Island Sensitivity of Relative Clause Extraposition: Evidence for Rightward Movement

Pasha Koval and Jon Sprouse

New York University Abu Dhabi

Abstract. This paper offers a comprehensive investigation of RC extraposition from subject and coordination islands in English. Through 14 acceptability judgment experiments, we show that RC extraposition is sensitive to syntactic islands, thus challenging the existing empirical consensus in the field. Using island sensitivity as a movement diagnostic, we effectively rule out non-movement accounts of RC extraposition. Furthermore, the selection of islands that RC extraposition is sensitive to also excludes accounts of RC extraposition that employ leftward movement. Our findings thus support theories that derive RC extraposition as an instance of rightward syntactic movement.

1. Introduction

The main theoretical goal of this paper is to identify the syntactic mechanism underlying relative clause (RC) extraposition. Consider the example of RC extraposition shown in (1). The extraposed RC must be interpreted in relation to the host NP, yet the two are not linearly adjacent and thus form a discontinuous dependency.

(1) I met [$_{NP}$ a violinist] yesterday [$_{RC}$ that auditioned for Juilliard].

The extraposition literature offers a variety of proposals about the nature of this dependency. One major division in the space of possible theories is whether the dependency is created by syntactic movement, with a further division between rightward and leftward movement. Rightward movement theories posit that the RC moves to the right from the host NP, while leftward theories posit that the host NP moves to the left stranding the RC in the base position. Non-movement theories, meanwhile,

have developed a diverse range of alternative mechanisms to explain this dependency, partly due to an empirical consensus that RC extraposition is not sensitive to islands (see Section 2 for further discussion). For the purposes of this paper, we will therefore make a three-way distinction among theories of RC extraposition:

(2) a. Rightward movement theories: Ross (1967), Fox and Nissenbaum (1999, 2000), and Sportiche (2016, 2017)

b. Leftward movement theories: Kayne (1994) and Wilder (1996)

c. Non-movement theories: Baltin (1978, 1981), McCawley (1982), Chomsky (1986), Culicover and Rochemont (1990), Truckenbrodt (1995), and Koster (2000), a.o.

In this paper, we use island sensitivity as a diagnostic to differentiate between movement and non-movement theories. Our results indicate that RC extraposition is sensitive to islands, and thus is created by syntactic movement. Furthermore, the particular pattern of island sensitivity shown by RC extraposition to different types of subject islands eliminates leftward movement theories, leaving rightward movement as the only mechanism that can derive RC extraposition.

The rest of the paper is organized as follows: Section 2 reviews previous research on the island sensitivity of RC extraposition and how it shaped the logic and structure of the present study. Section 3 provides the necessary details of the experiments. Section 4 reports the results. Section 5 discusses the theoretical implications of the results. Finally, Section 6 provides a brief conclusion.

2. Background

2.1 What island structures were used to test RC extraposition in English?

The RC extraposition literature discusses two kinds of island structures: coordination islands and nominal subject islands. The first attempt to extrapose an RC across an island boundary was made by Ross (1967), who found that RC extraposition from either conjunct in a coordination island in (3) is impossible.

(3) a. *[[$_{DP}$ A friend of mine ~~RC~~] and [$_{DP}$ a girl who was from his home town]] met in Vienna [$_{RC}$ who was working in Europe].

b. *[[$_{DP}$ A friend of mine who was working in Europe] and [$_{DP}$ a girl ~~RC~~]] met in Vienna [$_{RC}$ who was from his home town].

However, this observation has not become prominent in the literature. Arguably, there are at least two possible explanations for this. First, both DP-conjuncts in (3) can serve as potential hosts for an extraposed RC, thus allowing the other conjunct to function as an intervener. Therefore, the unacceptability of (3) may not be due to an island violation, but rather to an intervention effect. Second, (3) features a combination of two island violations since the coordinate structure appears in the subject position. Since most current syntactic theories are not equipped to make predictions about stacked island violations (with the notable exception of Chomsky 1986), configurations such as (3) may be overlooked to revisit when the theories become more precise. To the best of our knowledge, no other attempts to extrapose an RC from a coordination island are found in the literature, whereas nominal subject islands are discussed at length.

Turning to subject islands, RC extraposition from unaccusative subjects is often reported to be acceptable. Most of these claims can be traced back to the minimal pairs shown in (4) and (5) that originated in Ross (1967) and Baltin (1978), respectively.

(4) a. A gun [which I had cleaned] went off. (Ross 1967: 1)

b. A gun ~~RC~~ went off [$_{RC}$ which I had cleaned].

(5) a. A man [who came from Boston] appeared. (Baltin 1978: 266)

b. A man ~~RC~~ appeared [$_{RC}$ who came from Boston].

Several studies also discuss RC extraposition from transitive and passive subjects, which are more opaque for extraction and therefore provide a better test for island sensitivity than unaccusatives (Hiramatsu 1999; Chomsky 2008; Jurka 2010; Polinsky et al. 2013). Rochemont and Culicover (1990) claim that RC extraposition from a transitive subject in (6) is fully acceptable (the judgment

is theirs), while Chomsky (1973, 1986) provides examples of RC extraposition from transitive and passive subjects in (7) and (8), respectively (the judgments are his).[1]

(6) [A man ~~RC~~] just bought a restaurant [$_{RC}$ who everyone says is an entrepreneur].

(7) [One of the men ~~RC~~] will meet you at the station [$_{RC}$ who is a friend of mine].

(8) [Many books with stories ~~RC~~] were sold [$_{RC}$ that I wanted to read].

Lastly, Rochemont and Culicover (1990) discuss RC extraposition from unergative subjects and claim that it "sounds distinctly odd" compared to unaccusatives illustrating it with the pair in (9).[2]

(9) a. *[A man ~~RC~~] screamed [$_{RC}$ who wasn't wearing any clothes]. *unergative*

b. [A man ~~RC~~] arrived [$_{RC}$ who wasn't wearing any clothes]. *unaccusative*

Rochemont and Culicover (1990), who argue that RC extraposition from subjects is always possible, propose to attribute any gaps in the paradigm to two independent factors: the predicate restriction and the definiteness effect.[3] Specifically, the contrast in (9) is due to the predicate restriction, which limits RC extraposition to the subjects of "c-construable" predicates (roughly, the ones that represent "old information").[4] According to them, a small lexical class of predicates called the predicates of appearance, corresponding to a subgroup of unaccusatives, is c-construable in out-of-blue contexts as in (9a), while all other predicates can be c-construed by a preceding context that uses the same predicate. This is shown in (10); the judgment is theirs.

(10) <*Suddenly there was the sound of lions growling. Several women screamed.*>

[1] Note that the acceptability of (7) and (8) may be further affected by other factors. As shown in Strunk and Snider (2013), sentences similar to (7) and (8) are ambiguous with respect to the potential host of RC, contrary to Chomsky (1973) and Akmajian (1975). Fanselow and Frisch (2006) show that the presence of a local ambiguity like the one in (7) improves the acceptability of a sentence. It is plausible that the global ambiguity in (8) has a comparable effect.

[2] In Rochemont and Culicover (1990: 65), an * next to the unergative in (9a) is omitted, but described in the text.

[3] One important concern about their proposal is that both the definiteness effect and the predicate restriction only apply to subject-linked RC extraposition, while object-linked RC extraposition is unaffected by either of these factors.

[4] See Rochemont (1978), Guéron (1980), Culicover and Rochemont (1983), and Guéron and May (1984) for different attempts to link the predicate restriction to focus, stress, and prosodic prominence. Additionally, see Kiss (1988) and Bolinger (1992), who provide convincing criticism of these attempts.

Then [a man ~~RC~~] screamed [$_{RC}$ who was standing at the very edge of the crowd].

Another factor that, according to Rochemont and Culicover, restricts subject-linked RC extraposition is the definiteness effect. Following Ziv and Cole (1974) and Guéron (1980), Culicover and Rochemont (1990) and Rochemont and Culicover (1990) propose to attribute the unacceptability of RC extraposition from some subjects to the definite determiner of the host DP.[5]

(11) a. A man [$_{RC}$ who is carrying a large package] is here.
b. The man [$_{RC}$ who is carrying a large package] is here.
c. A man ~~RC~~ is here [$_{RC}$ who is carrying a large package].
d. *The man ~~RC~~ is here [$_{RC}$ who is carrying a large package].

Walker (2013) reports a large acceptability judgment experiment that sets out to separate the predicate restriction (±app) from the definiteness effect (±def) from the grammatical function of the host DP (DO vs. SUBJ). Her experimental conditions are repeated in (12). She reports significant main effects of the predicate restriction and the definiteness effect, while the effect of the grammatical function is only observed in the quartet using non-appearance predicates ([−app]). Based on this, she concludes that the subject/object asymmetry is fully explained by the predicate restriction and the definiteness effect and thus there is no island effect.

(12) a. I saw a girl ~~RC~~ arrive [$_{RC}$ who was hugging a doll]. [DO, +app, −def]
b. I saw the girl ~~RC~~ arrive [$_{RC}$ who was hugging a doll]. [DO, +app, +def]
c. I saw a girl ~~RC~~ faint [$_{RC}$ who was hugging a doll]. [DO, −app, −def]
d. I saw the girl ~~RC~~ faint [$_{RC}$ who was hugging a doll. [DO, −app, +def]

[5]The sharp contrast between (11c) and (11d) is surprising given that the effect size of the definite island during leftward movement is very modest and unlikely to result in a full *; see Shen and Lim (2021) for *wh*-dependencies and Vincent (2021) for RC-dependencies. Also, note that Ziv and Cole (1974), who first described this effect, put a ?? instead of an * next to their equivalent of (11d) repeated below, see also Maynell (2008) for a similar assessment.

(i) ?? The guy just came in [$_{RC}$ that I met at Treno's yesterday]. (Ziv and Cole 1974)

e. A girl ~~RC~~ arrived [$_{RC}$ who was hugging a doll]. [SUBJ, +app, −def]

f. The girl ~~RC~~ arrived [$_{RC}$ who was hugging a doll]. [SUBJ, +app, +def]

g. A girl ~~RC~~ fainted [$_{RC}$ who was hugging a doll]. [SUBJ, −app, −def]

h. The girl ~~RC~~ fainted [$_{RC}$ who was hugging a doll]. [SUBJ, −app, +def]

This study has two important limitations. First, the grammatical control (DO) in (12) is RC extraposition from the *subject* of a non-finite verb in a small clause. The problem is that, for some theories of subject islands (e.g. Lohndal 2011), non-finite subjects are expected to be on a par with finite subjects of the same predicates, modulo finiteness. Therefore, if the superadditive pattern indicative of an island effect were to appear, it would be present in both target items and controls and would end up being subtracted out. As a result, we cannot decide if the reported effect in the [−app] sub-paradigm is due to the subject island violation or to the change in finiteness; see also Michel and Goodall (2013), who show that some subject islands are sensitive to finiteness.[6]

Second, using a *wh*-complementizer in (12) makes the RC ambiguous between a restrictive and a non-restrictive (appositive) interpretation (Stockwell et al. 1973). While linguists can use interpretational differences to distinguish between them, participants in an experiment are left to rely on orthographic conventions. Given the number of differences between the two types of RCs (see De Vries (2006) and references therein), it is unlikely that their external syntax is identical. Thus, it is unclear whether the results belong to the grammar of restrictive or non-restrictive RCs.

In view of the discussion above, this study tests RC extraposition from coordination islands and four types of nominal subject islands (unergative, transitive, passive, and unaccusative). To account for potential confounding factors during subject-linked RC extraposition, we test each subject island three times using indefinite host DPs with and without a preceding context to control for the predicate restriction and definite host DPs to control for the definiteness effect. We also opted to use relative clauses headed by the complementizer *that*, as it is unambiguously restrictive.

[6] Another important issue with this experiment is that it only tested three unaccusative "verbs of appearance" (*appear, arrive, enter*) and all of them appeared in each of 8 lexicalizations. As a result of this experimental setup, each participant saw each lexicalization three times, although each experimental condition was represented only once.

2.2 Why other island structures were not used to test RC extraposition in English?

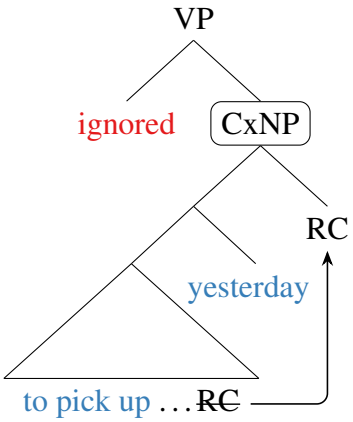
Given the considerable attention that RC extraposition has received over the years, it is surprising that many "standard" island structures have not been examined, such as *wh*-island, noun complement island, and adjunct island. There could be at least two possible explanations for this.

One complication for studies of RC extraposition (as well as other types of rightward dislocation) in languages like English comes from the Late Closure (LC) sentence processing strategy first identified by Lyn Frazier in Frazier (1978) and Frazier and Fodor (1978). According to LC, the parser initially attempts to connect the new incoming lexical material to the material that has been parsed most recently. To see how this affects RC extraposition, consider the sentence in (13). It includes a noun complement island *"the request to pick up . . . "*. An RC is extraposed across a temporal adverb *yesterday*, which can be associated with the matrix predicate *ignored* or the embedded predicate *to pick up*. Thus, the sentence in (13) is ambiguous between low and high RC attachment. Note that only the latter configuration leads to an island violation.

(13) Casey ignored the request to pick up [$_{NP}$ a book] yesterday [$_{RC}$ that she bought].

