

Cognate Objects and Island Effects*

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1. Introduction

In this article we deal with so-called cognate objects, which are often divided into two classes on the basis of different syntactic behavior. Following Massam (1990), we call the two types (i) the true Cognate Object (CO) and (ii) the Transitivity Object (TO). The former class includes verbs such as *laugh, live, sleep, smile, sneeze*, and the latter *sing, dream, dance*. As the examples in (1) and (2) show, whereas CO-taking verbs are intransitive in that they do not take an object other than a CO, TO-taking verbs are not. The object NP which a TO-taking verb can (optionally) select is not restricted to the type of cognate object (TO).

- (1) CO:
 - a. Mary smiled a beautiful smile.
 - b. *?He smiled a silly grin.
- (2) TO:
 - a. Mary danced a dance.
 - b. Mary danced Swan Lake.

Also, it has often been pointed out that the CO- and the TO-construction are syntactically different in various points including the following (cf. Massam 1990): (i) The former construction can be paraphrased into 'a verb + an adverb' (intransitive) sentence but the latter cannot.

- (3) CO:
 - a. He slept a sound sleep. = He slept soundly.
 - b. He lived a happy life. = He lived happily.
 - c. She smiled a bright smile. = She smiled brightly.
 - d. She laughed a hearty laugh. = She laughed heartily.
- (4) TO:
 - a. He dreamed a strange dream. ≠ He dreamed strangely.
 - b. He sang a beautiful song. ≠ He sang beautifully.

(ii) The former cannot be passivized but the latter can.

(5) CO:

- a. Mary laughed an unpleasant laugh.
- b. *An unpleasant laugh was laughed by Mary.

(6) TO:

- a. Mary sang a beautiful song.
- b. A beautiful song was sung by Mary.

(iii) The former cannot be paraphrased into a pseudo-cleft sentence, but the latter can.

(7) CO: *What Mary laughed was an unpleasant laugh.

(8) TO: What Mary sang was a beautiful song.

Considering the contrasts in (i–iii), we can say that TO-taking verbs are typical transitive verbs and TOs are pure complements. On the other hand, CO-taking verbs and their 'complements', COs, are rather peculiar: they are peripheral among transitive verbs and complements, respectively. In what follows, we center around the CO-construction and the peripherality of COs.

This paper is organized as follows. In section 2, we shed some light on a certain previously unknown syntactic difference between COs and TOs, i.e., island effects, and go on to argue that this difference derives from a semantic difference between them. Section 3 is devoted to derive the semantic difference, especially the semantic property of COs. We firstly see that the CO-construction is restricted to a certain class of verbs and has some similarities with other constructions: namely, the resultant-object and the eventive-object construction in English and noun-incorporated sentences in other languages. Then, I provide an analysis of the derivation of the CO-construction, which, in effect, derives the semantic property of COs.

2. Island Effects and Referentiality

2.1. Island Constraints

In this section, we consider one of the syntactic differences between COs and TOs: namely, island effects. Let us take the *wh*-island effect (2.1.1) and the inner

island effect (2.1.2) as examples. It will be shown that, whereas TOs can be extracted out of an island, COs cannot. We will see that, if COs can be said to be semantically (thematically) different from TOs, the impossibility of extracting COs can be explained within Rizzi's (1990) analysis.

2.1.1. *Wh*-island Constraint

It is known that NP complements can undergo *wh*-movement out of a *wh*-island whereas lexically non-selected adverbs cannot, as shown in (9a) and (9b), respectively.

- (9) a. ?Which problem₁ do you wonder [how₂ [PRO to solve t_1 t_2]]?
 b. *How₁ do you wonder [which problem₂ [PRO to solve t_2 t_1]]?

Now, let us consider cognate objects. As the examples below show, *wh*-cognate objects (both COs, as in (10), and TOs, as in (11)) can be extracted out of an embedded *that*-clause.¹

- (10) a. What sort of death₁ do you think [(that) [John died t_1]]?
 b. ?What sort of smile₁ do you think [(that) [Hitler smiled t_1 in front of Chamberlain]]?
 c. What sort of life₁ do you think [(that) [Nixon lived t_1]]?
 d. What sort of sleep₁ do you think [(that) [Nixon slept t_1 the day before his resignation]]?
 (11) a. What sort of a song₁ do you think [(that) [John sang t_1 at the party]]?
 b. What sort of a dream₁ do you think [(that) [John dreamed t_1 yesterday]]?
 c. What sort of a dance₁ do you think [(that) [John danced t_1 at the party]]?

When extracted out of a *wh*-island, however, COs and TOs show a difference in acceptability. *Wh*-movement of TOs is possible (though marginal), as in (13), on a par with that of NP complements in (9a). *Wh*-movement of COs is not allowed, as in (12).

- (12) a. *What sort of death₁ do you wonder [whether [John died t_1]]?
 b. *What sort of smile₁ do you wonder [whether [Hitler smiled t_1 in front of Chamberlain]]?

- c. *What sort of life_i do you wonder [whether [Nixon lived t_1]]?
- d. *What sort of sleep_i do you wonder [whether [Nixon slept t_1 the day before his resignation]]?

- (13) a.??What sort of song_i do you wonder [whether [John sang t_1 at the party]]?
- b.??What sort of dance_i do you wonder [whether [John danced t_1 at the party]]?

The difference in *wh*-extractability implies that there is a clear distinction between these two types of cognate object.

2.1.2. Inner Island Constraint

The inner island (or negative island) shows the same difference between complements and adjuncts in *wh*-extractability (cf. Ross 1984; Rizzi 1990). The contrast between (14b) and (14c) shows that (lexically non-selected) adjuncts such as *how* can not undergo *wh*-movement out of an inner island.

- (14) a. John didn't solve the problem that way.
- b. *How_i didn't John solve the problem t_1 ?
- c. How_i did John solve the problem t_1 ?

In the case of cognate objects, as in the following examples, the strong inner island effect can be observed only with COs, as in (15), but not with TOs, as in (16).

- (15) a.??*What sort of death_i didn't John die t_1 ?
(cf. What sort of death_i did John die t_1 ?)
- b.*What sort of smile_i didn't Hitler smile t_1 in front of Chamberlain?
(cf. What sort of smile_i did Hitler smile t_1 in front of Chamberlain?)
- c.??*What sort of life_i didn't Nixon live t_1 ?
(cf. What sort of life_i did Nixon live t_1 ?)
- d. *What sort of sleep_i didn't Nixon sleep t_1 the day before his resignation?
(cf. What sort of sleep_i did Nixon sleep t_1 the day before his resignation?)

