

# **How resumptive pronouns ameliorate island violations**

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## Abstract

While some resumptive pronouns, in some languages, ameliorate island violations, not all do. This kind of variation highlights a set of questions about the nature of amelioration provided by resumptive pronouns in the cases in which it is observed. Borer 1984 is a pioneering in-depth study of resumption in Hebrew, which argues that the repair is only indirect: resumptive pronouns are associated with a distinct, non-movement, derivation, in which an island violation is simply not incurred. The current paper revisits this conjecture in the context of later work which has repeatedly demonstrated the compatibility of resumption with movement derivations. This raises the possibility that resumption in islands, if similarly associated with a movement derivation, has an ameliorating effect due to some other, local surface mechanism related to the position in which the resumptive pronoun surfaces. New evidence for the non-movement approach is presented, based on a novel ambiguity among high resumptive pronouns- a construction originally introduced in Borer 1984.

**Keywords:** Resumptive pronouns, relative clauses, island amelioration, Economy of pronunciation, movement of resumptive pronouns, Hybrid chains.

## 1 Introduction

Questions about the source and nature of island sensitivity in movement have been at the forefront of syntactic research ever since islands were first discovered (Ross 1967, Chomsky 1973). These questions are still, to a significant extent, unanswered. One path forward is through the study of island-violation repairs: understanding how a particular violation is ameliorated may tell us something about the nature of the violation. The intuition that RPs in some sense, in some languages, ameliorate violations incurred by movement has led to questions about the nature of that amelioration. Borer 1984 is a pioneering study of resumption in island contexts in Hebrew which showed that RPs consistently ameliorate island violations, further supported in experimental settings (Keshev & Meltzer-Asscher Keshev 2018, Fadlon et al. 2019). Regarding the nature of the repair provided by RPs, Borer 1984 argued that it is only indirect; RPs are associated with an alternative derivation, without movement, in which the violation is simply not incurred (Chomsky 1977, Borer 1984, McCloskey 1990). An alternative view holds that RPs repair a violation directly, by virtue of their presence within a movement derivation, at least some of the time (Perlmutter 1972, Pesetsky 1998, Van Urk 2018). On this view, what is sensitive to island locality is the non-pronunciation of the tail of the chain, not movement per se, repaired when the gap is spelled out as a pronoun.

In the time since Borer's study the empirical landscape spanning RPs, movement, and repair-potential has become richer and much more complex. It is now understood that RPs in many languages do not ameliorate islands at all, such as Vata (Koopman 1982), Welsh (Tallerman 1983; Rouveret 1994), Nupe (Kandybowicz 2007), Seereer (Baier 2014), Dinka (Van Urk 2018), to name a few. RPs may be associated with movement, quite commonly (Aoun, Choueiri & Hornstein 2001, Sichel 2014, in addition to the above), in which case they do appear to repair certain kinds of violation; but in other languages, in addition to Hebrew, RPs do repair island violations (Swedish (Engdahl 1985), Irish (McCloskey 1990), Lebanese Arabic (Aoun & Choueiri 2000), among others). The variation in this domain is perplexing: what is it about particular grammars (or some other module), that allows RPs to repair island violations, and keeps them for repairing them in others? In this paper, I provide fresh evidence from a contemporary theoretical perspective for the claim that island repair by RPs must involve a distinct non-movement derivation. Whereas RPs are indeed possible in movement derivations, and may be recruited to realize a gap in order satisfy local, PF-related, requirements (Boeckx 2003, Van Urk 2018), there is another, non-movement strategy which may be recruited to repair island violations. This could, potentially, give us the beginning of a handle on the source of variation: languages in which RPs are island-sensitive lack the non-movement derivation.

Borer's early paper on the syntax of resumption already provides a key to this conclusion, to be further developed throughout the paper. In addition to RPs in-situ, in the familiar position within the RC in which the head would be assigned its RC-internal theta-role, Borer's paper also discusses and analyzes RCs in which the RP surfaces high in the relative CP. High RPs may either correspond to direct objects (which I will call ACC RP), or to a relativized DP complement to P, in which case the entire PP surfaces high (which I will call RP in PP). Either type may occur with or without the RC complementizer *Se* (=that).

- (1) a. *ze ha-iS Se-pagaSti (oto).*  
this the-man that-met.I him  
'This is the man who I met.'

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- b. *ze ha-iS (Se-) oto pagaSti.*  
 this the-man that him met.I  
 ‘This is the man that him I met.’
- c. *ze ha-iS Se-dibarnu alav.*  
 this the-man that-we.talked about.him  
 ‘This is the man that we talked about.’
- d. *ze ha-iS (Se-) alav dibarnu.*  
 this the-man that about.him we.spoke  
 ‘This is the man about whom we spoke.’

When a high RP surfaces without an overt complementizer, the situation is similar to a relative operator in English, and Borer’s analysis assimilates RPs to relative pronouns of the Germanic type. On this analysis, the versions with fronted RPs in (1b) and (1d) involve movement of the RP, and the gap version of (1a) is derived by movement of the RP, followed by its deletion in the Comp area, on a par with Operator movement; the RP is assimilated to an Operator.