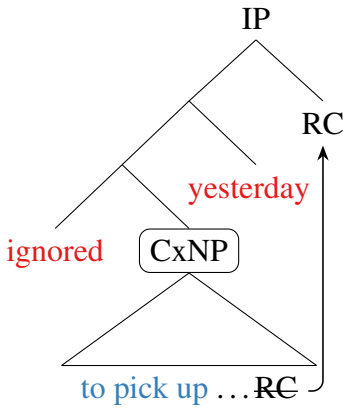
a. *Low attachment of RC*

RC stays inside an island



b. *High attachment of RC*

RC crosses an island boundary



Due to LC, native speakers of English tend to initially associate the adverb *yesterday* with the predicate that has been parsed most recently (*to pick up*) rather than with the matrix predicate (*ignored*). This is demonstrated in (14). Under LC, the extraposed RC remains within the noun

complement island and does not cross the island boundary, even though it hops over *yesterday*.

(14) . . . ignored the request to pick up . . . yesterday RC *Late Closure*

Unfortunately, there is no reliable method to inhibit the LC strategy in native English speakers. The same LC-driven issue arises for all island structures that linearly follow the matrix predicate and contain a second verb. This includes noun complement islands (13) and *wh*-islands (15).[7]

(15) Emma wondered whether to bring the book ~~RC~~ yesterday [$_{RC}$ that she bought in Peru].

At the same time, the issue does not arise with the subject islands. Since it only includes one verb, the LC strategy leads the RC to attach to *v*P or IP, which are outside the subject island; see (16).

(16) [$_{DP}$ A man ~~RC~~] came into the room [$_{RC}$ that Mary recognized] as quickly as he could.

It also does not create a problem for coordination islands where the conjuncts are smaller than VP.

The second complication that limits the range of island structures that can be used to test RC extraposition is its clause-boundedness. At least since Ross (1967), it has been known that the rightward dislocation, including RC extraposition, is impossible across a finite clause boundary, as illustrated in (17); see Overfelt (2015) and Dillon (2017) for further discussion and references.[8]

[7] Adjunct islands are free from the LC complication since they can precede the main clause. However, this linearization presents a problem with finding an appropriate grammatical control. The most likely candidate is a fronted infinitival complement VP (see below about finiteness and RC extraposition), which requires a particular discourse context (roughly, it has to be a topic; see Kuroda (1972) and Ward (1990)), making the experimental setup more complex.

[8] The pair in (17) is from Overfelt (2015: 190), the judgments are his. The more familiar minimal pairs in (i) and (ii) include the extraposition of PP and RC from a finite clausal subject, which conflates a Right Roof Constraint violation with a subject island violation.

(i) a. [$_{CP}$ That a review ~~PP~~ came out yesterday [$_{PP}$ of this article]] is catastrophic. (Ross 1967: 305)
b. *[$_{CP}$ That a review ~~PP~~ came out yesterday] is catastrophic [$_{PP}$ of this article].

(ii) a. [$_{CP}$ That the man ~~RC~~ arrived [$_{RC}$ who was from Boston]] amazed me. (Baltin 1981: 261)
b. *[$_{CP}$ That the man ~~RC~~ arrived] amazed me [$_{RC}$ who was from Boston].

(17) a. Sam said [$_{CP}$ that he bought some coffee ~~RC~~ for his co-workers [$_{RC}$ that they serve in the library]].

b. *Sam said [$_{CP}$ that he bought some coffee ~~RC~~] to his co-workers [$_{RC}$ that they serve in the library].

This constitutes a potential confound for all extraposition experiments using multi-clausal island structures. Consider the island structures in (18), which all prototypically include a finite clause boundary. If RC extraposition from these island structures shown in (19) ends up being ungrammatical, it can be either because, similar to *wh*-movement, RC extraposition cannot escape an island or because RC extraposition cannot cross a finite clause boundary. All judgments in (18) and (19) are suppressed.

(18) *Islands with a finite clause boundary (wh-movement)*

a. What did you wonder [$_{CP}$ whether Emma **bought** ~~what~~]? *wh-island*

b. What did you challenge the claim [$_{CP}$ that Emma **bought** ~~what~~]? *noun complement island*

c. What did you worry [$_{CP}$ because Emma **bought** ~~what~~]? *adjunct island*

(19) *Islands with a finite clause boundary (RC extraposition)*

a. I still wonder [$_{CP}$ whether Emma **brought** the dessert ~~RC~~] sometimes [$_{RC}$ that Adam devoured]? *wh-island*

b. I still lament the fact [$_{CP}$ that Mary **got** the job ~~RC~~] sometimes [$_{RC}$ that Terry was applying to]. *noun complement island*

c. [$_{CP}$ Because Tony **knew** the person ~~RC~~] he waved [$_{RC}$ that Lin invited]. *adjunct island*

To mitigate the confound, we could construct non-finite versions of the *wh*-island, noun complement island, and adjunct island from (19). The problem with this solution is that these same islands

are also known to be sensitive to finiteness. As illustrated in (20), *wh*-movement from a non-finite *wh*-island is more acceptable than from its finite counterpart (Huang 1982; Chomsky 1986; Lasnik and Saito 1990).

(20) a. *Which man are you wondering [$_{CP}$ whether she should call ~~which man~~]?
b. ?Which man are you wondering [$_{CP}$ whether to call ~~which man~~]?

Adjunct and noun complement islands are also sensitive to finiteness; see Szabolcsi 2006; Michel and Goodall 2013; Mueller 2019 for the adjunct island and Michel and Goodall 2013 for the noun complement island, but the contrasts may appear more subtle. See the following examples:

(21) a. *I wonder who Tony went home [$_{CP}$ after he kissed ~~who~~]?
b. ??I wonder who Tony went home [$_{CP}$ after kissing ~~who~~]?

(22) a. *What do many people believe the rumor [$_{CP}$ that the squirrels buried ~~what~~ under the bushes]?
b. ??What do many people believe the rumor [$_{CP}$ of the squirrels burying ~~what~~ under the bushes]?

The sensitivity of islands to finiteness creates a problem with the interpretation of the results. Negative results results remain unaffected: if RC extraposition is unacceptable, it can only be caused by an island violation. However, positive results are now compatible with two alternative explanations. If RC extraposition across an island boundary is acceptable, it may be either because RC extraposition is not sensitive to that island or because the non-finite version of that island exhibits a significantly reduced (subliminal) island effect.

Overall, the two complications render all multiclausal island structures unsuitable for investigating RC extraposition leaving subject and coordination islands as the only two types of structures that can be used to answer the question of whether RC extraposition is sensitive to islands.

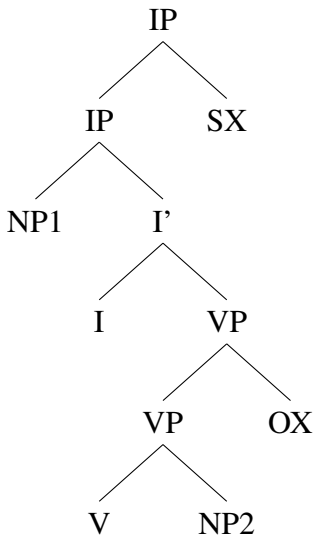
2.3 What predictions do theories of RC extraposition make regarding island structures?

This study is centered on the subject and coordination islands. To ensure a meaningful inquiry, we must verify that the theories under consideration yield distinct predictions. This section outlines the predictions for both types of island structures from the three groups of RC extraposition theories: non-movement, leftward movement, and rightward movement.

Non-movement theories provide a range of mechanisms that all suggest that RC extraposition can cross an island boundary, thus accounting for the empirical consensus discussed above. In the interest of space, we focus on two of them: Culicover and Rochemont's (1990) base generation account[9] and Koster's (2000) parallel construal account.

According to the former, RC extraposition occurs when an extraposed RC is base-generated as a right adjunct in its surface position. Culicover and Rochemont, following Baltin (1981), assume that there are two positions available for an extraposed RC depending on its host: object-linked RCs can only appear in the OX position, and subject-linked RCs can appear in either the OX or the SX position; see (23). Their theory postulates a dedicated position for subject-linked RC extraposition and, therefore, expects it to be fully acceptable, unless ruled out by the predicate restriction and the definiteness effect. Object-linked RC extraposition from coordination islands is also predicted to be acceptable for conjuncts no larger than VP, since it targets the OX position.

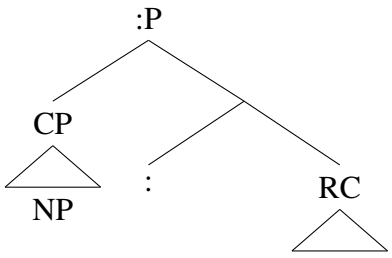
(23)



[9]See also Rochemont and Culicover (1990) and Culicover and Rochemont (1997).

Koster (2000) analyzes RC extraposition as a special case of asyndetic (coordinator-less) coordination of an extraposed RC and a minimal CP that contains the host NP, as shown in (24). Both are parts of a specialized "colon phrase" :P, where ":" is a Boolean operator that indicates the set union. RC extraposition is the result of pied-piping that envelops the checking phrase (the host NP) in a larger phrase (CP). An "indirect" checking mechanism is available for :P, which makes the pied-piped and non-pied-piped structures (extraposed and non-extraposed RCs, respectively) "semantically equivalent" under the mechanism of parallel construal in (25). Koster's account predicts that RC extraposition is possible from both subject and coordination islands, since it does not involve movement and the island boundary and the host are located inside the same minimal CP.

(24)



(25) Parallel construal equivalence

$\ldots[\ \ldots[_{\beta}\ \ldots\alpha\ ]\ [\ \omega\ \delta\ ] = \ldots[\ \ldots[\ \alpha\ [\ \omega\ \delta\ ]\ ]$, where

(i) α, β, and δ are XPs (α an antecedent, δ dependent on α)

(ii) ω is a Boolean operator (:)

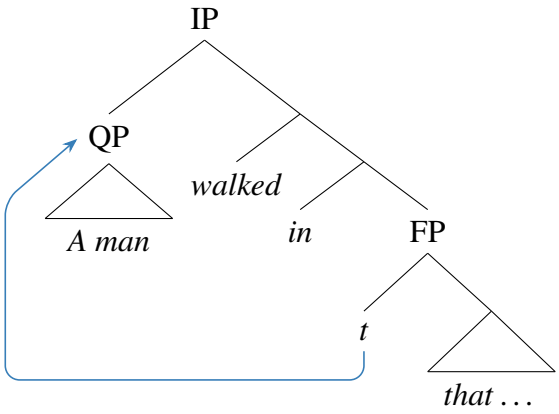
(iii) β (possibly equivalent to α) is the Spec of ω

(iv) the minimal CP containing β contains δ.

Turning to leftward movement theories, Kayne (1994) argues that RC extraposition is a result of stranding the RC in the base position, while the host QP moves to the left (26), which is similar to his treatment of floating quantifiers. To prevent RC stranding in intermediate positions in the same clause, he suggests a case restriction according to which an RC can be stranded by A-movement only in a non-Case position (cf. a similar constraint for Q-Float). If there is no A-movement from a case position (Chomsky 2000), this restriction blocks any RC stranding during $\bar{A}$-movement and

excludes it from Case positions. Kayne's theory predicts that RC extraposition from the subject islands should be possible, since QP simply A-moves to Spec;IP of the same clause stranding the RC in the base position.[10] In contrast, coordination islands are excluded, since the host QP would need to move sidewards to reach the conjunction phrase from its base position marked by the RC.

(26)



Wilder (1996) introduces a modified version of Kayne's stranding account. He argues that during RC extraposition the leftward movement copies both the host NP and the RC into the derived position, followed by the scattered deletion of the respective parts of the two copies at PF. The deletion process is guided by the constraint in (27).[11] Wilder's account predicts that RC extraposition is possible in subject islands, since the entire island structure is copied into Spec;IP. In contrast to Kayne, he predicts that coordination islands can allow RC extraposition if the entire coordination phrase can be moved to the left. In this case, the left copy of the coordination phrase spells out everything except the RC, while the right lower copy, according to (27), only gets to keep the RC at PF.

[10] A related word order issue concerning how an extraposed RC gets to follow everything else is a potential problem for Kayne's theory known at least since Borsley (1997). Fundamentally, there is nothing in Kayne's theory that prevents an avalanche leftward movement to the middle field that would strand a subject-linked extraposed RC (linearly) at the right edge of the clause.

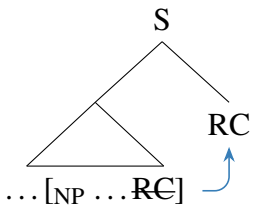
[11] An important theoretical issue concerning scattered deletion is how to constrain it. Without a principled account, a rule like (27) makes essentially any derivation possible. In those cases where scattered deletion appears to be the correct analysis, the pronunciation of a part of a lower copy has some additional PF motivation; see at least Nunes (1995, 1999), Bošković (2001), Fanselow and Ćavar (2001, 2002), Bošković (2005), Corver and Nunes (2007), Franks (2008), and Bošković (2015) a.o. It is unclear what PF factors would motivate scattered deletion during RC extraposition, which presents a problem for Wilder's account, but see also Sheehan (2010) for a different perspective.

(27) Chain-Internal Selective Deletion

Phonological deletion can remove part of the antecedent and the complementary part of the trace.

Switching to rightward movement theories, Ross (1967) offers a rightward syntactic movement theory of RC extraposition (see also Smith 1964). In this model, RC extraposition is a "last-cycled" transformation rule that applies to an RC base-generated next to its host NP. As a result, the RC moves to its surface position at the right edge of the clause as shown in (28). Note that, in this view, RC extraposition is an instance of subextraction from DP. Given that RC extraposition is a movement transformation, this theory predicts that it will be sensitive to both subject and coordination islands, similar to leftward movement. Additionally, for subject islands, we may expect variation between the underlying agents and themes (unergatives and transitives and passives and unaccusatives, respectively), akin to patterns observed in *wh*-movement (Chomsky 2008).