- (16) a. ?What (sort of song)_i didn't John sing t_i at the party?
 (cf. What (sort of song)_i did John sing t_i at the party?)
 b. ?What (sort of dance)_i didn't John dance t_i at the party?
 (cf. What (sort of dance)_i did John dance t_i at the party?)

Again, as in the case of extractability from a *wh*-island, there is also a difference between the two types of cognate object.

2.2. Referential vs. Nonreferential Theta Roles

The distribution of traces left by movements are often considered to be governed by a general principle of Universal Grammar, namely the Empty Category Principle (ECP). Rizzi (1990) argues for a conjunctive version of the ECP: a nonpronominal empty category must be properly head-governed.² Also, Rizzi argues that VP-adjoined (but not T(ense)P-adjoined) adverbs, whether lexically selected or not, are properly head-governed by a head (a Tense head), satisfying the ECP requirement. Since complements are also properly head-governed by a verb, the complement-adjunct contrast in island-extraction, as in (9), cannot be reduced to the ECP.

If Rizzi's argument is correct, the ECP alone cannot give a full account of the above CO-TO contrast as well. Whatever status they have—whether a complement or an adjunct, both COs and TOs are head-governed by a head (either a V or a T head), satisfying the ECP as ordinary NP complements do.³ The ECP would then predict that cognate objects (of CO- and TO-types) behave on a par with NP complements with respect to island-extraction. However, this prediction is incorrect: only TOs can (marginally) undergo island-extraction. The ECP explains nothing about the unextractability of COs.

In order to explain the complement-adjunct contrast, Rizzi appeals to the requirement on the connection between operators and their variables. 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 selected elements which refer 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 selected elements which do not refer to any participants but rather qualify the event described by a verb. They include such theta roles as 'measure', 'manner', 'atmos-

phoric roles' or nominal parts of idioms, equivalent to Chomsky's 'quasi-arguments'. Rizzi proposes that only elements that are assigned a referential theta role can (marginally) be extracted out of an island. Other constituents, namely non-theta-marked elements and elements receiving a nonreferential theta role are severely restricted as to island-extraction.⁴

Let us review Rizzi's analysis of island-extraction with the verb *weigh*. The verb may take either a theme object such as *the apple* in *John weighs the apple* or a measure object such as *138 pounds* in *John weighs 138 pounds*, and both of them are lexically selected by the verb. Thus, sentence (17) is ambiguous, where the *wh*-phrase *what* can be understood either as a theme or a measure object.

(17) What_i did John weigh t_i? [ambiguous] (Rizzi 1990)

When the *wh*-phrase is extracted out of an island (as in (18)), however, the sentence becomes unambiguous: the *wh*-phrase is understood only as a theme object (and *weigh* as an agentive verb) but not as a measure object (*weigh* as a stative verb).

(18) ?What_i did John wonder [how [to weigh t_i]]? [unambiguous]
(Rizzi 1990)

Whatever status the *wh*-phrase *what* has in the post-verbal position, its trace is properly head-governed. Rizzi accounts for the unambiguity in (18) by simply claiming that direct objects are assigned a referential theta role while lexically selected adverbs like measure phrases are assigned a nonreferential one. If the *wh*-phrase in (18) were intended to be interpreted as a measure phrase, assigned a nonreferential theta role, the *wh*-phrase would cross an island. Thus, the *wh*-phrase cannot be construed as a measure phrase. On the other hand, if the matrix *wh*-phrase is interpreted as a theme object, and, as such, is assigned a referential theta role, then the *wh*-phrase can cross (though marginally) the intervening island, and hence it can be properly interpreted. As a result, the *wh*-phrase in the matrix CP-Spec in (18) is unambiguously understood as a theme object of the verb *weigh*.

Rizzi also considers nominal parts in idioms, which he argues are assigned a nonreferential theta role. His analysis is based on the contrast in acceptability between (19c) and (19d). Nominal parts in idioms, unlike complements, cannot undergo *wh*-movement out of an island.

- (19) a. What headway_i do you think [t_i [you can make t_i on this project]]?
 b. What project_i do you think [t_i [you can make headway on t_i]]?
 c. *What headway_i do you wonder [how [PRO to make t_i on this project]]?
 d. ?What project_i do you wonder [how [PRO to make headway on t_i]]?
 (Rizzi 1990)

Here again, by assuming that the *wh*-phrases in (19a,c), *what headway*, are assigned a nonreferential theta role, the total unacceptability of (19c) is correctly accounted for: the intervening *wh*-island blocks the movement of the other *wh*-phrase from the embedded clause.

Now let us return to cognate objects. As we saw above, the two types of cognate object show different behaviors regarding island constraints as in (20,21). The contrast cannot be accounted for by the ECP.

(20) *Wh*-island:

- a. *What sort of smile_i do you wonder [whether [Hitler smiled t_i in front of Chamberlain]]? (= (12b))
 b. ??What sort of song_i do you wonder [whether [John sang t_i at the party]]?
 (= (13a))

(21) Inner island:

- a. *What sort of smile_i didn't Hitler smile t_i in front of Chamberlain?
 (= (15b))
 b. ?What (sort of song)_i didn't John sing t_i at the party? (= (16a))

Given Rizzi's analysis of the complement–adjunct contrast in island–extraction, it is natural to hypothesize that the CO–TO contrast also derives from their semantic (thematic) difference without recourse to the ECP. We assume here that the CO–type cognate object is assigned a nonreferential theta role and the TO–type a referential one. In fact, the idea that cognate objects are not referential has often been mentioned in the literature. Quirk et al. (1985: 750) claim that in this type of object (cognate object), the noun head is semantically and often morphologically related to the verb and that the object, therefore, cannot be considered a participant. Basically, we utilize this idea for explaining the island–extractability of COs and TOs⁵. Then, under Rizzi's definition of referentiality of theta roles, COs are assigned a nonreferential theta role and TOs a ref-

erential one (see also the discussion in 3.3.3).

If this is the case, Rizzi's analysis of island-extraction can also give a clear explanation to the contrast between COs and TOs. Although both CO- and TO-traces are properly head-governed, satisfying the ECP requirement, they should differ in their island-extractability. Since TOs, such as *what sort of song* in (20b) and (21b), are assigned a referential theta role, they can cross an island (though marginally). Thus, those sentences cause no severe unacceptability. On the other hand, since COs, as those in (20a) and (21a), are assigned a nonreferential theta role, they cannot at all cross an island. In other words, the embedded *wh*-phrase *whether* and the negation in those sentences seriously interfere with the extraction of the COs, yielding the deviance of the sentences.