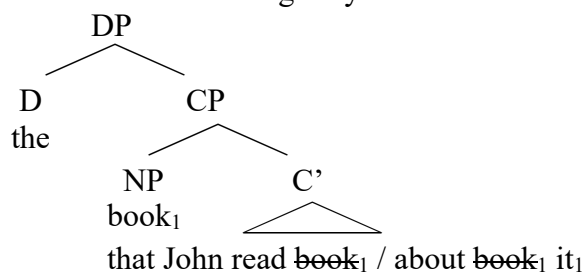
An immediate goal is to revisit the analysis of overt RP movement, and to contextualize it within contemporary theories of RCs and RPs. There are a few things at stake: the nature of operator variable chains, the nature of RPs and pronouns more generally, and the nature of movement derivations. If RPs can truly move, it is likely that they are items merged from a traditional lexicon, like any other DP; if the RP does not actually move, but directly surfaces in its position, it is not a traditional pronoun, more likely to surface as realization of a gap, as a product of particular derivations. Furthermore, if the RP undergoes movement, within a derivation in which the head does not, structures with high RPs provide new evidence for hybrid A-bar chains, of the type proposed for Irish (McCloskey 2002, Assmann et al. 2010). I argue that there are two routes to a high RP in a derivation such as (1b): one in which the high RP is directly realized in its position and one in which it surfaces in the high position as the result of movement. As I will show, the ambiguity of high RP syntax correlates with the external syntax of the RC: in the derivation with ‘high direct realization’, the RC head is derived by movement, (2a); in the derivation with ‘RP movement’, the RC head is merged external to the RC, as in a head-external RC (2b) (coindexation indicates movement, not covaluation). In other words, the two possibilities for high RPs reflect the structural ambiguity of RCs (Bhatt 2002, Sauerland 2003, and Hulsey and Sauerland 2006).

- |  |                     |
|--|---------------------|
| (2) a. [DP head <sub>1</sub> [CP RP ... head <sub>1</sub> ]] | High realization RP |
| b. [DP head [CP RP <sub>1</sub> ... RP <sub>1</sub> ]]       | RP movement         |

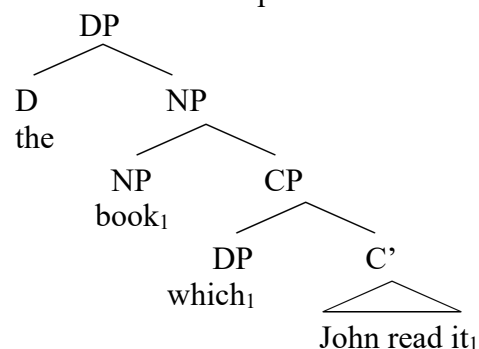
Combined with the underlying derivation, as in (2b), the possibility that high RPs involve actual movement is key for the central issue of the paper: how RPs ameliorate island violations. The significance of this construction is that in it, the RP is no longer at the tail of the chain. But if RP-fronting can occur in a construction in which island repair is successful, then the fact that the RP can subsequently be displaced tells us that the source of repair cannot be the realization of the RP in the gap position. The challenge though, is that we do not know, a priori, when the RP is high, whether the derivation is as in (2a) or (2b), and whether the source construction, with the pronoun in-situ, is of the sort that repairs islands. This is because there are multiple derivations which may include an RP at the tail of the chain. Aoun, Choueiri & Hornstein (2001) coin RPs in non-movement derivations ‘true resumptives’, while RPs in movement derivations are ‘apparent resumptives’, diagnosed by their compatibility with reconstruction effects: an RP in a movement derivation is compatible with reconstruction effects. For RPs in RCs, I assume, following Sichel 2014, that the difference between true and apparent resumption is related to the structural ambiguity of RCs

(Bhatt 2002, Sauerland 2003, and Hulsey and Sauerland 2006). ‘True resumptives’ inhabit a classic head-external RC, with no movement, as in Chomsky 1977 and Borer 1984, and ‘apparent resumptives’ inhabit a Raising RC. I also assume that only obligatory RPs, those found within PPs, may inhabit the Raising RC; optional RCs are confined to the head-external, non-movement derivation (Sichel 2014).

(3) a. RAISING: traces & obligatory RPs



b. HEAD EXTERNAL: optional RPs



The availability of these two possible derivations is what raises the question regarding the source of island repair. The structure in (3b) corresponds to the Chomsky-Borer conjecture that island repair involves a derivation with no movement. But given (3a), with movement and resumption, it is possible that this configuration repairs islands (alongside or instead of (3b)), in which case, the repair involves the realization of a pronoun in the gap position, rather than a suspension of movement. Similarly, the availability of two sources makes it impossible to tell, a priori, what the derivation of high RPs really is: given the possibility that RPs directly realize gaps, an RC like 1b, with a high RP, could involve direct realization of the RP in the high position, rather than RP movement. And if so, the structure is not really relevant for island repair, since an RC with a gap at the tail of the chain is ungrammatical in islands. I will argue that RCs with high RPs are in principle ambiguous, and may involve either high realization, as in (2a), with (3a) as its source, or movement of the RP (2b), as in Borer 1984, with (3b) as its source. The structure in (2b) is the one most immediately relevant for questions about island repair: if (2b) exists, it tells us directly that RP island-repair cannot be in virtue of an RP filling the gap position, since the RP can move away without incurring a violation. The challenge, then, is to establish the analysis in (2b) as a possibility, and to distinguish it from (2a).

The paper is structured as follows. Section 2 starts out by introducing RPs in the two RC structures and the distribution of optional and obligatory RPs; this is the basis of the argument for (2a). Sections 3-4 briefly introduce the evidence for (2a), with direct realization of the high position by RPs, and its Economy-based rationale; section 5 introduces the evidence for (2b) with RP movement and a hybrid chain. Section 6 concludes.

## 2 Resumptive pronouns and the structural ambiguity of relative clauses

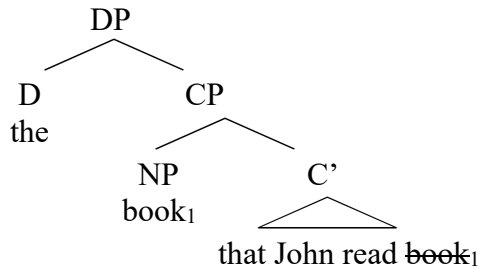
The proposal that RCs are structurally ambiguous is based on the observation that RC heads can be interpreted in the RC head position, in (4), or reconstructed in the gap position within the RC, in (5), suggesting that the RC head has moved from this position (Bhatt 2002, Hulsey & Sauerland 2006, Bianchi 2004). These distinct interpretive sites for the RC head are argued to correspond to distinct RC structures. In the Raising RC (6a), the RC head starts out lower within the RC clause, and RC is the complement of  $D^0$ , forcing reconstruction; in the head

external RC (6b), the head is merged outside of the RC, and the RC is an adjunct.<sup>1</sup> Since the RC head is not derived by movement, the RC head is interpreted in its surface position, as required for (4), with an external antecedent for the anaphor in the RC head.