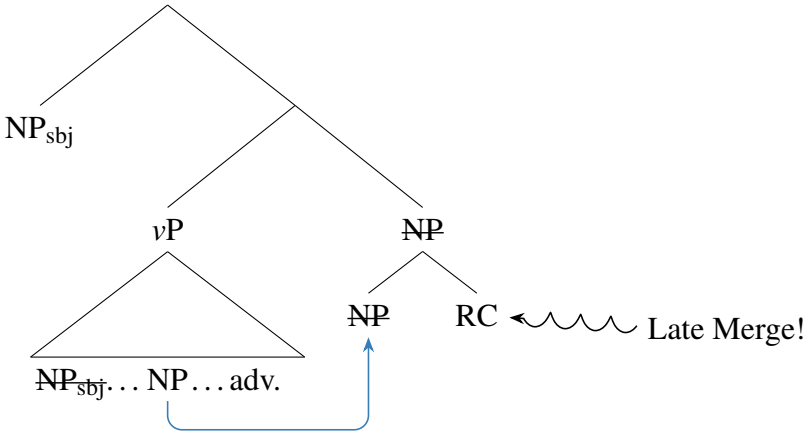
(28)



Fox and Nissenbaum (1999, 2000) and Sportiche (2017) formulate two alternative rightward movement accounts of RC extraposition, interpreting it as extraction rather than subextraction. According to Fox and Nissenbaum, RC extraposition happens in two steps: first, the host NP moves to a right specifier via Quantifier Raising (QR) followed by Late Merge (LM) of the RC and its host in its derived position. (29) illustrates. Fox and Pesetsky (2009) introduce a linearization principle in (30) that favors spelling out the leftmost element in a movement chain. Since, by assumption, QR is to the right, it follows that it is covert. In line with (30), the host NP is spelled out in its leftmost position, while the RC has to appear in its only position, at the right edge.[12]

[12]For a more nuanced discussion of this approach, see also Fox (2002), Hulsey and Sauerland (2006), Takahashi and Hulsey (2009), Fox and Johnson (2016), and Fox (2017a,b).

(29)



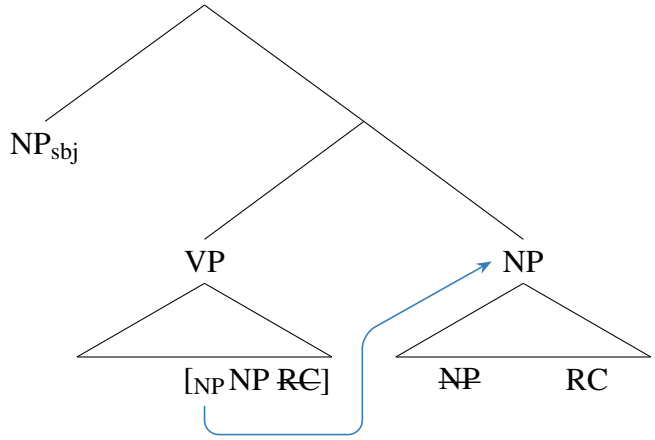
(30) Principle of Chain Pronunciation

When α occupies two positions, the linearization of α will be determined by the position that would put α further to the left.

As discussed in Stepanov (2001a,b) and Sportiche (2019), the original definition of LM from Lebeaux (1988) makes it optional for adjuncts. Therefore, the QR+LM theory could also allow RCs to be introduced in the base position and undergo QR together with its host, as shown in (31). This derivation still relies on QR and assumes that QR is movement, even if the RC moves along with the DP, and thus does not alter the predictions about both coordination and subject islands.[13]

[13]It is debatable whether the second, HNPS-esque derivation should be considered a part of this account, but we still include it for completeness. The literature has developed at least three methods to exclude (31). First, one can adopt obligatory LM (Stepanov 2001a,b; Abe 2018; Zyman 2022), which explicitly excludes the derivation in (31) for any adjuncts. Second, maintaining the linearization principle in (30) would render the linearization of (31) indistinguishable from its counterpart where the RC remains in-situ. In contrast, to be able to spell out the derivation in (31) as RC extraposition, one needs something similar to the Chain-Internal Selective Deletion in (27), including its issues from fn. 11. Lastly, Fox and Johnson (2016) developed a multidominance version of the obligatory QR+LM account that allows to link the obligatory/optional status of LM to the size of the shared constituent. In their obligatory LM version, the RC occupies a single position, and NP1 has two mothers, as shown in (i). Allowing instead NP2 to have two mothers (QP and DP) converts this account into a full equivalent of the optional LM version.

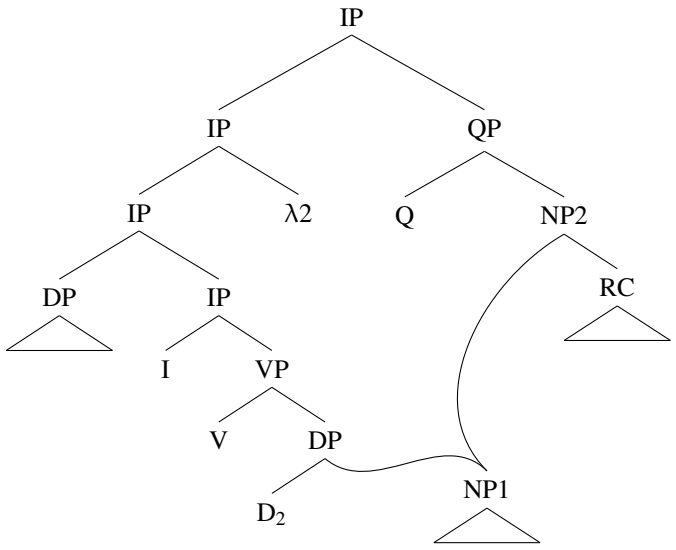
(31)



The QR+LM account derives its predictions about the island sensitivity from the locality and economy conditions of QR.[14] Following May (1978), Hornstein (1995), Kitahara (1996), Johnson and Tomioka (1997), Johnson (2000), Fox (2003), and Cecchetto (2004), Fox and Nissenbaum treat QR as an instance of syntactic movement.[15] One argument in favor of this is that QR is sensitive to coordination islands, similar to overt movement (Ruys 1992). This is shown in (32).

(32) a. A student$_{\exists}$ [likes every professor$_{\forall}$ and hates the dean]. (*$\forall > \exists$)

(i)



[14] Another analytical possibility is to use the timing of LM. Unfortunately, in its current form, many of these predictions are unclear, but see Zyman (2022) for a recent substantial development.

[15] Note that, under this view, wide scope indefinites that are not sensitive to islands cannot use QR to widen their scope, unlike quantifiers and distributive numerals (Ruys 1992); see Reinhart (1997), Winter (1997), and Kratzer (1998) for alternative accounts for wide scope indefinites.

b. *Which professor does John [like ~~which professor~~ and hate the dean]?

In contrast, the predictions about subject islands cannot rely on the locality of QR since the movement target there is an entire island (i.e. subject DP). Instead, the subject QR (and, therefore, the subject-linked RC extraposition) is ruled out by Scope Economy in (33). Even if subject-linked RC extraposition can target the edges of both *v*P and TP (as in Baltin 1981), copies of the subject DP in Spec;*v*P and Spec;TP would block QR to both.[16,17,18]

(33) Scope Economy (Fox 2000: p. 3)

Scope-shifting operations cannot be semantically vacuous.

Finally, Sportiche (2016) proposes that RC extraposition is a form of Heavy NP Shift, moving both the host NP and the RC to the right, as shown in (34).[19] The differences between HNPS and RC extraposition are regulated by a "selective blindness" principle called Neglect shown in (35), which can ignore material at syntax-phonology and syntax-semantics interfaces.

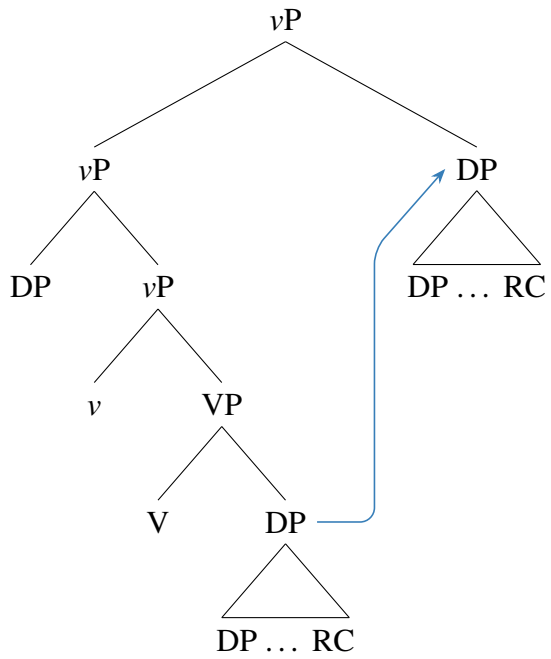
[16]Here we follow Johnson and Tomioka (1997) in assuming that QR cannot cross the subject of a finite clause.

[17]More carefully, only QR from inside *v*P to an internal Spec;TP requires Scope Economy, while QR to Spec;*v*P could also be excluded by antilocality (Abels 2003).

[18]If unaccusative and passive subjects start inside VP and skip Spec;*v*P on the way to Spec;TP, RC extraposition should become available; see also Nakamura (2021) who independently reached the same conclusion about passive subjects.

[19]See Sportiche (2017, 2019) for different facets of this approach. A very similar account is also considered in Wilder (1996) (his "R-account"), but rejected for conceptual reasons, since rightward movement is incompatible with LCA.

(34)



(35) Neglect

Any material at any interface can be ignored up to crash.

According to Sportiche's HNPS+Neglect account, the locality of RC extraposition must be identical to that of HNPS. Ross (1967) argues that HNPS is created by movement showing the triplet in (36), where it cannot escape a coordination island formed by two VPs. Therefore, RC extraposition is also predicted to be impossible across a coordination island boundary.

(36) a. I saw a girl at a bus stop.

b. I saw ~~DP~~ at a bus stop [$_{DP}$ my daughter who was waiting for me].

c. *I [[$_{VP}$ saw at a bus stop ~~DP~~] and [$_{VP}$ smiled]] [$_{DP}$ my daughter who was waiting for me].

In turn, predictions about RC extraposition from subject islands cannot rely on HNPS being movement, since, similar to QR in the QR+LM account, HNPS moves the entire subject island structure. However, as argued in Johnson (1985), HNPS cannot target subjects of finite clauses (37).[20]

[20]See also Bresnan (1976) and Stowell (1981) who suggest that the target position of HNPS is the edge of VP.

(37) a. *~~DP~~ left home [$_{DP}$ my favorite grandfather from Independence].

b. *I said (that) ~~DP~~ left home [$_{DP}$ my favorite sister from Austin].

Table 1 summarizes the predictions of different RC extraposition theories. "OK" and "*" are used to describe the expected acceptability levels. Our main conclusion from the table is that testing both groups of island structures in a series of experiments should be sufficient to significantly reduce the space of existing theories of RC extraposition.

	Subject islands				Coordination islands
	UE	TR	PV	UA	
Base generation	OK	OK	OK	OK	OK
Parallel construal	OK	OK	OK	OK	OK
Stranding RC (Kayne)	OK	OK	OK	OK	*
Stranding DP (Wilder)	OK	OK	OK	OK	OK
Rightward movement	*	*	OK	OK	*
QR + LM	*	*	*	*	*
HNPS + Neglect	*	*	*	*	*

Table 1: Predictions of different theories of RC extraposition about island sensitivity

3. Methods

The 14 experiments reported here test two groups of island structures: subject islands and coordination islands. The first group consists of four different types of nominal subject island structures: unergative, transitive, passive, and unaccusative. Each subject island type is tested three times using indefinite host DPs with and without context, and definite host DPs, to control for the predicate restriction and the definiteness effect. The second group includes two types of coordination islands: the first conjunct in a VP-coordination and the second conjunct in a DP-coordination. The other two

mirror image types of coordination islands are excluded due to their respective problems. Testing the second conjunct in a VP-coordination is complicated because the conjunct itself includes a potential landing site for an extraposed RC. The first conjunct in a DP-coordination has a potential linear distance-based confound that requires a more complicated design. To exclude the possibility of an intervention effect, the other conjunct in both experiments is always a proper name, which cannot serve as a host for a restrictive RC headed by the complementizer *that*.

3.1 Experimental design

All experiments use the standard version of a full 2×2 factorial design for island effects (Sprouse 2007). This design includes two factors, STRUCTURE and DEPENDENCY, each with two levels. STRUCTURE manipulates the structure of a sentence between an island and a non-island, while DEPENDENCY manipulates the in-situ vs. ex-situ position of the RC. Crossing these factors creates four experimental conditions, as shown in the abstract template in (38).

(38)

a.	… [$_{\text{Non-island}}$ … RC]	non-island	in-situ
b.	… [$_{\text{Non-island}}$ … RC] …… RC	non-island	ex-situ
c.	… [$_{\text{Island}}$ … RC]	island	in-situ
d.	… [$_{\text{Island}}$ … RC] …… RC	island	ex-situ

The main advantage of the factorial design is that it isolates the island effect by subtracting the main effects associated with the structure and dependency-forming costs. In this design, the island effect shows up as a superadditive interaction term. The mock plots in Figure 1 illustrate two possible outcomes predicted by this design. Both plots display the main effects of STRUCTURE and DEPENDENCY as, respectively, "symmetry-preserving" horizontal and vertical shifts between pairs of conditions. The left panel shows no island effect, i.e. there is no interaction between two factors, and the lines on the plot appear parallel. The right panel shows a large interaction in addition to two main effects, i.e. the dependency with the tail inside the island structure appears to be significantly less acceptable than the sum of the costs of the two main effects, thus breaking the symmetry.

Visually, it creates a familiar "alligator mouth" shape indicative of an island effect.

