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Topicalization and Left Dislocation: An Experimental Study

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Abstract: This study aims to elucidate the restrained distributions of embedded topicalization and left dislocation (LD) through an online acceptability judgement task. Currently, there are two opposing approaches regarding their confined distributions. The intervention approach by Haegeman (2007, 2009, 2010a, 2010b, 2012) argues that topicalization gives rise to the intervention effect with operator movement to the left periphery. The truncation approach by Miyagawa (2017), on the other hand, notes that the truncation of a Topic Phrase excludes both topicalization and LD in the complements of Class C and D predicates of Hooper and Thompson (1973). The rationale for the latter approach is that LD, which does not involve movement, would not intervene with operator movement. The results of the acceptability judgement task reveal hitherto unnoticed differences of acceptability among various complements, and we are led to reconsider the exact syntactic projections hosting topicalization and LD. It is argued that both intervention and truncation are operative at the periphery, but their effect on embedded topicalization and LD varies depending on the matrix predicate class.*

Key words: topicalization, left dislocation, cartography, online experiment

1. Introduction

This study concerns topicalization and left dislocation (LD) in complement clauses, particularly their use to mark an aboutness topic.[1] Topicalization moves a constituent to the left of a sentence and marks old information—information that has already been mentioned in the discourse and hence is assumed to be known to the hearer:

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[1] There are at least three types of topics: Aboutness Topic, Contrastive Topic, and Familiar Topic (Bianchi and Frascarelli 2010, Jiménez-Fernández and Miyagawa 2014). This paper is concerned with Aboutness Topic.

(1) Speaker A: They just threw trash out of the car window!
Speaker B: *That kind of behavior*, we cannot tolerate.

In Speaker B's utterance, the italicized topic *that kind of behavior* refers back to the act of throwing trash out of the car window, and the rest of the sentence makes a comment about it. LD is similar to topicalization, with the superficial syntactic difference of a pronoun co-referential with the topic appearing in the comment clause. In (2), the italicized pronoun *it* appears in the object position of the verb *tolerate*.

(2) Speaker A: They just threw trash out of the car window!
Speaker B: *That kind of behavior*, we cannot tolerate *it*.

It has been argued in the literature that these two constructions differ in that topicalization involves movement, while LD does not (Postal 1971, Rodman 1974, Gundel 1975, Chomsky 1977, among others). First, the island constraints of Ross (1967) and Chomsky (1977) are diagnostic of whether a movement operation has occurred out of a certain syntactic domain. As shown in (3), topicalization is sensitive to the complex NP island (3a) and the *wh*-island (3b). On the other hand, the LD in (4) is insensitive to these islands.

(3) a. * This book, I accept the argument that John should read.
(Chomsky 1977: 91, (63c))
b. * This book, I wonder who read. (Chomsky 1977: 91, (63d))
(4) a. This book, I accept the argument that John should read it.
(Lasnik and Saito 1992: 75, (30))
b. This book, I wonder who will read it. (Miyagawa 2017: 3, (9b))

The second test case for movement is the *that*-trace effect (Perlmutter 1971). The sentence in (5) is a typical case of *that*-trace effect, whereby the subject is extracted by *wh*-movement. This is ruled out because the complementizer *that* prevents the trace from being antecedent-governed, and hence leads to an Empty Category Principle violation (Chomsky 1981).

(5) * Who$_i$ do you think that t_i won the race? (Lasnik and Saito 1992: 76, (35))

Lasnik and Saito (1992) note that topicalization from the subject in (6a) is as bad as (5), while LD in (6b) is fine.

(6) a. * John, I think that *t* won the race. (Lasnik and Saito 1992: 76, (34))
b. John, I think that he won the race. (Lasnik and Saito 1992: 76, (36))

For these and other reasons, Chomsky (1977) argued that a topicalized constituent is base-generated in a TOPIC position under S" and that a *wh*-operator (later deleted) moves to COMP. This can be translated in current terms into a Topic Phrase (TopP) and a Complementizer Phrase (CP) respectively, so the sentence in (7a) has a structure like that in (7b).

(7) a. This book, most students read for the assignment.
b. [$_{TopP}$ This book, [$_{CP}$ ~~*wh*~~$_i$ [$_{TP}$ most students read t_i for the assignment]]].

As far as LD is concerned, Chomsky (1977) maintains that the left-dislocated constituent is directly merged in TopP, although *wh*-movement is not involved, as illustrated in (8b).[2]

(8) a. This book, most students read it for the assignment.
b. [$_{TopP}$ This book, [$_{CP}$ [$_{TP}$ most students read it for the assignment]]].

It has been noted that topicalization is possible in complement clauses for some speakers, as in (9). On the other hand, LD in complement clauses is considered bad, as in (10).

(9) a. I believe that this book, you should read.
(Lasnik and Saito 1992: 76, (37a))
b. I believe that the books, I gave away to some friends.
(Lasnik and Saito 1992: 76, (37b))

(10) a. * I believe that this book, you should read it.
(Lasnik and Saito 1992: 77, (42))
b. * It's likely that this book, everyone will read it for the assignment.
(Miyagawa 2017: 14, (49))
c. * He was surprised that this book, I had not read it.
(Miyagawa 2017: 14, (50))

Chomsky's (1977) assumption that a topicalized and a left-dislocated constituent reside in the same Topic Phrase projection in the X-bar hierarchy is crucial when considering their limited embedded distribution. For those who assume the same hierarchical position for both topicalized and left-dislocated constituents (Chomsky 1977, Miyagawa 2017), the limited occurrence of LD in complement clauses would mean truncation. That is, complement clauses are reduced and hence lack a projection, Topic Phrase, which accommodates both a topicalized and a left-dislocated constituent. However, this approach raises the question of why topicalization is possible in certain complement clauses. On the other hand, some researchers argue that a topicalized constituent is located in a position structurally lower than a left-dislocated constituent (Emonds 1976, 2004, Baltin 1982, Greenberg 1984, Lasnik and Saito 1992, Bianchi and Frascarelli 2010). Their view is based on the observation that a left-dislocated constituent can precede a topicalized constituent, but the opposite order is less preferable.[3]

[2] For further evidence in support of a left-dislocated constituent merged in situ, please refer to the summary in Radford (2018: 45–58).

[3] Shaer and Frey (2004) note that the opposite ordering is possible.

(i) Now *my father*, this junk, *he* was always collecting. And *my mother*, this same junk *she* was always throwing away. (Shaer and Frey 2004: 495, (56b))

(11) a. (As for) Rosa, my next book I will dedicate to her.
b. * My next book, Rosa, I will dedicate to her.
(Reinhart 1976: 107, fn.22, (ii)(iii))

(12) a. My supervisor$_i$, a man like that, she$_i$ would never hire.
(Radford 2018: 58, (36a))
b. * A man like that, my supervisor$_i$, I don't think she$_i$ would hire.
(Radford 2018: 58, (36b))

For these researchers, the unacceptability of LD in complement clauses does not necessarily entail the truncation of the clause for topicalization. In fact, both Baltin (1982) and Lasnik and Saito (1992) propose that topicalization involves adjunction to IP, which accounts for why a topicalized constituent is permitted in (9).

These opposing views on embedded topicalization and LD have theoretical ramifications for the ongoing debate on the cartography of syntactic structures. In the intervention approach by Haegeman (2007, 2009, 2010a, 2010b, 2012) and Haegman and Ürögdi (2010), factive complements involve operator movement. As we will see more closely in the next section, topicalization in factive complements is not permitted because it would intervene with operator movement. Interestingly, LD is not permitted in factive complements either, as shown in (10c). Thus, we face the dilemma of deciding which approach is correct. Where neither topicalization nor LD is permitted, as in factive complements, the truncation approach can be ascribed to the lack of a Topic Phrase. On the other hand, assuming that a topicalized constituent occupies a position lower than a left-dislocated constituent, the intervention approach can ascribe the unacceptability of LD to the lack of the relevant projection on one hand and that of topicalization to the intervention on the other.

I believe it is difficult to decide between the truncation and intervention approaches simply by looking at factive complements. Furthermore, speaker variations have been reported regarding the acceptability of embedded main clause phenomena (MCP), rendering such decisions even more difficult (Nye 2013). The goal of this study is, therefore, to carry out a thorough online acceptability judgement study not only of factive complements but also of different complement classes proposed by Hopper and Thompson (1973; H&T). The results of the study show that there is also a class of complements in which LD is permitted but topicalization is not, which leaves room for a variety of interpretations.

