the long distance in one step, which yields an ECP violation. TOs are analyzed in Nogawa (1995) as complements of canonical transitive verbs and are ‘accidentally’ cognate with the verbs. They are pre–existent participants and thus long–distance movement is possible with TOs ((23b) and (24b)). (See Nogawa (1995) for detailed discussion.)

We should notice here that the theoretical framework of the analyses in Rizzi (1990) and Nogawa (1995) is a ‘pre–Minimalist’ one, namely the Government and Binding framework. Thus in the framework of the Minimalist Program (cf. Chomsky (1995)), some syntactic notions adopted in those analyses (e.g., the notion of government) are abandoned or redefined, and the two devices which played a crucial role in those analyses (i.e., binding of referential indices and formation of a government chain) may be formalized in a different manner. I consider, however, that, being semantic in nature, the distinction between pre–existent participants on the one hand and non–pre–existent participants and non–participants on the other is real, and no matter what framework of a syntactic analysis we may stand on, the effect of the distinction remains the same, and there seems to be little possibility of a critical problem. The crucial point to be considered seriously is the fact that the acceptability of island extraction
depends on the 'referentiality' of extracted NPs. Thus, we will focus on the relevant discussion and do not try to work out 'reinterpreting' in the Minimalist framework.

Following this line of analysis of the island effects of COs, especially with the definitions of referential and nonreferential $\theta$-roles in (25), we can give a straightforward explanation to the severe island effects in the RO and the EO construction. Let us start with the contrast between ROs and POs in (9) and (10): POs can (marginally) be extracted from a $wh$–island whereas ROs cannot. We repeat the examples below.

(9) a. ??What, do you wonder whether John dug $t_1$? [PO]
b. *What, do you wonder whether John dug $t_1$ on the ground? [RO]

(10) a. ??What, do you wonder whether Mary painted $t_1$? [PO]
b. *What, do you wonder whether Mary painted $t_1$ on the ceiling? [RO]

Obviously, ROs do not refer to some referents which are presupposed to be pre–existent. The referent of a RO comes into the world as a result of the (creative) activity denoted by the RO–taking (effect) verb. (See also Quirk et al. (1985: 749 f.)) Thus, they are non–pre–existent participants. Because of this, ROs are assigned, by definition, a nonreferential $\theta$–role from the verb. Following Nogawa (1995), then, ROs must form a government chain when extracted out of an island. In (9b) and (10b) the $wh$–phrase in the embedded phrases blocks forming a government chain, yielding the severe effect of the ECP violation. The condition of the PO construction is different from this. The referent of a PO does pre–exist even before the relevant activity is carried out. Then, we can say that ROs are assigned a referential $\theta$–role by the (affect) verbs. When they are extracted from an island, the only requirement is the binding relation, which cannot be blocked by intervening $wh$–phrases. As a result, the sentences in (9a) and (10a) avert the ECP violation.

We have seen that the EO construction also shows a strong island effect.

(12) c. *How long a walk, do you wonder whether John took $t_1$?
(13) c. *What kind of laugh, do you wonder whether John gave it, during his speech?

Here again, as is the case with COs or ROs, the referent of an EO cannot be considered to be a pre-exist participant in the event described; it merely refers to a particular instance of the activity denoted by the verb and that instance is not in existence before the activity is carried out (putting aside the question of whether the resulting instance can be regarded as a participant after all). Then, though it is true that each EO may be assigned a θ-role from the preceding light verb, the θ-role cannot be a referential one. Given that nonreferential NPs must form a government chain when extracted form an island, the wh-phrases in (12c) and (13c) fail to do so because of the intervening wh-phrases in the embedded Spec–CP. Accordingly, the sentences show the strong effect of ECP violation. To sum up so far, the strong island effect of COs, ROs, and EO can be reduced to the non-pre-existence of their referents in the events described; on the other hand, the weak island effect of POs is due to the fact that their referents are considered in the events as pre-existent participants.

Now, the remaining question is whether or not this line of analysis can also account for the contrast in island extraction between the transitive and the intransitive (unergative) resultative ((3) and (4)). Let us start with the eventuality of the resultative construction.