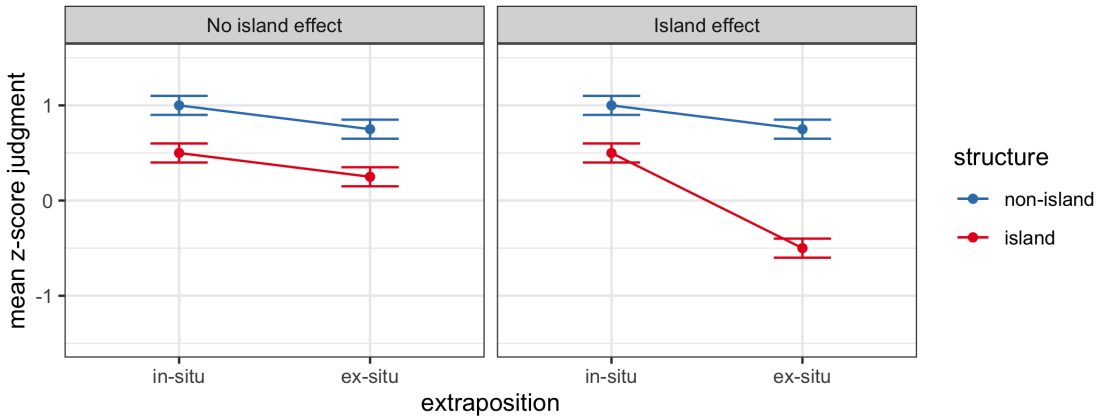


Figure 1: Simple island effect (mock plots)

3.2 Materials

This section outlines the material creation process for all island experiments. Each experiment includes 8 lexically matched sets of experimental items. The complete lists of items for each experiment can be found on the author's website.

3.2.1 *Materials for Experiments 1–12 (subject islands)*

Experiments 1–3 test RC extraposition from unergative subjects. In all three experiments, the direct object of a transitive verb is used as a grammatical control. Non-island conditions contain a temporal adverb, while island conditions employ a manner adverb to mark the right edge of the matrix clause and to lengthen the distance between the gap and the extraposed RC in the ex-situ condition. End-point temporal adverbs used in transitive controls are incompatible with the unbounded interpretation of unergatives, so instead manner adverbs are used.[21] In the non-island in-situ condition, the temporal adverb appears at the left edge to ensure that it is linked to the matrix predicate, and thus the sentence has the same interpretation as its ex-situ counterpart. Due to LC, placing the temporal adverb at the right edge in the in-situ condition would change its interpretation

[21] See Jackendoff (1972), McConnell-Ginet (1982), Ernst (1987), Moore (1989), Cinque (1999), Ernst (2000, 2002, 2004), and Piñón (2007) about the height and interpretation effects of pre- and post-verbal manner adverbs. Overall, the literature suggests that manner adverbs are located inside *v*P, and thus there is at least one position available to the extraposed RC to the right of a manner adverb at the edge of *v*P.

and could potentially affect its acceptability. In the context experiment, the preceding context always consists of two sentences. The first sentence introduces the scene, while the second sentence has the same basic structure as the target sentence (modulo RC extraposition) and repeats the predicate but not the host DP. In this way, the predicate in the target sentence is old information (i.e. it is c-construable), which is predicted to lift the predicate restriction. The adverbs "also" and "then" are added to the target sentences to ensure continuity with the preceding context.

(39) Experiment 1: Unergative subject island (indefinite)

a.	Yesterday I reassured [$_{DP}$ a colleague [$_{RC}$ that sensed my apprehension]].	non-island	in-situ
b.	I reassured [$_{DP}$ a colleague ~~RC~~] yesterday [$_{RC}$ that sensed my apprehension].	non-island	ex-situ
c.	[$_{DP}$ A colleague [that sensed my apprehension]] winked conspiratorially.	island	in-situ
d.	[$_{DP}$ A colleague ~~RC~~] winked conspiratorially [$_{RC}$ that sensed my apprehension].	island	ex-situ

(40) Experiment 2: Unergative subject island (definite)

a.	Yesterday I reassured [$_{DP}$ the colleague [$_{RC}$ that sensed my apprehension]].	non-island	in-situ
b.	I reassured [$_{DP}$ the colleague ~~RC~~] yesterday [$_{RC}$ that sensed my apprehension].	non-island	ex-situ
c.	[$_{DP}$ The colleague [that sensed my apprehension]] winked conspiratorially.	island	in-situ
d.	[$_{DP}$ The colleague ~~RC~~] winked conspiratorially [$_{RC}$ that sensed my apprehension].	island	ex-situ

(41) Experiment 3: Unergative subject island (context)

a.	People in my office have been checking up on me recently. Yesterday I reassured my boss, who was worried about my workload. Yesterday I also reassured [$_{DP}$ a colleague [$_{RC}$ that knew about my anxiety]].	non-island	in-situ
b.	People in my office have been checking up on me recently. Yesterday I reassured my boss, who was worried about my workload. I also reassured [$_{DP}$ a colleague ~~RC~~] yesterday [$_{RC}$ that knew about my anxiety].	non-island	ex-situ
c.	During my presentation, I was nervous, and several people tried to show their support non-verbally. First my boss winked. Then [$_{DP}$ a colleague [$_{RC}$ that knew about my anxiety]] winked.	island	in-situ
d.	During my presentation, I was nervous, and several people tried to show their support non-verbally. First my boss winked. Then [$_{DP}$ a colleague ~~RC~~] winked [$_{RC}$ that knew about my anxiety].	island	ex-situ

Experiments 4–6 test RC extraposition from transitive subjects. RC extraposition from a transitive object is used as a NON-ISLAND grammatical control. Both island and non-island pairs of conditions feature the same transitive verbs that take two animate arguments, thus allowing swapping of subject and direct object while keeping the experimental items lexically identical. A proper name is used for the second argument to avoid a potential ambiguity caused by the misattribution of the extraposed RC. A temporal adverb signals the right edge of VP in both ex-situ conditions. In the context experiment, an adverb "also" is added to the target sentence and a pronoun is used instead of a proper name to ensure the continuity with the preceding context.

(42) Experiment 4: Transitive subject island (indefinite)

a.	Today Tim visited [$_{DP}$ a lawyer [$_{RC}$ that represents the social media company]].	non-island	in-situ
b.	Tim visited [$_{DP}$ a lawyer ~~RC~~] today [$_{RC}$ that represents the social media company].	non-island	ex-situ
c.	Today [$_{DP}$ a lawyer [$_{RC}$ that represents the social media company]] visited Tim.	island	in-situ
d.	[$_{DP}$ A lawyer ~~RC~~] visited Tim today [$_{RC}$ that represents the social media company].	island	ex-situ

(43) Experiment 5: Transitive subject island (definite)

a.	Today Tim visited [$_{DP}$ the lawyer [$_{RC}$ that represents the social media company]].	non-island	in-situ
b.	Tim visited [$_{DP}$ the lawyer ~~RC~~] today [$_{RC}$ that represents the social media company].	non-island	ex-situ
c.	Today [$_{DP}$ the lawyer [$_{RC}$ that represents the social media company]] visited Tim.	island	in-situ
d.	[$_{DP}$ The lawyer ~~RC~~] visited Tim today [$_{RC}$ that represents the social media company].	island	ex-situ

(44) Experiment 6: Transitive subject island (context)

a.	Tim was a victim of identity theft through a social media platform. Today Tim visited a detective in charge of the investigation. He also visited [$_{DP}$ a lawyer [$_{RC}$ that represents the social media company]].	non-island	in-situ
b.	Tim was a victim of identity theft through a social media platform. Today Tim visited a detective in charge of the investigation. He also visited [$_{DP}$ a lawyer ~~RC~~] today [$_{RC}$ that represents the social media company]].	non-island	ex-situ
c.	Tim was a victim of identity theft through a social media platform. Today a detective visited Tim to ask a few follow-up questions. [$_{DP}$ A lawyer [$_{RC}$ that represents the social media company]] also visited him.	island	in-situ
d.	Tim was a victim of identity theft through a social media platform. Today a detective visited Tim to ask a few follow-up questions. [$_{DP}$ A lawyer ~~RC~~] also visited him today [$_{RC}$ that represents the social media company].	island	ex-situ

Experiments 7–9 test RC extraposition from passive subjects. RC extraposition from a direct object is used as a grammatical control. To keep all items as lexically close as possible, the active voice counterparts of the target items are used as controls. A name of a celebrity is used as the second argument across all experimental items to avoid misattribution of the extraposed RC and to minimize the gap between active and passive sentences. In the context experiment, the adverbs "also" and "then" are added to the structure and the proper name is changed to a pronoun to ensure the continuity with the preceding context.

(45) Experiment 7: Passive subject island (indefinite)

a.	Today John Stewart visited [$_{DP}$ an activist [$_{RC}$ that helped the 9/11 first responders]].	non-island	in-situ
b.	John Stewart visited [$_{DP}$ an activist ~~RC~~] today [$_{RC}$ that helped the 9/11 first responders].	non-island	ex-situ
c.	Today [$_{DP}$ an activist [$_{RC}$ that helped the 9/11 first responders]] was visited by John Stewart.	island	in-situ
d.	[$_{DP}$ An activist ~~RC~~] was visited by John Stewart today [$_{RC}$ that helped the 9/11 first responders].	island	ex-situ

(46) Experiment 8: Passive subject island (definite)

a.	Today John Stewart visited [$_{DP}$ the activist [$_{RC}$ that helped the 9/11 first responders]].	non-island	in-situ
b.	John Stewart visited [$_{DP}$ the activist ~~RC~~] today [$_{RC}$ that helped the 9/11 first responders].	non-island	ex-situ
c.	Today [$_{DP}$ the activist [$_{RC}$ that helped the 9/11 first responders]] was visited by John Stewart.	island	in-situ
d.	[$_{DP}$ The activist ~~RC~~] was visited by John Stewart today [$_{RC}$ that helped the 9/11 first responders].	island	ex-situ

(47) Experiment 9: Passive subject island (context)

a.	The Netflix show hosted by David Letterman usually has several guests. Yesterday David Letterman interviewed a famous actor who had just won an Oscar for his recent performance. Yesterday he also interviewed [$_{DP}$ a comedian [$_{RC}$ that created a hit television show]].	non-island	in-situ
b.	The Netflix show hosted by David Letterman usually has several guests. Yesterday David Letterman interviewed a famous actor who had just won an Oscar for his recent performance. He also interviewed [$_{DP}$ a comedian ~~RC~~] yesterday [$_{RC}$ that created a hit television show].	non-island	ex-situ
c.	Yesterday the Netflix show hosted by David Letterman had several guests. First, a famous actor who had just won an Oscar for his recent performance was interviewed by David Letterman. Then [$_{DP}$ a comedian [$_{RC}$ that created a hit television show]] was also interviewed by him.	island	in-situ
d.	Yesterday the Netflix show hosted by David Letterman had several guests. First, a famous actor who had just won an Oscar for his recent performance was interviewed by David Letterman. Then [$_{DP}$ a comedian ~~RC~~] was also interviewed by him [$_{RC}$ that created a hit television show].	island	ex-situ

Experiments 10–12 test RC extraposition from unaccusative subjects. As in all previous subject island experiments, RC extraposition from a direct object of a transitive verb is used as a NON-ISLAND grammatical control. A pronoun appears as the second (subject) argument in non-island conditions to prevent an ambiguity caused by the misattribution of the RC. The right edge is marked with a temporal adverb in ex-situ conditions. In the context experiment, the adverbs "also" and "then" are used to maintain coherence with the previous context.

(48) Experiment 10: Unaccusative subject island (indefinite)

a.	Yesterday I trimmed [$_{DP}$ a tree [$_{RC}$ that straddles the town border]].	non-island	in-situ
b.	I trimmed [$_{DP}$ a tree ~~RC~~] yesterday [$_{RC}$ that straddles the town border].	non-island	ex-situ
c.	Yesterday [$_{DP}$ a tree [$_{RC}$ that straddles the town border]] fell.	island	in-situ
d.	[$_{DP}$ A tree ~~RC~~] fell yesterday [$_{RC}$ that straddles the town border].	island	ex-situ

(49) Experiment 11: Unaccusative subject island (definite)

a.	Yesterday I trimmed [$_{DP}$ the tree [$_{RC}$ that straddles the town border]].	non-island	in-situ
b.	I trimmed [$_{DP}$ the tree ~~RC~~] yesterday [$_{RC}$ that straddles the town border].	non-island	ex-situ
c.	Yesterday [$_{DP}$ the tree [$_{RC}$ that straddles the town border]] fell.	island	in-situ
d.	[$_{DP}$ The tree] fell yesterday [$_{RC}$ that straddles the town border].	island	ex-situ

(50) Experiment 12: Unaccusative subject island (context)

a.	As an employee of a tree service company, I have years of experience in pruning and removing trees. Yesterday I trimmed a whole row of trees along a busy street. Yesterday I also trimmed [$_{DP}$ a tree [$_{RC}$ that straddles the town border]].	non-island	in-situ
b.	As an employee of a tree service company, I have years of experience in pruning and removing trees. Yesterday I trimmed a whole row of trees along a busy street. I also trimmed [$_{DP}$ a tree ~~RC~~] yesterday [$_{RC}$ that straddles the town border].	non-island	ex-situ
c.	It was a tumultuous day in our small town yesterday. First, a billboard on the side of the road fell because of a heavy gust of wind. Then [$_{DP}$ a tree [$_{RC}$ that straddles the town border]] also fell.	island	in-situ
d.	It was a tumultuous day in our small town yesterday. First, a billboard on the side of the road fell because of a heavy gust of wind. Then [$_{DP}$ a tree ~~RC~~] also fell [$_{RC}$ that straddles the town border].	island	ex-situ

3.2.2 *Materials for Experiments 13–14 (coordination islands)*

Experiment 13 tests RC extraposition from the first conjunct of a VP-coordination island. The extraction from the same VP, but without the second conjunct, is used as a grammatical control. The right edge of ex-situ conditions is marked with the temporal adverb. Proper names are used as all other arguments to avoid the RC misattribution ambiguity. To ensure that the extraposed RC has a landing site outside of the first conjunct, the VP-coordination is embedded under a restructuring verb. After Wurmbrand (2001), we assume that the restructuring verbs are able to take VP complements, and therefore there is at least one structure that contains a coordination of two VPs, possibly, in addition to those including coordinations of two IPs and two CPs. The clause-boundedness does not limit RC extraposition here, since VPs are non-finite. In this way, an object-linked extraposed RC is expected to have a landing site adjoined to *v*P or TP found outside of the coordination island.