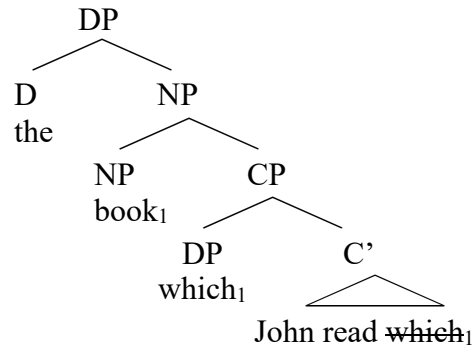
(4) Mary<sub>1</sub> found [ [the pictures of herself<sub>1</sub>]<sub>2</sub> that John took t<sub>2</sub> ]

(5) a. This is [the picture of himself<sub>1</sub> [that John<sub>1</sub> likes \_\_\_ best]]  
 b. Mary was satisfied with [the headway [that we made \_\_\_ ]]

(6) a. RAISING:



b. HEAD EXTERNAL:



Hebrew has two types of RPs in RCs, which differ in interpretation. Their interpretive differences are derived from the RC structure which they inhabit (Bianchi 2004). In non-island contexts, Hebrew has optional RPs in object position and in embedded subject position, and it also has obligatory RPs, when relativization is from within PP or NP. The interpretive difference between RPs is the following (Sichel 2014):

(7) Optional RPs block reconstruction, obligatory RPs allow reconstruction.

In what follows, we focus on one representative of each class: optional direct object RPs, referred to as ACC RPs, and obligatory RPs in PPs, referred to as RP in PPs. The contrast between the two types is shown for *De Dicto* and *De Re* readings and idiomatic readings. ACC RPs block *De Dicto* readings (Doron 1982), in (8b), along with idiomatic readings, in (9b). Assuming that these readings require reconstruction of the RC head, ACC RPs block reconstruction. In contrast, these readings become available in the presence of a pronoun, when the RP is an obligatory RP in PP or in DP, in (10-11) (See Sichel 2014 for the full paradigm of RP types and reconstruction effects).

(8) a. *dani yimca et ha-iSa<sub>1</sub> Se-hu mexapes t<sub>1</sub>.* DE RE AND DE DICTO  
 dani will.find ACC the-woman that-he searches  
 'Dani will find the woman he is looking for.'  
 b. *dani yimca et ha-iSa<sub>1</sub> Se-hu mexapes ota<sub>1</sub>.* ONLY DE RE  
 dani will.find ACC the-woman that-he searches her  
 'Dani will find the woman he is looking for.'

(9) a. *ha-tik<sub>1</sub> Se-tafru t<sub>1</sub> le-dani*

<sup>1</sup> If the head external RC is of the Matching variety, there will be another copy of the RC head within the RC which may reconstruct (Sauerland 2003, Hulsey & Sauerland 2006). For the analysis of RPs in RCs, there is no need for another head external Matching RC, in addition to (6b). Since RPs present clear evidence, presented below, for the classic head-external version of (6b) (Chomsky 1977), the Matching RC structure will be set aside. Overall, the evidence for distinct containing structures may be less compelling than the evidence for distinct kinds of chains. See Safir 1999 for a single Raising RC enriched by vehicle change and Late Merge, and Sportiche 2017 for a single Raising RC, enriched by different sites for external merge of the RC head and distinct chain types when RPs are present.

The-case that-they.sewed for-dani

- b. *ha-tik<sub>1</sub> Se-tafru oto<sub>1</sub> le-dani* ONLY LITERAL READING  
 The-case that-they.sewed it for-dani  
 'the case that they sewed for Dani / the case that they framed him with'

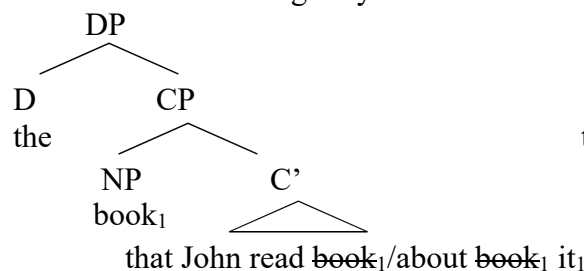
- (10) a. *dani yimca et ha-iSa<sub>1</sub> Se-hu xolem aleya<sub>1</sub>.* DE RE AND DE DICTO  
 dani will.find ACC the-woman that-he dreams of-her  
 'Dani will find the woman he is dreaming of'  
 b. *ha-itona'im mexapsim [iSa<sub>1</sub> Se-beyta<sub>1</sub> neheras.* DE RE AND DE DICTO  
 the-reporters searching woman that-house.her demolished  
 'The reporters are looking for a woman whose house was demolished'

- (11) *ha-ec<sub>1</sub> Se-hu tipes alav<sub>1</sub>*  
 the-tree that-he climbed on-it  
 'the tree that he climbed up / 'the high position he took' LITERAL AND IDIOMATIC

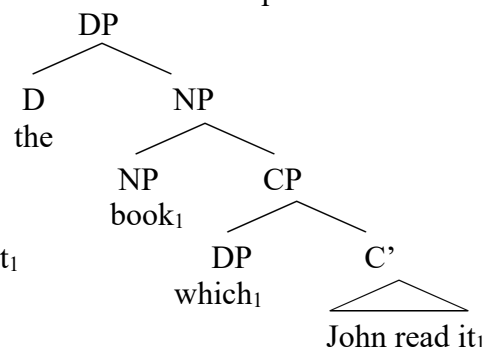
These examples show that the contribution of pronominal form to interpretation is not uniform. Sichel (2014) argues that this is not a pronominal ambiguity per se, but rather the effect that RC structural ambiguity has on the contained RPs. The readings which alternate across RP types form a natural class: they require reconstruction. Since the availability of reconstruction depends on how the RC head is derived, via movement from its thematic position (6a), or not (6b), the interpretive effects can be derived from the RC structure which an RP inhabits, Raising RC or head external RC. These mappings are shown in (12).<sup>2</sup>

Which RC a pronoun will inhabit is determined by competition and the availability of alternatives, in (13) (Sichel 2014), a local Economy principle which regulates pronunciation, resonating with Pesetsky 1998, Landau 2006, and Van Urk 2018. The Raising RC in (12a) is optimally realized with a null form. Therefore, a pronoun is available only if a gap is not. Combined with the assumption that reconstruction depends on movement, this derives the presence of reconstructed readings for obligatory RPs (Sichel 2014). If optional RPs are excluded, and the alternative derivation is the head-external RC, this derives the absence of reconstruction for optional RPs.