In this section, we have pointed out that COs and TOs show different extractability from an island: COs show severe island effects but TOs do not. We have seen that this syntactic contrast can be explained within Rizzi's analysis of complement-adjunct contrast, on the assumption that the theta role assigned by a CO-taking verb is a nonreferential one, different from the one assigned by a TO-taking verb. In the next section, we will show the validity of our assumption, answering the remaining question: why is it that COs, unlike TOs, are nonreferential (assigned a nonreferential theta role)?

3. Verb Classes and the Derivation of the CO-Construction

In this section, we firstly review Massam's (1990) observation on the relationship between verb classes and cognate objects of the CO-type in 3.1. After comparing the CO-construction with other related constructions in 3.2, we propose in 3.3 that the CO-construction in English should be analyzed as derived by head movement operations (more specifically 'noun-copying operation', which is similar to noun-incorporation in nature). In that subsection, we will provide an analysis of the nonreferentiality of COs, which plays an important role in explaining the unextractability of COs out of an island.

3.1. Massam's (1990) Observation

It has often been pointed out that the cognate object construction is restricted to a certain class of verbs: only some unergative verbs may take a cognate object of the CO-type. Notice that the CO-taking verbs in the examples so far are all unergative verbs: *laugh, live, sleep, smile, sneeze*. Furthermore, CO-taking verbs include such

unergative verbs as *cough, fight, scream, etc.*⁶

On the other hand, transitive verbs such as *kill, eat, break, and destroy*, which take what Massam calls an 'affected patient complement' (corresponding to theme complement) cannot become cognate verbs, as the following examples show. They cannot take even morphologically related NPs as their cognate objects.

- (22) a. *Mordred killed the knight a terrible death/kill.
 b. *Mordred killed a terrible kill/death to the knight.
 c. *Mordred killed a terrible kill/death the knight.
- (23) a. *Jo ate her eat.
 b. *Meg broke her break.
 c. *Beth destroyed a destroy/destruction.

Also, reflexive verbs, as in (24), and psychological verbs of the *fear*-type, as in (25), do not have the option either.

- (24) a. *Fiona showered a shower.
 b. *Joan bathed a bath(e).
- (25) *Arthur feared his kingly fears.

What is interesting is that among intransitive verbs, unaccusative verbs (unlike unergative verbs) do not allow the CO-construction.

- (26) a. *Oliver appeared his/an amusing appear(ance).
 b. *Fagan arrived his/a frightening arrive(al).

Lastly, Massam points out that stative verbs cannot take a cognate object of the CO-type, as the following example shows.

- (27) *The lamp stood a stand(ing) (in the corner).

We have reviewed Massam's observation and seen that only unergative verbs can optionally take a cognate object of the CO-type. (See also Levin 1993 and Kashino 1993.)

3.2. Resultant, Eventive Object Constructions and Noun-Incorporation

In this subsection, we compare the CO-construction with other related constructions in English and other languages. First of all, the CO-construction has a certain similarity with sentences involving a resultant object (RO), as in (28).

- (28) a. Bill wrote a letter.
 b. Mary painted some pictures.

These sentences are similar to the CO-construction in that both COs and ROs do not refer to some referents which are presupposed to be pre-existent. COs refer to the events indicated by CO-taking verbs. Thus, the 'referent' of a CO, if any, refers not to something pre-existent but to the process of an event described by the CO-taking verb (see Massam 1990 and Nakau 1994). As for ROs, their referents come to exist only by virtue of the activities indicated by the RO-taking verbs. (See also Quirk et al. 1985: 749f.)

Secondly, the CO-construction is similar to the eventive object (EO) construction as in (29) (cf. Quirk et al. 1985).

- (29) a. Bill's having an argument.
 b. Mary makes a dash.

Besides the non-pre-existence of complements as in the case of the RO-construction, both COs and EOs have corresponding verbs from which they are derived. The EOs in (29) *an argument* and *a dash* are derived from the verbs *argue* and *dash*, respectively. COs also have their corresponding verbs (CO-taking verbs).

- (30) a. They fought for a long time. [verb + adverbial]
 b. They fought a long fight. [verb + cognate object]
 c. They had a long fight. [verb + eventive object]
 (Quirk et al. 1985)

The only difference between the CO- and the EO-construction is that in the former construction, the verb and the complement CO somehow share the same semantic and morphological properties whereas in the latter, only the complement EO carries those

properties and the verb is realized as a 'light' verb.⁷

It should also be noted that the major semantic part of the VPs of the CO- and the EO- construction is the post-verbal constituents (complements), rather than the verbs.⁸ Thus, as for COs, it is well known that object modifiers are obligatory for COs, as the following examples indicate.⁹

- (31) a. He slept a *(sound) sleep.
 b. He lived a *(happy) life.
 c. She shouted the *(loudest) shout.
 d. He died a *(happy) death.

This fact indicates that the meaning of the complement and the corresponding part of the meaning of the verb in the CO-construction must not be equivalent. Without modifiers, the COs in (31) would be redundant because those COs would serve no additional implication to the interpretations of the sentences: there are corresponding unergative sentences instead. This, in turn, suggests that the complement CO must carry more semantic importance than the CO-taking verb. In other words, the verb must share only some part of the meaning of the complement in the CO-construction. In each sentence in (31), the CO-modifier seems to prevent the redundancy by specifying the meaning of the CO.

Moreover, there is a syntactic similarity: both COs and EOs cannot undergo NP-movement. It is often pointed out that COs cannot undergo NP-movement (passivization) as the following examples show.¹⁰

- (32) a. *A silly smile was smiled (by Ethel).
 b. ?*A hearty sneeze was sneezed by the patient.
 c. *An unpleasant laugh was laughed by Mary.
 d. *A painful death was died by John.
 e. *A terrifying scream was screamed by John.
 (a: Dixon 1991; b: Massam 1990; c: Araki and Yasui 1992; d,e: Moltman 1989)

NP-movement is also disallowed in the EO-construction.

- (33) a. John gave a laugh during her speech.
 b. *A (coarse) laugh was given by John during her speech.

- (34) a. John gave a (grating) cough during the concert.
 b. *A (grating) cough was given by John during the concert.

Whatever explanation might be given to the deviance found in (32–34), the same move–ment operation is disallowed for the CO– and the EO– construction.¹¹

Lastly, we point out that the CO– construction has a semantic similarity with noun–incorporated sentences in other languages. That is, the verb in each sentence is semantically less specified than the post–verbal constituents (objects). Noun–incor–porated sentences are found in other languages such as Tuscarora or Onondaga. In the following sentences, cited from Baker (1988), nouns are incorporated into the verbs.

