

Reconstruction Effects in the Extraposed Restrictive Relative Clause

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Reconstruction Effects in the Extraposed Restrictive Relative Clause*

Takato Yamamoto

1. Introduction

The derivation of restrictive relative clauses (henceforth, RRCs) has been a long-standing problem in the study of generative grammar. The raising analysis and the matching counterpart have been proposed to explain their peculiar behavior concerning reconstruction effects. Recently, in the Minimalist framework of pursuing a restricted Universal Grammar, many researchers have tried to unify these two analyses. However, the previous studies cannot account for one of the puzzling problems, that is, the extraposition of RRCs.

(1) a. Mary praised the headway that John made.

b. *Mary praised the headway last year that John made.

(Hulsey and Sauerland (2006: 114))

(2) a. I saw the picture of himself_i that John_i liked.

b. *I saw the picture of himself_i yesterday that John_i liked.

(Hulsey and Sauerland (2006: 115))

RRCs can show the reconstruction effects for the idiomatic interpretation and the reflexive pronoun as shown in (1a) and (2a). However, these effects cannot be observed when RRCs are extraposed in (1b) and (2b). This paper sheds light on this contrast and proposes an alternative analysis to overcome this problem, which can contribute to a unified analysis of RRCs and endorse the framework of the Minimalist Program.

The organization of this paper is as follows: Section 2 introduces some theoretical background, after which in Sections 3 and 4, we examine Raising Analysis (RA) and Matching Analysis (MA) in previous studies. In Section 5, we propose an alternative analysis and discuss the licensing condition of the VO idiom and the locality of the

reflexive pronoun. Section 6 explains how our analysis can accommodate the problematic examples in the previous analyses while retaining a unified derivational strategy of RRC. Finally, Section 7 concludes this paper.

2. Theoretical Background

2.1. Phase

In this subsection, we introduce the unit of the syntactic derivation, the theory of the phase, which is originally proposed by Chomsky (2000). Derivations proceed phase by phase: each stage of derivations accesses the part of the lexical array to create the expression. Moreover, Chomsky (2000, 2001) proposes the Phase Impenetrability Condition to retain a locality in the syntactic derivation:

(3) Phase Impenetrability Condition (PIC)

In phase α with head H, the domain of H is not accessible to operations outside α , only H and its edge are accessible to such operations.

(Chomsky (2000: 108))

Under the phase theory, this restriction on the syntactic operation can be attributed to Transfer because this operation transmits the elements inside the domain of a phase head from narrow syntax to the Conceptual-Intentional (CI) and Sensorimotor (SM) interfaces, which access semantics and phonology, respectively. Therefore, the transferred materials become invisible for any following syntactic operations. Transfer is triggered when the phase is completed. In general, the phase head is taken to be C and v^* .¹ Upon the completion of the CP phase, the phase head transfers its complement, i.e., TP, which is illustrated in (4a). As (4b) shows, the v^*P phase headed by v^* is processed similarly to the CP phase.

- (4) a. [CP [C [TP...]]]
 b. [v^*P [v^* [VP...]]]

It should be noted that a phase head and its edge are transferred when the next phase or the syntactic derivation is completed.

For explanatory purposes, we use the term “LF” for the semantic interface in the rest of this paper.

2.2. Phase-Based Anaphor Binding

This subsection is dedicated to the introduction of the phase-based analysis of anaphor binding, as proposed by Quicoli (2008). Quicoli argues that Condition A of the binding theory applies phase by phase.

- (5) John_i wonders which picture of himself_{i/j} Bill_i saw. (Quicoli (2008: 313))
- (6) a. [_{v*P} [which picture of himself] [_{v*P} Bill [_{v*} saw [which picture of himself]]]]
 b. [_{v*P} John [_{v*} wonders [_{CP} [which picture of himself] [_C [_{TP} Bill [_T [_{v*P}...]]]]]]]]]

The derivation of (5) is schematized as (6). When the v*P phase in (6a) is completed, the VP is transferred. At the same time, the moved anaphor within the *wh*-expression receives the interpretation of *Bill* in the same phase domain through the application of Condition A to the lower copy. On the other hand, the anaphor has another option: the information transmission can be postponed until the next phase level when Condition A is applied to the higher copy of the reflexive. Hence, this moved anaphor can receive the information, i.e., ‘himself = John,’ in its landing site when the matrix v*P phase is completed. Therefore, the anaphor in (5) allows for interpretive ambiguity.²

2.3. Extraposition

Extraposition is the dislocation phenomenon where the syntactic object seems to undergo rightward movement into the end of the sentence. Culicover and Rochemont (1990) and Fox and Nissenbaum (1999) discuss whether the extraposition involves a movement operation or not. Culicover and Rochemont argue that the extraposed materials are introduced as adjuncts, which are directly attached to the maximal projection, VP (= v*P/vP) or IP (= TP).³ This claim is crucially based on their observation that the extraposition is not obedient to the constraints on A'-movement, as exemplified in (7) and (8) below:

- (7) a. A man with blond hair came into the room.
 b. A man came into the room with blond hair.
 (Culicover and Rochemont (1990: 23))
- (8) a. *With what color hair did a man come into the room?
 b. *With blond hair, a man came into the room.
 (Culicover and Rochemont (1990: 24))

The extraposition of PP adjuncts in (7b) is grammatical. Nevertheless, PP adjuncts

that undergo *wh*-movement in (8a) or topicalization in (8b) cannot be relegated to the subject position. Therefore, Culicover and Rochemont (1990) argue that the extraposition does not involve the movement operation. In addition, Fox and Nissenbaum (1999) claim that the host NP is moved covertly via Quantifier Raising (QR). They provide some evidence for such a movement of NP, one of which is as follows:

- (9) *I looked for any clue very desperately that the detective might have overlooked. (Fox and Nissenbaum (1999: 10))

According to Fox and Nissenbaum, the phrasal verb *looked for* must take scope over the ‘free choice’ *any*. This requirement causes the deviance in (9) because the host NP *any clue* of the extraposed relative clause escapes from the scope of the corresponding verb via QR. Therefore, Fox and Nissenbaum argue that the extraposed adjunct is adjoined to the moved NP by Late-Merge.^{4, 5}

Significantly, Culicover and Rochemont (1990) and Fox and Nissenbaum (1999) argue that the extraposed adjunct originates in the surficial position.

3. Raising Analysis

Here, I overview the Raising Analysis by Henderson (2007) in Section 3.1 and point out several problems in Section 3.2. He claims that RRCs only require a unified derivational strategy, which can be extended to the derivation of the sentence with the extraposed RRC.

3.1. Unified Raising Analysis in Henderson (2007)

Henderson (2007) claims that RRCs are uniformly derived by raising the relative head from the relative clause. He sheds light on the paradoxical relationship between RA and Late-Merge: the relative head must originate in the relative clause and move to the surface position outside this clause cyclically while the relative clause must be late-merged. Henderson (2007) argues that the sideward movement of Nunes (2004) integrates the Late-Merge of adjuncts with RA. The derivation of the relative clause by means of sideward movement proceeds as follows:

- (10) The book that John read. (Henderson (2007: 211))

- (11) a. [TP John [VP read [NP book]]]

- b. [CP [NP book] that [TP John [VP read [NP book]]]]
 - c. [D the]
[CP [NP book] that [TP John [VP read [NP book]]]]
 - d. [DP the [NP book]]
[CP [NP book] that [TP John [VP read [NP book]]]]
 - e. [DP the [NP book] [CP [NP book] that [TP John [VP read [NP book]]]]]
- Relative Chain

(11) schematizes the derivation of (10). In (11a), the NP *book* is merged with the verb *read* and the subject *John*. At the next step, the complementizer *that* is externally merged with the TP, followed by the movement of the relative head *book* to the spec-CP in (11b). At the same time, the determiner is independently introduced into the main clause, which is separated from the relative clause in course of the derivation in (11c). The relative head inside the embedded clause undergoes sideward movement to the complement position of the determiner in the main clause in (11d). Finally, the two syntactic objects are merged, which forms a chain to associate three copies of the relative head. Henderson (2007) refers to it as Relative Chain, based on which reconstruction at LF and the deletion of the copies at PF can be executed. Moreover, with the assumptions of the analysis of extraposition in Fox and Nissenbaum (1999), Henderson tries to account for the derivation of the extraposed RRC. (12b) illustrates how his analysis applies to (12a), where the relative head is the NP fragment of the VO idiom and the relative clause is extraposed.

- (12) a. *Mary saw the heed last year that John paid⁶.
- b.

QR Chain

*Mary saw [DP the heed] last year [DP the [[NP heed] [NP heed] that John paid
 [NP heed]]].

Relative Chain
- (Henderson (2007: 215))

In (12b), the host NP undergoes QR after sideward movement and Late-Merge are applied as shown in (11), which creates a new chain, namely QR Chain. Henderson (2007) assumes that the material “with special interpretative licensing requirements must be licensed within each chain it is a member of (Henderson (2007: 214-215)).” He additionally stipulates that QR requires obligatory reconstruction, with supporting evidence in (13).

(13) *Someone gave him_i every picture of John_i (in Mary's album).

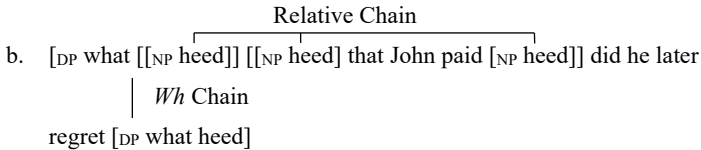
(Henderson (2007: 217))

If the copy in the QR chain in (12) can be interpreted in the landing site, it is licensed due to being a member of the Relative Chain, contrary to the fact. Therefore, the failure of licensing the copies in the QR Chain leads the derivation in (12) to crash.

3.2. The Problems in Henderson (2007)

In this subsection, I indicate three serious problems for RA in Henderson (2007). The first is that he relies on Late-Merge, which is not preferable in terms of cyclic derivation in the Minimalist framework. The second problem is that he tentatively assumes that reconstruction following *wh*-movement is optional to explain the grammaticality in (14a).