- (12) a. RAISING: traces & obligatory RPs



- b. HEAD EXTERNAL: optional RPs



- (13) Economy: Pronounce the tail of an A-bar movement chain in an RC as a gap whenever possible.

Summing up, Hebrew has RPs compatible with movement, at the tail of the chain, as diagnosed by reconstruction. These RPs are obligatory RPs, but they are not in islands. The

<sup>2</sup> It is possible that obligatory RPs can also inhabit (12b). This is, in fact, necessary, if island repair is the product of non-movement. I argue for this in Section 4.

compatibility with movement suggests that the requirement for pronominal material must be due to a local PF requirement, and not because movement is excluded (Perlmutter 1972, Pesetsky 1998, and Van Urk 2018, among others). This raises the possibility that *all* RPs, including those in islands, are realized to satisfy local PF-related requirements of a particular position. Section 5 returns to RPs in island contexts to argue against this: RPs in islands are associated with a distinct, non-movement, derivation. To see this, we first introduce high RPs, and one route to their realization.

### 3 High RPs in the CP area

With this interpretive difference in place, we turn to the positioning of pronominal material in the left periphery of the RC. Both ACC RPs (14a) and RPs in PPs, which pied-pipe their containing PP (14b) can surface in this area, to be referred to as *high RPs*. When an RP is in this position, the complementizer *Se* may be omitted (Borer 1984).

- (14) a. ha-iSa<sub>1</sub> [C' (Se-)ota<sub>1</sub> dani mexapes \_\_\_<sub>1</sub>]                    ACC RP  
           the-woman that-her dani looks-for  
           ‘the woman that Dani is looking for’  
       b. ha-iSa<sub>1</sub> [C' (Se-)aley<sub>1</sub> dani xolem \_\_\_<sub>1</sub>]                    RP in PP  
           the-woman that-about.her dani dreams  
           ‘the woman about who Dani is dreaming’

- (15) [RC head<sub>1</sub> (that) (P) RP<sub>1</sub> [TP ... \_\_\_]]

When *Se* (=that) is present, the two RP types are available, as indicated by the parentheses in (14). Borer 1984 argued that the underlying structure is distinct: the position immediately following *Se* allows the full range of topicalized phrases, including adjuncts and larger DPs containing a possessor RP, in (16). Without *Se*, however, the most that can be pied-piped is the PP, in (14b); other kinds of potential topics, such as adjuncts or other arguments, are not allowed. Following Borer (1984), and updating to CP structure, the structures without *Se* have the RPs in the specifier of the relative CP, whereas the structures with *Se* have the fronted phrase topicalized, in a position below C<sup>0</sup>.

- (16) a. ha-iSa<sub>1</sub> [C' \*(Se-)etmol hu xipes \_\_\_<sub>1</sub>]  
           the woman that-yesterday he looked-for  
           ‘the woman that yesterday he was looking for’  
       b. ha-iSa<sub>1</sub> [C' \*(Se-)et axota<sub>1</sub> dani mexapes \_\_\_<sub>1</sub>]  
           the woman that-ACC sister.her dani looks-for  
           ‘the woman whose sister Dani is looking for’

We now turn to the interpretation of RCs with high RPs, with and without *Se*.

Given the division in the interpretation of RPs described above, it is surprising that (14a), with high ACC RP, gives rise to *De Dicto* readings, and more generally, to readings which require reconstruction (see also Fox (1995), Sharvit (1999), Arad (2014), Sichel (2021)). Instead of the mapping of RPs to interpretation observed with RPs in-situ, schematized in (17), what we actually find is in (18): high ACC RPs surprisingly allow reconstructed readings, just like traces and high and low RPs in PP. Compare (17c) and (18b). The pattern generalizes to all reconstructed readings.

- |                |                 |                   |                                  |
|----------------|-----------------|-------------------|----------------------------------|
| (17) a. trace: | DP <sub>1</sub> | t <sub>1</sub>    | <i>De Re</i> and <i>De Dicto</i> |
| b. RP in-PP:   | DP <sub>1</sub> | P RP <sub>1</sub> | <i>De Re</i> and <i>De Dicto</i> |
| c. ACC RP:     | DP <sub>1</sub> | RP <sub>1</sub>   | <i>De Re</i>                     |

- (18) a. RP in-PP: DP<sub>1</sub> P RP<sub>1</sub> t<sub>1</sub> *De Re* and *De Dicto*  
 b. ACC RP: DP<sub>1</sub> RP<sub>1</sub> t<sub>1</sub> *De Re* and *De Dicto*

The examples below exhibit naturally occurring examples (retrieved via Google search) with high ACC RPs, with the complementizer *Se* and also without it. The contexts in these examples suggest that they are, or can be, associated with *De Dicto* readings. (20b), also with high ACC RP, is compatible with idiomatic readings. Both kinds of reading are unavailable when the RP in-situ. Less remarkably, high RPs in-PP exhibit idiomatic readings, in (21).