(51) Experiment 13: VP-coordination island (first conjunct)

a.	Yesterday George wanted [$_{VP}$ to thank [$_{DP}$ a baseball coach [$_{RC}$ that works with underprivileged kids]]].	non-island	in-situ
b.	George wanted [$_{VP}$ to thank [$_{DP}$ a baseball coach ~~RC~~]] yesterday [$_{RC}$ that works with underprivileged kids].	non-island	ex-situ
c.	Yesterday George wanted [$_{VP}$ [$_{VP}$ to thank [$_{DP}$ a baseball coach [$_{RC}$ that works with underprivileged kids]]] and [$_{VP}$ to chat with Mia]].	island	in-situ
d.	George wanted [$_{VP}$ to thank [$_{DP}$ a baseball coach ~~RC~~] and [$_{VP}$ to chat with Mia] yesterday [$_{RC}$ that works with underprivileged kids].	island	ex-situ

Experiment 14 tests RC extraposition from the second conjunct of a DP-coordination island that appears in the direct object position. Similarly to the previous experiment, the same sentence without the other conjunct is used as a non-island grammatical control. A proper name is used as the matrix subject in order to avoid misattribution of the extraposed RC. To exclude parses with coordinations of two VPs or two IPs, which contain a landing site for the extraposed RC inside of a conjunct, the double coordinator "both … and" is used to signal simultaneity and suggest a single

event interpretation indicative of a structure with a single VP and two conjoined DPs.

(52) Experiment 14: DP-coordination island (second conjunct)

a.	Last Monday Jennifer met [the medical team [that saved her]].	non-island	in-situ
b.	Jennifer met [the medical team ~~RC~~] last Monday [that saved her].	non-island	ex-situ
c.	Last Monday Tim met both [[Jennifer] and [the medical team [that saved her]]].	island	in-situ
d.	Tim met [both [Jennifer] and [the medical team ~~RC~~]] last Monday [that saved her].	island	ex-situ

3.2.3 *The linear distance effect*

One potential confound when testing RC extraposition with this experimental design is the linear distance of extraposition dependency.[22] A longer extraposition dependency in the island condition can receive a lower rating than a shorter extraposition dependency in the non-island condition, thus inflating the interaction term. This effect has not been reported for English, but Konieczny (2000) shows that in German the acceptability of RC extraposition from the direct object is sensitive to the linear distance (measured in words) between the host DP and the RC within the same clause. Assuming for the moment that English is like German, we can estimate the size of the linear distance effect for each experiment and check that the interaction term is larger.[23]

In all experiments reported here, the length of the extraposition dependency is kept constant across all items from the same condition in the same experiment. The experiments include 1-word, 2-word, and 5-word increases from the control to the target condition. We assume that a 1-word increase is negligible. The linear distance between the host DP and the RC increases from the control to the target item by 2 words in transitive subject island experiments and by 5 words in passive and VP-coordination experiments. The highest estimates are 0.25 z-units for an increase of 2 words and 0.29 z-units for an increase of 5 words.

[22] This effect is commonly overlooked in similar experiments testing leftward movement, because there, if present, it is subtracting from the interaction term, since the target condition has a linearly shorter dependency than the control.

[23] The estimate is based on the highest predicted values of a simple linear model fit with z-scores calculated as $10^x/20$ from values in Table IV from Konieczny (2000). However, it appears premature to incorporate the estimate of this effect in the statistical model any further given its virtual status in English.

3.2.4 *Anchor items, practice items, fillers, and catch trial items*

All island experiments, except for context experiments, use the same selection of 3 anchor items, 9 practice items, and 16 fillers. The items along with their expected scores on the 1-7 scale are adopted from Sprouse, Schütze, et al. (2013). Anchor items and their scores serve as an illustrative part of the instructions and are not rated by the participants. Practice items cover all 7 points on the scale and are used to familiarize the participants with the task. Fillers, in addition to distracting participants from the experimental manipulation, further encourage the use of the entire scale. Responses to filler items are used for outlier detection during data analysis.

In the context experiments, we use the same anchor and practice items and a subset of 14 fillers, augmented with 4 catch trial items. For each item, we created a two-sentence context, similar to the experimental items. Catch trials, shown in (53), help identify participants who ignore the context preceding each item. Each catch trial item includes one of the two presupposition triggers, *either* or *too*, which can be licensed or delicensed by the preceding context. Thus, participants who do not pay attention to the context and focus on the underlined sentence alone are expected to rate both sentences with licensed and unlicensed presupposition triggers as acceptable.

(53) Catch trial items

a.	Mrs. Wilson hired a carpenter and his apprentice to repair her old table. The carpenter could not repair the table. The apprentice could not repair the table either.	either	licensed
b.	At dinnertime, the children were served a plate of mixed vegetables, including broccoli. The boys ate the broccoli. The girls did not eat the broccoli either.	either	unlicensed
c.	A diver and a swimmer were chatting in the locker room when an announcer called all competitors to the pool. The diver went to the pool. The swimmer went to the pool, too.	too	licensed
d.	A group of tourists gathered around their tour guide on the sidewalk, ready to board a tour bus. The tour guide did not board the bus. The tourists boarded the bus, too.	too	unlicensed

3.3 Survey construction and presentation

Each island experiment comprises four experimental conditions. Eight sets of lexically matched items are created for each experiment with the goal of collecting two observations per condition per participant. The surveys across all non-context experiments consist of 33 items: 9 practice items in a fixed order at the beginning, followed by 8 experimental items and 16 fillers in a pseudorandomized order. In the context experiments, the survey includes 35 items: 9 practice items in fixed order, followed by 8 experimental items, 14 fillers, and 4 catch trial items in pseudorandomized order. Each experiment includes 4 lists in 4 counterbalanced orders used to fend off order effects.

Participants were asked to judge each sentence on a scale from 1 (very bad) to 7 (very good). Each sentence appeared on a separate screen and had its own individual scale next to it. Each participant saw one list of one experiment and all the experimental conditions in it. In the context experiments, participants were instructed to read the preceding context first and then to judge the acceptability of each sentence against that context using the same 1–7 scale.

3.4 Participant recruitment

A total of 1120 participants participated in this study, with 80 assigned to each experiment. For context experiments specifically, the original sample size was 683 participants; however, 363 were later excluded because they failed to differentiate between licensed and unlicensed catch trial items. According to Sprouse and Almeida (2017) and Marty et al. (2020), the sample size of 80 participants yields 100 % statistical power for the 7-point scale task for large effect sizes, which are common for island effects. Each participant saw one list with one island and all the conditions for that island. All participants were self-reported native English speakers. Compensation rates were set at $1.50 for non-context experiments and $2.5 for context experiments, calculated based on an hourly rate of $15 per hour and estimated completion times of 5–6 and 10–12 minutes, respectively.

The experiments were conducted online, hosted on Qualtrics. Participants were recruited through Amazon Mechanical Turk, and the process was made more efficient with the help of CloudResearch, a recruitment facilitation service.

3.5 Analysis

All results were transformed to z-scores prior to analysis to remove common forms of scale bias.

3.5.1 *Identifying uncooperative participants*

In all experiments, we used three different methods to identify and then remove uncooperative participants: Tukey's inner fences (Tukey 1977), the sum of squared errors (SSE), and Iglewicz and Hoaglin's exact fit test (Iglewicz and Hoaglin 1993). Together, the three methods affected 2 participants in each of 2 experiments, 1 participant in each of 2 experiments, and 0 in the rest of them. The number of remaining participants in each experiment is shown in Table 2.

#	Experiment	Participants
1	Unergative subject island (definite)	80
2	Unergative subject island (indefinite)	80
3	Unergative subject island (context)	80
4	Transitive subject island (definite)	79
5	Transitive subject island (indefinite)	80
6	Transitive subject island (context)	80
7	Passive subject island (definite)	80
8	Passive subject island (indefinite)	78
9	Passive subject island (context)	80
10	Unaccusative subject island (definite)	78
11	Unaccusative subject island (indefinite)	80
12	Unaccusative subject island (context)	80
13	VP-coordination island (first conjunct)	79
14	DP-coordination island (second conjunct)	80

Table 2: Number of remaining participants in each island experiment

3.5.2 *Finding the empirical floor and ceiling*

For each experiment, the empirical floor and ceiling were calculated, following Al-Aqarbeh and Sprouse (2022) and Fukuda et al. (2022). The 'floor' is defined as the mean of top 1 lowest filler ratings across all participants and the 'ceiling' as the mean of top 1 highest filler ratings across all participants. Both floor and ceiling are represented as gray lines in the plots, with areas above the ceiling and below the floor grayed out. Identifying both of them for a given set of participants allows us to spot overpowering main effects that hide the interaction term indicative of an island effect. For example, an exceptionally large main effect of STRUCTURE can push the island pair close to the floor. Since there is now less space left on the scale, even the average main effect of DEPENDENCY would take up most of it, leaving very little to no space for the interaction term. In this scenario, the proximity to the floor is obscuring the island effect. Conversely, when both lines are parallel and far from the floor and ceiling, we can be sure that there is no island effect.

3.5.3 *Significance testing*

All statistical analyses were executed in R version 4.1.1 (R Core Team 2021). For each experiment, we constructed a linear mixed-effects models using the `lme4` package (Bates et al. 2015). Each model included STRUCTURE and DEPENDENCY as fixed effects and PARTICIPANT and ITEM as random effects (slopes and intercepts). For each model, we employed two sets of statistical tests. We calculated the *p*-values using the `lmerTest` package (Kuznetsova et al. 2017), which uses the Satterthwaite approximation for degrees of freedom to derive an F test from the linear mixed-effects model. We have also derived Bayes factors of the BF_{10} type for each model using the `BayesFactor` package (Morey and Rouder 2018). For ease of exposition, the interaction term *p*-value and the BF_{10} value are added to each interaction plot.

BF_{10} was selected because it shows the ratio between the likelihood of the data under the experimental hypothesis (H1) and the likelihood of the data under the null hypothesis (H0), allowing the evaluation of H1 and H0 more directly. For instance, $BF_{10} = 3$ indicates that the data is 3 times more likely under a theory in which the interaction term is present (H1) than under one in which

there is no interaction (H0). Including Bayes Factors, along with more familiar null hypothesis testing, allows us to evaluate the null hypothesis directly. In this way, if we observe $BF_{10} = 0.33$, we conclude that the data is 3 times more likely under the null hypothesis (that is, there is no island effect) than under the experimental hypothesis. This helps to distinguish between null results that provide strong evidence for the absence of an island effect and null results that are fundamentally inconclusive. All conventional thresholds for p-values and BF_{10} are adopted from Neyman and Pearson (1928) and Jeffreys (1939) respectively. Using p-values and BF_{10} values together allows us to distinguish at least the following three patterns in the results:

1. A p-value $< .05$ and $BF_{10} > 3$ indicate an island effect.

2. A p-value $> .05$ and $BF_{10} < 0.33$ indicate no island effect.

3. A p-value $> .05$ and $0.33 < BF_{10} < 3$ signal the lack of strong support for either hypothesis.

Given the high statistical power, the last pattern can be taken to indicate that there is no classic island effect, but what we found is a small effect for which we did not have enough power or, if it appears next to the floor or ceiling, that the interaction term is obscured by the main effects.

4. Results

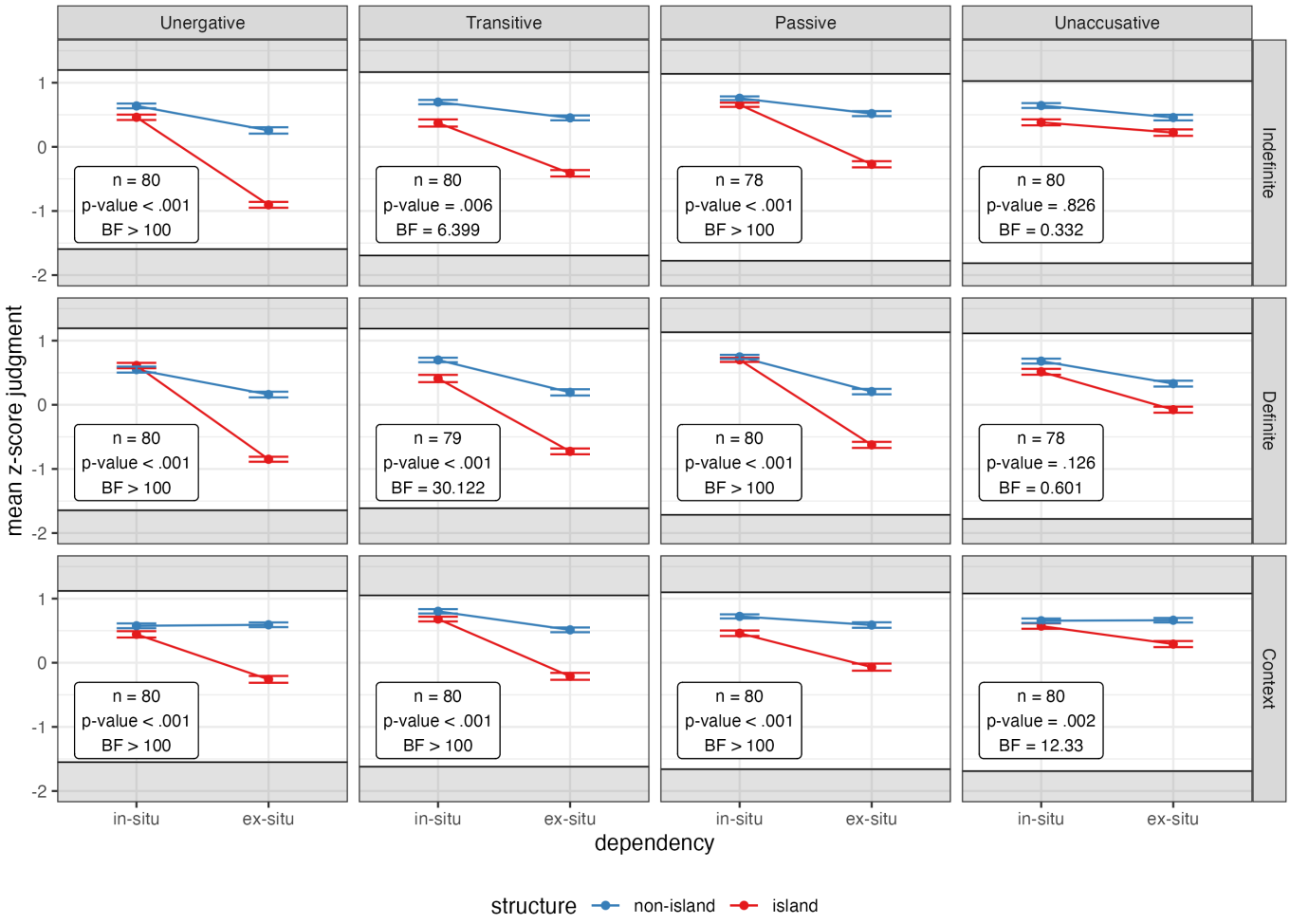


Figure 2: RC extraposition from subject islands in English

Figure 2 shows the results of the subject island experiments. We observe large superadditive interactions indicative of island effects in the triplets of unergative, transitive, and passive subject island experiments. The results of visual observation are supported by both groups of statistical tests at the significance level of $p < .05$ and $BF_{10} > 3$.