The remainder of this paper is organized as follows. In the next section, I review previous analyses, beginning with the five predicate classes proposed by H&T and then shifting to the truncation and intervention approaches to embed-

(ii) Now, this junk, *my father he* was always collecting. And this same junk, *my mother*, *she* was always throwing away. (Shaer and Frey 2004: 496, (58))

In (ii), the italicized LD seems to follow the fronted topics 'this junk' in the first sentence and 'this same junk' in the second sentence. I do not dwell on this matter here, as LD in these sentences seems contrastive to me, whereas I intend to focus on the aboutness use.

ded MCP. In Section 3, I report on an online acceptability judgement task and discuss and analyze the results. Finally, Section 4 concludes the paper.

2. Embedded Main Clause Phenomena

2.1. Predicate Class

The observation of MCP goes back at least to Emonds (1970), who notes that MCP occurs in main clauses as well as in "an S immediately dominated by the highest S or the reported S in the direct discourse" (Emonds 1970: 7). H&T argue against Emonds, saying that the distribution of embedded MCP is wider than Emonds thought, and distinguish five classes of predicates that take sentential complements, suggesting that the acceptability of embedded MCP is related to the semantic notion of assertion. The five classes of predicates are summarized below (adapted from Djärv et al. 2017: 6).

> **Class A predicates** are communication verbs and adjectives with high degrees of certainty. Their complement clauses can have a main assertion when the verb is used parenthetically (e.g., *say, report, exclaim, assert, claim, be true, be certain, be sure, be obvious*).
> **Class B predicates** are verbs of thought and impersonals. These verbs are always used parenthetically, which is apparent from the possibility of Neg-raising. The complement clauses of these verbs constitute the main assertion (e.g., *suppose, believe, think, expect, guess, imagine, it seems, it happens, it appears*).
> **Class C predicates** have complements that are neither asserted nor presupposed (e.g., *be (un)likely, be (im)possible, be (im)probable, doubt, deny*).
> **Class D predicates** are factive and express emotions or subjective attitudes about a presupposed complement. H&T note that presupposed complements are not asserted (e.g., *resent, regret, be sorry, be surprised, bother, be odd, be strange, be interesting*).
> **Class E predicates** are semifactive and assert the manner in which the subject came to know that the complement proposition was true. They have dual behavior in that their complements can be presupposed (Kiparsky and Kiparsky 1970), yet can constitute a main assertion as well (e.g., *realize, learn, find out, discover, know, see, recognize*).

As exemplified in (13), H&T note that a topicalized constituent occurs in asserted clauses (i.e., Classes A, B, and E) but is resisted in nonasserted clauses (i.e., Classes C and D).

(13) a. The inspector explained that each part he had examined very carefully. (A)
(H&T 1973: 474, (50))
b. It appears that this book he read thoroughly. (B) (H&T 1973: 478, (92))
c. * It was impossible that each part he had examined carefully. (C)
(H&T 1973: 479, (99))
d. * John regretted that *Gone with the Wind*, we went to see. (D)
(Authier 1992: 334, (10b))

e. We saw that each part he had examined carefully. (E)
(H&T 1973: 481, (125))

2.2. The Truncation Approach

While H&T were concerned with semantics that renders embedded MCP acceptable, subsequent syntactic studies mostly focused on appropriate projections for a topicalized phrase. The split CP hypothesis by Rizzi (1997) made it possible to analyze what had previously been denoted simply as CP as having more elaborate structures. According to this hypothesis, a CP is split into distinct projections when focused or topicalized constituents are present in the left periphery. The highest in the periphery are complementizers that mark the force of a clause, that is, the clause type such as declarative or interrogative, and they head a ForceP (Force Phrase) projection. TopP (Topic Phrase) and FocP (Focus Phrase) projections are located below ForceP, housing topicalized and focused constituents, respectively. In addition, a FinP (Finiteness Phrase) projection is located below these projections, marking whether a complement clause is finite or nonfinite. In English, a focused constituent follows a topicalized constituent, so the orderings of the constituents in the left periphery are as in (14).

(14) $[_{\text{ForceP}}$ Force $[_{\text{TopP}}$ Top $[_{\text{FocP}}$ Foc $[_{\text{FinP}}$ Fin $[_{\text{TP}}$ T ..]]]]]

It is assumed that A-bar movement is triggered by a criterion that requires a head with a designated feature to attract a phrase with the same feature as its Spec (Rizzi 1997); once this criterion has been satisfied, the phrase cannot move any further.

2.2.1. Haegeman (2004, 2006a, b)

The truncation approach by Haegeman (2004, 2006a, b) applies the split CP hypothesis to the analysis of embedded MCP. Haegeman argues that the clausal left periphery comes in different sizes; in particular, its size is determined by whether the proposition is directly related to a speaker, which she dubs "speaker anchoring." For instance, a concessional *while* clause introduces discourse background to the main clause and reflects the speaker's thought, similar to 'whereas'. Argument fronting via topicalization is allowed in the concessional *while* clause as shown in (15).

(15) And yet some popular things are so brilliant, like *The Simpsons* and *The Angel of the North*. While other brilliant things hardly anyone buys—I'd put my friend's first novel and sherry in this category.
(*Observer*, December 6, 2009: 34, col. 2 adapted from Haegeman 2012: 159, (23g))

On the other hand, a temporal *when* clause merely serves to add extra information regarding the event described in the main clause, so lacks "speaker anchoring." Note that argument fronting is not allowed in the temporal *when* clause of (16).

(16) * When her regular column she began to write for *The Times*, I thought she

would be OK. (Haegeman 2006b: 1657, (11))

It has been argued that the former clause, the peripheral adverbial clause in Haegeman's terms, has a full-fledged structure, whereas the latter clause, called the central adverbial clause, lacks ForceP, TopP, and FocP. Haegeman decomposes Rizzi's Force into two different projections—Sub(ordinator) and Force—the former accommodating a conjunction and the latter "speaker anchoring." Haegeman's Force here roughly corresponds to H&T's "assertion" and is different from the traditional concept of Force as marking the clause type. Assuming that TopP and FocP depend on Force, the absence of "speaker anchoring" entails the lack of TopP and FocP, which results in the unacceptability of a topicalized constituent. Factive complements receive the same analysis as temporal *when* clauses, and the absence of a designated projection for a topicalized constituent leads to its unacceptability.[4]

2.2.2. Miyagawa (2017)

We now attempt to extend our observations to Miyagawa (2017). Miyagawa (2017) applies the truncation approach to topicalization and LD by treating both as being located in a Topic Phrase. He suggests that neither topicalization in (17) nor LD in (18) is permitted in the complements of Class C and D predicates.

(17) a. * It's likely that this book, everyone will read for the assignment. (C)
(Miyagawa 2017: 11, (37))

b. * He was surprised that this book, I had not read. (D)
(Miyagawa 2017: 11, (38))

(18) a. * It's likely that this book, everyone will read it for the assignment. (C)
(Miyagawa 2017: 14, (49))

b. * He was surprised that this book, I had not read it. (D)
(Miyagawa 2017: 14, (50))

His analysis of (17) and (18) stems from observations of Spanish mood inflection. In Spanish, the complements of Class C and D predicates are always in subjunc-

[4] Although the truncation approach succeeds in accounting for H&T's semantic account of the distribution of MCP in syntactic terms, two difficulties arise. The first is that, as delineated in Haegeman (2010a), an initial circumstantial adjunct is permitted in central adverbial clauses:

(i) While around this time last year Mary was writing her book, her children were staying with her mother. (Haegeman 2006b: 1656, (10))

Considering that Rizzi (1997) analyzed initial adjuncts such as *around this time last year* in (i) as adjunction to TopP, the proposed structure for central adverbial clauses wrongly excludes the initial adjunct. The second problem is related to Romance clitic left dislocation (CLLD), which is permitted in central adverbial clauses. The intervention approach attempts to circumvent these problems by assuming that peripheral adjuncts are generated in situ in Spec-MODP, which can occupy any medial position in the periphery (see Haegeman 2012 on this point).

tive mood, which appears in the inflection of embedded predicates (Jiménez-Fernández and Miyagawa 2014).

(19) a. Class A (only indicative)
Él nos inform que rechazaron/*rechazaran el altículo.
He us informed that rejected.IND.3PL1/rejected.SUBJ.3PL the paper
'He told us that they rejected the paper.'

b. Class B (only indicative)
Él creyó que rechazaron/*rechazaran el altículo.
He believed that rejected.IND.3PL/rejected-SUBJ.3PL the paper
'He thought that they rejected the paper.'

c. Class C (only subjunctive)
Es probable que *rechazaron/rechazaran el artículo
is likely that rejected.IND.3PL/rejected.SUBJ.3PL the paper
'It is likely that they rejected the paper.'

d. Class D (only subjunctive)
Él siente que *rechazaron/rechazaran el altículo.
he regrets that rejected.IND.3PL/rejected.SUBJ.3PL the paper
'He regrets that they rejected the paper.'

e. Class E (only indicative)
Hemos sabido que los vuelos a Chicago
Have.1PL learned that the flights to Chicago
han/*hayan sido cancelados.
have.IND.3PL/have-SUBJ.3PL Been cancelled
'We have learned that the flights to Chicago have been cancelled.'