- (19) a. *hu mitnaheg be-derex Se-notenet li le-hargiS Se-ulay ani lo ha-iSa Se-ota*  
 he behaving in-way that-leads me to-feel that-perhaps I not the-woman that-her  
*hu mexapes, ma la 'asof?*  
 he looks.for what to-do?  
 'He is behaving in a way that makes me feel that perhaps I am not the woman that he's looking for, what should I do?'  
 b. *yeS li eyzo tmuna ba-roS Sel ha-iSa Se-ota ani roce.*  
 BE to.me some picture in.the-head of the-woman that-her I want  
 'I have some picture in my head of the woman I want.'  
 c. *hu haya ha-gever alav xalma, hi hayta ha-iSa ota raca yoter*  
 he was the-man on.him she.dreamt, she was the-woman her he.wanted more  
*mi-kol, aval be-si ahavatam xadar SutaS SliSi le-xayehem....*  
 than-all, but at-height their.love intruded party third to-their.lives...  
 'He was the man about who she dreamt, she was the woman who he wanted more than anything, but at the height of their love a third party came into their lives....'  
 d. *macati et ha-iSa Se-ota raciti, et ha-iSa Se-la xikiti*  
 found.I ACC the-woman that-her i.wanted, ACC the-woman that-for.her i.waited  
 'I found the woman who I wanted, the woman for whom I had been waiting.'
- (20) a. *ha-tik<sub>1</sub> Se-tafru oto<sub>1</sub> le-dani*  
 the-case that-they.sewed it for-dani  
 'the case that they sewed for Dani'  
 b. *ha-tik<sub>1</sub> (Se-)oto<sub>1</sub> tafru le-dani*  
 the-case that-it they.sewed for-dani  
 'the case that they sewed for Dani' / 'the case that they pinned on Dani'
- (21) a. *ha-ec<sub>1</sub> Se- hu tipes alav<sub>1</sub>*  
 the-tree that-he climbed on-it  
 b. *ha-ec<sub>1</sub> (Se-) alav<sub>1</sub> hu tipes*  
 the-tree (that-)on.it he climbed  
 'the tree that he climbed up' / 'the high position he took'

The availability of reconstructed readings with high ACC RPs pretty much holds for all types of reconstruction effects (see Sichel 2021 for more details).

The wider range of interpretations associated with high ACC RPs suggests that the mapping between a high RP and the RC structure cannot be the same as in (12), where the RP is in the familiar base position. Rather, it suggests that it must be possible to generate an ACC RP in a Raising RC, unlike (12a), where ACC RPs are excluded.<sup>3</sup> This is a bit puzzling, since an RP is available in a high position in a structure in which it is excluded from the base

<sup>3</sup> Since the facts in (19-20) attest only to reconstructed readings, a high acc RP based on (12b) is not excluded; we return to this possibility below.



position. How does the RP arrive in the high position? Something other than simple movement from base position to high position must be involved. Sichel 2021 argues that the RP must be realized directly in its high position, regulated by the Economy principle in (13). The argument is briefly repeated below.

The availability of reconstructed readings suggests that the derivation must involve head raising, i.e. a Raising RC. When the RP is part of a PP it may occur in-situ in a Raising RC (12a). There are various possibilities for deriving high RP in PP: (I) Movement of the RP as part of a larger DP which contains both the RP and the RC head, in (22b); possibly, the RC head subsequently sub-extracts. From this perspective, an RP in-situ in (22a) is simply a stranded RP (Boeckx 2003). (II) Movement of the RC head and movement of the RP are independent of each other, in (23); this would require an articulated CP, with multiple specifiers in the left periphery: one for the RC head, another for the fronted RP (Rizzi 1997, Bianchi 2000). A third possibility is that only the RC head actually moves, and the RP is directly realized in its place in the high position, shown in (24).

- (22) a. RP in-situ + DP subextraction:  $[DP_1 [RC \overline{DP}_1 \dots [-\overline{DP}_1 RP]_2 ]]$   
 b. [DP RP fronting] + DP subextraction:  $[DP_1 [RC [-\overline{DP}_1 RP]_2 \dots [ \overline{DP}_1 RP]_2 ]]$
- (23) DP movement + RP movement:  $[DP_1 \dots RP_1 \dots \overline{DP}_1 \overline{RP}_1 ]]$
- (24) DP movement:  $[DP_1 [RC [-\overline{DP}_1] \dots [-\overline{DP}_+] ]]$   
 High RP Realization:  $[DP_1 [RC [RP_1] \dots [-\overline{DP}_+] ]]$

One reason to disprefer ‘big DP movement’ in (22b) is that there is no independent evidence for this structure; for example, Hebrew does not feature Spanish or Greek-style clitic doubling in other contexts. A more substantial reason to disprefer (22b) is that RPs in the absence of *Se* (=that) are restricted to the topmost CP in a RC- in intermediate positions, only the topicalized version with *Se* is observed, in (24). This implies that there could be no successive cyclic movement of  $[DP_1 RP]$  through intermediate specCP positions, with subsequent long-distance sub-extraction of DP, as depicted in (25c). Since there is no obvious way to exclude long sub-extraction of  $DP_1$ , and since at least short sub-extraction to the immediate specCP is necessary, in (22a), the ungrammaticality of the that-less version of (25b) suggests that there is no successive cyclic movement of  $[DP_1 RP]$ . Yet we do find long distance RC-dependencies, in (26). This implies that the adoption of a ‘big DP’ derivation as in (22) or (25c) would require us to abandon standard locality.