- (35) a. Ae–hra–**taskw**–ahk–hwa? ha? **tsi:r**.
 DU–3M–**domestic animal**–pickup–ASP PRT **dog**
 'He regularly picks up dogs [he is a dog–catcher].'
 (Tuscarora: Baker 1988; cf. Williams 1976)

- b. Hati–**hnek**–aets o–**v:ta:k–i?**.
 3M.PL–**liquid**–gather PRE–**syrup**–SUF
 'They gather maple syrup.'
 (Onondaga: Baker 1988; cf. H. Woodbury 1975)

Notice that the incorporated nouns *taskw* 'domestic animal' and *hnek* 'liquid' are semantically less specific than the post–verbal CO objects *ha? tsi:r* 'PRT dog' and *o–v:ta:k–i?* 'PRE–syrup–SUF', respectively. This is in the sense that the former includes the latter: in other words, the latter is a member of the former. Baker argues that the function of an incorporated noun is to qualify the theta role which a verb assigns to its object. Thus, "the incorporated noun and the head of the external phrase [object NP] doubling it are not the same lexical item; instead the latter is more specific than the former" (p. 145). See also Williams (1994).

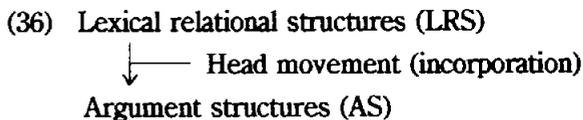
As we saw in (31), the CO– construction obligatorily needs modifiers. In effect, the CO– modifier makes the meaning of a CO more specific than the corresponding part of the meaning of the CO– taking verb. Thus, both in the CO– construction and noun–incorporated sentences, the meaning of the post–verbal objects involved is more specific than the corresponding part of the meaning of the preceding verbs.

3.3. Deriving the CO– Construction: Noun– Copying Operation

Considering the observation in 3.2, we propose in this subsection that the CO– construction in English is generated through noun– copying operation. Firstly, we introduce the analysis proposed in Hale and Keyser (1993) for deriving argument structures. Then, we apply their analysis to the CO– construction.

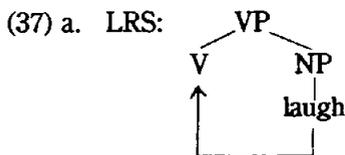
3.3.1. Hale and Keyser (1993)

Hale and Keyser (1993) (henceforth, H&K) start their analysis with denominal location verbs (*shelve, corral, box*, etc.) and locatum verbs (*saddle, hobble*, etc.). Their analysis is based on the assumption that argument structures (AS) are derived from lexical relational structures (LRS) through a head movement operation (incorporation), as indicated in (36). A head movement operation is governed by the head movement constraint (HMC).^{1 2}

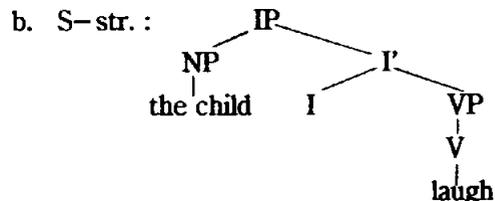


With the derivation in (36) and the HMC, H&K explain why it is that one class of verbs takes a certain argument structure and another class takes another.

In their analysis, they provide a possible derivation of unergative verbs such as *sneeze, neigh, dance, calve*, etc. They assume that the LRS of these verbs is something like (37a).^{1 3} Through the head movement operation (and inserting the subject *the child* afterward), the structure becomes something like (37b), where the verb is realized as an amalgam of the (abstract) V and the N head of the NP *laugh*.



(cf. H&K 1993)



H&K (1993: 74) imply that this analysis based on noun–incorporation might be extended to the analysis of "simple transitive", including light verb, cognate object, and creation predicate constructions. In the next subsection, we explore the possibility and argue that the CO–construction is derived by noun–copying operation. In the course of discussion, we will slightly modify the LRS representaion in H&K.

3.3.2. Deriving the CO–Construction

In this subsection, we propose that the CO–construction is derived by the following operation in the lexicon, which derives the AS of a CO–taking verb from its LRS.

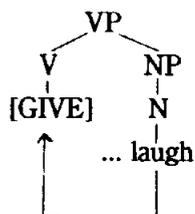
- (38) The CO–construction is derived by copying the head N to the (abstract) V node.

The noun–copying operation in (38) is essentially the same in nature as the head movement operation, which is assumed in H&K (1993) to derive location verbs, locatum verbs, unergative verbs, etc.¹⁴ The only difference between the noun–copying operation and the noun–incorporation is that the latter leaves a trace of the moved element in the surface structure while the former leaves a copy of the moved element.¹⁵ Take the CO–construction in (39a) for example.

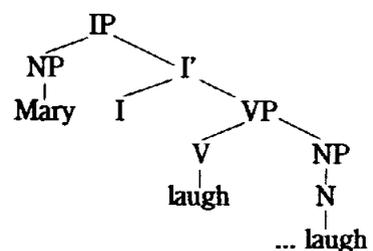
- (39) a. Mary laughed a hearty laugh.
(cf. Mary gave a hearty laugh.)

Following H&K, and considering the restriction on the CO–taking verb and the similarity between the CO– and the EO–construction, discussed in 3.1 and 3.2, we assume that the LRS of the CO–taking verb *laugh* is originally as in (39b), where an abstract V, say GIVE, takes an NP complement.¹⁶

(39) b. LRS:



c. S–str.:



If there is an operation which is noun–incorporation in nature, i.e., a noun–copying operation, that operation moves the noun *laugh* up to the abstract V, leaving a copy of it. After inserting a subject, we get the surface structure in (39c).

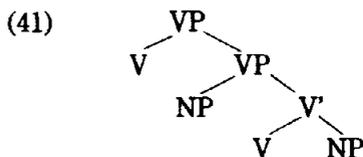
If the noun–copying operation in (38) is the same as noun–incorporation in nature, except for the difference in what they leave, we expect that the operations of noun–incorporation and noun–copying are both subject to the same constraints governing I–syntax (e.g., Head Movement Constraint on the operations and other constraints on LRS itself, including Unambiguous Projection and Full Interpretation; see H&K (1993: 74ff.)).¹⁷ In what follows, we will see that the operations which derive the unergative construction and the CO–construction are characterized as basically the same one. Suppose that these two operations are the same in nature. Then we predict that if unergative verbs are incompatible with a certain AS, the LRS from which the AS would be derived by noun–incorporation must also be disallowed for CO–taking verbs in CO–sentences. That is, CO–taking verbs must be incompatible with an AS which would be derived from the LRS in question by noun–copying operation. If this is the case, it follows that the operation deriving unergative verbs and the one deriving CO–taking verbs are characterized as the same one. Let us now start our examination.

