The Interaction between Movement and Externalization

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https://doi.org/10.15017/7363538

出版情報：九大英文学. 67, pp.15-33, 2025-03-31. 九州大学大学院英語学・英文学研究会
バージョン：
権利関係：

The Interaction between Movement and Externalization*

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1. Introduction

It was observed early in the literature that local movement is not allowed (i.e. anti-locality). Movement of subjects gives significantly worse grammatical results than that of objects as follows.

(1) a. Who$_i$ do you think (*that) t_i saw John?
b. Who$_i$ do you think (that) Bill saw t_i?

(2) a. *John, *t* left. (Agbayani (2000: 704))
b. John, I like *t*. (Agbayani (2000: 704))
c. John, I think *t* won the race. (Lasnik and Saito (1992: 82))

The sentences in (1) present a particularly salient example of '*that*-trace effects,' i.e. one of the phenomena exhibiting the subject/object asymmetry, where a subject cannot be extracted from a clause headed by an overt *that* but an object can. Also, this asymmetry is attested in (2). (2) shows that the local topicalization of subjects is impossible in English. Previous studies have attempted to explain the unacceptability of such sentences in terms of syntactic factors and suggested that local movement of subjects must be prohibited (see Chomsky (2015), Erlewine (2016, 2020), Douglas (2017), among others for *that*-trace effects, and Agbayani (2000), Erlewine (2016) for the local topicalization of subjects). However, this unacceptability is improved by the insertion of phonological elements or ellipsis as shown in (3) and (4).

(3) a. Who did you say that he will come?
(Bayer and Salzmann (2013: 294))
b. John said that someone would write a new textbook, but I can't

remember who ~~John said that __ would write a new textbook.~~

(Kandybowicz (2006: 222))

(4) a. Who watered the plants?

b. Me. (Merchant (2004: 703))

The example in (3a) shows that an anti-locality violation is voided when a resumptive pronoun is employed, while *that*-trace effects are ameliorated by sluicing in (3b). In the same way as (3a), (4) shows an example of fragment answers of subjects. Contrary to (2a), the local movement of subjects is allowed when the whole TP is elided in (4).[1] It is difficult for syntactic analyses to explain the fact that phonological operation ameliorates *that*-trace effects and the local movement of subjects if local movement itself is banned. We therefore need an analysis that explains the correlation between movement and phonological operation. This paper argues that there is no syntactic constraint on local movement and that *that*-trace effects and the local subject movement should be explained from the viewpoint of the Sensorimotor (SM) condition. Specifically, we propose that these constructions are given satisfactory explanations in terms of restriction on phonological copy deletion, following Kotzoglou (2010).

The organization of this paper is as follows. Section 2 reviews previous research on *that*-trace effects and the local movement of subjects. Section 3 outlines the main theoretical background of this paper: Kotzoglou (2010). In section 4, we propose that phonological deletion of copies applies only once in each phase and account for *that*-trace effects and the local movement of subjects based on our analysis. Section 5 concludes the discussion.

2. Previous Studies

2.1. *That*-Trace Effects

That-trace effects have been a central topic in Generative Grammar. In this subsection, we will focus on two analyses: the labeling approach and the anti-locality approach.

2.1.1. Labeling Analysis

Chomsky (2013, 2015) argues that any syntactic objects must have a label for interpretation at the conceptual-intentional (CI) and SM interfaces. Given this, Chomsky (2013) proposes the Labeling Algorithm (LA), where the nearest head is defined as the label by Minimal Search (MS). Let us consider how the LA works below.

(5) a. $\{_{\alpha}$ H, XP$\}$ (α=H)

b. {{X,WP}, {Y, ZP}}={XP, YP}

(i) {XP, $\{_{\alpha}$ ~~XP~~, YP}} (α=Y)

(ii) $\{_{\alpha}$ $\{X_{[F]}$, WP}, $\{Y_{[uF]}$, ZP}} (α=<F, F>)

(5a) is the simplest case where a head merges with a phrase. Since MS immediately finds the head, the closest head becomes a label. The next case is an XP-YP situation in (5b), where both elements are phrases. MS cannot identify the label uniquely because both X and Y are found simultaneously by MS. There are two possible solutions here. One is internal Merge (IM). Assuming that a copy of the moved element is invisible to MS, Chomsky (2013) argues that the label of the set can be identified as Y when XP moves in (5b(i)) (strikethrough indicates non-pronunciation of elements). The second possibility is that agreeing features provide the label <F, F> as shown in (5b(ii)). In this case, X bears a valued feature [F] and Y has an unvalued feature [*u*F]. When MS applies to this set, shared features determine the label uniquely and the label is determined as <F, F>.

Chomsky (2015) analyzes *that*-trace effects in terms of the LA. (6b–d) and (7b) show the possible derivations of (6a) and (7a), respectively.