- (25) a. *ha-iS (Se-) alav hi dibra*  
 the-man that about.him she spoke  
 ‘the man about whom she spoke’  
 b. *ha-iS Se-hi hodeta \*(Se-)alav hi dibra*  
 the-man that-she admitted \*(that) about.him she spoke  
 ‘the man that she admitted that about him she spoke’  
 c.  $*[DP_1 [RC \dots [CP [-\overline{DP}_1 RP]_2 \dots [ \overline{DP}_1 \overline{RP}]_2 ]]$
- (26) *ha-iS alav hi hodeta Se-hi dibra*  
 the-man about.him she admitted that-she spoke  
 ‘the man about whom she admitted that she spoke’

Independent movement of the RC head and the RP does seem to be possible, if both can move successive cyclically. This would require an encoding of the asymmetric dependency between the two movements: movement of an RP requires accompanying movement of the RC head, but movement of an RC head does not require accompanying movement of the RP;

perhaps the RP could have some feature that the RC head would locally check. While neither the RC head nor the RP surface in intermediate specCPs (as seen in the ungrammaticality of that-less intermediate RPs in (25b)), this is not particularly surprising, since Hebrew doesn't have partial wh-movement of any kind. Embedded topicalization is possible, though, and this is what we find in the grammatical version of (25b). The fact that we find embedded RP topicalization clearly suggests that independent RP movement must be possible. It seems, then, that independent RP movement is in principle an option. Direct high realization of the RP in its surface position is also an option, further discussed below.

The possibilities for the derivation of high ACC RPs in Raising RCs are considerably more restricted. Recall that such ACC RPs are never available in-situ, and this suggests that a 'big DP' derivation, along the lines of (22b), is simply not an option. Neither is a derivation such as (23), involving independent RP movement. Either one of these derivations, starting with an ACC RP in-situ, would have to be blocked just in case further RP movement does not occur. But how? At the very least, it would require substantial, i.e. unbounded, 'look ahead'. This leaves us with a derivation along the lines of (24) above, where RP is directly merged in its high position. This then is the puzzle: why is it permissible to directly merge ACC RP in the high position, but not in-situ? In section 4 I show how it fits into the calculus for realizational RPs, in terms of Economy of pronunciation (13).

Since it must be available to ACC RPs, this derivation must also be an option for RP in-PP above, though (23), with RP-in-PP moving independently, has not been excluded. Since 'big DP', with the DP and RP occupying distinct positions, is excluded, there remains no particular reason to posit that DP and RP occupy distinct positions. It is assumed, henceforth, that realizational RPs in Raising RCs, where they are associated with a gap, are directly realized in positions through which the RC head has passed. This includes high RPs: the high RP realizes a position through which DP<sub>1</sub> has passed. Putting all of these pieces together produces a novel chain configuration: an RP is merged, or realized, in an intermediate position through which the RC head has passed, rather than in the lowest thematic position, from which movement is launched. What does this tell us about the nature of RPs, and why is this position resumed, even though the thematic position is not?

#### 4 High RPs, optionality, and Economy

Given that ACC RP is prohibited in the low thematic position in Raising RCs, how is it sanctioned in the high position? The logic of Economy excludes it in the low position since a gap is available, hence preferred. The same logic leads to the expectation that in the high position, ACC RP is obligatory.

For that-less RCs, the prediction is straightforwardly confirmed: in the absence of *Se-* (=that), an RP is obligatory. This is true of any high RP, including ACC RP: it is not possible to eliminate the complementizer without having an RP in the high position.

- (27) a. *ha-iSa<sub>1</sub> \*(ota<sub>1</sub>) dani mexapes t<sub>1</sub>*  
           the woman that-her dani looks-for  
           'the woman who Dani is looking for'
- b. *ha-iSa<sub>1</sub> \*(aleya<sub>1</sub>) dani xolem t<sub>1</sub>*  
           the-woman that-about.her dani dreams  
           'the woman about whom Dani is dreaming'

The realization of ACC RP in the high position of a Raising RC follows from the Economy condition. And because the Economy principle regulates an alternation between gaps and RPs, it implies that the RP marks a position through which the RC head had passed, rather than a position that is adjacent to the gap, as in 'big DP' models of resumption. Coupled with the fact that the interpretation of the RP is always determined by the structure it inhabits, the

Economy approach also pushes the analysis of these RPs further towards a realizational model, in which RPs simply realize particular copy positions in a derivation, rather than having merged as lexical items from a traditional lexicon.<sup>4</sup>

Turning now to RCs with *Se* (=that) and high topicalized RPs, the empirical picture here is somewhat more complex, and so are the conclusions about the workings of the derivation. While *De Dicto* readings do seem available, in (19), the availability of idiomatic readings in (20b) in the version with *Se* (=that) is less acceptable. Still worse are amount RCs (28). This is another context in which the accusative RP in-situ is unacceptable (Bianchi 2004, Sichel 2014). Topicalized ACC RP are marginal at best, indicated by the double question mark in the parentheses.

(28) It will take us all year to drink [the champagne that we spilled at the party]

- (29) a. *ha-keseḡ<sub>1</sub> / ha-zman<sub>1</sub> Se-bizbazi t<sub>1</sub> / \*oto<sub>1</sub>*  
 the-money / the-time that-wasted.I t / \*it  
 ‘the money / the time that I wasted.’  
 b. *ha-keseḡ<sub>1</sub> / ha-zman<sub>1</sub> (??Se-)oto<sub>1</sub> bizbazi t<sub>1</sub>*  
 the-money / the-time that-it wasted.I  
 ‘the money / the time that I wasted.’

These subtler, and potentially more complex, interpretive effects certainly require more study.<sup>5</sup> But assuming that at least some reconstruction effects emerge when ACC RP is topicalized, could the topicalized RP be said to be obligatory, consistent with the Economy condition? To the extent that traces cannot be topicalized, the answer must be *yes*. This leaves open the stage of the derivation at which the RP is realized. If ACC RP is realized in-situ, prior to Topicalization, it would require potentially unbounded ‘look ahead’ towards the position in which it becomes obligatory, since a topicalized RP can be separated from its thematic position by an infinite number of embedded CPs. To avoid this, the RP would have to be realized in its final landing site, *following* Topicalization of the gap. This is consistent with the Economy principle, which allows an ACC RP just in case a gap is ungrammatical.<sup>6</sup> The following schemata flesh out the syntax of an RC with RP Topicalization (or the lowest/intermediate CP if multiple CPs are embedded). Topicalization is represented, for convenience, as adjunction to TP (irrelevant details omitted).