In H&K (1993), they point out that unergative verbs cannot take an argument structure which forces an obligatory complement. This is indicated by the examples in (40).

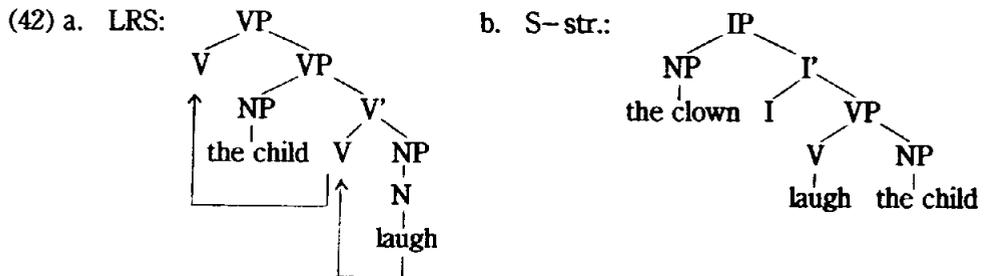
- (40) a. *The clown laughed the child. (i.e., got the child to laugh)
 b. *The alfalfa sneezed the colt. (i.e., made the colt sneeze)
 c. *Good feed calved the cows early. (i.e., got the cows to calve)

(H&K 1993)

They examine the possibility where the AS of the verbs in (40) could be derived from the hypothetical LRS in (41).



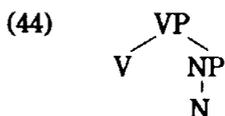
If unergative verbs originally had this LRS, the sentences in (40) could be all acceptable. The following two structures show the conceivable derivation of sentence (40a).



Since the sentences in (40) are unacceptable, an unergative VP in the LRS, as the lower VP in (42a), must not contain in its Spec(ifier) position an NP which is to be the subject of the unergative predicate. In order to explain the unacceptability of the sentences in (40)—and eventually the hypothetical LRS they would be derived from, depicted in (41)—H&K (1993: 75ff.) propose that the subject of a sentence is not necessary in the LRS representation and the appearance of the Spec-VP position is strictly restricted by the requirement of Full Interpretation, as stated in (43).

- (43) ". . . the Spec position of VP in the LRS representation of a lexical verb is filled only when that is forced by some principle. . . the appearance of a subject is forced by predication." (p. 76)

This implies, in essence, that there is no VP-internal subject in the LRS of unergative verbs because there is no independent principle that would force the appearance of a subject.¹⁸ The LRS of unergative verbs is as follows. (The subject of an unergative sentence must be inserted in s-syntax.)



Thus, the NP *the child* in (42a), which were to be the subject of the embedded unergative VP, cannot appear in the LRS as it is; and sentence (40a), which could be derived from the structure, is correctly ruled out.

Now turning back to CO-taking verbs, if the idea is correct that CO-taking

verbs are derived by noun-copying operation— an operation similar to noun-incorporation— we naturally expect that the LRS in (41) will be disallowed even for CO-taking verbs, and eventually that the derived AS, which forces double objects in a sentence, will be disallowed. In fact, this is the case, as the following examples show.¹⁹

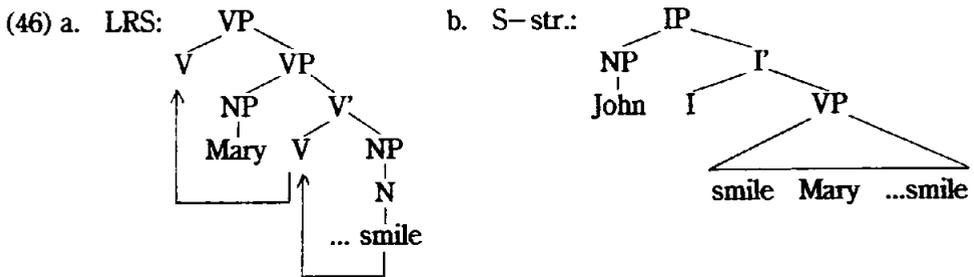
(45) a. *John smiled Mary a bright smile.

(i.e., John caused the event [Mary gave a bright smile].)

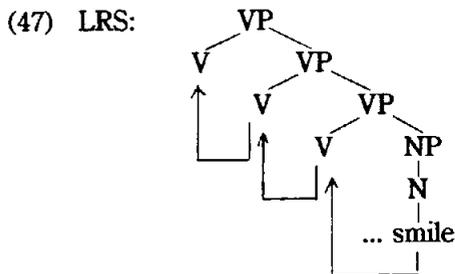
b. *John coughed Mary a big cough.

(i.e., John caused the event [Mary gave a big cough].)

Because of (43), the LRS in (46a), where the lower VP has the NP *Mary* (which were to be the subject of the 'embedded' unergative sentence), and the succeeding derivation to (46b) are not allowed for sentence (45a).



Another conceivable way of deriving double object sentences with a CO-taking verb is to stack another VP as in (47) (H&K refers to the LRS below as the 'double causative structure').

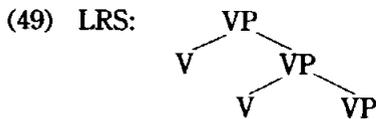


The 'outer' subject *John* and the 'inner' subject *Mary* will be inserted in s-syntax. The resulting reading is supposed to be like this: "John caused a dynamic event in which Mary caused another dynamic event in which an implicating event is completed

by virtue of the realization of a hearty laugh". This alternative, however, is again excluded because of the following constraint on predication, which is proposed in H&K (1993: 80f.).

- (48) "The 'double causative structure' cannot be interpreted, since only one causative can be predicated of a subject in s-syntax. . . . unrestricted recursion of the VP category . . . is impossible in the syntax of LRS representations, precisely because of the full interpretation requirement."

(48) precludes the double causative structure as in (49), because only one causative is predicated of a subject in s-syntax.



In s-syntax, the subject to be inserted into the structure in (49) has two possible (causative) VPs, the highest VP or the second highest VP. This ambiguity in predication violates the Full Interpretation requirement. In the case of (45a), no problem seems to arise, since the sentence has two 'subjects' (John and Mary) and two causative predicates. However, the same constraint in (48) prohibits the derivation of the sentence in (45a). This is because, when the subjects are inserted into the LRS in (46), they have two causative VPs each, the two higher VPs, violating the Full Interpretation requirement. As a result, the LRS in (47) is not permitted as well and thus there is no way of deriving double object sentences with a CO-taking verb, yielding the unacceptability of the sentences in (45).