(14) a. What heed that John_i paid did he_i later regret?



(Henderson (2007: 216))

The relative clause is late-merged after *wh*-movement to avoid a Condition C violation because the base position of the *wh*-expression is c-commanded by the subject pronoun *he*, which refers to the R-expression in the relative clause. This analysis obliges the *wh*-expression in the base position not to contain the relative clause. Since the relative head must be licensed by the verb *paid* in the embedded clause, the *wh*-expression must be interpreted in the head of the *Wh* Chain. Therefore, Henderson (2007) argues for optional reconstruction in *wh*-movement. However, this assumption is dubious because *wh*-movement shows the reconstruction effects for Condition C in (15) below. (15) has the same environment as (13) in that the moved R-expression is c-commanded by the coindexed pronoun in the base position. Therefore, (15) can be supporting evidence for obligatory reconstruction in *wh*-movement unless its ungrammaticality is captured in another way. Nevertheless, Henderson does not give any accounts of a Condition C violation as in (15).

(15) *Whose claim that Jess_i is nice does he_i believe? (Adger et al. (2017: 1))

Finally, the analysis by Henderson requires the relative head to be licensed in QR Chain as well as *Wh* Chain when RRC is extraposed. Otherwise, the licensing condition is violated, resulting in the deviance of the sentence as in (12). However, this analysis is empirically rejected. Heycock (2012), Salzmann (2017) and Reeve (2012) provide the following data as evidence for the compatibility of the extraposition with reconstruction:

(16) Describe all the habits to me that you want to kick. (Heycock (2012: 12))

(17) It was very good headway yesterday that John made. (Reeve (2012: 84))

The imperatives in (16) and the *It*-Cleft construction in (17) show the reconstruction effects for the idiomatic interpretation despite the extraposition of the relative clause. In these sentences, the relative head is not licensed in QR Chain because it does not have the licenser in the matrix clause. Therefore, the analysis by Henderson wrongly predicts (16) and (17) to be ungrammatical.

4. Matching Analysis

In this section, we briefly introduce the previous Matching Analyses (MAs). Section 4.1 examines some MAs, in which it is claimed that a couple of derivational strategies must be available to explain the peculiar behavior concerning reconstruction effects in RRCs (e.g. Sauerland (2003) and Hulsey and Sauerland (2006)). In Sections 4.2 and 4.3, we review other approaches where only MA is required to derive all RRCs (e.g. Citko (2001) and Salzmann (2017, 2018)). The basic procedure in the derivation is shared among all versions of MAs.

(18) The pandas [*Op* pandas] we saw [*Op* pandas] at Ueno
 Matching Movement of *Op* pandas

(Sauerland (2003: 4), slightly modified)

The relative clause has two copies inside/outside of the relative clause. We refer to the copy inside the relative clause as the internal head and the other as the external head. In MA, the internal head originates in the relative clause and is raised to the spec-CP together with the relative operator *Op* to match the external head, which is base-generated in the matrix clause. Matching is followed by reconstruction of the internal head at LF and obligatory ellipsis of two copies inside the relative clause at PF.

(*ibid.*, slightly modified)

(22) and (23) are the schematic representation of (21). The derivation proceeds as illustrated in (18) until it reaches (22c). In (23), either of the remaining copies must undergo the obligatory LF deletion executed under their identification, generating the final representation for the interfaces to read. When this LF deletion targets the external head, we can get the reconstruction effects because the relative head is interpreted within the relative clause.

(24) a. *The headway on Mary's_i project which she_i had made pleased the boss.

(Citko (2001: 140))

b. [[The ~~headway on Mary's_i project~~] [[which ~~headway on Mary's_i project~~]
[she_i had made ~~which~~ headway on Mary's_i project]]]

(25) The picture of John_i which he_i likes is on the front page. (*ibid.*)

The idiom interpretation requires reconstruction so that the internal head would be licensed in the base position. Thus, the R-expression in (24a) violates Condition C due to being c-commanded by the coindexed subject pronoun in the embedded clause as shown in (24b). (25) is grammatical because the external head does not need reconstruction, which allows for the deletion of the internal head at LF.

Although the uniformed matching approach in Citko (2001) is attractive, there remains one serious problem to be explained: overgeneration. If the reconstruction effects are obtained by the deletion of the external head under identity, nothing prevents this option from applying to the sentence with the extraposed RRC. However, this expectation is refuted by the empirical evidence in (19b) and (20b).⁷ Salzmann (2017, 2018) also suggests that the Citko's (2001) analysis cannot account for the crossover effects.

(26) a. *[Pictures of anyone_i] which he_i displays _ prominently are likely to be attractive ones. (Salzmann (2018: 14))

b. [Pictures of anyone_i] which _ put him_i in a good light are likely to be attractive ones. (*ibid.*)

Salzmann (2018) claims that the contrast in (26) involves secondary strong crossover, which prohibits moved material from traversing the coindexed pronoun that c-commands it. Consequently, (26a) is ungrammatical because the quantifier *anyone* in the internal head moves over the subject pronoun c-commanding it. In (26b), the

corresponding part of the internal head is not c-commanded by the coindexed pronoun *him* in the relative clause. Therefore, it does not show crossover effects. However, the Citko’s (2001) analysis allows the internal head to be ignored at LF by the elliptical operation executed under identity.