In contrast, no evidence of an island effect is seen in the triplet of unaccusative subject island experiments. The BF_{10} value for the definite version indicates that there is anecdotal evidence supporting the null hypothesis H0, according to which there is no interaction term and therefore no island effect, while BF_{10} for the indefinite version shows that there is strong evidence for H0.

Although the interaction term in the context version is statistically significant according to both sets of tests, its effect size (DD = 0.23) appears much smaller than the average effect size of other island effects triggered by RC extraposition ($\overline{\text{DD}} = 0.92$). Furthermore, the condition that violates the island constraint still receives an acceptability rating greater than 0, indicating that it is perceived as acceptable. These findings suggest that this is not a genuine island effect.[24] Finally, no experiments show the ceiling and floor effects, with the main effect vectors pointing away from the closest limiter (ceiling, in all cases). Thus, no interactions appear to be obscured in our results.

A visual trend in effect sizes across different types of subjects closely follows the literature on subject island permeability (Hiramatsu 1999; Chomsky 2008; Jurka 2010; Polinsky et al. 2013) with unergatives being the most opaque and unaccusatives the most transparent. Remarkably, both transitive and passive subjects pattern with unergatives. This finding merits further discussion, to which we return in the next section.

The definiteness effect can be observed across all pairs of definite and indefinite experiments regardless of the island effect, suggesting that the two are unrelated. Interestingly, the definiteness effect is not limited to subjects, contra Rochemont and Culicover (1990); both subject and object pairs change between the indefinite and definite versions of each experiment. Furthermore, an indirect visual comparison within pairs of experiments suggests that the effect size of definiteness is relatively small, corroborating similar observations for *wh*- and RC-dependencies made in Shen and Lim (2021) and Vincent (2021), respectively.

Similar to the definiteness effect, the predicate restriction also appears in every pair of indefinite and context experiments and is likewise independent of the island effect. Although our findings align with Rochemont and Culicover (1990) in showing that unergatives are the most impacted by this restriction, we diverge in demonstrating that all subjects, including unaccusatives, are affected by it. Additionally, we observe that this restriction is not limited to subject-linked RC extraposition but extends to object-linked one as well, further contradicting Rochemont and Culicover (1990).

[24] It is tempting to consider what may be causing the interaction term in the unaccusative context experiment. Apart from a subliminal island effect, one possibility is that the context in this case has a larger impact on the control pair than on the target pair, as suggested by a comparison with the no-context version of the same experiment. Further investigation of the context effect is required to better understand this phenomenon.

In summary, the subject island results indicate that, with the exception of unaccusative subjects, RC extraposition in English is impossible from subject islands. Additionally, both the definiteness effect and the predicate restriction are shown to function independently of the island effect.

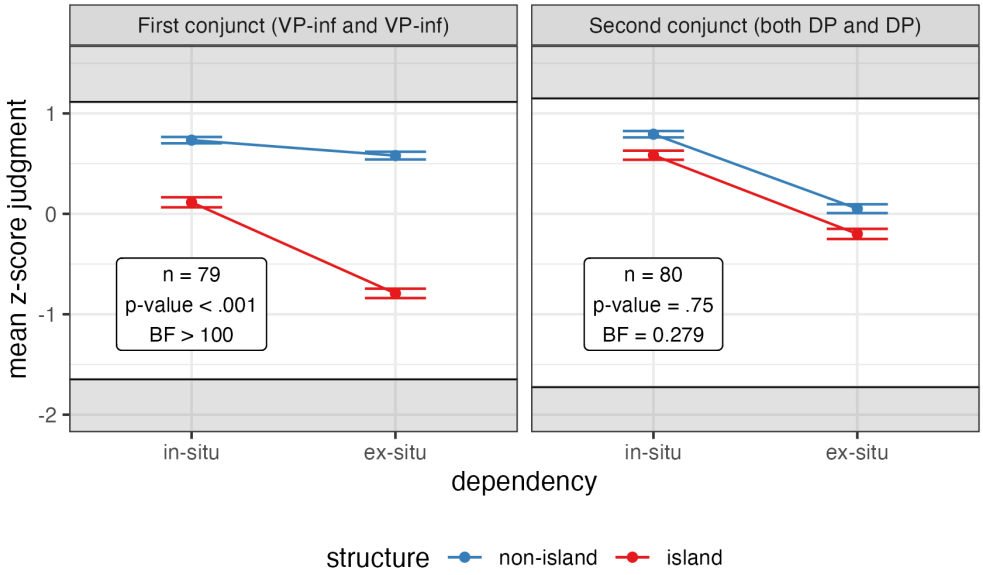


Figure 3: RC extraposition from coordination islands in English

Figure 3 displays the results of the coordination island experiments. The left panel shows that there is a significant interaction term during RC extraposition from the first VP-conjunct, creating an alligator mouth shape. Both p-values and BF_{10} confirm that this result is significant and provide strong support for the presence of an island effect. In contrast, the right panel indicates no island effect for RC extraposition from the second DP-conjunct. Both groups of statistical tests confirm the results of a visual observation, while BF_{10} provides strong evidence for the null hypothesis that there is no interaction term. Importantly, all conditions in both experiments appear far enough from the floor and ceiling, thus validating their reliability.

The lack of an island effect during RC extraposition from the second DP-conjunct can be explained if the target condition is reanalyzed as a VP-coordination instead of a DP-coordination. A possible structure is shown in (54). According to this reanalysis, an extraposed RC has a landing site inside the second conjunct and does not cross an island boundary.

(54) Tim met both [$_{VP}$ ~~Tim met~~ Jennifer] and [[$_{VP}$ ~~Tim met~~ the medical team ~~RC~~ last Monday] [$_{RC}$ that saved her]].

No similar reanalysis exists for RC extraposition from the first VP-conjunct in Experiment 13. For example, reinterpreting the target sentence as a coordination of two IPs as shown in (55) still requires RC extraposition to cross an island boundary (in addition to a finite clause boundary).

(55) George wanted [[$_{IP}$ ~~George~~ ~~wanted~~ to thank [$_{DP}$ a baseball coach ~~RC~~]] and [$_{IP}$ ~~George~~ ~~wanted~~ to chat with Mia yesterday]] [$_{RC}$ that works with underprivileged kids].

Turning to the linear distance effect discussed in Section 3.2.3, we find that the gap between the ex-situ conditions in the transitive, passive, and VP-coordination experiments is much greater than the estimates for 2-word and 5-word increases (0.25 and 0.29 respectively). The individual results are as follows: a 2-word increase yielded a comparison of 0.25 to 0.86 for Experiment 4 (indefinite transitive), 0.25 to 0.92 for Experiment 5 (definite transitive), and 0.25 to 0.89 for Experiment 6 (context transitive); a 5-word increase yielded 0.29 to 0.79 for Experiment 7 (indefinite passive), 0.29 to 0.83 for Experiment 8 (definite passive), 0.29 to 0.53 for Experiment 9 (context passive), and 0.29 to 1.37 for Experiment 13 (VP-coordination). This suggests that the linear effect alone is insufficient to account for the observed gaps.

5. Discussion

Table 3 summarizes the results of the experiments. First, we observe that RC extraposition is sensitive to a range of islands in English. Importantly, we find island effects in configurations that are expected to be free from both the predicate restriction and the definiteness effect. This suggests that the island effect is separate from them, contrary to Culicover and Rochemont (1990) and Rochemont and Culicover (1990). Second, the only two island structures that do not block RC extraposition are the second conjunct in a DP-coordination and unaccusative subjects. For the former, we assume that it is reanalyzed as a coordination of two VP as in (55), which includes a landing site for an extraposed RC inside the second conjunct, and as a result, RC extraposition does

not cross an island boundary. We turn to the discussion of the latter in the following sections.

Island Structure	**Subtype**	**Island Effect**
Subject Island	Unergative, indefinite	YES
	Unergative, definite	YES
	Unergative, context	YES
	Transitive, indefinite	YES
	Transitive, definite	YES
	Transitive, context	YES
	Passive, indefinite	YES
	Passive, definite	YES
	Passive, context	YES
	Unaccusative, indefinite	NO
	Unaccusative, definite	NO
	Unaccusative, context	NO
Coordination Island	VP-coordination, first conjunct	YES
	DP-coordination, second conjunct	NO

Table 3: Summary of experimental results testing RC extraposition from islands in English

5.1 Implications for theories of RC extraposition

The evidence that RC extraposition is impossible across an island boundary has several implications for the theories outlined in Section 2.3. Non-movement theories face a serious challenge in accounting for the island sensitivity. It is unclear how they could predict the island effect in the structures where it was observed or why it was absent in others.

Consulting Table 1, which summarizes the predictions of different theories, we also find that none of the movement theories align with our experimental results perfectly. However, some theories need to only be slightly modified to create the observed pattern of island sensitivity, whereas the

modifications needed for others are much less clear. For instance, Wilder's leftward movement account, which expects no island effects, grapples with difficulties that are not easily surmountable.

Kayne's theory, which derives RC extraposition via leftward movement of the host NP and stranding of the RC in the base position, correctly identifies coordination structures as syntactic islands for RC extraposition. Furthermore, it could probably be extended to account for the unavailiability of RC extraposition from unergative and transitive subjects as follows: assuming that both subjects start out in Spec;*v*P and the lexical verb in English does not raise past *v*, the required word order for RC extraposition cannot be derived. However, the same approach cannot be extended to account for passive subjects, which are standardly assumed to be base generated in Spec;VP. For this reason, we conclude that Kayne's account of RC extraposition cannot be maintained either.

Finally, rightward movement theories show greater adaptability in accounting for the observed island sensitivity pattern. Recall that these theories can be categorized into two groups. The first treats RC extraposition as a subextraction of the RC alone (Ross 1967). The second views it as an extraction of the entire NP+RC complex (Fox and Nissenbaum 1999, 2000; Sportiche 2016). The following sections show how, with minor adjustments, both groups can accommodate our findings.

5.2 RC extraposition from subject islands

Our findings suggest that a subextraction theory of RC extraposition, building on Ross (1967), must account for the contrast between direct objects and unaccusative subjects that allow the RC to be extraposed and passive, transitive, and unergative subjects that do not, as shown in (56).

(56) a. Tim visited [a lawyer ~~RC~~] today [$_{RC}$ that represents the social media company]. *direct object*

b. [A tree ~~RC~~] fell yesterday [$_{RC}$ that straddles the town border]. *unaccusative subject*

c. *[An activist ~~RC~~] was visited by John Stewart today [$_{RC}$ that helped the 9/11 first responders]. *passive subject*

d. *[A lawyer ~~RC~~] visited Tim today [$_{RC}$ that represents the *transitive subject*

the social media company].

e. *[A colleague ~~RC~~] winked conspiratorially [$_{RC}$ that sensed my apprehension]. *unergative subject*

At a minimum, this account must also work for other types of subextraction. Specifically, it should be able to predict the variable status of PP subextraction during *wh*-movement from different types of nominal subject islands (Chomsky 2008). Direct objects and unaccusative and passive subjects generally permit it, while transitive and unergative subjects prohibit it; see (57).[25]

(57) a. [$_{PP}$ Of which car] did they find [the driver ~~PP~~]? *direct object*

b. [$_{PP}$ Of which car] did [the driver ~~PP~~] collapse? *unaccusative subject*

c. [$_{PP}$ Of which car] was [the driver ~~PP~~] found? *passive subject*

d. *[$_{PP}$ Of which car] did [the driver ~~PP~~] find them? *transitive subject*

e. *[$_{PP}$ Of which car] did [the driver ~~PP~~] sing? *unergative subject*

Therefore, this account should incorporate the distinction between RC extraposition and *wh*-movement from different types of subject islands, namely the following three-way contrast:

1. Direct objects and unaccusative subjects allow both *wh*-movement and RC extraposition.
2. Passive subjects allow *wh*-movement, but block RC extraposition.
3. Transitive and unergative subjects block both *wh*-movement and RC extraposition.