(Miyagawa 2017: 14–15, (54)–(58))

Regarding the Spanish mood inflections, Villalta (2008) argues that the subjunctive complements involve a proposition with alternative semantic values and that such meanings arise from the complements being associated with a focus operator. Moreover, Villalta (2008) suggests that the predicates selecting subjunctive complements are gradable predicates and that the gradable property is compared with the alternatives generated by the focus operator in the complement clause.[5]

[5] As evidence for the gradability of these predicates, Villalta (2008) uses a test of 'enormously', which can distinguish between a predicate of desire that selects the subjunctive complement, and epistemic predicates such as 'know' that select the indicative complement.

(i) a. Marcela desea enormemente que Rafael venga.
Marcela desires enormously that Rafael come.SUBJ.3SG
'Marcela enormously wants Rafael to come.' (Villalta 2008: 509, (132))

b. *Sofia sabe enormemente que no puede venir.
Sofia knows enormously that PRO not can.IND.3SG come
'Sofia knows enormously that she cannot come.' (Villalta 2008: 510, (135))

Building on Villalta's (2008) analysis, Miyagawa (2017) proposes that the same applies to the complements of Class C and D predicates in English, although English does not overtly mark subjunctive mood. More specifically, Miyagawa maintains that Class C and D predicates must select the focus operator directly, as shown in (20a), so that the gradable property of the predicate can operate over the alternative semantics of the focus operator.

(20) a. $\text{predicate}_{\text{GRADABLE}}$ [$_{\text{CP}}$ OP_{i} C_{FOCUS} [$_{\text{TP}}$ … t_{i}…]] (Miyagawa 2017: 18, (67))
b. * $\text{predicate}_{\text{GRADABLE}}$ [$_{\text{TopP}}$ … [$_{\text{CP}}$ OP_{i} C_{FOCUS} [$_{\text{TP}}$ … t_{i}…]]] (Miyagawa 2017: 18, (68))

If there were other projections such as TopP between the predicate and the focus operator, as in (20b), the selection would not work; therefore, a topicalized and a left-dislocated constituent cannot occur in the complements of Class C and D predicates. Note that it is the truncation for the purpose of selection, but not the intervention by the focus operator, that resists topicalization and LD. As we saw in the introduction, LD does not involve movement; thus, there is no interaction with operator movement. However, it is important to bear in mind that Miyagawa's (2017) logic assumes that topicalized and left-dislocated constituents are located in the same projection, that is, TopP, and that the focus operator moves to the projection below them. However, we saw in (11) and (12) that the topicalized constituent may occupy a position lower than the left-dislocated constituent, as the former usually follows the latter. If a left-dislocated constituent were in a Topic Phrase, there would be the possibility that the topicalized constituent is in the same position as or in a lower position than the focus operator and that the topicalized constituent is blocked for other reasons than truncation. Accordingly, the question of what resists embedded topicalization in the complements of Class C and D predicates remains unanswered. In the next subsection, I review an alternative approach, in which a topicalized constituent is blocked owing to intervention with operator movement.

2.3. The Intervention Approach

Haegeman (2007, 2009, 2010a, 2010b, 2012) updated her previous truncation approach to one based on the general principles of economy in syntax. At present, it may be useful to examine topic islands. In English, a topicalized argument constitutes an island for extraction (Rochemont 1989, Lasnik and Saito 1992). As shown in (21), a *wh*-phrase cannot move across a topicalized argument. In contrast, as shown in (22), the topicalized argument itself can cross a *wh*-phrase.

(21) a. * What does John think that Bill, Mary gave to? (Rochemont 1989: 147, (4a))
b. * How did you say that the car, Bill fixed? (Rochemont 1989: 147, (4c))
c. * Who did you say that to Sue Bill introduced? (Boeckx and Jeong 2004: 84, (3))

d. * How do you think that this problem John solved?
(Lasnik and Saito 1992: 96, (120))

(22) a. That house that you were looking at, how much did you say would cost per month? (Culicover 1996: 461, (49b))
b. That kind of behavior, how can we tolerate in a civilized society?
(Radford 2009: 329, (17a))
c. Tom, why would anyone want to meet? (Bianchi 1999: 179, (53e))

Rizzi's (1990) relativized minimality is responsible for topicalization blocking another A-bar movement (i.e., *wh*-movement). In recent studies of locality (Starke 2001, Rizzi 2004, Endo 2007, Haegeman 2012, Maeda 2014), the relevant intervention effect between two A-bar constituents is reduced to feature-based relativized minimality (fRM). According to fRM, category X blocks the movement of another category Y that it c-commands either if X and Y have an identical feature set or if Y's feature set is a proper subset of X. In this light, we first observe (23).

(23) a. * How$_i$ do you wonder [whether John will solve the problem t_i]?

OP OP

b. ? Which problem$_i$ do you wonder [whether John will solve t_i]?

OP + δ OP

(Adapted from Haegeman 2012: 129, (58a, b))

In (23a), both *how* and *whether* carry an operator feature OP, an Edge feature generally responsible for A-bar movement. When the features of the moving element and the intervenor fully match, they give rise to a strong violation. In (23b), *which problem* has an additional feature δ because it is D-linked (Pesetsky 1987, Cinque 1990). Following Haegeman (2012: 130), I assume here that δ is a discourse-related feature that D-linked phrases carry. (23b) shows that the intervenor's feature set is a proper subset of that of the moving constituent, which leads to a weak violation. Let us now turn to the topic islands in (24) (= 21d).

(24) * How$_i$ do you think that this problem$_j$ John solved t_j t_i?

OP OP+δ

A topicalized constituent is also discourse-related in the sense that it carries old information; therefore, I assume here that it carries δ feature in addition to OP.[6] If

[6] An anonymous reviewer asked why a topic carries an OP feature. Chomsky (1977) noted the similarities between *wh*-movement and topicalization and treated them in a similar way. I use OP as a cover term for an Edge feature responsible for A-bar movement in general. Haegeman (2012: 132) assumes that English fronted topics have OP+δ feature, with OP an operator feature and δ the D-linking property. Her assumption stems from the observation by Boeckx and Joeng (2004: 101): "We regard [Topicalized and Focused elements] both as quantificational elements (forming operator-variable

so, contrary to (23b), the moving element's feature set is a proper subset of that of the intervenor. As shown in (24), this causes a strong violation.

The intervention approach argues that a topic island is also responsible for the unacceptability of a topicalized constituent in the temporal *when* clause in (16). It has been well documented that temporal *when* clauses in English are derived by movement, given the observation that clauses such as those in (25) are ambiguous between two possible readings (Geis 1970, 1975).

(25) I saw Mary in New York when [$_{TP}$ she claimed [$_{CP}$ that [$_{TP}$ she would leave]]].
   a. High construal: 'I saw her at the time she made that claim.'
   b. Low construal: 'I saw her at the time of her presumed departure.'
   (Haegeman 2010a: 635, (21))

The idea that temporal *when* clauses are derived by movement is supported by a test of island sensitivity (Larson 1987). In (25), the verb *claim* selects a CP complement. When this is replaced by a complex NP, such as *the claim that* in (26), the low construal disappears.

(26) I saw Mary in New York when [$_{IP}$ she made [$_{DP}$ the claim [$_{CP}$ that [$_{IP}$ she would leave]]]].
   a. High construal: at the time that she made that claim
   b. Low construal: *at the time of her presumed departure
   (Haegeman 2010a: 636, (22))

This implies that the movement of a temporal operator violates the complex NP constraint (Ross 1967), and hence cannot have a reading in which a temporal operator is reconstructed into the lower position. These observations led Larson (1987) to propose the representations for high and low construals in (27a) and (27b), respectively. In a low construal, the temporal operator moves from within the TP-internal position into the CP domain and is interpreted in the base position.

(27) a. [$_{CP}$ when$_i$ [$_{TP}$ she claimed [$_{CP}$ that [$_{TP}$ she would leave]] t_i]] (high construal)
   b. [$_{CP}$ when$_i$ [$_{TP}$ she claimed [$_{CP}$ t_i that [$_{TP}$ she would leave t_i]]]] (low construal)

From the point of view of fRM, Haegeman (2010a, 2010b, 2012) supposes that the topicalized argument bears the feature specification of OP+δ and that the temporal operator carries only OP. As shown in (28) (= 16), this gives rise to a strong violation.

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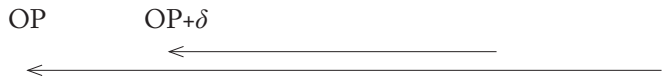
chains), possessing a [+Q] feature," suggesting a similarity between topics and D-linked *wh*-phrases.