In sum, we have seen that both unergative and CO-taking verbs cannot occur in the constructions which could be derived from the same LRS in (41). This supports the analysis that the CO-construction is derived by a noun-copying operation (38), which is essentially the same as the noun-incorporation (head movement operation) proposed in H&K.²⁰

3.3.3. Nonreferentiality of CO-Type Cognate Objects

At the end of section 2.2, we posed the following question: why is it that COs,

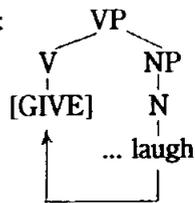
unlike TOs, are nonreferential (assigned a nonreferential theta role)? In this subsection, we will explore the origin of the nonreferentiality of COs and try to provide a possible answer to the question.

With the derivation in (39), repeated here, the question can be paraphrased something like the following: how is it that the NP complement, headed by the copied N which is left by the operation in (38), cannot be referential?

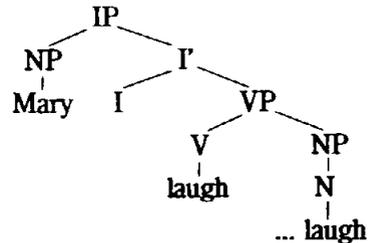
(39) a. Mary laughed a hearty laugh.

(cf. Mary gave a hearty laugh.)

b. LRS:



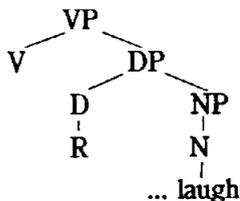
c. S-str.:



Following Chomsky (1995), we assume in this study that the head D of DP is the locus of referentiality; the (quasi-)referentiality of a noun phrase is originally a property of the D head of DP. Given that, and if we adopt the LRS along the lines of H&K, as in (39b), we can naturally conclude that the lack of referentiality of COs is due to the lack of a D in their LRS.

However, we should consider another possibility. Why can't the LRS of a verb, as in (39b), involve a D head? What if there is a D in the LRS of a CO-taking verb? If there were a D heading a DP as a V-complement in the LRS as in (50), and if it contained a certain element (or a feature) which brings about the referentiality (indicated with *R*), COs would be referential. We consider that this scenario is untenable and fails to guarantee the referentiality for COs.

(50)



First of all, following H&K, we assume that the nature of LRS is by definition a

system of structural "relations holding between the head, its categorial projections and its arguments". That is, the LRS of a verb represents only the relation. Then, D head of DP in (50), even if present as a position, does not contain any elements (nor features) in I-syntax (i.e., LRS). We consider the D position is filled in the s-syntax (D-structure) by inserting a determiner (or *wh*-feature).^{21, 22} In other words, the empty D position is 'invisible' to operations in I-syntax.

Notice here that the D position is visible in s-syntax. If the insertion of a determiner doesn't take place, then the sentence is ungrammatical, as the following example shows.

(51) Mary laughed *(a/the/her) hearty laugh.

This also indicates that in s-syntax (presumably D-structure), there is a position into which a determiner can be inserted. This, in turn, suggests that in I-syntax, the D position is present within the nominal complement of an abstract V. H&K (1993) represent nominal categories in LRS as NPs. Their argument for noun-incorporation in I-syntax is based on examples in which a moved element leaves nothing but a trace after the head movement operation. Thus, no problem arises by positing NP complements instead of DP complements in the LRS. In the case of cognate objects, however, noun-copying operation leaves a copy which remains in s-syntax. The CO realized overtly contains a determiner. Thus, as we saw above, the determiner position must be guaranteed in I-syntax. Otherwise, the determiner in question would have to be adjoined to an NP in s-syntax, inserted between a verb and its complement, and projecting a new category DP; this would be a clear violation of the strict cyclicity. Thus, contrary to H&K, we posit a D as the head of a nominal complement in I-syntax; hence, nominal categories are DPs instead of NPs (see also H&K 1993: 95).

Now, given that the empty D position is 'invisible' to operations in I-syntax, the position must also be invisible to the theta-role assignment in the LRS, if the theta relation is held in that stage at all. In the case of CO-taking verbs, the relation between the derived (CO-taking) V and the copied N in its complement position is established in I-syntax (i.e., LRS) for the first time, where no D-matter is involved. If the original relation -- the first establishment of a relation -- is relevant to the assignment of theta roles, which seems to be a natural assumption, then the theta role assigned by a CO-taking verb is a nonreferential theta role due to the empty D of its complement. Thus, it follows that the theta role of a CO is obligatorily nonreferential, because the

CO is headed by a defective D (in the sense that the D cannot play as the locus of referentiality) when it is assigned a theta role. After the theta-relation is already established, the element (or feature) inserted into D in s-syntax cannot rewrite the theta role.

One question arises here: why is it that a determiner such as *the* is inserted in the D position in s-syntax, though not in l-syntax? If the nonreferentiality of COs is guaranteed by a defective D position, then it seems natural to consider that inserting a determiner in s-syntax is incompatible with the defective D.

Before answering the question, we should now redefine the notion of referentiality in Rizzi (1990). Recall the definitions of referential and non-referential theta roles in Rizzi (1990) (cf. 2.2): referential theta roles refer to participants in the event described by a verb whereas nonreferential ones do not. If we now take 'participant' literally, then their definitions will be modified as follows.

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

As is discussed above, the defective D head in l-syntax is the origin of the nonreferentiality of COs. (52) suggests that the defective D head implies the non-pre-existence of a participant (or absence of participant).^{2 3}

This revision is consistent with the fact pointed out in 3.2: COs, which lack a D in the LRS, refer to elements which are non-pre-existent (i.e., the processes of events indicated by CO-taking verbs). Moreover, this revision of referentiality correctly predicts, in turn, that 'non-pre-existent complements', such as ROs, cannot be extracted out of an island either. Verbs such as *dig* or *paint* can take either a patient, as in (53a,54a), or a resultant object (RO), as in (53b,54b).

- (53) a. John dug rock. [Patient]
 b. John dug a grave on the ground. [RO]
 (54) a. Mary painted the wall. [Patient]
 b. Mary painted a beautiful picture on the ceiling. [RO]

When extracted out of an island, only ROs make the sentences severely deviant, as shown in (55b) and (56b).

- (55) a.??What do you wonder whether John dug?
 (cf. What did John dig?)
 b. *What do you wonder whether John dug on the ground?
 (cf. What did John dig on the ground?)
- (56) a.??What do you wonder whether Mary painted?
 (cf. What did Mary painted?)
 b. *What do you wonder whether Mary painted on the ceiling?
 (cf. What did Mary painted on the ceiling?)