4.3. Unified Matching Analysis in Salzmann (2017, 2018)

The LF representation in Salzmann (2017) preserves both the external head and internal head, which can predict the crossover effects in (26). The similarity to Citko (2001) is that Salzmann (2017, 2018) assumes the additional LF deletion of the relative head with a special licensing requirement. He calls it *exceptional LF deletion* because it is triggered under a certain environment.

(27) a. The [careful track] [that she’s keeping _ of her expenses] pleases me.

(Salzmann (2018: 12))

b. the [~~careful track~~] [_{CP} [_{λx}. ~~careful track~~]_i she is keeping [x, careful track]_i of her expenses] (*ibid.*: 13))

The external head with a positive licensing requirement in (27) is the target of exceptional LF deletion because the failure of licensing this head crashes the derivation.

However, exceptional LF deletion leads to overgeneration. MA in Salzmann (2017, 2018) cannot resolve the contrasts concerning the extraposition in (19) and (20). In this analysis, the exceptional LF deletion is expected to be available to obviate the deviances in (19b) and (20b), contrary to fact.

5. Proposal

This section discusses the licensing condition of the VO idiom and the phase-based analysis of anaphor binding introduced in Section 2.2, after providing the alternative MA. In our analysis, the derivation of RRCs proceeds cyclically in a bottom-up fashion under the Minimalist approach. Concerning the extraposition discussed in Section 2.3, we agree with Culicover and Rochement (1990) that adjuncts are directly adjoined to the surficial position, that is, v*P/vP or TP.

5.1. Alternative Matching Analysis

This section is devoted to the introduction of our MA. Assuming with Chomsky (2000, 2001) that the derivation proceeds phase by phase, we postulate that Matching takes place at LF immediately after the Transfer of the relative head and the relative clause. See (28) for the derivation of the relative clause.

- (28) a. [_{VP} [*Op pandas*]_j [_{VP} we [_{VP} saw_i [_{VP} t_j t_j]]]]]
- b. [_{CP} [*Op pandas*]_j [_C [_{TP} we_k [_T [_{VP} t_j t_k [_{VP}* saw_i [_{VP} t_j t_j]]]]]]]]]
- c. [_{VP} [_V* [_{VP} [_V [_{DP} the [_{NP} [_{NP} pandas] [_{CP} [*Op pandas*] [_C [_{TP}...]]]]]]]]]]]
- d. [_{VP} [_V [_D the [_{NP} [_{NP} pandas] [_{CP} [*Op pandas*] we saw [*Op pandas*]]]]]]]
- Matching Chain Wh Chain

First, the internal head moves to the edge of the v*P phase for further movement to the spec-CP as shown in (28a) and (28b). The completion of the v*P phase in the matrix clause triggers the Transfer of the complement VP, which corresponds to the shaded part in (28c). Matching between the internal head and the external one takes place under their semantic identification, which creates the Matching Chain in (28d). Moreover, the two occurrences of the internal head also form the *Wh* Chain. Our MA has the following properties in common with the analysis by Salzmann (2017, 2018): the external and internal heads are preserved at the semantic interface, which can capture the crossover effects. Moreover, we assume with Henderson (2007) that when a member with a positive licensing condition in a chain relation is licensed, the other members can satisfy the same interpretation requirement. We give a more detailed account of the licensing condition and the problematic cases in (19) and (20) in the rest of the paper.

5.2. Licensing Condition on the VO Idiom

In this subsection, we propose the licensing condition on the fragment NP of the VO idiom. It is generally argued that the VO idiom is assumed to build a chunk at LF. However, some papers argue that this interpretation requirement is not attested. See (29) and (30) for the availability of the idiomatic interpretation in an environment where the NP fragment independently occurs.

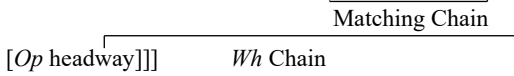
- (29) The rat is Gino. (Bruening (2015: 9))
- (30) Headway may be possible with... (Ruwet (1991: footnote. 15))

According to Bruening (2015), the surficial subject *rat* in (29) has the meaning of ‘betrayed’ as the NP fragment *rat* in the idiomatic expression *smell a rat*. This fact shows that the fragment NP and the rest parts of the VO idiom can separately enter the derivation. However, one might question why the occurrence of the idiomatic fragment without the rest of the idiom is generally impossible. In other words, why can the fragment NP *headway* not be used in the idiomatic sense in (31a)?