(28) * When$_i$ her regular column$_j$ she began to write t_j for *The Times* t_i, …



We now extend this observation to factive complements, that is, complements of Class D predicates. Similar to temporal *when* clauses, factive complements resist topicalization, as shown in (29).[7]

(29) a. (%)* John regrets that this book Mary read. (Maki et al., 1999: 3, (2c))
b. * I resent the fact that each part he had to examine carefully.
(H&T 1973: 479, (109))
c. * John regretted that *Gone with the Wind*, we went to see.
(Authier 1992: 334, (10b))
d. * Mary realizes that this book, John read. (Hegarty 1992: 52, fn.19, (iii)))

It is independently known that factive complements constitute a weak island for *wh*-extraction. A typical weak island is a *wh*-island, out of which the extraction of an adjunct is not permitted, as in (30a), and that of an object is degraded, as in (30b). However, the extraction of a D-linked object and a relative pronoun are permitted, as in (30c) and (30d), respectively.

(30) a. * How carefully$_i$ were you wondering which letter to word t_i?
(Culicover 1997: 267, (91a))
b. ?? To whom$_i$ didn't they know when to give their present t_i?
(Cinque 1990: 1, (4a))
c. Which letter$_i$ were you wondering how carefully to word t_i?
(Culicover 1997: 267, (92a))
d. This is a problem which$_i$ I am not sure how to solve t_i.
(Haegeman 2012: 129, (57d))

A similar pattern can be found regarding factive complements, as shown in (31).

(31) a. * Why$_i$ did you notice that Mary had fixed the car t_i?
b. ?? What$_i$ did you notice that Mary had fixed t_i?
c. Which car$_i$ did you notice that Mary had fixed t_i?
d. That is the car which$_i$ I had noticed that Mary had fixed t_i?
(Haegeman and Ürögdi 2010: 120, (16a–d))

Based on the parallelism between *wh*-islands and factive complements, many linguists have argued that factive complements contain an empty operator equivalent to a *wh*-phrase in their Spec-CP position (Munsat 1986, Melvold 1991, Hegarty 1992, Watanabe 1993, Varlokosta 1994, Zubizaretta 2001, Starke 2004, Haegeman

[7] It has been noted that there are speaker variations regarding the acceptability of argument topics/LD in factive complements (Maki et al. 1999, Nye 2013, Radford 2018).

and Ürögdi 2010). Haegeman and Ürögdi (2010) argue that the resistance of a topicalized argument in factive complements also results from the intervention effect. More specifically, they propose that an event operator originates within FP and moves into the Spec-CP position. Its movement is interrupted in terms of fRM if there is a topicalized argument. This is schematized in (32).

(32) a. * Everyone regrets that this statement Mary read out at the last meeting.
b. * [$_{CP}$ OP$_i$ this statement$_j$ [$_{FP}$ t_i [$_{TP}$ Mary read out t_j at the last meeting]]]

The intervention approach seems theoretically superior to the truncation approach because it does not assume a complicated template for the relative ordering of constituents in the clausal periphery (Abels 2012). From the perspective of language acquisition, a theory is considered better if it can account for the concerned phenomena with general principles. The intervention approach does precisely that by reducing the template to the general principle of locality.

3. Experiment: Acceptability judgements of embedded topicalization and left dislocation

Thus far, we have seen two opposing approaches to the constrained distribution of embedded topicalization and LD. The truncation approach is premised on the assumption that both topicalized and left-dislocated constituents reside in a Topic Phrase, but some researchers maintain that a topicalized constituent follows a left-dislocated constituent. Since opinions are divided among researchers as to their exact syntactic positions, it is difficult to choose between the truncation and intervention approaches simply by looking at the complements of Class D predicates, in which neither is permitted. I speculate that the varying opinions partly result from the way in which the acceptability judgement tasks were carried out. Since discourse is required to interpret topicalized and left-dislocated constituents as old information, judgements tend to be sensitive; therefore, careful investigation is necessary (because otherwise topicalized and left-dislocated constituents may be interpreted as contrastive). In this study, I conducted a controlled experiment of topicalization and LD in the complements of all predicate classes using a discourse in which topicalization and LD are most naturally interpreted as old information. By doing so, I intend to investigate whether both truncation and intervention are necessary, and if so, in what ways they affect topicalization and LD in the complements of different predicate classes.

3.1. Methodology

3.1.1. Materials

The experimental materials were prepared using a 2×5 factorial design. The first factor was whether the initial argument in an embedded clause was left-dislocated (LD) or topicalized (TOP). The second factor was the five predicate classes of

H&T. Each item consisted of a 2-utterance dialogue between Speakers A and B. A's utterance introduced a topic of conversation, and B reacted to what A had just said using either LD or TOP. In this way, it is intended to create a conversational setting in which the initial embedded argument in B's utterance is naturally understood as old information, and hence as an aboutness topic. (33) provides a set of examples in which the first sentence of the pair exemplifies LD and the second sentence exemplifies TOP; in both cases, the embedded initial arguments are interpreted as the object of the embedded verb. The difference within the pair is confined to the presence or absence of a pronoun within the embedded clause:[8]

(33) a. A: I'm wondering if she met Peter before. B: She said that Peter, she'd known him for a long time. (Class A, LD)
b. A: I'm wondering if she met Peter before. B: She said that Peter, she'd known for a long time. (Class A, TOP)
c. A: I'm wondering if she met Peter before. B: It seems that Peter, she's known him for a long time. (Class B, LD)
d. A: I'm wondering if she met Peter before. B: It seems that Peter, she's known for a long time. (Class B, TOP)
e. A: I'm wondering if she met Peter before. B: It's likely that Peter, she's known him for a long time. (Class C, LD)
f. A: I'm wondering if she met Peter before. B: It's likely that Peter, she's known for a long time. (Class C, TOP)
g. A: I'm wondering if she met Peter before. B: I was surprised that Peter, she'd known him for a long time. (Class D, LD)
h. A: I'm wondering if she met Peter before. B: I was surprised that Peter, she'd known for a long time. (Class D, TOP)
i. A: I'm wondering if she met Peter before. B: She realized that Peter, she'd known him for a long time. (Class E, LD)
j. A: I'm wondering if she met Peter before. B: She realized that Peter, she'd known for a long time. (Class E, TOP)

The predicates in Table 1 are used to avoid repeating the same predicate across sets.[9]

[8] I am aware that comma intonation may be relevant in distinguishing LD and TOP. This is too involved a subject to be treated here in detail because I have no definite information on how to create an online sound experiment in a Latin square design. Regarding LD, it is possible to refer to the subject of a sentence as shown in (i).

(i) This room, it really depresses me. (Emonds 1976: 32, (30))

In order to create minimal pairs with TOP, this case is not investigated in this study.

[9] A complication emerges with regard to the verb 'regret', which is often used as a representative example of Class D predicates. As Haegeman (2012) notes, it can be used as a speech act verb meaning "regret to say." Argument topicalization is possible in this case.

(i) We regret that due to a funding shortage, there will no longer be any drinks available

Table 1. The clause-embedding predicates used in the experiment by H&T predicate class

Class A	say, declare, tell, mention, it's obvious
Class B	it seems, believe, suppose, guess, think
Class C	it's likely, it's possible, it's probable, doubt, deny
Class D	be surprised, regret, it's interesting, be happy, be relieved, sorry
Class E	realize, discover, know, notice, learn

Each predicate in Table 1 is used to create a pair of sentences, one of which includes LD and the other TOP. There were five pairs and 10 target sentences in each set. A total of 10×25 target sentences and 50 fillers, of which 25 were good fillers and 25 bad fillers, were evenly distributed in a Latin square design and pseudo-randomly presented to each participant. The participants viewed 70 sentences in total. Fillers also take the form of a 2-utterance dialogue between Speaker A and Speaker B, and for bad fillers, B's response is ungrammatical.[10]

3.1.2. Participants and Procedure

A total of 111 native English speakers were recruited via Amazon Mechanical Turk (MTurk), a crowdsourcing website to hire remotely located workers to perform on-demand tasks. They accessed the online experiment I created on Ibex Farm (Drummond 2013) through a link pasted on the description page on MTurk.[11] Before beginning the experiment, they were asked to read a brief description of the study and fill out a form to report their username, age, and first language as well as tick a checkbox stating whether they agree with the purpose of the study. Once they agreed to proceed, they moved to the practice section, where they read brief instructions for the acceptability judgement task and several practice sentences that consisted of a dialog between Speakers A and B. They were asked to rate the naturalness of B's response following their intuition on a 7-point Likert scale, where 7 = *good* and 1 = *bad*. A scale was displayed below the material sentence on the computer screen, and participants could move on to the next set of materials by clicking a box or pressing the key corresponding to each scale. After

at the bar for nonmembers. (Haegeman 2012: 258, (2a))

(ii) I regret that those details, I cannot reveal to nonmembers. (Haegeman 2012: 258, (2b))

The experiment employs a Latin square design, and so the chances are that each participant sees the examples with 'regret' once. The results are then analyzed together with other predicates, such as Class D LD and Class D TOP, as a group. By so doing, I hope that the possible influence of the verb 'regret' being interpreted as a speech act verb is averaged out.