- (30) a. Step 1: Movement of RC-head to specCP [RC [ DP<sub>1</sub> ] that [TP ... [-DP<sub>1</sub> ] ]]  
 b. Step 2: Topicalization of gap [RC [ DP<sub>1</sub> ] that [TP [-DP<sub>1</sub> ] [TP ... [-DP<sub>1</sub> ] ]]  
 c. Step 3: Realization of topicalized gap as RP [RC [ DP<sub>1</sub> ] that [TP [RP] [TP ... [-DP<sub>1</sub> ] ]]

With this understanding of high RPs in the Raising construction, we turn to the main question: Is there evidence for high RPs in the head-external RC, and if so, do they arrive in the high position via movement?

<sup>4</sup> The conclusion that high RPs are directly realized in this position is somewhat surprising. What is surprising is that the RP appears ‘mid-chain’: the first step of movement of the RC head leaves a gap; the final step, from specCP of the RC to the RC head position, leaves an RP. In other known cases of resumption, the RP is realized at the tail of the chain. Note, however, that Economy of pronunciation is actually silent about the position relative to other positions in the chain. In that sense mid-chain resumption is expected with an Economy approach. See also Van Urk 2018.

<sup>5</sup> There could be a categorical boundary, for example, between amount readings, which are unavailable, and other reconstruction effects, which consistently appear, suggesting perhaps a distinct analysis for amount readings. This partitioning could be related to the choice between a *Wh*-operator and *that* in English RCs, where amount relatives show a clearer preference for *that* than other reconstruction effects do (Carlson 1977, Bianchi 1999). But it could also indicate a difficulty topicalizing DPs which do not denote < e > type entities, especially if Topicalization requires or imposes a presupposition of existence.

<sup>6</sup> This, too, represents an unexpected derivation: while an RP is realized in a position from which DP has moved, this does not happen at the derivational point at which DP movement was launched.

## 5 High RPs and island repair

We now turn to show that not all high RPs have their source in the Raising RC. Recall that there is independent evidence for another structure which RPs inhabit, the head-external RC of (12b). This RC is characterized as head external because reconstruction is systematically blocked, for all types of reconstruction effects- the only copy of the RC which is interpreted is the high copy. So at the very least, this structure is recruited for optional ACC RPs, when they occur in-situ. It is possible, though, that this structure is also recruited in island contexts, for all RPs. It is also possible that it is not, and that all repair, including island repair, is due to an RP in a Raising RC. This could also include ACC RP, since in island contexts they are obligatory- though here the calculus for obligatoriness would not be local- it would have to be able to look up the tree, to a containing island structure. Which of the two RC structures is grammatical in an island context is therefore an empirical question.

How could we tell? This is where RP displacement becomes particularly handy. An RP which grammatically vacated its base position in an island context would imply that the RP is not facilitating extraction from the island by virtue of realizing the gap position at the tail of the chain. Given high realizational RPs of the sort discussed in sections 3 and 4 above, the challenge in identifying this construction for the purpose of understanding the island repair potential of RPs is to exclude an analysis in which the high RP is a realizational RP. One way to do this is via a standard island locality diagnostic: have the RP separated from its base position by an island.<sup>7</sup> If the distance between the base position of the chain and the RP in its high position is subject to island-locality, then the RP must be actually moving. It is much less likely that it is directly realized in the high position since nothing in the calculus of Economy of pronunciation would lead us to expect island sensitivity, especially if the island violating position would be locally sanctioned by Economy of pronunciation. Furthermore, since these are island violations, ACC RP is sanctioned in the base position. Therefore, it is not necessary to invoke a realizational mechanism- though a realizational mechanism is, in principle, possible here too (that would tell us that RPs can never undergo movement).

As it turns out, ACC RP is island sensitive. The following examples contain a subject island which itself contains an embedded clause, to provide context for the island violation. As expected, ACC RP *oto* is grammatical at the tail of the chain. It is also grammatical in short topicalization, and in long topicalization, in the kinds of highly contrastive informational-structural contexts that would support it. It is quite striking that in this structure, *Se* (=that) cannot be omitted at the topmost CP, in (31d). Continuing to assume that that-less RC is only sanctioned in a relative CP, that means that ACC RP cannot reach the top CP, outside of the subject island.

- (31) a. ze ha-iS [CP [CP Se- PRO laxSov [CP Se-tifgeSi \*\_\_ / **oto** ] yihiye tipSi ]  
 this the-man that to.think that-you.fut.meet **him** would.be silly  
 ‘This is the man that to think that you’d meet him would be silly.’
- b. ze ha-iS [CP [CP Se- PRO laxSov [CP Se- **oto** tifgeSi \_\_ / ] yihiye tipSi ]  
 this the-man that to.think that-**him** you.fut.meet would.be silly  
 ‘This is the man that to think that him you’d meet was silly.’
- c. ze ha-iS [CP [CP Se- **oto** PRO la-xSov [CP Se-tifgeSi \_\_ / ] haya tipSi ]  
 this the-man that **him** to.think that- you.meet was silly  
 ‘This is the man that him to think that him you’d meet was silly.’
- d. \*ze ha-iS [CP **oto** [CP PRO la-xSov [CP Se-tifgeSi \_\_ ] haya tipSi ]  
 this the-man **him** to.think that- you.meet was silly

<sup>7</sup> Thanks to Matthew Hewlett and Rajesh Bhatt (p.c.) for inquiring about this possibility.

In (31d) we see extraction of the RP from the subject island. The difference in grammaticality between the versions with and without *Se* (=that) also provides particularly strong support for Borer’s conjecture that a high RP in the absence of *Se* (=that) is in “Comp” i.e. specifier of the relative CP. Note that the problem is not that it’s impossible to have the RP *oto* immediately precede an infinitive without being embedded under a complementizer, in (32), with topicalization of an ACC pronoun within the embedded infinitive. And we get the same effect, with extraction from a simple subject island, without an embedded clause, in (33): topicalization, to the position following *Se* (=that) is fine (33a), but the structure without the complementizer is degraded, a subject island violation, in (33b). Things improve in the that-less version if the subject is post-predicate. The amelioration of a subject island when the subject is post-verbal, or post-predicate, is a familiar cross-linguistic effect, present in Hebrew as well (Gallego & Uriagereka 2006, 2007, Sichel 2018, among others).