The impossibility of island–extraction can be observed also with EOs, which are, as we saw in 3.2, ‘non–pre–existent’ complements. EOs cannot be extracted out of an island as in (57c,58c).

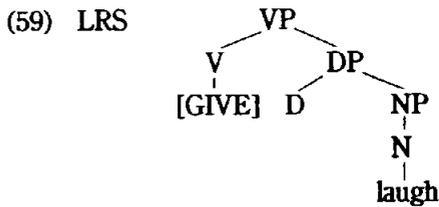
- (57) a. John took a (long) walk after he finished his homework.
 b. How long a walk did John take?
 c. *How long a walk do you wonder whether John took?
- (58) a. John gave a laugh during her speech.
 b. What kind of laugh did John give during her speech?
 c. *What kind of laugh do you wonder whether John gave during her speech?

Turning back to the question, we consider that insertion of a determiner into a defective D position in s–syntax is independent of the (non–)pre–existence of the referent of a complement.²⁴ The nonreferential theta role of COs (in the sense of non–pre–existent participant) derives from the defective D in the LRS, and insertion of a determiner afterward is irrelevant to and does not change the non–pre–existence of COs. This, again, seems to show the discreteness between l–syntax and s–syntax.²⁵

Notice that the definitions of referential and non–referential theta roles we refined in (52) do not at all affect Rizzi’s analysis of the examples in (18) and (19). The measure phrase of the verb *weigh* and the nominal part in the idiom *make headway* are arguably non–participants and are assigned a nonreferential theta role.²⁶ Thus, they cannot be extracted from an island.

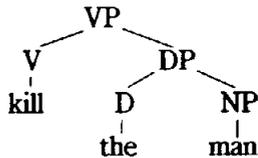
In summary, we have seen that even though a determiner occupies the D position in s–syntax, it does not change the nonreferentiality of COs. COs are destined for bearing a nonreferential theta role because of the empty D position in the LRS. To

illustrate, the LRS of CO-taking verb *laugh* is something like the following.²⁷



Now let us briefly consider the case of transitive verbs and their theta relation with complements. Whatever derivation a transitive verb may take, the relation between the verb and its complement does not hold in l-syntax because no (overt) complement is left after the verb. The theta relation is established for the first time when a complement appears overtly after a verb, i.e., in s-syntax (60). The D position of the complement then is already filled with a certain element, and, as a result, the referentiality (in the sense we discussed above) is guaranteed and the verb assigns a referential theta role to its complement.²⁸

(60) (at a certain stage in s-syntax)



As we have discussed so far, TO-taking verbs behave semantically and syntactically on a par with transitive verbs—in complement selection, intransitive alternation, passive and cleft sentences, and above all, island effects. We consider then that what we call TO-taking verbs today are just a subgroup of transitive verbs. Even if TO-taking verbs today might have started originally as CO-taking ones, they have eventually improved to be pure transitive verbs. Then TO-taking verbs must also establish their theta relation with their complements in the same way as transitive verbs do: the relation must hold in s-syntax for the first time.

We have seen in this subsection that COs are assigned a nonreferential theta role (in the sense revised above) because of the defective D in the LRS. As we argued in section 2, the nonreferentiality of COs derives, correctly, their unextractability out of an island.

4. Concluding Remarks

In this paper, we have pointed out that COs and TOs display contrastive behavior to island constraints: COs show strong island effects but TOs do not. We have shown that this difference can be explained by Rizzi's (1990) analysis, with the assumption that COs are assigned a nonreferential theta role, whereas TOs are assigned a referential theta role. The nonreferentiality of COs is explained in the course of analyzing the derivation of the CO-construction.

We have proposed, in the latter half of this paper, that CO-taking verbs are derived, in the lexicon, by the noun-copying operation, which is essentially equivalent to noun-incorporation (head movement) in nature. The nonreferentiality of COs is reduced to the defective D in the LRS. Concerning the defective D, we also slightly revised the notions of referential and nonreferential theta roles as referring to pre-existent and non-pre-existent participants, respectively.

Notes

* An earlier version of this paper 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 Yukio Hirose, Hidehito Hoshi, Nobuhiro Kaga, June-ko Matsui, Mikinari Matsuoka, Minoru Nakau, Koichi Takezawa, Robyne Tiedeman, and Takashi Yoshida for their comments and suggestions. Any remaining errors are my own.

¹ Notice that interrogatives with a *wh*-CO are unacceptable if the operator is *what*, instead of the form of *what kind/sort of X*.

- (i) a. *What did he die?
 - b. What sort of death did John die?
 - c. ?What did she laugh?
 - d. What kind of laugh did she laugh?
- (a,c,d: Massam 1990; b: Jones 1988)

We do not intend to explore the contrast above in this article, but see Massam (1990) for related discussion.

² The notion of proper head–government is hierarchically defined in Rizzi (1990). Specifically, the hierarchical definition of the ECP requires that a trace must be head–governed within the immediate projection of a head. See the discussion in Rizzi (1990: ch. 2).

³ We suspect here that cognate objects are lexically selected by cognate verbs. This is because, if cognate objects were pure adjuncts, then they could appear freely in any construction (not as complements) so long as their semantic subcategorization matches the context, which is obviously not the case. If a cognate object is lexically selected by a cognate verb, it must be (theta–)governed and assigned a theta role by the verb.

⁴ Rizzi appeals to binding of referential indices for explaining the extractability of elements which are assigned a referential theta role, and to a government chain for explaining the unextractability of the other elements. See Rizzi (1990: 3.5,3.6) for detailed discussion.

⁵ In fact, Quirk et al. (1985) do not make reference to the distinction between COs and TOs: they consider that any cognate objects, whether COs or TOs in our terms, are non–participants. We assume instead here that non–participants are restricted only to COs, but not to TOs.

⁶ Note that although unergative verbs become cognate verbs by taking a cognate object, they cannot necessarily become CO–taking verbs. Some of them become TO–taking verbs instead: e.g., *dance*, *sing* etc.

⁷ Quirk et al. (1985: 751) also point out that the more frequent EO can sometimes be related to a cognate object in that it *substitutes* for the major lexical meaning of the verb whereas the cognate object *repeats* the lexical meaning.

⁸ Quirk et al. (1985: 750) also claim that the EVENTIVE object (EO) is semantically an extension of the verb and bears the major part of the meaning.

⁹ It is true that there are some COs which accompany no modifier at all, as in (i). However, we should notice that these examples are rare cases.