[10] To construct fillers, I used exercise sentences from Radford (1997) for reference and developed dialogues from them. The good (bad) fillers consist of grammatically correct (incorrect) sentences as B's response.

[11] For the validity of online experiments using MTurk, please refer to Sprouse (2011). Ibex Farm is no longer available at the time of publication. For those interested in online experiments, please refer to PCIbex Farm.

completing the main experiment, a participation code unique to each participant was presented on the screen as proof of completion. They were required to submit the code on MTurk, and once the submission was confirmed, 0.80 USD of compensation was paid. To ensure the credibility of the data, 16 participants were excluded before the analysis because either one or more *z*-scores for their bad-filler ratings were greater than 2 or those of their good-filler ratings were less than −2.

3.2. Results

Normalized ratings (*z*-scores) were analyzed using linear mixed-effects models in R. The full model contained fixed effects of 10 conditions (LD/TOP × five predicate classes) with participants and items as random intercepts, and the maximal random effect structure was used (Barr et al. 2013). The results are shown in Table 2 and the mean *z*-score by predicate class is shown in the bar chart in Figure 1.

Table 2. Linear Mixed Effects Model Coefficients

	Estimate	Std. Error	*t*-value
intercept	−0.36001	0.03836	−9.386
Class A, LD	−0.04460	0.07081	−0.630
Class A, TOP	−0.13801	0.07114	−1.940
Class B, LD	−0.11176	0.07063	−1.582
Class B, TOP	−0.04853	0.07075	−0.686
Class C, LD	−0.21481	0.07113	−3.020
Class C, TOP	−0.17725	0.07106	−2.494
Class D, LD	−0.22692	0.07074	−3.208
Class D, TOP	−0.33323	0.07125	−4.677
Class E, LD	−0.05927	0.07113	−0.833
Class E, TOP	−0.18161	0.07075	−2.567

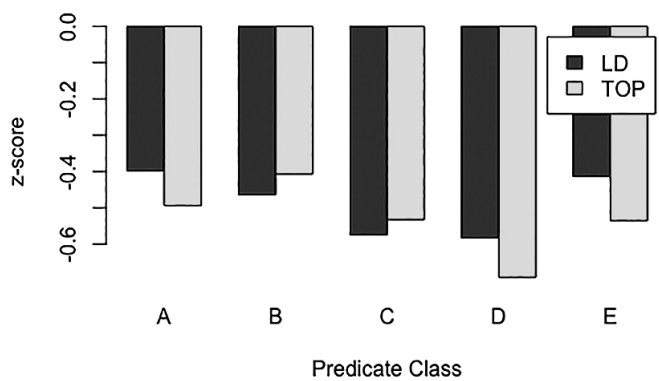


Figure 1. Mean of z-scores by predicate class

It follows from the results that the ratings of Class C LD and TOP, Class D LD and TOP, and Class E TOP are significantly unacceptable, as their *t*-values are less than −2. It is important to note that the rating for Class E LD was not significantly unacceptable (t = −0.833). To investigate pairwise differences across predicate classes, the Tukey-Kramer test was applied to the same model in R. Among all the possible pairwise combinations of the 10 conditions, I only report the results for Classes C, D, and E in Table 3, because these classes include significantly unacceptable ratings according to the linear mixed-effects model coefficients.

Table 3. Multiple Comparison in Classes C, D, and E

	Estimate	Std. Error	*t*-value
Class C, LD : Class C, TOP	0.041732	0.071751	0.582
Class D, LD : Class D, TOP	−0.108529	0.071377	−1.521
Class E, LD : Class E, TOP	−0.122154	0.071150	−1.717
Class C, LD : Class D, LD	−0.008738	0.071377	−0.122
Class C, LD : Class E, LD	0.160793	0.071675	2.243
Class D, LD : Class E, LD	0.169531	0.071224	2.380
Class C, TOP : Class D, TOP	−0.158998	0.071751	−2.216
Class C, TOP : Class E, TOP	−0.003092	0.071227	−0.043
Class D, TOP : Class E, TOP	0.155906	0.071304	2.187

Here, I assume that the different acceptability ratings for LD and TOP across the three predicate classes stem from different syntactic factors. There were no significant pairwise differences between LD and TOP within Classes C (t = 0.582), D (t = −1.521), or E (t = −1.717). However, a careful observation of Table 3 and Figure 1 implies that the factors are divided into three categories. First, there was a significant difference between Class C LD and Class E LD (t = 2.243), and between Class D LD and Class E LD (t = 2.380), but the difference between Class C LD and Class D LD was not significant (t = −0.122). Therefore, Class C LD and Class D LD may be affected by the same factor (Factor A). Second, Class C TOP and Class E TOP were not significantly different (t = −0.043); therefore, it is possible that they were affected by the same factor (Factor B). Third, the difference between Class C TOP and Class D TOP is significant (t = −2.216), as is the difference between Class D TOP and Class E TOP (t = 2.187); therefore, Class D TOP seems to be affected by yet another factor (Factor C). Note that I consider the difference between Class E LD and Class E TOP to be important because although their pairwise difference is not significant, Class E LD is still acceptable according to the results of the linear mixed-effects model coefficients. Table 4 provides an interim summary of the three factors and the affected conditions.

Table 4. Three Factors (Interim)

Factors	Affected Conditions
A	Class C, LD & Class D, LD
B	Class C, TOP & Class E, TOP
C	Class D, TOP

3.3. Analysis

Given the three different factors in Table 4, I investigated whether these factors resulted from truncation or intervention by first pinpointing the positions of a topicalized and a left-dislocated constituent in relation to other elements in the periphery. Let us first examine the relative orderings with *wh*-phrases. In the matrix clause, both a topicalized and a left-dislocated constituent can precede a *wh*-phrase.

(34) a. To Bill, what will you give for Christmas? (Delahunty 1983: 394, (19a))
b. ? And to Cynthia, what do you think you will send? (Delahunty 1983: 394, (19b))
c. ? And a book like this, to whom would you give? (Delahunty 1983: 385, (19e))
d. ? A book like this, why should I buy? (Hudson 2003: 614, (24a))

(35) a. As for this book, to whom should we give it? (Chomsky 1977: 94, (84b))
b. (As for) John, who do you think saw him? (Chomsky 1977: 94, (84c))
c. Those petunias, what did Joanne do — with them? (Rodman 1997: 38, (10))

The sentences in (34) indicate that a topicalized constituent can skip a *wh*-phrase in the course of its movement. In terms of fRM, this is possible if a topicalized constituent is enriched with a δ feature in addition to an OP feature, and a *wh*-phrase only carries an OP feature (see 22). The opposite ordering of a topicalized constituent and a *wh*-phrase is not possible because of topic islands (see 21). In contrast, because LD does not involve movement, the acceptability of (35) cannot be attributed to fRM by assuming that a left-dislocated constituent has enriched features. It is important to note that the opposite ordering in which a *wh*-phrase precedes a left-dislocated constituent is not possible, as shown in (36).

(36) * To whom, as for this book, should we give it? (Chomsky 1977: 94, (84a))

According to Rizzi (1997), a *wh*-phrase is considered to move to Spec-FocP in the matrix clause. Thus, the relative ordering of a left-dislocated constituent and a *wh*-phrase in (35) and (36) reflects a left-dislocated constituent located above a Focus Phrase in Rizzi's (1997) split CP hypothesis, repeated here as (37).

(37) Force > Topic > Focus > Fin > TP

Let us now turn to the relative ordering with sentential adverbials. *Because*-clauses can precede a *wh*-phrase and a topicalized constituent but cannot precede

a left-dislocated constituent in the matrix clause.

(38) a. Because he's such a nice guy, what would John like?
(Baltin 1982: 25, (103))
b. Because she's so pleasant, Mary I really like. (Baltin 1982: 28, (119))
c. * Because she's so pleasant, Mary I really like her. (Baltin 1982: 27, (115))
d. * Because she's so pleasant, as for Mary I really like her.
(Baltin 1982: 27, (116))

If a *wh*-phrase occupies the Spec-FocP position in the matrix clause, the acceptability of (38a) indicates that the *because*-clause is located higher than the Focus Phrase. Given that the *because*-clause precedes the topicalized constituent in (38b), it is plausible to consider that it is also located higher than the Topic Phrase. The unacceptability of (38c) and (38d) follows if we assume either that the left-dislocated constituent competes for the same position with the *because*-clause or that it occupies a position higher than the *because*-clause. In either case, it is reasonable to think that a left-dislocated constituent is located higher than a Topic Phrase. This accords with the examples in (11) and (12), which show that a left-dislocated constituent can precede a topicalized constituent, but not vice versa.