(31) a. *They were surprised at the headway.

b. They were surprised at the headway that we made. (Bruening (2015: 24))

(32) They were surprised at the [[headway] [_{CP} [_{Op} headway] that we made



We argue for a ban on the s-selection of the idiomatic noun not being licensed. The derivation in (31a) is ruled out by this restriction, while the one in (31b) is not because the Matching Chain and the *Wh* Chain can contribute to the licensing of the fragment NP of the VO idiom as schematized in (32). Since the internal head receives this interpretative information in its base position, the same interpretation of the external head is warranted via the Matching Chain. Thus, it can be s-selected by the verb *surprised* in the matrix clause, which does not prevent the sentence in (31b) from receiving the intended interpretation. As a result, we can summarize a positive licensing condition about the VO idiom as follows:

(33) Licensing Condition on the Fragment NP of the VO Idiom⁸

The fragment NP with the idiomatic interpretation must not be s-selected by any verbs other than the proper licenser before this requirement is satisfied.

This restriction can interact with the Inclusiveness Condition, proposed by Chomsky (1995). Due to this condition, no new elements can be introduced during the computation of human language. In phase-based derivation, the lexical subarray is selected from the lexical array at each phase level. The s-selection of the NP fragment not being licensed shows that the non-idiomatic counterpart has been selected in the lexical subarray. Otherwise, the condition in (33) is violated. Therefore, even if the NP is selected by the licenser after this selection, it cannot be licensed. On the other hand, the licensed NP fragment can be s-selected by any verbs, which does not run afoul of the Inclusiveness Condition.

5.3. Condition A of the Binding Theory

In addition to the licensing condition of the idiosyncratic noun in the VO idiom, we discuss the anaphor binding in sentences with RRCs, some of which do not seem to conform to Condition A of the binding theory. Assuming the phase-based analysis of the locality of Condition A in Quicoli (2008), we argue that the anaphor can receive the information on its reference via Matching Chain at the interface as long as the cyclic derivation is satisfied. Let us consider the concrete example in (34).

- (34) Der [Wesenszug von sich_i], [den Peter_i noch nicht _ kannte],
the trait of self which Peter still not know.PST.3SG
störte niemanden.
anyone.PST.3SG no.one.ACC
‘No one was annoyed by the side of himself_i that Peter_i did not know.’
(Salzmann (2017: 71))

The anaphor in the external head *Wesenszug von sich* ‘trait of himself’ does not have any antecedents in the matrix clause. Since logophoric binding is impossible in German, the phase-based analysis of the locality cannot account for the grammaticality in (34). Therefore, the anaphor must receive its referential information from other sources. Based on the analysis in Quicoli (2008), the lower copy of the internal head can receive the referential information from the subject *Peter* in the embedded v*P phase. When the matrix CP phase is completed, the complement TP is transferred and Matching takes place. At this point, the higher occurrence of the internal head obtains its interpretation through the *Wh* Chain, which guarantees the same interpretation of the external head via the Matching Chain. We see the detailed derivation of the relative clause with anaphor in the relative head in Chapter 6.

6. The Practice of our MA

Sections 6.1 and 6.2 show that our phase-based matching analysis can account for the contrasts between RRCs and the extraposed RRC with respect to reconstruction effects, which endorses the derivation in the Minimalist framework. In Section 6.3, we show the implications for our analysis of *It*-Cleft (IC) sentences.

6.1. Reconstruction for Idiomatic Interpretation in RRCs

This section aims to solve the problematic cases with the idiomatic expression by applying our MA.

- (35) a. Mary praised the headway that John made last year. (= (19a))
 b. We never made the headway that we intended. (Reeve (2012: 47))
 c. *Mary praised the headway last year that John made. (= (19b))
 d. I made the same headway last year that John made this year.
 (Bruening (2015: 10))

We start our analysis with (35a) whose derivation is schematized as follows:

- (36) a. [_{v+P} Mary [_v praised_j [_{VP} t_j [_{DP} the [_{NP} [_{NP} headway] [_{CP} [_{Op} headway]_i] [_C [_{TP} that John made t_i last year]]]]]]]]]
- b. praise the [[headway] [_{CP} [_{Op} headway] that John made [_{Op} headway] last
year]]
Matching Chain *Wh* Chain

The derivation of the relative clause proceeds as discussed in Section 5.1. In (36a), the completion of the v*P phase in the matrix clause transmits the complement VP. At LF, the external and internal heads match before the s-selection of the former in (36b). Since the lower copy of the internal head is already licensed by the verb *made* in the relative clause, the higher copy in the spec-CP can receive idiomatic interpretation through the *Wh* Chain, which guarantees the same interpretation of the external head via the Matching Chain. The verb *praise* can semantically select its internal argument *the headway* in (36b), which does not violate the condition in (33), repeated as (37) for explanatory purpose.

- (37) Licensing Condition on the Fragment NP of the VO Idiom (= (33))
The fragment NP with the idiomatic interpretation must not be s-selected by any verbs other than the proper licenser before this requirement is satisfied.

Next, we turn to the derivation of (35b), in which the relative clause does not have the licenser of the idiomatic fragment.