(6) a. *Who do you think that t_i saw John? (=(1a))

b. who do you think $\{_{\delta}$ ~~who~~ $\{_{\gamma}$ that $\{_{\beta}$ ~~who~~ $\{_{\alpha}$ T $\{_{<R\text{-}v^*>}$ ~~who~~ saw John$\}\}\}\}\}$

(α=β=?, γ=δ=C)

c. who do you think $\{_{\gamma}$ ~~who~~ $\{_{\beta}$ that $\{_{\alpha}$ T $\{_{<R\text{-}v^*>}$ ~~who~~ saw John$\}\}\}\}$

(α=?, β=γ=C)

d. who do you think $\{_{\gamma}$ that $\{_{\beta}$ who $\{_{\alpha}$ T $\{_{<R\text{-}v^*>}$ ~~who~~ saw John$\}\}\}\}$

(α=T, β=<phi, phi>, γ=C)

(7) a. Who do you think t_i saw John? (=(1a))

b. Who do you think {$_{\gamma}$ ~~who~~ {$_{\beta}$ T {$_{\alpha}$ ~~who~~ saw John}}}

(α=<R-*v**>, β=T, γ=<phi, phi>)

In (6b), where *who* moves to SPEC-CP via SPEC-TP, there are labeling problems. Chomsky (2015) assumes that T is too weak to serve as the label and must be strengthened by the label <F, F>. α and β fail to have labels because *who* in SPEC-TP moves to SPEC-CP before MS applies and T is not strengthened by <phi, phi>. Thus, this derivation is doomed to crash. Then, in (6c), *who* moves to SPEC-CP directly. This derivation fails for the same reason as (6b). There is no labeling problem in (6d), where *who* moves to SPEC-TP without moving to SPEC-CP. However, *who* ends up being in the Transfer domain marked with shading, so further IM of *who* is banned by the Phase Impenetrability Condition (PIC).[2] Therefore, the possible derivations of (6a) crash because of the failure of labeling or PIC. In contrast, the derivation in (7b) converges. Chomsky (2015) postulates that T inherits the phasehood of C and the Transfer domain shifts to the complement of T after *that* is deleted.[3] Therefore, *who* in SPEC-TP is available in the next phase.

Although his analysis can capture the asymmetry between (6a) and (7a), it is difficult to account for the fact that *that*-trace effects are not found in (3). This is because local movement of subjects itself should be prohibited by labeling failure or PIC.

2.1.2. Anti-Locality

Many studies account for *that*-trace effects in terms of the anti-locality condition (Douglas (2017), Erlewine (2020), among others). Erlewine (2016) offers the SPEC-to-SPEC Anti-Locality Constraint as in (8).

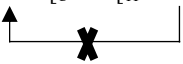
(8) Spec-to-Spec Anti Locality

Movement of a phrase from the Specifier of XP must cross a maximal projection other than XP. (Erlewine (2016: 431))

Erlewine (2020) argues that *that*-trace effects are captured by the SPEC-to-SPEC Anti-Locality Constraint as shown in (9).

(9) a. Who do you think (*that) saw John? (=(1a))

b. Who do you think [$_{CP}$ ~~who~~ [$_{C}$ that [$_{TP}$ ~~who~~ saw John]]]



c. Who do you think [$_{CTP}$ ~~who~~ saw John]

In (9b), where *that* is overt, *who* stops by SPEC-TP and SPEC-CP to move to the highest position. In this derivation, movement from SPEC-TP to SPEC-CP is too short and is blocked by (8). In contrast, in (9c) without overt *that*, the constraint in (8) is not violated because Erlewine assumes that C and T are bundled when overt *that* does not appear.

This analysis could explain the fact that sluicing improves the unacceptability of *that*-trace effects by assuming that EPP is a requirement of a phonological component following Salzmann et al. (2013) (see also Merchant (2001) for repair by ellipsis). Given this, SPEC-TP does not have to be occupied because the whole TP is deleted. Since *who* in SPEC-*v**P directly moves to SPEC-CP in the derivation of (3b), no problem seems to arise. However, it is dubious to regard EPP as a *bona fide* phonological requirement. In the literature, it is argued that EPP is necessary for the semantic component because of a generic reading of subjects (Rosengren (2002)). Given this, a phonological EPP has difficulty explaining how subjects obtain a generic reading without moving to SPEC-TP. For this reason, the derivation of (3b) faces anti-locality, and thus it is likely that this proposal cannot be sustained.

2.2. Local Movement of Subjects

In addition to *that*-trace effects, Erlewine (2016) suggests that the local subject topicalization can be accounted for by (8).