I now examine relative clauses. It has been argued that neither a topicalized argument nor a left-dislocated constituent can occur in relative clauses. This is exemplified in (39) and (40), respectively.

(39) a. * This is a student to whom, your book, I would recommend.
(Haegeman 2012: 196, (8a))
b. * I met the author who, this new column, began to write last year.
(Haegeman 2012: 196: (8c))
c. ?? He is a man from whom money we could never take.
(Bianchi 1999: 188, (76))

(40) a. * He's a man to whom as for liberty, we could never grant it.
(Baltin 1982: 21, (85))
b. * He's a man to whom liberty, we could never grant it.
(Baltin 1982: 21, (86))

Here, I assume that a relative pronoun in restrictive relative clauses is D-linked and carries an additional discourse-related feature δ. This is a reasonable assumption, considering that a relative pronoun can be moved out of a weak island (see 30d and 31d). If so, it may not be surprising that the relative pronoun cannot move across the topicalized constituent in (39) due to fRM because both of them carry the same OP+δ features.[12] How though is the unacceptability of the

[12] Baltin (1982) notes that some speakers allow a topicalized constituent in relative clauses as shown below.

(i) He's a man to whom liberty we could never grant. (Baltin 1982: 17, (69))

Baltin argues that those who accept (i) regard S' rather than S as a bounding node. Assum-

left-dislocated constituent in (40) accounted for?[13] We have seen above that a left-dislocated constituent is located higher than a Topic Phrase. Furthermore, in Rizzi's (1997) split CP hypothesis, a relative pronoun is considered to occupy the Spec-ForceP position. Accordingly, I view the unacceptability of (40) as arising from a left-dislocated constituent occupying a position higher than a Force Phrase. In relation to this, Emonds (1976: 33) mentions the possibility that left-dislocated constituents are in Banfield's (1973) E ("expression") projection, a non-recursive projection in root and direct speech contexts generated outside of S, expressive of elements of subjectivity and a point of view. In the current terminology, Banfield's E-projection can be translated into Speech Act Phrase (SAP) (Speas and Tenny 2003, Hill 2007, Hageman and Hill 2013).[14] Evidence supporting this claim comes from relative orderings with the interjection *man*. Greenberg (1984) notes that a left-dislocated constituent either precedes or follows the interjection *man*, as in (41), but a topicalized constituent can only follow it, as in (42).

(41) a. *Man*, John, Mary really loves him. (Greenberg 1984: 285, fn.1)
b. John, *man*, Mary really loves him. (Greenberg 1984: 285, (18))
(42) a. *Man*, John, Mary really loves. (Greenberg 1984: 285, (21a))
b. * John, *man*, Mary really loves. (Greenberg 1984: 285, (21b))

The difference between (41) and (42) can be accounted for if we assume that the left-dislocated constituent and the interjection *man* are contained in a Speech Act Phrase but the topicalized constituent occupies a lower position.

Given that complements of Classes A, B, and E can be used parenthetically (H&T), it is reasonable to consider that these complement clauses can convey the main assertion, and thus project up to a Speech Act Phrase. This is in accordance with the present observation that a left-dislocated constituent can occur in the

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ing that topicalization is an adjunction to S, *wh*-movement over a topicalized constituent in (i) only crosses one bounding node, i.e. S', which results in acceptability for some speakers. However, there are others (Douglas 2016, Radford 2018) who argue that argument fronting in relative clauses in English such as in (i) is a focused constituent. I assume here that, being a focused constituent, *liberty* in (i) has an OP feature (both focus and *wh* are classified into the quantificational category in Rizzi's 2004 analysis) and that the relative operator in restrictive relative clauses carries OP and *δ* features. Thus, the movement of the relative operator over *liberty* in (i) does not induce intervention effects.

[13] Radford (2018: 89–90) notes that a left-dislocated constituent can appear in restrictive relative clauses in colloquial speech (see also Radford 2019 for a similar observation). Radford ascribes this to the observation that a left-dislocated constituent is directly merged in Spec-TopP. Here, I argue that a left-dislocated constituent is located higher than TopP based on the observation that a left-dislocated constituent precedes a topicalized constituent.

[14] To be more precise, a Speech Act Phrase consists of two shells: the lower "hearer" shell (SA) and the higher "speaker" shell (*sa*). I leave the matter open as to which projection is relevant to the LD. Here, I will use Speech Act Phrase (SAP) to refer to the superstructure above a Force Phrase.

complements of Classes A, B, and E predicates. The relevant structure is schematized in (43).

(43) $[_{SAP}$ LD $[_{ForceP}$ OP $[_{TopP}$ TOP $[_{FocP}$ OP $[_{FinP}$ $[_{TP}$ …]]]]]].

The structure in (43) shows two potential positions for the relevant operator. The intervention approach argues that the operator moves across a topicalized constituent in TopP into the left edge of a clause, which I construe as Spec-ForceP. On the other hand, Miyagawa's (2017) truncation approach assumes a focus operator, which I interpret as residing in Spec-FocP.

3.3.1. Factors A and B

With the structure in (43) in mind, I now investigate the three factors in turn. Recall that Factor A applies to Class C LD and Class D LD, while Factor B applies to Class C TOP and Class E TOP. Let us first consider the complements of Class E predicates, to which only Factor B applies. Given the results showing that a left-dislocated constituent is permitted in the complements of Class E predicates, the complements project up to a Speech Act Phrase. Having a Speech Act Phrase means that the complements are large enough to accommodate a Topic Phrase and a topicalized constituent. Therefore, the truncation of a Topic Phrase would wrongly preclude Class E LD. By way of analogy, the unavailability of a topicalized constituent in the complements of Class C predicates cannot be attributed to the truncation of a Topic Phrase either, as it is also influenced by Factor B.

Turning now to the complements of Class C predicates, to which both Factors A and B apply. Let us suppose that both Factors A and B are intervention. Because a left-dislocated constituent occupies a higher position than the operator in (43), the intervention approach does not account for why the complements of Class C predicates resist LD. On the other hand, the intervention approach properly captures the results that topicalization is unacceptable in the complements of Class C and E predicates, as topicalization intervenes with operator movement in terms of fRM.

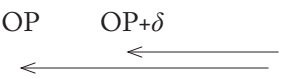
Let us consider another possibility in which both Factors A and B are the truncation of a Topic Phrase. This assumption correctly accounts for the circumstances in the complements of Class C predicates, where neither topicalization nor LD is acceptable because the absence of a Topic Phrase entails the absence of projections above it, including a Speech Act Phrase. However, this assumption fails to account for why LD is allowed in the complements of Class E predicates because Factor A does not apply to the complements of Class E predicates. Accordingly, through the process of elimination, it is safe to conclude that Factor A is neither an intervention nor the truncation of a Topic Phrase, and Factor B is not the truncation of a Topic Phrase.

I conclude that Factor A is the truncation of a Speech Act Phrase. That is, a left-dislocated constituent is not permitted in the complements of Class C and D predicates because these complements lack a Speech Act Phrase. As far as Factor B is concerned, I suggest that it is intervention by operator movement. More

concretely, the operator with an OP feature moves to Spec-ForceP, but it cannot bypass a topicalized constituent in Spec-TopP with OP+δ features due to fRM.

We now illustrate these points. For the complements of Class C predicates, the relevant structure is schematized as follows:

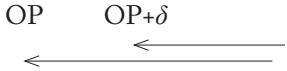
(44) Complements of Class C Predicates
$[_{\text{ForceP}}\ \text{OP}_i\ [_{\text{TopP}}\ \text{Topic}_j\ [_{\text{FocP}}\ [_{\text{TP}}\ t_i\ t_j\ ]]]]$.



Because there is no Speech Act Phrase in (44), a left-dislocated constituent cannot occur. The unacceptability of the topicalized constituent in (44) is due to topic islands, in that the topicalized constituent with a more enriched feature specification blocks the movement of an operator. It is important to emphasize that unlike Miyagawa's (2017) truncation approach, my analysis does not assume the truncation of a Topic Phrase in the complements of Class C predicates.

The structure of the complements of Class E predicates is schematized as follows:

(45) Complements of Class E Predicates
$[_{\text{SAP}}\ \text{LD}\ [_{\text{ForceP}}\ \text{OP}_i\ [_{\text{TopP}}\ \text{Topic}_j\ [_{\text{FocP}}\ [_{\text{TP}}\ t_i\ t_j\ ]]]]]$.