- (38) a. [_{vP} John [_{v*} made_j [_{VP} t_j [_{DP} the [_{NP} [_{NP} headway] [_{CP} [_{Op} headway]_i] [_C [_{TP}
we intended t_i]]]]]]]]]
b. make the [[headway] [_{CP} [_{Op} headway] that we intended [_{Op} headway]]]
Matching Chain Wh Chain

Based on (38a), the LF representation is constructed as (38b). The verb *make* in the matrix clause licenses the external head after the matching operation. In this case, the internal head in the spec-CP can be licensed because it is a member of the Matching Chain. Moreover, its lower copy also satisfies the interpretation requirement via the *Wh* Chain. It should be noted that this copy does not run afoul of the condition in (37). It is s-selected when the embedded v*P phase is completed while the copy creates the chain relation before this s-selection. Therefore, I argue that this selection does not determine the interpretation of the lexical item *headway*, that is, whether it is the fragment NP of the VO idiom or not. The determination of the interpretation can be postponed until the moved internal head is transferred.⁹

Compared to these RRCs, the extraposed RRC has a different derivation because the relative clause is adjoined to v^*P/vP when its host is in the object position. Therefore, (35c) is derived in the following way:

- (39) a. [_{v*P} [_{v*P} [_{v*P} Mary [_{v*} praised_i [_{VP} t_i [_{DP} the headway]]]]] last year] [_{CP} [_{Op}
headway]_k] [_C that [_{TP} John made t_k]]]
- b. praise [the headway]
- c. [_{CP} [_C [_{TP} Mary_j [_T [_{v*P} [_{v*P} [_{v*P} t_j [_{v*} praised_i [_{VP} t_i [_{DP} the headway]]]]]]] last
year] [_{CP} [_{Op} headway]_k] [_C that [_{TP} John made t_k]]]]]]]
- d. *[[Mary praised the [headway] last year [_{CP} [_{Op} headway] that John made
[Op headway]]]]
↔ Matching Chain ↔

The adverbial phrase *last year* and the extraposed relative clause are adjoined to the v*P in (39a). When the v*P phase is completed, the complement VP is transferred into LF whose representation is (39b). At this point, the DP *the headway* is s-selected by the verb *praise*. This s-selection proves that the NP *headway* does not have the idiomatic meaning because it is contained in the choice of the lexical subarray. Otherwise, it violates the condition in (37) (or the Inclusiveness Condition). Suppose the derivation proceeds as in (39c), the completion of the matrix CP phase transfers the complement TP, constructing the representation in (39d). However, the external head without idiomatic interpretation cannot match the internal one with this interpretation because they are not semantically identical, resulting in the crash of the derivation in (35c).

(40) a. [_{v*P} [_{v*P} [_{v*P} I [_{v*} made_i [_{VP} t_i [_{DP} the same headway]]]]] last year] [_{CP} [_{Op}
headway]_k [_C that [_{TP} John made t_k this year]]]]
b. make [the same headway]
c. [_{CP} [_C [_{TP} I_j [_T [_{v*P} [_{v*P} [_{v*P} t_j [_{v*} made_i [_{VP} t_i [_{DP} the same headway]]]]]]] last
year] [_{CP} [_{Op} headway]_k [_C that [_{TP} John made t_k this year]]]]]]]]]
d. I made [the same headway] [last year] [_{CP} [_{Op} headway]] that John made [_{Op}
 Matching Chain Wh Chain
headway] this year]

6.2. Reconstruction for Anaphor Binding in RRCs

(41) a. I saw the picture of himself_i that John_i liked. (- (20a))
 b. *I saw the picture of himself_i yesterday that John_i liked. (= (20b))
 c. I saw the picture of myself yesterday that John liked.
 (Hulsey and Sauerland (2006: 115))

(42) a. [_{v*P} [*Op picture of himself*]_j [_{v*P} John [_{v*} like_i: [_{VP} [_V t_i t_j]]]]]

b. [_{CP} [*Op pictures of himself*]_j [_C that [_{TP} John_k [_T [_{v*P} t_j [_{v*P} t_k [_{v*} like_i: [_{VP} t_j]]]]]]]]]

c. [_{v*P} I [_{v*} saw_j] [_{VP} t_j [_{DP} the [_{NP} [_{NP} picture of himself] [_{CP} [*Op picture of himself*]_i [_C that [_{TP} John liked t_i]]]]]]]

d. see the [[picture of himself]_i] [_{CP} [*Op picture of himself*]_i] that John₁ liked [*Op picture of himself*]_j]

Matching Chain Wh Chain

The completion of the embedded v*P phase in (42a) triggers the Transfer of its complement. In this timing, the reflexive can receive the referential information, ‘John = himself,’ because they are in the same phase domain. After the v*P phase in the matrix clause is completed in (42c), the complement VP is transferred. At LF, Matching takes place and connects the external head with the internal one by Matching Chain. Here, the higher copy of the internal head and the external head in (42d) can receive the referential information. The subject *I* is not a candidate for the supplier of the interpretation due to the difference with regards to ϕ -feature: the subject *I* is the pronoun with the first person while the reflexive *himself* is with the third person. Instead, the higher copy of the internal head and the external head can receive the referential information via *Wh* Chain and Matching Chain at LF.

On the other hand, the ungrammaticality of (41b) is reduced to the absence of referential information of the anaphor.