(10) a. *John, *t* left.

b. [$_{CP}$ John [$_{C}$ C [$_{TP}$ ~~John~~ [$_{T}$ T [$_{v*P}$ ~~John~~ left]]]]]

However, this approach seems to raise an issue on how it explains fragment answers of subjects. (11) shows that fragment answers of subjects are possible.

(11) a. Who watered the plants?

b. Me. (=(4))

Merchant (2004) proposes that fragment elements move to a higher position than TP, and then TP is elided as shown below.[4, 5]

(12) [FP Me [F F [TP me ~~watered the plants~~]]]

As discussed in the preceding subsection, anti-locality cannot be avoided even if the whole TP is elided, so the anti-locality approach remains problematic.

In this section, we have reviewed previous studies on *that*-trace effects and the local movement of subjects and shown problems with those analyses. In the next section, we will see Kotzoglou (2010), on which our analysis is based.

3. Kotzoglou (2010)

In this section, we will introduce the main theoretical background of this paper: Restriction on Copy Reduction (RCR) proposed by Kotzoglou (2010).

He attempts to explain subject islands such as (13).

(13) a. *Who did [a picture of ____] annoy our neighbours?

(Kotzoglou (2010: 33))

b. Who did you see [a picture of _____]? (Kotzoglou (2010: 33))

Sentences in (13) illustrate that subextraction from subjects is prohibited, while the corresponding subextraction from objects is not. The literature refers to this phenomenon as *subject islands*. These have received great attention in the literature and various researchers have attempted to account for them syntactically (Gallego and Uriagereka (2007), and references therein). Although previous studies have explained the phenomenon in different ways, they have in common that subextraction from SPEC-TP is not licensed. Therefore, these studies predict that an element within SPEC-TP cannot move to a higher position in any case. In a nutshell, it is predicted that subject islands are not ameliorated by other effects. However, this prediction is not borne out: sluicing improves the unacceptability of subject islands as illustrated in (14).

(14) a. A biography of one of the Marx brothers is going to be published this

year __ guess which! (Merchant (2008: 136))

b. *Guess which (Marx brother) [a biography of __] is going to be published this year. (Merchant (2008: 136))

The example in (14a) shows that subject islands are ameliorated when the whole TP including the subject is silenced. In contrast, the corresponding one in (14b) is unacceptable because the subject is not silenced. In the minimalist program, syntactic objects are formed in narrow syntax before they are transferred to the CI and SM interfaces. The syntactic analysis cannot account for this fact because the violation in narrow syntax is not improved by the later operation at the CI and SM interfaces. Given this, Kotzoglou (2010) proposes that subject islands are PF effects. Specifically, he claims RCR in (15) as a SM condition.[6]

(15) Restriction on Copy Reduction

Phonological deletion of copies under identity can apply to at most one pair of copies of an element in each phase. (Kotzoglou (2010: 43))

According to (15), the following structure is banned.

(16) *[$_{\text{phase A}}$ α1…~~α2~~…~~α3~~ [$_{\text{phase B}}$

In (16), where α has three copies within a single phase, phonological copy deletion applies to two pairs of copies to elide two elements, violating (15). Kotzoglou (2010) argues that two or more copies must not be silenced within one phase. To put it another way, copy deletion cannot apply to two or more copies within a single transfer domain. Kotzoglou shows that the RCR violation is ameliorated by the insertion of a non-phonological element (*pro*) or ellipsis in (17) because RCR is the SM condition.[7]

(17) a. Insertions of *pro* [phase α1…~~α2~~…*pro*]

b. Ellipsis [phase α1~~…α2…α3~~]

In (17a), where *pro* is used, RCR is not violated because copy deletion applies to only α2. In addition, ellipsis avoids the violation of RCR in (17b), where α2 and α3 are included in the elided domain. This structure is derived without applying copy deletion since α2 and α3 are deleted by ellipsis.

Now, let us consider how RCR accounts for subject islands.

(18) a. *Who did [a picture of ____] annoy our neighbours? (=(13a))

b. [$_{CP}$ who [$_{C}$ did [$_{TP}$ ~~who~~ a picture of [$_{T}$ [$_{v*P}$ ~~who a picture of who~~ annoy our neighbours]]]]]

(18b) shows the derivation of (18a). Kotzoglou assumes that DP is a phase and *who* moves to the higher position via SPEC-DP. In this structure, the occurrences of copies of *who* is SPEC-CP, SPEC-TP, and SPEC-*v**P. To derive the sentence in (18a), copies of *who* in SPEC-TP and SPEC-*v**P must be deleted. This deletion, however, violates RCR since it applies to two copies within a single transfer domain of the CP phase.[8] Therefore, (18a) is doomed to fail.

Next, we consider the derivation of (19a).