Unlike the complements of Class C predicates, the structure in (45) projects up to the SAP. Thus, a left-dislocated constituent can occur in the complements of Class E predicates. Topicalized constituents are precluded for the same reason as the complements of Class C predicates.

3.3.2. Factor C

Let us now turn to Factor C in the complements of Class D predicates; that is, factive complements. Given the results of the experiment in Section 3.2, the unacceptability of Class C LD and Class D LD is significant. Hence, a left-dislocated constituent in factive complements may be ruled out by truncation of SAP in the same way as it is the case with the complements of Class C predicates. In contrast to LD, the unacceptability of Class D TOP is significantly lower than that of Class C TOP and Class E TOP. Accordingly, one can safely say that a topicalized constituent in factive complements cannot be excluded by intervention. One possibility is to assume that a Topic Phrase in factive complements is truncated, so that there is no projection to host a topicalized constituent. The structure of factive complements is schematized as follows:[15]

[15] I have space for no more than an indication that the operator in (46) with an OP feature

(46) Complements of Class D (Factive) Complements
$[_{FocP}\ OP_i\ [_{FinP}\ [_{TP}\ t_i\ ]]]$.

OP
←

Lack of a Topic Phrase means that the clause also lacks projections above it, including a Speech Act Phrase. Thus, the structure in (46) can capture the observation that Class C LD and Class D LD are bad to the same extent because both are ruled out by the lack of a Speech Act Phrase. Furthermore, assuming that the unacceptability by truncation is worse than that by intervention, the structure in (46) can also capture that Class D TOP is worse than Class C TOP and Class E TOP, which are ruled out by intervention.[16] The three factors are updated as shown in Table 5.[17]

Table 5. Three Factors

Factors	Affected Conditions
Truncation of SAP	Class C, LD & Class D, LD
Intervention by Operator	Class C, TOP & Class E, TOP
Truncation of TopP	Class D, TOP

4. Conclusion

To summarize the main points, this study and the truncation approach have arrived at the same conclusion as far as factive complements are concerned, yet the differences become clear when we look at the complements of other predicate classes. Most importantly, LD is not ruled out by the truncation of a Topic Phrase, but by the truncation of a Speech Act Phrase. This leaves the intervention approach available for the unacceptability of embedded topicalization. The gist of

is responsible for constituting a weak island for *wh*-extraction in terms of fRM. Miyagawa (2017) also assumes a focus operator in factive complements for selection, as noted in Section 2.2.2, but he does not adopt the intervention approach.

[16] It has been argued that topicalization and LD are uniformly ruled out in infinitives.

(i) * I have decided your book to read. (Haegeman 2012: 68, (36))
(ii) * My friends tend the more liberal candidates to support. (H&T 1973: 485, (160))
(iii) * It bothers me that big cigar, for the mayor to smoke it. (H&T 1973: 484, (155))

For H&T, the strict unacceptability of topicalization and LD in infinitives is associated with their reduced structures. I extend their idea here to factive complements in assuming that truncation results in severe unacceptability. For the truncation approach to factive complements, please also refer to de Cuba (2007).

[17] An anonymous reviewer kindly pointed out the possibility of three factors being effective in non-complements such as adverbial clauses and noun complement clauses. I leave an experimental study of topicalization and LD in noncomplements for future research.

Miyagawa's (2017) truncation approach is that LD, which does not involve movement, is located in the same position as topicalization, and therefore, wherever a left-dislocated constituent is disallowed, topicalized constituents are also excluded by truncation. That this is not necessarily true is shown by the results of the experiment; the complements of Class E predicates permit LD to occur but disallow topicalization. Furthermore, following previous research on the relative ordering of elements in the left periphery, I have given them different hierarchical positions: Speech Act Phrase for LD and Topic Phrase for topicalization. Consideration of possible factors led me to conclude that Factor A is the truncation of a Speech Act Phrase, and Factor B is intervention by operator movement. Thus, as far as the unavailability of topicalization in the complements of Class C and E predicates is concerned, the present study follows the intervention approach.

However, unlike the intervention approach, the present study does not attribute the unavailability of a topicalized constituent in factive complements to intervention. This is because a significant difference in unacceptability was found between a topicalized constituent in factive complements and the complements of Class C and E predicates. I concluded that a Topic Phrase in a factive complement is truncated, and this renders topicalization in them worse than that in other complements. Furthermore, the lack of a Topic Phrase entails the truncation of a Speech Act Phrase, which is why a left-dislocated constituent in the complements of C and D predicates is unacceptable to a similar degree. This study sheds light on the importance of controlled experiments in research on the cartography of syntactic structures. By combining the conditions (LD/TOP and five predicate classes), hitherto unnoticed differences in acceptability between the two designated phenomena in various complements have been highlighted, which helps us better understand the intricate factors collaborating at the periphery. These results led to the conclusion that cartographic studies of topicalization and LD may not be clear-cut enough for us to choose either the truncation approach or the intervention approach, but that both are relevant to varying degrees depending on the matrix predicate class.

References

Abels, Klaus. 2012. The Italian left periphery: A view from locality. *Linguistic Inquiry* 43: 229–254.

Authier, Jean-Marc. 1992. Iterated CPs and embedded topicalization. *Linguistic Inquiry* 23: 329–336.

Baltin, Mark. 1982. A landing site for movement rules. *Linguistic Inquiry* 13: 1–38.

Banfield, Ann. 1973. Narrative style and the grammar of direct speech. *Foundations of Language* 10: 1–39.

Barr, Dale J., Roger Levy, Christoph Scheepers and Harry J. Tily. 2013. Random effects structure of confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language* 68: 255–278.

Bianchi, Valentia. 1999. *Consequences of antisymmetry: Headed relative clauses*. Berlin: Mouton de Gruyter.

Bianchi, Valentia and Mara Frascarelli. 2010. Is topic a root phenomenon? *Iberia: An International Journal of Theoretical Linguistics* 2(1): 43–88.

Boeckx, Cedric and Youngmi Jeong. 2004. The fine structure of intervention in syntax. In: Chungja Kwon and Wonbin Lee (eds.) *Issues in current linguistic theory: A festschrift for Hong Bae Lee*, 83–116. Seoul: Kyungchin.

Chomsky, Noam. 1977. On *wh*-movement. In: Peter W. Culicover, Thomas Wasow, and Adrian Akmajian (eds.) *Formal syntax*, 71–132. New York: Academic Press.

Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris.

Cinque, Guglielmo. 1990. Types of A'-dependencies. Cambridge, MA: MIT Press.

Culicover, Peter W. 1996. On distinguishing A' movements. *Linguistic Inquiry* 27: 445–463.

Culicover, Peter W. 1997. *Principles and parameters. An introduction to syntactic theory*. Oxford: Oxford University Press.

De Cuba, Carlos. 2007. On (non)factivity, clausal complementation and the CP-field. Doctoral dissertation, Stony Brook University.

Delahunty, Gerald. 1983. But sentential subjects do exist. *Linguistic Analysis* 12: 379–398.

Djärv, Kajsa, Caroline Heycock and Hannah Rohde. 2017. Assertion and factivity: Towards explaining restrictions on embedded V2 in Scandinavian. In: Laura R. Bailey and Michelle Sheehan (eds.) *Order and structure in syntax I: Word order and syntactic structure*, 3–28. Berlin: Language Science Press.

Douglas, Jamie. 2016. The syntactic structure of relativization. Doctoral dissertation, University of Cambridge.

Drummond, Alex. 2013. Ibex farm. Available online, http://spellout.net/ibexfarm/

Emonds, Joseph. 1970. Root and structure-preserving transformations. Doctoral dissertation, MIT.

Emonds, Joseph. 1976. *A transformational approach to English syntax*. New York: Academic Press.

Emonds, Joseph. 2004. Unspecified categories as the key to root constructions. In: David Adger, Cécile De Cat, and George Tsoulas (eds.) *Peripheries*, 75–121. Dordrecht: Kluwer.

Endo, Yoshio. 2007. *Locality and information structure: A cartographic approach to Japanese*. Amsterdam: John Benjamins.

Geis, Michael. 1970. Adverbial subordinate clauses in English. Doctoral dissertation, MIT.

Geis, Michael. 1975. English time and place adverbials. *Working Papers in Linguistics* 18: 1–11.

Greenberg, Gerald, R. 1984. Left dislocation, topicalization, and interjections. *Natural Language and Linguistic Theory* 2: 283–287.

Gundel, Jeanette K. 1975. Left dislocation and the role of topic-comment structure in linguistic theory. *Ohio State University Papers in Linguistics* 18: 72–131.

Haegeman, Liliane. 2004. Topicalization, CLLD and the left periphery. In: Benjamin Shaer, Werner Frey, and Claudia Maienborn (eds.) *Proceedings of the dislocated elements workshop, ZAS papers in linguistics*, vol. 35, 157–192. Berlin: ZAS.