(32) *hi tixnena oto lifgoS.*  
 she planned him to.meet  
 ‘She planned him to meet.’

(33) a. *ze ha-iS Se-oto lifgoS yihiye tipSi.*  
 this the-man that-him to.meet would.be silly  
 ‘This is the man that him to meet would be silly.’  
 b. \**ze ha-iS oto lifgoS yihiye tipSi.*  
 this the-man him to.meet would.be silly  
 c. *ze ha-iS oto yihiye tipSi lifgoS.*  
 this the-man him would.be silly to.meet

The ungrammaticality of (31d) and (33b) and the island sensitivity of RP placement suggest that in these island configurations, the RP actually moves when we see it displaced, as in the topicalization structures in (31b-c). This means that the RP started out in-situ, and topicalized, but movement outside of the island is impossible, due to island-locality constraints. This is further supported by the grammaticality of (33c), which is expected if post-verbal subjects are not subject islands, as independently supported in Hebrew and other languages. The contrast between (33b) and (33c) further suggests that an RP in a that-less context, i.e. in the specifier of a relative CP, is not realizational: the Economy principle (13) which would license a high RP in (33c) should also license it in (33b); the fact that it doesn’t suggests that the violations in (33b) and (31d) are related to movement, not Economy of pronunciation.

We now return to the opening question: how do RPs ameliorate island violations? We have learned from RP movement in island-containing RCs that it is possible for an RP to vacate its position, as long as it doesn’t cross an island. The fact that the RC contains an island means that this is a structure in which RPs ameliorate islands, as seen in (31a). The fact that displacement of the RP is possible in local and non-local Topicalization, means that the repair, or amelioration, cannot be due to a surface repair related to the placement of the RP at the tail of the chain. This strongly suggests that the amelioration is due to a separate derivation, in which the RC head is generated externally, and related to the thematic position in the RC via a binding relationship. As in Chomsky 1977 and Borer 1984, the island insensitivity of RCs with RPs is derived from the the absence of movement.

The fact that RP displacement is sensitive to island boundaries, implies that RP movement of the RC head, derivations like (31b), (31c), and (33c), with RP displacement in island contexts, involve a hybrid chain, which combines both movement and binding, of the RP (see McCloskey 2002, Assmann et. al. 2010, and Sportiche 2017).

$$(34) [RC [ DP ] [TP [RP_1] [TP \dots [ \cancel{RP_1} ] ] ] ]$$

└──────────┘
└──────────┘  
 BINDING          MOVEMENT

Further support for the analysis of island amelioration by a non-movement derivation comes from identical patterns in adjunct islands within RCs. Here too, the island-ameliorating RP may be displaced, as long as it doesn't cross the island. In this construction, the result is ungrammatical with or without the complementizer, since long topicalization crosses the adjunct.

- (35) a. *zot ha-iSa Se-hit'alaft biglal Se-ra'it ota / \*\_\_\_.*  
 this the-woman that-you.fainted because that-you.saw her  
 'This is the woman that you fainted because you saw her.'
- b. *zot ha-iSa Se-hit'alaft biglal Se-ota ra'it.*  
 this the-woman that-you.fainted because that-her you.saw  
 'This is the woman that you fainted because you saw her.'
- c. *\*zot ha-iSa (Se-)ota hit'alaft biglal Se-ra'it.*  
 this the-woman that-her you.fainted because that-you.saw  
 'This is the woman that you fainted because you saw her.'

Summing up, the grammaticality of RP movement within subject and adjunct islands, combined with the ungrammaticality of extraction from the island, suggest the RP displacement in these cases is due to movement. This is consistent with the compatibility of ACC RP at the tail of the chain in island configurations, and shows that island amelioration in the subject island by an RP at the tail (31a), or in the adjunct island by an RP at the tail (35a), cannot be due to a local repair in a movement derivation. If the repair is due to the activation of a separate, non-movement derivation, in which the relation of the RC head to its thematic position is represented in terms of semantic binding, then such RCs with RP displacement feature hybrid chains, which combine a binding portion and a movement portion. While in Irish, the displaced RP is null, in Hebrew it is overt, making it easier to detect its island sensitivity across nuanced positional distinctions such as those examined above.

## 6 Conclusions

We have started from the observation that the interpretation of RPs in the low position is not uniform, determined by the type of RC, or chain, which the RP inhabits. On its strongest interpretation, this may suggest that RPs in Raising RCs (12a) are not traditional lexical items drawn from a lexicon, but realizational products of a derivation. This conclusion is further supported by the analysis of high RPs, first discussed in Borer 1984. In the context of reconstruction effects, they are directly realized in their surface position, regulated by an Economy principle which prefers gaps whenever possible.

Further examination of high RPs focused on their island-sensitivity, and traced the conclusions from island sensitivity for questions about the source of island amelioration by RPs. Island sensitivity of RP displacement supports a movement analysis of RPs within islands, and this supports a view of island amelioration in terms of an alternative non-movement derivation which involves semantic binding of the RP. This may be followed by subsequent RP movement, just like other kinds of pronouns and ordinary DPs. Along the way, some evidence against 'big DP' theories of resumption has been identified, as well as evidence in favor of a realizational view of some RPs, and evidence in favor of hybrid chains.

Hopefully, the identification of island amelioration by RPs with a distinct derivation may provide a key for understanding variation in this area, and why, in some languages, RPs do not allow island violations. It is possible, for example, that there is variation in the availability of the two RC structures in (3/12) or (6), such that not all languages have the kind of structural scaffolding associated with head-external RCs necessary to host a non-movement derivation. It is also possible that only certain types of pronouns can be placed within head external structures such as (3/12), and it is the pronominal inventories which are not universally available. Progress in either of these directions is likely to continue to shed light on the nature of island violations and possible strategies for their repair.

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