It has been pointed out in the literature that in deriving a resultative construction from a sentence involving a verb which denotes an activity (by adding a resultative phrase), the verb comes to be interpreted as denoting an accomplishment: the verb used in the construction (whether the 'original' use of it is transitive or unergative) is regarded as an accomplishment verb (cf. Tenny (1987), Levin and Rappaport Hovav (1995)). This interpretation is compositionally derived. That is, the eventuality of the resultative construction has a complex internal structure, consisting of two (sub-)eventualities. One is the eventuality as an activity, which is specified by the verb, and the other is the eventuality as a resulting state caused by this activity, specified by the resultative phrase,
which is predicated of the postverbal NP. Thus, the resultative construction describes a change of state even when the verb involved there does not denote a change of state.\textsuperscript{11} If we assume that the notion of ‘event’ in (25) corresponds to an eventuality involved (including sub-eventualities), we should determine the \( \theta \)-role assignment in each eventuality independently. Accordingly, the type of the \( \theta \)-role of an NP should also be identified in each of the two eventualities in the resultative construction (i.e., the activity and the resulting state). (Remember that we have divided \( \theta \)-roles into three: one is assigned to pre-existent participants, another is to non-pre-existent participants, and the other to non-participants.) Now, in determining the ‘referentiality’ of the \( \theta \)-role of an NP, we assume that the \( \theta \)-role of an NP is regarded as ‘referential’ only when the referent of a NP acts as a pre-existent participant in all the eventualities involved in the sentence, and the requirement for island extractability varies according to the referentiality thus determined.

Let us examine the island effects of the transitive and the unergative resultative constructions in (3) and (4), repeated below.

(3) a. ?Which tables\(_1\) do you know why\(_2\) he wiped \( t_1 \) clean \( t_2 \)?
   b. Which tulips\(_1\) do you know whether he watered \( t_1 \) flat?
   c. *Which baby\(_1\) do you know why\(_2\) the clock ticked \( t_1 \) awake \( t_2 \)?
   d. *Which men\(_1\) do you know when\(_2\) he laughed \( t_1 \) off the stage \( t_2 \)?

(4) a. ?Which people do you wonder whether he punched senseless?
   b. ?Which counter do you wonder whether the cook wiped clean?
   c. ??Which pavements do you wonder whether they ran thin?
   d. ??Which neighbors do you wonder whether the dog barked awake?

As often pointed out in the literature, the postverbal NP in the transitive resultative is assigned a \( \theta \)-role from the verb and the resultative predicate while that in the intransitive resultative is only from the resultative
phrase (cf. Carrier and Randall (1992)). Furthermore, the referent of the postverbal NP in the transitive resultative (like the NPs in (3a, b) and (4a, b)) plays as a pre-existent participant in both of the eventualities (i.e., the activity and the resulting state). For example, in (3a) the table must pre-exist as a target of the activity of wiping; it must also be regarded as pre-existent in the resulting state, because the state of being clean is predicated of, and describing an attribution of the existing table. On the other hand, referent of the postverbal NP in the intransitive (unergative) resultative (the NPs in (3c, d) and (4c, d)) can be understood as a participant only in the resulting state. In (3c), for example, the baby does not play any role in the first eventuality where the clock is only ticking, because it is not regarded as a (pre-existent) participant. To describe the situation in which something becomes awake, however, it must be regarded as a pre-existent entity. Then in (3c), the referent of the postverbal NP should be identified as a ‘half’-pre-existent participant, not satisfying the requirement for a referential θ-role. It should be noted here that it is not at all relevant whether or not the speaker recognizes the referent before the resulting state comes about. In other words, it is irrelevant whether the referent physically pre-exists (and the speaker recognizes its presence) in the real world when an activity (the first event) is carried out by the subject, or comes to exist as a result of the activity. What is important here is whether or not the first event is recognized in the speaker’s mind, as requiring the referent in question as an (obligatory) participant. And we are claiming that in the unergative resultative, the answer is negative. Then, by definition, the θ-role of the postverbal NP in the transitive resultative is regarded as ‘referential’, and the one in the unergative construction as ‘nonreferential’. This difference in referentiality yields the contrast in island extractability between these two constructions.

5. Concluding Remarks

I have argued that the island effect analysis proposed in Nogawa (1995) can give a unified account of the strong island effects in the intran-
sitive (unergative) resultative, the CO, the RO, and the EO constructions. We have seen that it is the referentiality of the $\theta$–role assigned to a NP that varies the acceptability of its island extraction: NPs which are assigned a referential $\theta$–role (pre-existent participants) can be marginally extracted out of an island, whereas NPs assigned a nonreferential one (non-pre-existent participants and non-participants) cannot.

Notes

*This article is an extension of the ideas and materials discussed in Nogawa (1995), an earlier version of which was originally presented at the monthly meeting of the Tsukuba English Linguistics Colloquium held on December 18, 1994. I would like to express my deepest gratitude to Minoru Nakau and Yukio Hirose for reading the draft and providing helpful comments and suggestions. Any remaining errors are my own.

1We can also find a clear contrast in applying some syntactic operations between the transitive and the unergative resultatives: middle formation, adjectival passive, nominalization, etc. (See Carrier and Randall (1992) and Rothstein (1992)).

2The contrasts in (i) and (ii) show that ROs also show inner island effects and POs do not.