- (i) a. She smiled a smile and up she hopped.
- b. Me. One human being, misused, and badly scarred, but young and strong and anxious to live a life. – – L. Lovelace & M. McGrady, *Ordeal*

- c. Adam was intelligent and courageous, willing to fight the battles he believed in. As he had once fought her battle.
 – S. Sheldon, *Rage of Angels*
 ((ib,c) cited from Kashino 1993)

As Kashino points out, CO– sentences of this type are limited in number. So we take these examples as exceptional.

¹⁰ There are some examples in which COs undergo NP– movement.

- (i) a. His whole life seemed to be lived in the past.
 b. Such awful thoughts can only be thought by a sick mind.
 c. One of the silliest smiles I've ever seen was smiled by Mary.
 (cf. *A silly smile was smiled by Mary.)
 (a,b: Dixon 1991)

We have no clear explanation of the acceptability of the sentences in (i).

¹¹ See note 20.

¹² In H&K (1993), the Head Movement Constraint is defined as follows.

- (i) The Head Movement Constraint:
 An X^0 may move into the Y^0 which properly governs [i.e., antecedent governs] it.

¹³ It should be noticed here that, in H&K (1993), the conventional tree diagrams and labels in there (V, N, P, A, and their phrasal projections) are used to represent their lexical argument structures (i.e., LRS). Following H&K, we will make use of those notations throughout the rest of this paper.

¹⁴ We are tentatively assuming morphological properties for the N– raising into V.

¹⁵ What we refer to as 'traces' and 'copies' can be considered both as copies in the syntax (both in l– and s– syntax; see note 17). If so, the difference between them can be stated as follows: traces are those copies which are to be deleted in the PF component whereas copies are those which remain even in the PF component. For expository convenience, we adopt the notions 'trace' and 'copy', respectively. Some questions arise about the PF deletion. What is the nature of the PF deletion? Why

are there two options in derivation, one leaving copies and the other deleting copies? Why does (and must) the PF deletion not apply to the CO-construction? We reluctantly leave these questions open.

¹⁶ Following H&K (1993), we tentatively assume that the V-complement is an NP, not a DP. In 3.3.3, we discuss the possibility of DP as the V-complement.

¹⁷ H&K (1993: 105) refer by s-syntax to syntax in the sense of D-Structure or S-Structure, that is, syntax in the generally received sense, and refer by l-syntax to syntax in the lexicon.

¹⁸ According to H&K, the NP complement in the lower VP in (42a) is not a predicate in the LRS representation of the verb *laugh*.

¹⁹ Double object sentences with TO-taking verbs are also unacceptable as the following example shows.

(i) *John sang Mary a beautiful song.

(i.e., John caused the event [Mary had a beautiful song].)

One might argue that this fact suggests that the derivation of TO-taking verbs should be analyzed on a par with that of CO-taking verbs. However, we propose another reason for the unacceptability of sentence (i). Considering the properties of TO-taking verbs, we will argue below that TO-taking verbs are pure transitive verbs having one (but not two) complement slot. Thus, the sentence above, which contains an extra and illegitimate indirect object *Mary*, is ruled out.

²⁰ Given that COs are derived through head movement (copy), the exclusiveness of the CO-construction and passivization, as shown in (32), can be explained in a case-theoretic approach as in Kitahara (1994).

Comparing unacceptable island-extraction of quasi-arguments (e.g., measure phrases) with acceptable extraction of objects, Kitahara argues that the copy of a quasi-argument, unlike argument-traces, does not bear a case feature (e.g., [+Nominative], [+Accusative]). See Kitahara (1994: 121ff.). His analysis can also explain the exclusiveness of quasi-arguments and passivization, as in (ia). Lacking case features to be checked, quasi-arguments need not (and cannot) raise to the structural case (subject) position.

(i) a. *150 pounds was/were weighed by John.

b. The potatoes were weighed by John.

In deriving the CO-construction, N is adjoined to V, and as a result, the copy left by the operation does not have a (structural) case feature to be checked (cf. Baker 1988). Thus, the CO derived from the copied N does not need to move to the matrix subject position to check its case feature, as is the case with quasi-arguments. Then our analysis of the derivation of the CO-construction correctly expects that they are not allowed to undergo =passivization.

^{2 1} The insertion of a determiner itself apparently seems to be an unnatural operation, but the same line of analysis is also proposed in H&K (1993) for explaining the argument structure of a verb. They suggest that there may exist a position which is empty in l-syntax (LRS) but is filled by a post-lexical (s-syntactic) insertion of an element. They point out that post-LRS insertion is an operation which shows the discreteness between l-syntax and s-syntax. The existence of empty D in the LRS in our analysis is also another instance of the discreteness. We cannot resolve the gap, so we leave the issue open.

^{2 2} Chomsky (1995: sec. 5) considers the *wh*-feature to be a variant of D. If this is the case, under our analysis, it follows that the *wh*-feature of a *wh*-CO, as well as determiners, is inserted in s-syntax, not in l-syntax.

^{2 3} Non-pre-existence of complements is derived, in H&K (1993), by the LRS representation in which an abstract V takes an NP complement. That LRS corresponds to the notion that "the implicating event is completed, or perfected, by virtue of the 'creation,' 'production,' or 'realization' of the relevant entity" (H&K 1993: 74). Instead (or in addition), our analysis above reduces the non-pre-existence of complements to the defective D head in the LRS. We do not discuss the implications of these two possibilities.

^{2 4} Note that the referents of the complements in *John laughed the hearty laugh* and *Mary painted the picture* are not pre-existent before the events described by the verbs, although these complements each accompany a determiner.

^{2 5} What we have seen so far is that a determiner *can* be inserted into the defective D in s-syntax. There still remains a question: why is it that a determiner *must* be inserted as the example in (51) indicates. We cannot provide a full account of the obligatory determiner in s-syntax. We leave the question, tentatively assuming that it is forced by some purely syntactic (s-syntactic) requirement.

^{2 6} We leave the question open, whether measure phrases and nominal parts in

idioms are assigned their theta roles in I-syntax, as is the case with COs.

²⁷ As is well known, cognate objects usually require a modifier. Since (CO-) modifiers need not (and cannot) project to take an NP as their complement, we assume that CO-modifiers (unlike the D head of a DP) are not present in the LRS; they are instead adjoined in s-syntax. We cannot present a clear and extensive discussion about the obligatory CO-modifiers in the CO-construction and its implications in our analysis.

²⁸ We consider that the LRS of the EO-taking verb is the same as that of CO-taking verb: an abstract verb takes a defective DP as a complement. The defective D head of the DP makes the EO nonreferential. The EO-taking verb, we assume, is derived without noun-copying operation, with the abstract verb in the LRS realized as a light verb. As for the RO-construction, we have no clear idea about its derivation, especially the presence (or the absence) of D head in the LRS.

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