(19) a. A biography of one of the Marx brothers is going to be published this year __ guess which! (=(14a))

b. guess [$_{CP}$ which [$_{C}$ ~~[$_{TP}$ which a biography of is going to be published which a biography of this year]~~]]

(19b) illustrates the derivation of (19a). We follow the PF-deletion analysis, where sluicing is derived from TP-ellipsis (Merchant (2001), *et seq*.).[9] Since the whole TP is deleted, this sentence is derived without the deletion of copies. Thus, RCR is not violated and the sentence in (19a) is grammatical in contrast with that in (18a).

Next, let us see extraction from subjects in Greek as in (20a).

(20) a. Tinos ipes oti [i ipomoni ___ se epise]?
Whose said$_{2sg}$ that the patience ___ you$_{ACC}$ persuaded$_{3sg}$
'Whose patience did you say persuaded you?' (Kotzoglou (2010: 33))

b. Tinos ipes [$_{CP}$ Tinos [$_{C}$ oti [$_{TP}$ ~~Tinos~~ i ipomoni [$_{T}$ [$_{v*P}$ *pro* se epise]]]]]

As is clear from the example in (20a), subextraction from subjects is possible in Greek. Given that Greek is a *pro*-drop language, Kotzoglou assumes that SPEC-*v**P is occupied by *pro* in Greek following Spyropoulos and Philippaki-Warburton (2001). Since *pro* occupies SPEC-*v**P and deletion of copies applies to a copy in SPEC-TP within a transfer domain of a CP phase, RCR is not violated and the sentence in (20a) is grammatical. Note that the movement from SPEC-TP to the spec of an immediately higher CP is not itself prohibited syntactically under his analysis. Therefore, it can account for the correlation between subject islands and phonological operation.

We have shown that subject islands can be accounted for in terms of the SM condition. Specifically, the deletion of copies can be applied to one pair of copies at most within a single transfer domain. In the next section, we will extend RCR to *that*-trace effects and the local topicalization of subjects.

4. Proposal

In this paper, we contend that the insertion of a resumptive pronoun (RP) also ameliorates the violation of RCR. Moreover, we propose that RCR can be extended to other phenomena: *that*-trace effects and the local subject movement. First, we will see ways to ameliorate the violation of RCR.

(21) a. Insertions of *pro* [phase α1…~~α2~~…*pro*] (= (17a))
[phase α1…*pro*…~~α2~~]
b. Ellipsis [phase α1~~…α2…α3~~] (= (17b))
c. Resumptive pronouns [phase α1…RP…~~α2~~]

As shown above, the insertion of *pro* and ellipsis avoids the violation of RCR. Furthermore, we propose that RCR is not violated by pronouncing RP as in (21c). We assume, with Kayne (1981), that RP is a spell-out of a trace. Therefore, copy deletion applies to one copy of α2, and RCR is not violated in the structure in (21c).

To sum up, there are three ways to circumvent the violation of the RCR. In the following subsection, we will show that *that*-trace effects are accounted for in terms of RCR.

4.1. *That*-Trace Effects

Recall from section 1 that the complementizer *that* cannot be followed by a trace as in (22a).

(22) a. *Who$_i$ do you think that t_i saw John? (=(1a))
b. who do you think [$_{CP}$ ~~who~~ [$_C$ that [$_{TP}$ ~~who~~ [$_T$ [$_{v*P}$ ~~who~~ saw John]]]]]

(22b) illustrates the derivation of (22a). There are two copies of *who* within the transfer domain of the embedded CP phase. Since copy deletion must apply to copies in the spec of *v**P and TP within the transfer domain of the embedded CP phase, RCR

is violated, causing the sentence in (22a) to be ungrammatical.

Next, we will see the sentence without overt *that* in (23a).

(23) a. Who$_i$ do you think t_i saw John? (=(1a))

b. who do you think [$_{TP}$ ~~who~~ [$_T$ [$_{v*P}$ ~~who~~ saw John]]]

Following Chomsky (2015), we assume that phasehood is inherited by T when overt *that* is deleted.[10] In (23b), where there is no overt *that*, T inherits phasehood from C and the transfer domain is shifted to *v**P. The only copy of *who* in SPEC-*v**P is silenced by copy deletion within the transfer domain of the embedded TP phase, so RCR is not violated. Therefore, the sentence in (23a) is grammatical.

Next, let us consider the example in (1b), repeated below.

(24) a. Who$_i$ do you think (that) Bill saw t_i? (=(1b))

b. who do you think [$_{CP}$ ~~who~~ [$_C$ that [$_{TP}$ Bill [$_T$ [$_{v*P}$ ~~who~~ [$_{v*P}$ Bill saw ~~who~~]]]]]]

(24b) represents the derivation of (24a). Note that *who* stops only by the phase edges so that it cannot be transferred to the interfaces. RCR is not violated when copy deletion applies in the following structure.