- (43) [_{VP} [_{VP} [_{VP} I [_{VP} saw_i [_{VP} t_i [_{DP} the picture of himself]]]]] yesterday] [_{CP} [_{Op} picture of himself]_j [_C that [_{TP} John liked t_i]]]]

The external head in (41b) is transferred upon the completion of the v*P phase in the main clause, whereas the extraposed RRC is not because it is attached to the v*P following the temporal adverb *yesterday*. In the phase-based derivation, the anaphor must receive the interpretation on its reference in the same phase domain. However, this locality requirement cannot be satisfied in (43) because the anaphor does not have the appropriate antecedent inside the v*P phase. Note that the internal head cannot provide its interpretation to the external head before Matching at LF. Therefore, the derivation of (41b) crashes at the stage of (43).

Finally, consider (41c), which is different from (41b) in that the external head is the anaphor with the same set of ϕ -features as the subject in the main clause.

- (44) a. [_{vP} [_{vP} [_{vP} I [_{v*} saw_i [_{VP} t_i [_{DP} the [_{NP} picture of myself]]]]] yesterday] [_{CP}
[_{Op} picture of myself]_k [c that [_{TP} John liked t_k]]]]
- b. [_{CP} [C [_{TP} I_j [T [_{vP} [_{vP} [_{vP} t_j [_{v*} saw_i [_{VP} t_i [_{DP} the picture of myself]]]]]
yesterday] [_{CP} [_{Op} picture of myself]_k [c that [_{TP} John liked t_k]]]]]]]]
- c. [_{CP} I_l saw the picture of myself_i yesterday [_{CP} [_{Op} picture of myself_i] that

Matching Chain

John liked [_{Op} picture of myself_i]]

Wh Chain

]

The completion of the phase v^*P in the matrix clause transmits the VP to LF as shown in (44a). At this point, the subject *I* is in the spec- v^*P , which gives its interpretation to the reflexive *myself* in the external head. After the syntactic derivation in (44b), the external and internal heads match under identity in (44c). The reflexives in the two copies of the internal head obtain the appropriate interpretation thanks to Matching Chain and *Wh* Chain, which allows the reflexive pronoun in (41c) to appear.

6.3. Reconstruction in *It*-Cleft

In the previous sections, we only looked at RRCs. However, this section considers the derivation of the *It*-Cleft (IC) sentence because it is often analyzed as a kind of RRC, although studies on the antecedent of the cleft clause have not reached a consensus. Some researchers argue that the antecedent is the expletive *it* (e.g. Hedberg (1990)) while others claim that it is the clefted XP (e.g. Hedberg (2000), Den Dikken (2013) and Reeve (2011, 2012)). In this paper, we will not show detailed explanations about their analyses but agree with the latter. Also, we adopt the structure proposed by Hedberg (2000) and Reeve (2012), where they regard the cleft clause as DP adjunction.

- (45) [IP [DP it] [I [VP be [DP [DP John] [CP that Mary saw]]]]]

We adjust this structure to fit with the framework in this paper. Note that the copular behaves like an unaccusative *v*, which does not constitute a phase.

- (46) [CP [C [TP it_k [T be_j [VP t_k [v t_j [VP t_j [DP [DP John] [CP [Op John]_i that Mary saw t_i]]]]]]]]]]]

Now, we consider the idiom reconstruction in the sentence within the extraposed cleft clause in (20), repeated as (47). This empirical data is provided by Reeve (2012) as evidence that the extraposition of the cleft clause does not disturb reconstruction, although he does not give any accounts of it.

- (47) It was very good headway yesterday that John made. (= (20))

We postulate that IC is derived only by the matching derivation. Thus, (47) has the derivation in (48).

- (48) a. [vP [vP [vP it [v be [VP [v t_i [AP very good headway]]]]]] yesterday] [CP [Op very good headway]_i [C that [TP John made t_i]]]]]

- b. $[_{CP} [C [_{TP} it_k [_T be_i [_{vP} [_{vP} [_{vP} t_k [_v t_i [_{VP} [_v t_i [_{AP} \text{very good headway}]]]]]]]]]] \text{yesterday}] [_{CP} [Op \text{very good headway}]_i [C \text{that} [_{TP} \text{John made } t_i]]]]]]]$
- c. it is [very good headway] yesterday $[_{CP} [Op \text{very good headway}] \text{that John made } [Op \text{very good headway}]]$ $Wh \text{ Chain}$
- Matching Chain

The derivation of IC proceeds in the same way as that of RRCs. Therefore, we omit the detailed explanations about the derivation. The vP headed by the copular does not constitute a phase at the stage of (48a). Therefore, the Transfer is triggered by the completion of the matrix CP phase. What is important is that the copular does not semantically select the complement. Therefore, the external head in (48c) matches the internal one and they create the Matching Chain without violating the condition in (37). Since the internal head at the tail of the *Wh* Chain is licensed, the licensing condition of the head of this chain is also satisfied. Thus, the idiomatic interpretation of the external head is warranted via the Matching Chain. Therefore, our MA can explain the reconstruction effects for the idiomatic interpretation in IC without any additional stipulations.¹⁰

7. Conclusion

This paper began with the introduction of examples that defy both RA and MA for RRCs. Section 2 introduced some theoretical background such as the phase, Condition A of the binding theory, and extraposition. After that, in Sections 3 and 4, we have reviewed previous RAs and MAs and pointed out some problems. In Section 5, we have proposed an alternative MA and discussed the licensing requirement on the idiomatic noun of the VO idiom and the phase-based analysis of anaphor binding. With these proposals, Section 6 has analyzed the problematic sentences illustrated in Section 1. We have accounted for the peculiar behavior of relative clauses concerning reconstruction effects, which has provided the argument of the Minimalist model of derivations. Moreover, we have demonstrated that our analysis can possibly account for the reconstruction effects in IC with an extraposed cleft clause.