Haegeman, Liliane. 2006a. Argument fronting in English, Romance CLLD and the left periphery. In: Raffaella Zanuttini, Héctor Campos, Elena Herburger, and Paul Portner (eds.) *Negation, tense and clausal architecture: Cross-linguistic investigations*, 27–52. Georgetown: Georgetown University Press.

Haegeman, Liliane. 2006b. Conditionals, factives and the left periphery. *Lingua* 116: 1651–1669.

Haegeman, Liliane. 2007. Operator movement and topicalization in adverbial clauses. *Folia*

Linguistica: 41: 279–325.
Haegeman, Liliane. 2009. The movement analysis of temporal adverbial clauses. *English Language and Linguistics* 13: 385–408.
Haegeman, Liliane. 2010a. The internal syntax of adverbial clauses. *Lingua* 120: 628–648.
Haegeman, Liliane. 2010b. The movement derivation of conditional clauses. *Linguistic Inquiry* 41: 595–621.
Haegeman, Liliane. 2012. *Adverbial clauses, main clause phenomena, and the composition of the left periphery*. Oxford: Oxford University Press.
Haegeman, Liliane and Barbara Ürögdi. 2010. Referential CPs and DPs: An operator movement account. *Theoretical Linguistics* 36: 111–152.
Haegeman, Liliane and Virginia Hill. 2013. The syntacticization of discourse. In: Raffaella Folli, Christina Sevdali and Robert Truswell (eds.) *Syntax and its limits*, 370–390. Oxford: Oxford University Press.
Hegarty, Michael. 1992. Familiar complements and their complementizers: On some determinants of A'-locality. Manuscript, University of Pennsylvania.
Hill, Virginia. 2007. Vocatives and pragmatics: Syntax interface. *Lingua* 117: 2077–2105.
Hooper, John and Sandra Thompson. 1973. On the applicability of root transformations. *Linguistic Inquiry* 4: 465–497.
Hudson, Richard. 2003. Trouble on the left periphery. *Lingua* 113: 607–642.
Jiménez-Fernández, Ángel L. and Shigeru Miyagawa. 2014. A feature-inheritance approach to root phenomena and parametric variation. *Lingua* 145: 276–302.
Kiparsky, Paul and Carol Kiparsky. 1970. Fact. In: Manfred Bierwisch and Karl E. Heidolph (eds.) *Progress in linguistics*, 143–173. The Hague: Mouton.
Larson, Richard. 1987. 'Missing prepositions' and the analysis of English free relative clauses. *Linguistic Inquiry* 18: 239–266.
Lasnik, Howard and Mamoru Saito. 1992. *Move α: Conditions on its application and output*. Cambridge, MA: MIT Press.
Maeda, Masako. 2014. *Derivational feature-based relativized minimality*. Fukuoka: Kyusyu University Press.
Maki, Hideki, Lizanne Kaiser, and Masao Ochi. 1999. Embedded topicalization in English and Japanese. *Lingua* 109: 1–14.
Melvold, Janis. 1991. Factivity and definiteness. In: Lisa Cheng and Hamida Demirdache (eds.), *More papers on Wh-movement, MIT Working Papers in Linguistics* 15, 97–117. Cambridge, MA: MIT Press.
Miyagawa, Shigeru. 2017. Topicalization. *Gengo Kenkyu* 152: 1–29.
Munsat, Stanley. 1986. Wh-complementizers. *Linguistics and Philosophy* 9: 191–217.
Nye, Rachel. 2013. How complement clauses distribute: Complementiser-*how* and the case against clause type. Doctoral dissertation, University of Ghent.
Perlmutter, David. 1971. *Deep and surface structure constraints in syntax*. New York: Holt, Rinehart and Winston.
Pesetsky, David. 1987. *Wh*-in-situ: Movement and unselective binding. In: Eric J. Reuland and Alice ter Meulen (eds.) *The representation of (in)definiteness*, 98–129. Cambridge, MA: MIT Press.
Postal, Paul, M. 1971. *Cross-over phenomena*. New York: Holt, Rinehart and Winston.
Radford, Andrew. 1997. *Syntactic theory and the structure of English: A minimalist approach*. Cambridge: Cambridge University Press.
Radford, Andrew. 2009. *Analysing English sentences: A minimalist approach*. Cambridge: Cambridge University Press.

Radford, Andrew. 2018. *Colloquial English: Structure and variation*. Cambridge: Cambridge University Press.
Radford, Andrew. 2019. *Relative clauses: Structure and variation in everyday English*. Cambridge: Cambridge University Press.
Reinhart, Tanya. 1976. A syntactic domain of anaphora. Doctoral dissertation, MIT.
Rizzi, Luigi. 1990. *Relativized minimality*. Cambridge, MA: MIT Press.
Rizzi, Luigi. 1997. The fine structure of the left periphery. In: Liliane Haegeman (ed.) *Elements of grammar: A handbook of generative syntax*, 281–337. Dordrecht: Kluwer.
Rizzi, Luigi. 2004. Locality and left periphery. In: Adriana Beletti (ed.) *Structures and beyond: The cartography of syntactic structures*, vol. 3, 223–251. Oxford: Oxford University Press.
Rochemont, Michael S. 1989. Topic islands and the subjacency parameter. *Canadian Journal of Linguistics* 34: 145–170.
Rodman, Robert. 1974. On left dislocation. *Papers in Linguistics* 7: 437–466. Reprinted as Rodman (1997).
Rodman, Robert. 1997. On left dislocation. In Elena Anagnostopoulou, Henk van Riemsdijk and Frans Zwarts (eds.) *Materials on left dislocation*, 31–55. Amsterdam: John Benjamins.
Ross, John. 1967. Constraints on variables in syntax. Doctoral dissertation, MIT.
Shaer, Benjamin and Werner Frey. 2004. "Integrated" and "non-integrated" left peripheral elements in German and English. In: Benjamin Shaer, Werner Frey, and Claudia Meienborn (eds.) *Proceedings of the dislocated elements workshop, ZAS papers in linguistics*, vol. 35, 465–502. Berlin: ZAS.
Speas, Maggy and Carol Tenny. 2003. Configurational properties of point of view roles. In: Anna-Maria di Sciullo (ed.) *Asymmetry in grammar, vol. 1: Syntax and semantics*, 315–344. Amsterdam: John Benjamins.
Sprouse, Jon. 2011. A validation of Amazon Mechanical Turk for the collection of acceptability judgments in linguistic theory. *Behavior Research Methods* 43: 155–167.
Starke, Michal. 2001. Move dissolves into Merge: A theory of locality. Doctoral dissertation, University of Geneva.
Starke, Michal. 2004. On the inexistence of specifiers and the nature of heads. In: Adrianna Belletti (ed.) *Structures and beyond*, 225–267. Oxford: Oxford University Press.
Varlokosta, Spyridoula. 1994. Factivity, factive complements and wh-extraction. *MIT Working Papers in Linguistics* 23: 317–336.
Villalta, Elisabeth. 2008. Mood and gradability: An investigation of the subjunctive mood in Spanish. *Linguistics and Philosophy* 31: 467–522.
Watanabe, Akira. 1993. Larsonian CP recursion, factive complements, and selection. *NELS* 23: 523–537.
Zubizaretta, Maria-Luisa. 2001. The constraint on preverbal subjects in Romance interrogatives. In: Aefke Hulkk and Jean-Yves Pollock (eds.) *Subject inversion in Romance and the theory of universal grammar*, 183–204. Oxford: Oxford University Press.

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【要　旨】

話題化と左方転位に関する実験研究

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本稿は，オンラインの容認性判断課題を通じて，補文内の話題化と左方転位の分布がなぜ制限されているのかを明らかにする。一部の補文内で話題化が容認されないことについて，現在二つの相反する分析が提案されている。干渉分析では，節の左端への演算子の移動を話題化要素が相対的最小性により妨げると分析している（Haegeman 2007, 2010a, 2010b, 2012）。一方，切り詰め分析は，Hooper and Thompson（1973）の C 類と D 類の述語が選択する補文において Topic Phrase が投射されないことが，話題化と左方転位が容認されない原因であると分析している（Miyagawa 2017）。切り詰め分析の根拠は，移動を伴わないとされる左方転位が節の左端への演算子の移動と干渉しないと考えられることにある。しかし，容認性判断課題の結果，話題化と左方転位の容認度が補文を選択する述語のタイプによって異なることが分かり，話題化と左方転位が生じる投射について再考する必要が生じた。本稿では，干渉と切り詰めの両方が節の左端で作用しているが，どちらによって話題化と左方転位が阻止されるかは，補文を選択する述語のタイプによって異なると論じる。