(25) [$_{\text{phase edge}}$ copy … [$_{\text{phase edge}}$ ~~copy~~ … [$_{\text{phase edge}}$ ~~copy~~ …

In (25), copy deletion is applied only once within each transfer domain because elements in phase edges are not included in the same transfer domain.[11] Since copies of *who* stop by phase edges, RCR is not violated in (24b). Hence, the sentence in (24a) is grammatical.

Recall that *that*-trace effects are alleviated by the insertion of a RP as in (3a), repeated here as (26a).

(26) a. Who did you say that he will come? (=(3a))

b. who did you say [$_{CP}$ ~~who~~ [$_C$ that [$_{TP}$ he [$_T$ will [$_{vP}$ come ~~he~~]]]]]

Following Chomsky (2000), we assume that unaccusative verbs are projected into *v*Ps, not *v**Ps, and do not constitute phases. In (26b), the transfer domain of the embedded CP is the whole embedded TP since *v*P is not a phase. The resumptive pronoun *he* is spelled out as a trace, and therefore copy deletion applies to the lower copy of *he* only within the transfer domain of the embedded CP phase. Copy deletion

applies only once so that RCR is not violated with the example in (26a) being grammatical.

Also, remember that *that*-trace effects are not found when TP is elided as shown in (3b), repeated here in (27a).

(27) a. John said that someone would write a new textbook, but I can't remember who John said that __ would write a new textbook. (=(3b))

b. I can't remember [$_{CP}$ who [$_{C}$ ~~[$_{TP}$ John said who that who would who write a new textbook]~~]]]

Since the whole TP is elided in the derivation of sluicing, the surface structure is derived without applying copy deletion. Therefore, the sentence in (27a) is grammatical without any violation of RCR.

Then, we will see *that*-trace effects in *pro*-drop languages as illustrated in (28a).

(28) a. Chi$_i$ credi che t_i ama Sophia Loren?
who think-you that loves Sophia Loren
'Who do you think loves Sophia Loren?'
(Italian: Uriagereka (1988: 245))

b. chi$_i$ credi [$_{CP}$ ~~chi$_i$~~ [$_{C}$ che [$_{TP}$ *pro* [$_{T}$ [$_{v^*P}$ ~~chi$_i$~~ [$_{v^*}$ ama Sophia Loren]]]]]]

Previous studies show that Italian, which is a *pro*-drop language, does not show *that*-trace effects (Rizzi (1982), Uriagereka (1988), among others). (28b) illustrates the derivation of (28a). We assume, with Rizzi (1986), that *pro* occupies SPEC-TP in Italian. In this derivation, the spec of the embedded TP is occupied by *pro*, so copy deletion applies to the copy in SPEC-*v**P. Thus, RCR is not violated, resulting in the grammaticality of (28a).

Before proceeding to the discussion about local movement of subjects, we would like to examine the adverb effect. In the literature, *that*-trace effects can be ameliorated by intervening adverbs in (29) (Culicover (1993), Kandibowics (2006), among others).

(29) Who do you think that after years and years of cheating death ___ finally died? (Kandybowicz (2006: 222))

(29) could be accounted for by RCR if we follow Salzmann et al. (2013). They argue

that EPP is a genuine phonological requirement that SPEC-TP must be phonetically filled, and adverbs can satisfy the EPP. Given this, *who* does not stop by SPEC-TP and RCR is not violated within the transfer domain of the embedded CP phase, allowing (29) as grammatical. However, there remain two problems in this analysis. First, not all adverbs can alleviate *that*-trace effects as in (30).

(30) *Who$_1$ do you think that stupidly t_1 made no reply? (Frey (2003: 196))

If the phonological EPP requirement can be satisfied by anything overt, every adverb can improve *that*-trace effects contrary to the fact.

Second, EPP is usually satisfied by not adverbs, but DP or NP (see Chomsky (1995) for details). Since further discussion would take me too far afield, these issues are left for future research.

4.2. Local Movement of Subjects

In this subsection, we will show that RCR accounts for local movement of subjects.

As mentioned earlier, the local topicalization of subjects is banned.

(31) a. *John, *t* left. (=(2a))

b. [$_{CP}$ John [$_{C}$ [$_{TP}$ ~~John~~ [$_{T}$ [$_{vP}$ left ~~John~~]]]]]

(31b) illustrates the derivation of (31a). With Bowers (1976), we assume that topic elements move to SPEC-CP. Since the verb *left* is an unaccusative verb, *v*P is not a phase and the whole TP is a transfer domain. In this derivation, copy deletion applies to two copies of *John* in SPEC-TP and the complement of *v* within the same transfer domain, so a violation of RCR occurs. Therefore, the example in (31a) is not grammatical.