The account we propose is based on Chomsky (2008), who generates the *wh*-PP subextraction gaps from the differences in the base positions of the subjects. He assumes that unergative and transitive subjects start out in Spec;*v**P, while unaccusative and passive subjects are base generated in Spec;VP and move through Spec;*v**P. According to him, subextraction from subjects is blocked at phase edges (Spec;*v**P) and in the topmost Spec;TP (due to Inactivity Condition). It follows that the Spec;*v**P-born subjects always block subextraction, while those that start in Spec;VP allow it.

[25]The minimal quintet in (57) is due to Zyman (2021), see his (13), (15), and (19).

Building on phase theory, we argue that the availability of RC extraposition is determined by the derivational history of the subject, specifically whether its derivational path includes Spec;*v**P. In unergative, transitive, and passive sentences, subjects either start or must pass through Spec;*v**P, thus excluding RC extraposition. Unaccusative subjects, however, start in Spec;VP and are able to bypass Spec;*v*P, which in turn allows RC extraposition. Note that for this to work we must assume that passive but not unaccusative *v*s are phases.

The phasal status of the unaccusative and passive *v*s has been contentious since the phases were first introduced in Chomsky (2000, 2001).[26] Chomsky (2008) assumes that both the unaccusative and passive *v*s are not phases, in contrast to the unergative and transitive *v**s. On the contrary, Legate (1998, 2003, 2005) shows a number of interface tests of PF and LF that do not differentiate between *v*s and *v**s, suggesting that both should be unified as phases (but see Legate (2012b) for a different perspective). Finally, a growing body of work suggests that a passive *v**P has a notably richer structure than an unaccusative *v*P and is thus much closer to a transitive *v**P (Alexiadou and Doron 2012; Legate 2012a; Bruening 2013; Richards 2013; Alexiadou, Anagnostopoulou, et al. 2015; Legate et al. 2020; Jarrah 2023: a.o.), which is consistent with our assumption above that passive *v**Ps are phases, similar to transitive and unergative *v**Ps, while unaccusative *v*Ps are not.

Our account extends Zyman's (2021) framework for *wh*-PP subextraction with minimal changes (one modification and two new assumptions) to include RC extraposition. Building on Chomsky (2008), Zyman develops an account in which every *v*P and TP is a phase and the application of Merge is guided by ordered features on lexical heads. For instance, T bears features [D] and [wh] that are ordered as [D]>[wh], i.e. T has to probe for [D] and attract a phrase first before accessing [wh]. Unlike T, the interrogative *v* enters the derivation with two unordered features, [D] and [wh] (see below). He introduces the following condition guiding the subextraction from phase edges:

(58) Phasal Antilocality (Zyman 2021: ex. 1)

For a phase YP, movement from within a constituent at the edge of YP must cross an XP dominating YP.

[26] Some of the issues discussed in Chomsky (2001) may be hereditary, see Chomsky (1964) and Ross (1967) on cycles.

The single modification we propose is that unaccusative *v*P in English is not a phase and does not have an edge. An unaccusative *v* lacks the [D] feature, which excludes subject movement to Spec;*v*P. Since unaccusative *v*P is not a phase, the subject can still reach Spec;TP from Spec;VP.

We also make two assumptions about RC extraposition. First, RC extraposition is successive-cyclic and guided by the feature [RCE], but restricted to a single finite clause in line with the Right Roof Constraint (Ross 1967).[27] Second, RC extraposition can move as high as an internal specifier of TP (see Fox and Pesetsky (2009) for a similar proposal). This implies that T bears ordered features [RCE]>[D]. The assumption that the RC does not extrapose above Spec;TP is supported by the fact that an R-expression inside an extraposed RC still causes a Condition C violation when coreferential with the subject; as illustrated in (59).

(59) a. *She$_i$ invited many people [that Mary$_i$ didn't know] to the party.

b. *She$_i$ invited many people ~~RC~~ to the party [that Mary$_i$ didn't know].

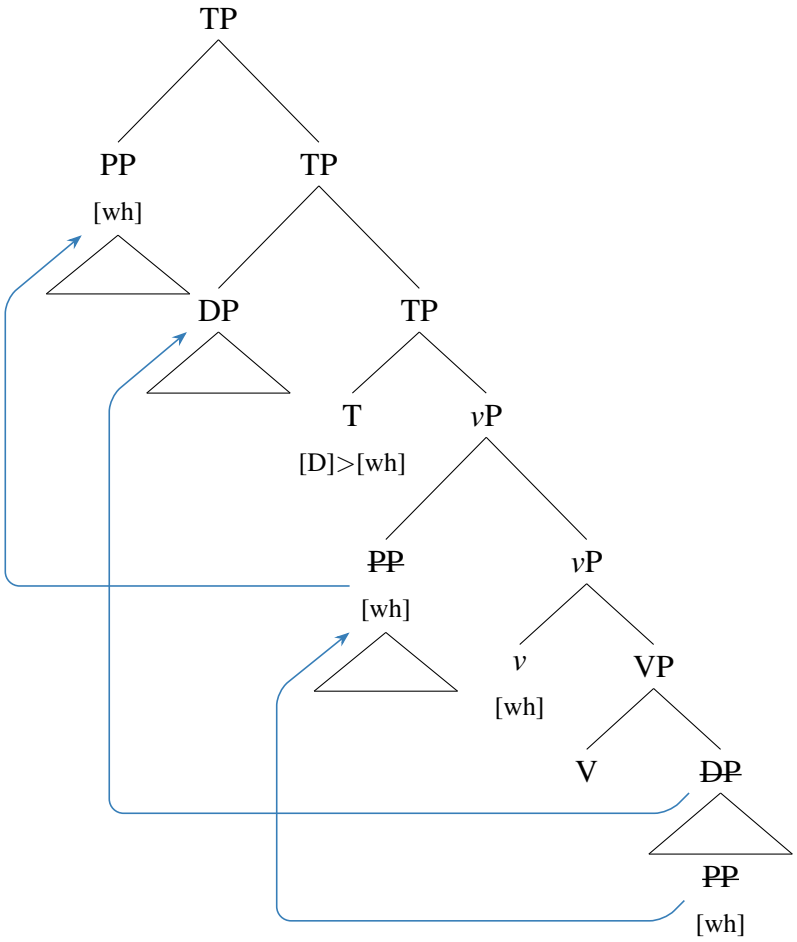
(Culicover and Rochemont 1990: p. 28)

The rest of this subsection illustrates how our account generates the RC extraposition facts in (56). But before that, we should confirm that our modifications still allow *wh*-subextraction from unaccusative subjects. Consider the tree in (60), which corresponds to the sentence in (57b). An unaccusative *v* is not a phase and only carries the [wh] feature. In this way, when merged, *v* only probes its c-command domain for the [wh] feature and moves the *wh*PP to Spec;*v*P. In the next step, T is merged and since its features are ordered as [D]>[wh], it first searches for a phrase with the [D] feature in its c-command domain. It finds the internal argument of V and, since *v*P is not a phase, moves it to Spec;TP. Finally, while using the [wh] feature, T attracts the *wh*PP to Spec;TP.[28]

[27] The literature sometimes mischaracterizes RC extraposition as not being successive-cyclic (Chomsky 1973; Akmajian 1975; Baltin 1978, 1981, 1983). This claim is based on two observations: RC extraposition is impossible across a CP boundary and across multiple bounding nodes (e.g. PP over DP or several nested DPs). The former is independently ruled out by RRC and the latter is empirically unfounded (Strunk and Snider 2013).

[28] The rest of the derivation continues exactly as detailed in Zyman (2021). We skip it here in the interest of space.

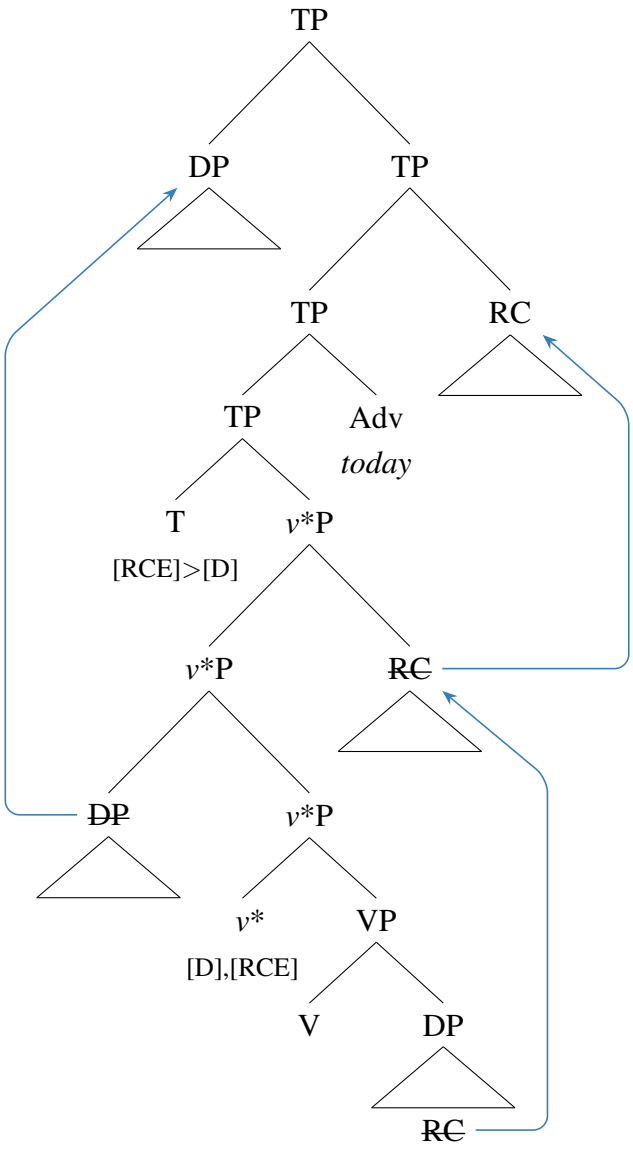
(60) *wh*-subextraction from an unaccusative subject



Moving to RC extraposition, (61) shows the derivation of licit RC extraposition from the direct object in (56a). The [D] feature on the transitive *v** is satisfied by the External Merge of the subject into Spec;*v**P. After that, *v** probes for the [RCE] feature and attracts the RC to the outer Spec;*v**P.[29] Next, upon merger, T probes for the [RCE] feature first and extraposes the RC across a temporal adverb *today*. After that, T probes for the remaining [D] feature, finds the subject DP at the edge of the *v**P phase, and moves it to the outer Spec;TP.

[29] After Zyman (2021: fn. 9), we assume that an explicit ordering of features on *v*/*v** is unnecessary and the operations should be allowed to proceed simultaneously. The order of specifiers in (61) is the only one with which the derivation converges.

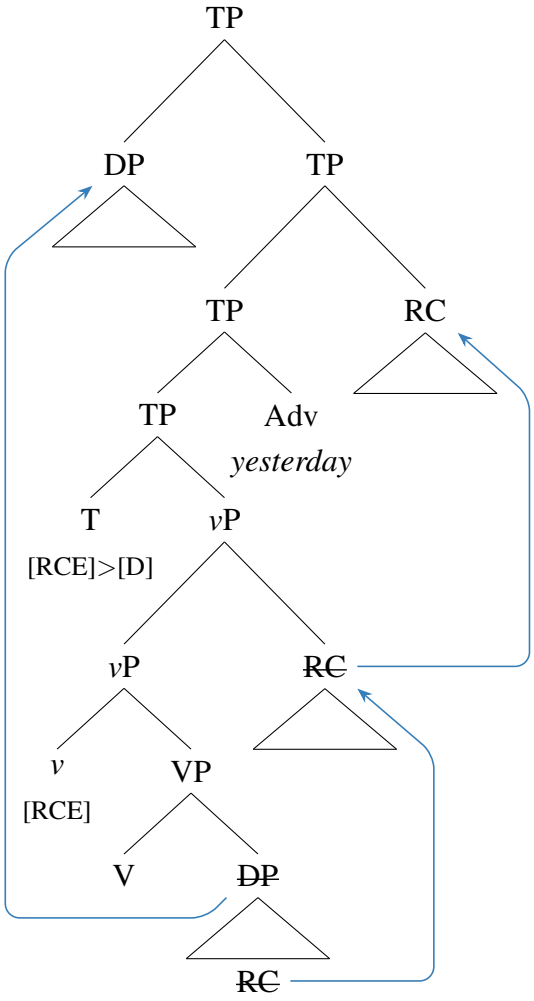
(61) RC extraposition from a direct object



Next, (62) shows the derivation of RC extraposition from an unaccusative subject, which corresponds to the sentence in (56b). The subject DP starts out inside VP as a sister of V. The unaccusative *v* is not phasal and enters the derivation bearing only the [RCE] feature, which triggers RC extraposition to Spec;*v*P.[30] When T is merged, it searches for an RC using the [RCE] feature and then moves it to Spec;TP and across a temporal adverb. Finally, since *v*P is not a phase, T is able to attract the subject DP from its VP-internal position to move to Spec;TP.

[30] A derivation with an unaccusative *v* without any features will also converge as long as it has the [RCE] feature on T.