(i) a. What $t$ did Mary paint $t_1$? [PO]
b. ?What $t$ did Mary paint $t_1$ on the ceiling? [RO]

(ii) a. What $t$ didn’t John dig $t_1$? [PO]
b. ?What $t$ didn’t John dig $t_1$ on the ground? [RO]

Although the contrasts in judgment differ among speakers with regard to the $wh$–island constraint ((9) and (10)), this is not the case with the inner island constraint ((i) and (ii)).

3The sentences in (14') describe the realization of a ‘situation’ (i.e., the resulting state). On the other hand, those in (16) describe the activity of creating ‘entities’. However, by assuming that those sentences share the same structure (having a small clause) makes it possible to give the same interpretation, namely the realization of a situation. I thank Minoru Nakau (p.c.) for pointing this out to me.

4The representations in (16a) would also be compatible with the eventuality of the resultative construction. The ‘matrix’ verb in each sentence represents the activity carried out by the subject and the small clause (e.g., a hole in the ground) represents a resulting state, thus making a complex eventuality. Thus, the verbs in these sentences can be considered as accomplishment verbs. See also the discussion in 4.3.
If this is the case, we must say that the effect of this derivational operation is so bleached that the RO apparently looks like an argument assigned an intrinsic \( \theta \)-role from the verb.

Assume (following Levin and Rapoport (1988)) that both ROs and postverbal NPs in the unergative construction are not assigned a \( \theta \)-role by the verbs but are \( \theta \)-assigned only ‘compositionally’ by the verb and the resultative predicate, and that this compositional \( \theta \)-marking itself is the key to \( \theta \)-government. In the transitive resultative, it seems that the postverbal NP satisfies this requirement. If we pursue this compositional analysis, however, there arise further problems. Firstly, the \( wh \)-phrase in (1a) (the simple case of object extraction) does not (and cannot) receive a compositional \( \theta \)-role and still only shows a weak island effect. Secondly, the postverbal NP in the unergative resultative could also be provided with a \( \theta \)-role (and hence could be \( \theta \)-governed), because the resultative predicate does have a \( \theta \)-role to assign; then the island extraction in this construction could be possible.

It should be noted here that we are not arguing against the idea that effect verbs have a semantically complex structure; we are just claiming that RO constructions (and EO constructions) do not involve a small clause as a syntactic constituent, and that such a small clause analysis do not account for the \( wh \)-island effect. In this relation, see also Nogawa (1996: 121f. n19) for the analysis of the representation of the lexical relational structure (LRS) of (pure) effect verbs. It is claimed there that effect verbs share, as a part of their LRS, the structure which represents the event of ‘creation’, ‘production’, or ‘realization’ (cf. Hale and Keyser (1993)). This shared part of the LRS corresponds, roughly speaking, to a resulting state. Moreover, I assumed that the LRS of a effect verb is built through some kind of lexical process such as ‘lexical subordination’ in Levin and Rapoport (1988). That is, the effect verb is derived from the corresponding affect verb.

The examples in (i) and (ii) indicate that while CO-taking verbs are intransitive in that they do not take an object other than an object that a TO-taking verbs are transitive. The object NP which a TO-taking verb selects can be ‘accidentally’ cognate with the verb, but need not to be restricted to the type of cognate object (TO).

(i) CO:
   a. Mary smiled a beautiful smile.
   b. *He smiled a silly grin.

(ii) TO:
   a. Mary danced a dance.
   b. Mary danced Swan Lake.

There are also some other syntactic differences between COs and TOs. See Massam (1990) and Nogawa (1995).
Rizzi introduces the notion of referentiality into $\theta$-roles, and makes a distinction between ‘referential’ (argumental) and ‘nonreferential’ (quasi-argumental) $\theta$-roles. Referential $\theta$-roles are intended to refer to $\theta$-roles which are assigned to selected elements referring to participants in the event described by a verb. They include such $\theta$-roles as ‘agent’, ‘theme’, ‘patient’, ‘experiencer’, ‘goal’, which are equivalent to ‘true arguments’ in Chomsky (1981). Nonreferential $\theta$-roles are $\theta$-roles assigned to selected elements which do not refer to any participants but rather qualify the event described by a verb. They include such roles as ‘measure’, ‘manner’, ‘atmospheric roles’ or nominal parts of idioms, equivalent to Chomsky’s ‘quasi-arguments’.

I have argued in Nogawa (1995) that the referentiality of a $\theta$-role depends on the D-head of the DP at the time when $\theta$-assignment is fulfilled by $\theta$-assigning head (i.e., in the LRS).

Levin and Rappaport Hovav (1995: 50) provide the following example to illustrate this point.

( i ) a. The blacksmith pounded the metal.
   b. The blacksmith pounded the metal flat.

The verb *pound* does not necessarily entail a change of state of its object (*the metal*) when it is used in isolation as in (ia). On the other hand, the verb comes to specify a state of the object when it appears in the resultative construction as in (ib).

References


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