Under our analysis, local movement of subjects is accounted for by the SM condition so that the unacceptability is alleviated by phonological operations. First, let us consider left dislocation, which involves a topic associated with a resumptive pronoun, as in (32a).

(32) a. Me, I like beans. (Merchant (2004: 703))

b. [$_{CP}$ me [$_{C}$ [$_{TP}$ I [$_{T}$ [$_{v*P}$ ~~I~~ like beans]]]]]

In (32b), copy deletion applies only to the copy of *I* in SPEC-*v**P within the transfer domain of the CP phase so that RCR is not violated, resulting in the grammaticality of the sentence in (32a). Note that left-dislocated elements are derived by movement in this derivation. Previous studies argue that left-dislocated elements are base-generated in SPEC-CP and associated with some kind of pronoun because left dislocation is not sensitive to island constraints (see Radford (2018) and references therein). However, Boeckx and Grohmann (2005), among others, offer implementation of the movement analysis of left-dislocated elements. Although a resumptive pronoun is spelled out as a trace and left dislocation is taken to involve movement under our analysis, left dislocation is not problematic to our analysis even if we follow Boeckx and Grohmann (2005). Further, our analysis does not face a problem if left-dislocated elements do not undergo overt movement. Copy deletion applies to the copy of *I* in SPEC-*v**P if left-dislocated elements are base-generated in SPEC-CP in (33a). Thus, RCR is not violated in both cases.[12]

Next, we will see the example of preverbal subjects as in (33b).

(33) a. Telefona Gianni.
Calls Gianni
'Gianni calls." (Italian: Barbosa (1995: 11))

b. Gianni telefona. (Italian: Barbosa (1995: 11))

Previous studies argue that preverbal subjects occupy the same position as left-dislocated elements in *pro*-drop languages (Barbosa (1995), Alexiadou and Anagnostopoulou (1998), among others). Before we show the derivation of preverbal subjects, we will see evidence of preverbal subjects behaving the same way as left-dislocated elements. Subjects can appear pre-verbally if *if*-clauses appear in Greek (a *pro*-drop language) as shown in (34a), whereas this is impossible in English (a non-*pro*-drop language) as in (34b).

(34) a. Epidi o Petros an erthi i Maria tha figi.
because Peter if comes Mary FUT leave
'Because if Mary comes, Peter will leave.'
(Alexiadou and Anagnostopoulou (1998: 503))

b. *because Eric if Mary comes will leave

(Alexiadou and Anagnostopoulou (1998: 503))

This fact indicates that preverbal subjects move to the A′-position (see Alexiadou and Anagnostopoulou (1998) for other evidence including quantifier scope, interpretation of indefinites, and binding).

Now, we consider the derivation of preverbal subjects in Italian. Barbosa (1995) argues that the real subject position in *pro*-drop languages is the post-verbal position, so it may be that copy deletion applies to the post-verbal subject as in (35).

(35) [$_{CP}$ Gianni [$_{C}$ [$_{TP}$ *pro* [$_{v*P}$ ~~Gianni~~ [$_{v*P}$ telephona ~~Gianni~~]]]]]

Since *pro* occupies SPEC-TP, the transfer domain of CP phase includes only one copy of *Gianni* in SPEC-*v**P. Thus, RCR is not violated and the sentence in (33b) is grammatical.

Finally, let us consider fragment answers. As shown above, fragment answers of subjects are possible.

(36) a. Who watered the plants? (=(4a))

b. Me. (=(4b))

c. [$_{FP}$ me [$_{F}$ ~~[$_{TP}$ me [$_{T}$ [$_{v*P}$ me watered the plants]]]~~]]]

(36c) illustrates the derivation of (36b).[13] Since the whole TP is elided, the pronunciation is obtained without applying copy deletion. In a nutshell, a violation of RCR does not occur, so the example in (36b) is accepted.

In this section, we have argued that *that*-trace effects and local movement of subjects are explained in terms of the SM condition: RCR. Moreover, we have maintained that the unacceptability of these constructions is alleviated by the insertion of *pro* or a (resumptive) pronoun and ellipsis. The following table summarizes our analysis.

Phonological operation	-	*pro*	Ellipsis	(Resumptive) pronoun
That-trace effects	English (= (1a))	Italian (= (28a))	Sluicing (= (3b))	Resumptive pronoun (= (3a))
Local movement of subjects	Topicalization (= (2a))	Preverbal subjects (= (33b))	Fragment answers (= (4))	Left dislocation (= (32a))
the RCR violation	+	-	-	-
Acceptability	*	✓	✓	✓

<Table 1> Summary of This Article

5. Conclusion

In this paper, we have shown that phonological operations improve the unacceptability of *that*-trace effects and local movement of subjects. In section 2, we pointed out that syntactic analyses of Chomsky (2015) and Erlewine (2020) cannot explain this improvement of unacceptability of these phenomena. Given this, we discussed the SM condition of RCR proposed by Kotzoglou (2010) in section 3 and we argued that the local movement itself should not be prohibited syntactically and that these constructions should be explained by RCR in section 4. If the suggestion made in this paper is on the right track, the improvement of unacceptability by phonological operations can be explained. It would be valuable to pursue the possibility that RCR can be extended to other phenomena including complex NP islands and adjunct islands because the unacceptability of these phenomena is also improved by insertion of resumptive pronouns and ellipsis. However, this discussion is beyond the scope of this article, so we will leave it for further research.