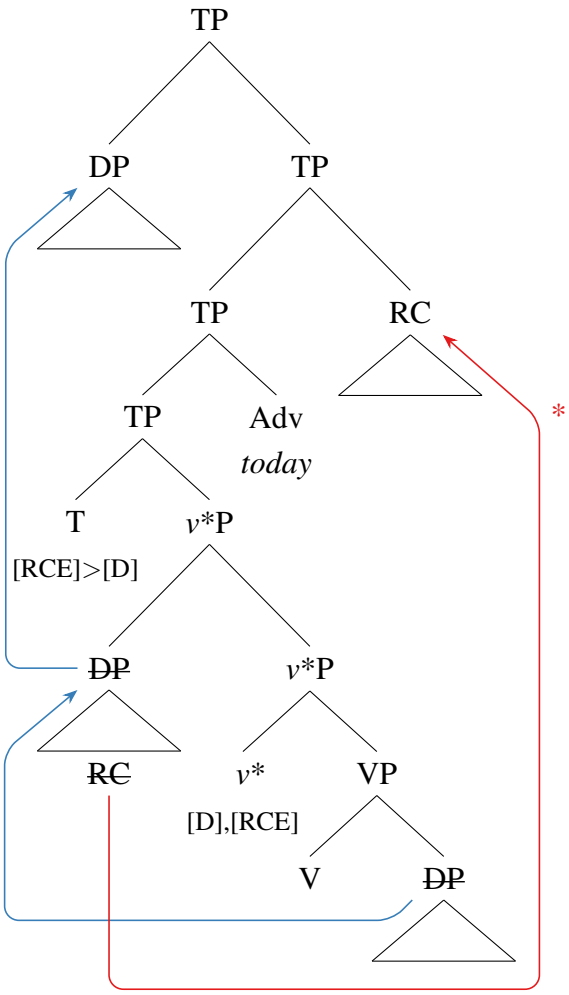
(62) RC extraposition from an unaccusative subject



The illicit derivation of RC extraposition from the passive subject in (56c) is shown in (63). Here, the passive *v** probes for the [D] feature and finds the theme DP, which contains an RC. On DP moving from Spec;VP to Spec;*v**P, *v** checks both [D] and [RCE] features. T is then merged and searches its c-command domain for the [RC] feature. However, the closest RC inside the DP at the phase edge in Spec;*v**P is blocked by the Phasal Antilocality in (58), since *v**P is a phase and T is too close, while the lower copy of the RC inside the VP remains invisible to the probe. As a result, the derivation cannot converge.[31]

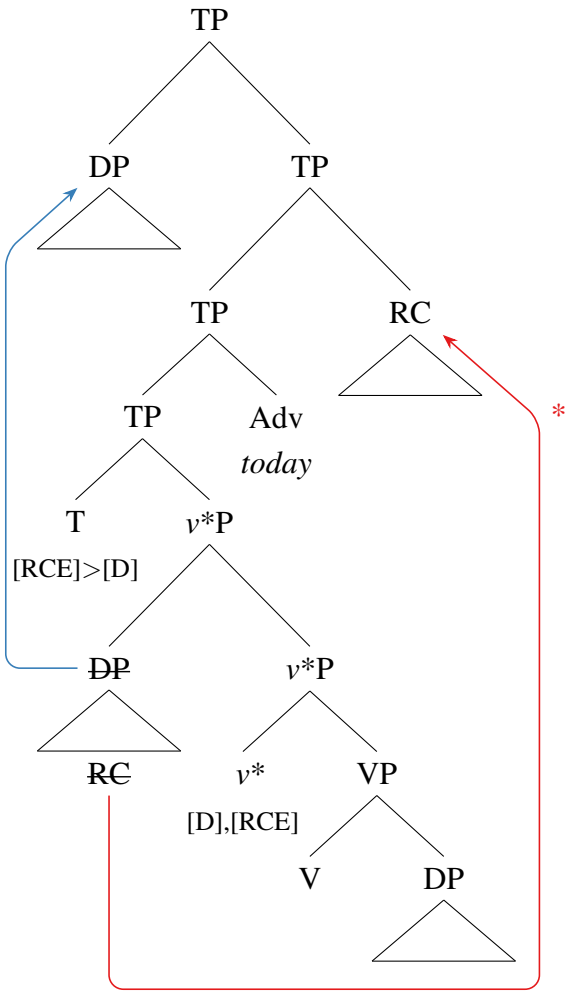
[31] An alternative derivation where *v** probes for the [RCE] feature first and the RC is extraposed to an internal specifier of *v**P is ruled by the ordering of features on T and the phasal status of the passive *v**.

(63) RC extraposition from a passive subject



The tree in (64) shows the derivation of RC extraposition from the transitive subject in (56d). Here, the transitive *v** satisfies both its [D] and [RCE] features when it externally merges the subject DP that contains an RC into its Spec. In the following step, when T probes for the [RCE] feature, the only RC in the structure is blocked by the Phasal Antilocality in (58). As a result, the derivation cannot converge, which correctly rules out RC extraposition from the transitive subject.

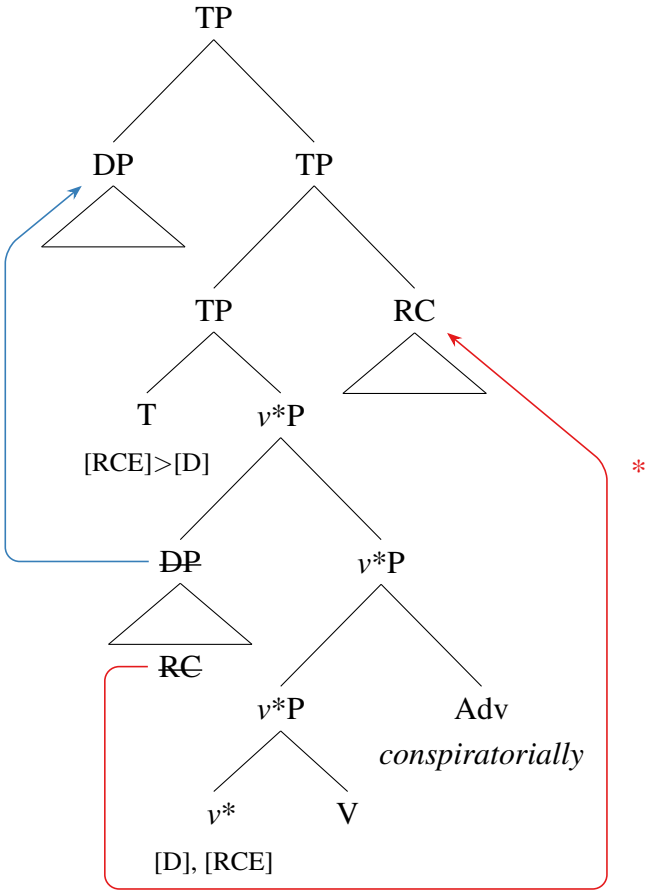
(64) RC extraposition from a transitive subject



Finally, (65) shows the derivation of RC extraposition from an unergative subject. The corresponding sentence is found in (56e).[32] Similar to the transitive subject derivation, an unergative *v** checks both [D] and [RCE] features upon the External Merger of the subject DP into Spec;*v**P. After T is merged, it probes for the [RCE] feature first. However, the only available copy of the RC is prevented from moving by Phasal Antilocality in (58). The derivation does not converge rendering RC extraposition from unergative subjects ungrammatical.

[32]Recall that in Experiments 1–3 manner adverbs were used instead of temporal adverbs with unergative verbs. There we assumed that the adverbs were located somewhere at the edge of VP. Here they are shown to appear inside *v**P.

(65) RC extraposition from an unergative subject



In summary, we saw that our modified version of Zyman's (2021) phasal antilocality account merged with Ross's (1967) subextraction account of RC extraposition can successfully generate the full paradigm of RC extraposition from different types of subjects.

Future research exploring this phase-based subextraction approach to RC extraposition may want to test the predictions regarding intermediate Spec;TP positions, which, famously, license *wh*-subextraction from subjects (the judgment is due to Chomsky 2008):

(66) [$_{PP}$ Of which car] is [$_{DP}$ the driver ~~PP~~] likely ~~DP~~ to cause a scandal?

The account outlined above predicts that introducing intermediate positions will not affect RC extraposition from subjects, since an RC can only reach the internal specifier of the first TP (due to [RCE]>[D]). Consider the RC extraposition counterpart of (66) (the judgment is suppressed):

(67) [$_{DP}$ A lawyer ~~RC~~] is likely ~~DP~~ to visit Tim tomorrow [$_{RC}$ that represents the social media company].

5.3 RC extrapostion of subject islands

The second group of rightward movement theories of RC extraposition treats it as a form of DP extraction (Fox and Nissenbaum 1999, 2000; Sportiche 2016). According to them, either the host NP or the entire NP+RC complex moves to the right. Therefore, RC extraposition from subjects should be analyzed alongside other instances of subject extraction. In the interest of space, here we provide an example of an account based on the idea that RC extraposition involves the host NP (and possibly the RC) undergoing Quantifier Raising (QR). The use of QR to derive RC extraposition is subject to an LF restriction called Scope Economy (Fox 1998, 2000).

(68) Economy condition on scope shifting (Fox 2000)
OP can apply only if it affects semantic interpretation.

Assuming as before that RC extraposition targets an internal specifier of TP, RC extraposition and A-movement of the subject to Spec;TP should yield the same scopal relations with T and any scope-taking elements inside its complement. Since the A-movement to Spec;TP is independently needed for Case, Scope Economy in (68) should block RC extraposition from subjects.

(69) a. Scopal pattern: DP $>$ T $>$ *v*P
b. Tree: [$_{TP}$ DP [$_{TP}$ [$_{TP}$ T *v*P] [$_{DP}$ ~~NP~~ RC]]]

This correctly rules out RC extraposition from unergative, transitive, and passive subjects. Unfortunately, it also outlaws RC extraposition from unaccusative subjects. A possible account of what makes unaccusatives special and separates them from the rest is based on Cardinaletti (2004) and Rizzi (2005, 2006, 2010) and Bianchi and Chesi (2014).

Cardinaletti (2004) argues that different languages systematically distinguish between weak and strong subjects. In English the distinction manifests itself in the ability of subjects to be separated

from the verb by a parenthetical. As shown in (70), strong subjects tolerate parentheticals, while weak ones do not. Cardinaletti proposes to analyze it in terms of different subject positions within the split IP: strong subjects occupy Spec;SubjP, while weak ones end up in Spec;Agr$_S$P.

(70) a. John, as you know, is a nice guy.

b. *It, as you know, rained the whole day.

c. *There, as you know, was a man in the garden.

d. *One, as you know, usually buys ice cream to calm down before exams.

Building on this distinction, Rizzi (2005) argues that Spec;SubjP is a criterial position for the logical subject of predication; see also Rizzi and Shlonsky (2007). Note that according to his criterial freezing theory (Rizzi 2006, 2010), a phrase in a criterial position cannot be removed from it. Bianchi and Chesi (2014) extend this account to reconstruction effects and the thetic/categorical distinction. The guiding idea of their proposal is that non-criterial positions are invisible at LF. Therefore, a subject in Spec;Agr$_S$P, a non-criterial position, can only be interpreted in its thematic position inside *v*P, which gives rise to a thetic interpretation (i.e. mentioning a referent without predicating anything about them; see Kuno (1972), Kuroda (1972), and Lambrecht (1994) among others). In contrast, a subject in Spec;SubjP, a criterial position, is present at LF. As a result, the subject is interpreted as external to the predicate, giving rise to a categorical interpretation (i.e. reporting new information on the topic of the subject); see also Rosengren (1997) for a similar account of the thetic/categorical divide from a non-cartographic perspective.

The final ingredient that we are missing is the assumption that, while most subject positions in English disfavor new information (Prince 1981; Horn 1986) and, as a result, receive a categorical interpretation, (subject-accented) unaccusatives are the only predicates that are compatible with a thetic interpretation of the subject (Sasse 1987; Lambrecht 1994; Zubizarreta and Nava 2011).[33]

Combining these pieces, we assume that unaccusative subjects have two possible positions inside IP: Spec;Agr$_S$P for a thetic interpretation and Spec;SubjP for a categorical one, while other

[33]For a discussion of subtypes of unaccusatives, some of which are not thetic-friendly, see Irwin (2012, 2018, 2020).

subjects can only move to Spec;SubjP. Unaccusative subjects in Spec;Agr$_S$P are invisible at LF, since it is a non-criterial position. In this configuration, RC extraposition to some internal Spec inside split IP cannot be blocked by Scope Economy, as it creates a new scopal pattern at LF. Therefore, it is expected that RC extraposition from unaccusative subjects is possible, while RC extraposition from all other types of subjects is ruled out.

An interesting potential avenue for future research is to compare RC extraposition with other types of rightward subject extraction, some of which show similar patterns. Consider two types of locative inversion shown in (71) and (72). According to Culicover and Levine (2001) (the judgments are theirs), both unergative and unaccusative subjects can dislocate via Heavy Inversion, while Light Inversion is only available to unaccusative subjects, similar to RC extraposition.

(71) *Heavy Inversion*

a. Into the room walked [the students in the class who had heard about the social psych experiment that we were about to perpetrate]. *unaccusative subject*

b. In the room slept [the students in the class who had heard about the social psych experiment that we were about to perpetrate]. *unergative subject*

(72) *Light Inversion*

a. Into the room walked [Robin]. *unaccusative subject*

b. *In the room slept [Robin]. *unergative subject*

6. Conclusion

Our experimental results show that RC extraposition is sensitive to islands, challenging the current empirical consensus in the field. We have also observed that the island effect occurs separately from the predicate restriction and the definiteness effect, contrary to Culicover and Rochemont (1990).

As a result, we have significantly narrowed down the space of possible theories of RC extraposi-

tion by excluding both non-movement and leftward movement accounts. All remaining theories treat RC extraposition as an instance of rightward syntactic movement, making it a counterexample to the ban on rightward movement (Kayne 1994).

Finally, we have outlined two possible accounts of RC extraposition that predict that it is sensitive to islands. The first account treats RC extraposition as a form of subextraction and extends the existing account of *wh*-subextraction from various types of subjects (Chomsky 2008; Zyman 2021) to a different island sensitivity pattern shown by RC extraposition. The second account views RC extraposition as a form of extraction and generates the island sensitivity pattern of RC extraposition by employing Scope Economy paired with a positional account of the thetic/categorical distinction between different types of subjects.

In conclusion, our study provides the foundation for the conclusion that RC extraposition is created by rightward syntactic movement. However, identifying the exact place of RC extraposition within the ontology of rightward movement operations remains a question for future research.

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