Notes

*I would like to thank Nobuaki Nishioka for his insightful suggestions and comments. I am also grateful to Edmundo Luna for his stylistic improvement. All remaining errors are my own.

¹ The language has transitive/unergative *v** and unaccusative/passive *v*. The former constitutes a phase because it has full argument structure while the latter does not.

² Saito (2017) points out that the analysis by Quicoli (2008) should be revised to explain problematic examples such as (i).

- (i) *John expects [_{TP} the guests to be introduced to himself] (Saito (2017: 10))

It is generally assumed that the non-inflected complements in ECM sentences are TP. This assumption predicts the reflexive in (i) to satisfy its locality because the first transfer domain in (i) is *v**P in the matrix clause, which contains both the reflexive and its antecedent. Saito (2017) elegantly resolves this problem by arguing that the subordinate clauses with T are uniformly CP and what is transferred immediately after the completion of a CP phase in the clause without ϕ -agreement is not TP but vP. For more details, see Saito (2017).

³ The attachment site of the extraposed adjunct depends on the position of their semantic host. The extraposed adjunct semantically related to the object is adjoined to VP while the one associated with the subject is attached to IP and VP. This paper simply assumes that IP can be translated into TP and VP can be divided into *v**P/vP and VP.

⁴ Fox and Nissenbaum (1999) claim that the extraposed argument is raised together with the host NP. See the following contrast for one empirical example that supports their analysis.

- (i) I gave him_i a picture yesterday from John's_i collection. (Fox and Nissenbaum (1999: 8))
- (ii) ??/* I gave him_i a picture yesterday of John's_i mother. (*ibid.*: 9)

The extraposed materials in (i) and (ii) contain the R-expressions coindexed with the pronouns that occupy the indirect object position. (i) is grammatical because the extraposed adjunct is base-adjoined to the *v**P position that is not c-commanded by the indirect object. On the other hand, (ii) shows contrastive grammaticality. Fox and Nissenbaum (1999) argue that (ii) is ungrammatical because the extraposed argument is raised to the surficial position together with the host NP. In this case, the R-expression is c-commanded by the coindexed pronoun in its base position, which violates Condition C of the binding theory.

⁵ The notion of the Late-Merge is originally proposed by Lebaux (1988), which allows adjuncts to be merged with the moved host in its landing site in a counter-cyclic fashion.

⁶ Bruening (2015) points out that the sentence in (6) is ungrammatical regardless of whether the extraposition takes place as the following sentence shows.

- (i) *John saw the heed that Mary paid. (Bruening (2015: 9))

⁷ Suppose that (17b) and (18b) are ungrammatical because the copy within the extraposed RRC c-commands the one the matrix clause and the former copy must be pronounced. In this case, the analysis by Citko (2001) would be confronted with another problem, undergeneration. This explanation would always prohibit the lower copy from being pronounced when the extraposition of RRC takes place. However, the relative head can be pronounced in the matrix clause when the sentence does not violate any special licensing conditions.

- (i) Mary praised the pot roast yesterday last year that John made.
(Hulsey and Sauerland (2006: 114))

⁸ Note that we can get the licensed idiomatic interpretation more easily than the one which is not warranted, as exemplified below:

- (i) *Headway should be easy. (Bruening (2015: 7))

This paper does not pursue the ungrammaticality in (i) for want of space. However, the grammatical examples concerning the idiomatic interpretation that this paper deals with have the idiomatic chunk at the semantic interface somewhere. Therefore, I leave the grammaticality of the non-selected idiomatic fragment in (i) for future research.

⁹ I extend Quicoli's (2008) analysis of the anaphor binding to the VO idiom by assuming that the chain formation before Transfer can postpone the determination of the interpretation.

¹⁰ Our MA can be extended to the idiom reconstruction in the imperative with the extraposed RRC like (19), repeated below:

- (i) Describe all the habits to me that you want to kick. (= (19))

It is sometimes claimed that the verb with the imperative mood raises to the phase head C (e.g. Rivero (1995) and Potsdam (2007)). If the verb undergoes the A'-movement to this position, it does not semantically select its complement in the base position until reconstruction. Given this hypothesis, the external head can match the internal head after the completion of the matrix CP phase triggers transfer of the TP. This derivation does not bring about a violation of the condition in (37) because the reconstruction of the imperative verb can be later than the matching operation, which can satisfy the idiom interpretation requirement due to the chain relations. Therefore, we can predict that the sentence in (i) can show the reconstruction effects for the idiomatic interpretation.

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