Notes

* An earlier version of the current work was presented at Kanto Gakuin University (the 95th meeting of the English Literary Society of Japan). We would express our appreciation to the

audience members for their helpful discussion. Special thanks must go to Nobuaki Nishioka for invaluable suggestion and comments. Thanks are also due to Carey Benom for suggesting stylistic improvement. Needless to say, any remaining errors are ours.

[1] Merchant shows the similarity between fragment answers and left dislocation as in (i).

(i) Me, I watered the plants. (Merchant (2004: 703))

Suppose the derivation in (i) is equivalent to that in (4). In that case, fragment answers are not problematic under the syntactic account because left-dislocated elements can be base-generated in SPEC-CP (Radford (2018)). However, he presents evidence where fragments move before ellipsis applies: islands, complementizer deletion, polarity items, and C-selectional effects (see Merchant (2004) for details). Given this, the derivation in fragment answers does involve movement, so fragment answers cannot be accounted for by an approach where local movement itself is banned.

[2] Chomsky (2000) argues that *v**P and CP are phases and suggests PIC to reduce operative complexity in syntactic derivations as follows.

(i) 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))

According to PIC, the complement of a phase head is transferred and becomes inaccessible to syntactic operations.

[3] Chomsky (2015) argues that unvalued features mark phases. Given this, an unvalued phi feature inherited by T marks a phase so that T inherits the phasehood from C.

[4] Merchant (2004) shows that a functional phrase (FP) is in a clause-peripheral position. Also, he implies that FP is FocusP in terms of Rizzi (1997). See Merchant (2004) for details of the derivation of fragment answers.

[5] See note 1 for the discussion where fragment elements involve movement.

[6] This condition is based on the idea of Nunes (2004): chain reduction. Chain reduction is defined as "delete the minimal number of constituents of a nontrivial chain CH that suffices for CH to be mapped into a linear order in accordance with the LCA (Nunes (2004: 27))." However, the notion of chain is abandoned in the minimalist program so that Kotzoglou proposes RCR as an alternative proposal. See Kotzoglou (2010: 41–43) for details.

[7] Although he does not show how ellipsis avoids the RCR violation concretely, he implies the

possibility that ellipsis circumvents the RCR violation (see Kotzoglou (2010: 50)).

[8] Note that the lowest copy of *who* is included within a *v**P phase. However, the copy deletion cannot apply to this copy within a *v**P phase because this copy occupies the highest position in the *v**P phase, which is not within the transfer domain of *v**P. Therefore, it must apply within a CP phase to silence the lowest copy of *who*.

[9] Merchant proposes the E feature, which triggers PF-deletion. Under his analysis, heads bearing the E feature require their complements to be silenced at the SM interface. See Merchant (2001) for details.

[10] See note 3.

[11] According to PIC, what is transferred to the interfaces is a phase complement since phase edges are transferred in the next phase. Therefore, an RCR violation does not occur in the case of successive-cyclic movement unless elements stop by positions other than phase edges.

[12] Although it is important to determine whether left dislocation involves movement, further investigation would be beyond the scope of the present paper. Therefore, we leave it for future research.

[13] See subsection 2.2 for details of the derivation of fragment answers.

References

Agbayani, Brian (2000) "Wh-Subjects in English and the Vacuous Movement Hypothesis," *Linguistic Inquiry* 31, 703–713.

Alexiadou, Artemis and Elena Anagnostopoulou (1998) "Parametrizing AGR: Word Order, V-Movement and EPP-Checking," *Natural Language and Linguistic Theory* 16, 491–539.

Barbosa, Pilar (1995) *Null Subjects*, Doctoral dissertation, MIT.

Bayer, Josef and Martin Salzmann (2013) "*That*-Trace Effects and Resumption – How Improper Movement Can Be Repaired," *Repairs: The Added Value of Being Wrong*, ed. by Patrick, Brandt and Eric Fuβ, 275‑334, Mouton de Gruyter, Berlin.

Boeckx, Cedric and Kleanthes Grohmann (2005) "Left Dislocation in Germanic," *Focus on Germanic Typology*, ed. by Werner Abraham, 131–144, Akadamie-Verlag, Berlin.

Bowers, John (1976) "On Surface Structure Grammatical Relations and the Structure-Preserving Hypothesis," *Linguistic Analysis* 2, 225–242.

Chomsky, Noam (1995) *The Minimalist Program*, MIT Press, Cambridge, MA.

Chomsky, Noam (2000) "Minimalist Inquiries," *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik,* ed. by Roger Martin, David Michaels, and Juan Uriagereka, 89–155, MIT Press, Cambridge, MA.

Chomsky, Noam (2013) "Problems of Projection," *Lingua* 130, 33–49.

Chomsky, Noam (2015) "Problems of Projection: Extensions," *Structures, Strategies and Beyond: Studies in Honor of Adriana Belletti*, ed. by Elisa Di Domenico, Cornelia Hamann and Simona Matteini, 3–16, John Benjamins, Amsterdam.

Culicover, Peter (1993) "Evidence against ECP Accounts of the *That*-Trace Effect," *Linguistic Inquiry* 24, 557–561.

Douglas, Jamie (2017) "Unifying the *That*-Trace and Anti-*That*-Trace Effects," *Glossa: A Journal of General Linguistics* 2(1): 60, 1–28.

Erlewine, M. Yoshitaka (2016) "Anti-locality and Optimality in Kaqchikel Agent Focus," *Natural Language and Linguistic Theory* 34, 429–479.

Erlewine, M. Yoshitaka (2020) "Anti-locality and Subject Extraction," *Glossa: A Journal of General Linguistics* 5(1): 84, 1–38.

Frey, Werner (2003) "Syntactic Conditions on Adjunct Classes," *Modifying Adjuncts*, ed. by Ewald Lang, Claudia Maienborn, and Cathrine Fabricius-Hansen, 163–209, De Gruyter Mouton, Berlin.

Gallego, Angel and Juan Uriagereka (2007) "Conditions on Sub-extraction," *Coreference, Modality and Focus. Studies on the Syntax-Semantics Interface*, ed. by Luis Eguren and Olga Fernández-Soriano, 45–70, John Benjamins, Amsterdam.

Kandybowicz, Jason (2006) "Comp-Trace Effects Explained Away," *Proceedings of the 25th West Coast Conference on Formal Linguistics*, ed. by Donald Baumer, David Montero and Michael Scanlon, 220–228, Cascadilla Proceedings Project, Somerville, MA.

Kayne, Richards (1981) "ECP Extensions," *Linguistic Inquiry* 12, 93–133.

Kotzoglou, George (2010) "(Non-)Extraction from Subjects as an Edge Phenomenon," *The Complementizer Phase: Subjects and Operators*, ed. by Phoevos Panagiotidis, 33–50, Oxford University Press, Oxford.

Lasnik, Howard and Mamoru Saito (1992) *Move α: Conditions on Its Application and Output*,

MIT Press, Cambridge, MA.

Merchant, Juan (2001) *The Syntax of Silence: Sluicing, Islands, and the Theory of Ellipsis*, Oxford University Press, Oxford.

Merchant, Jason (2004) "Fragments and Ellipsis," *Linguistics and Philosophy* 27 (6), 661–738.

Merchant, Jason (2008) "Variable Island Repair under Ellipsis," *Topics and Ellipsis*, ed. by Kyle Johnson, 132–153, Cambridge University Press, Cambridge.

Nunes, Jairo (2004) *Linearization of Chains and Sideward Movement*, MIT Press, Cambridge, MA.

Radford, Andrew (2018) *Colloquial English: Structure and Variation*, Cambridge University Press, Cambridge.

Rizzi, Luigi (1982) *Issues in Italian Syntax*, Foris, Dordrecht.

Rizzi, Luigi (1986) "Null Objects in Italian and the Theory of *pro*," *Linguistic Inquiry* 17, 501–557.

Rizzi, Luigi (1997) "The Fine Structure of the Left Periphery," *Elements of Grammar: Handbook of Generative Syntax*, ed. by Liliane Haegeman, 281‑337, Kluwer, Dordrecht.

Rosengren, Inger (2002) "EPP: A Syntactic Device in the Service of Semantic," *Studia Linguistica* 56, 145–190.

Salzmann, Martin, Jana Häussler, Markus Bader, and Josef Bayer (2013) "*That*-Trace Effects without Traces: An Experimental Investigation," *Proceedings of NELS* 42, ed. by Stefan Keine and Shayne Sloggett, 149–162, GLSA, Amherst MA.

Spyropoulos, Vassilios and Irene Philippaki-Warburton (2001) "'Subject' and EPP in Greek: The Discontinuous Subject Hypothesis," *Journal of Greek Linguistics* 2, 149–186.

Uriagereka, Juan (1988) *On Government*, Doctoral dissertation, University of Connecticut, Storrs.