

1 Right Node Raising and Nongrammaticality

2

3 1 Introduction

4 Much linguistic data consists of introspective judgments of form and meaning with
5 respect to a string of words. This data is then used to inform theories of the causal
6 mechanisms that underlie the data: grammars. Chomsky (1965:11) notes, however, that
7 “grammaticalness is only one of the many factors that interact to determine
8 acceptability”. Nevertheless practicing linguists make a tacit leap when constructing our
9 theories off of this data: without motivation to suspect otherwise, performance-level
10 acceptability judgments are taken to inform or be proxies for competence-level
11 grammaticality. Likewise, unacceptability serves as proxy for ungrammaticality.

12 This approach has been immensely fruitful, but there are nevertheless instances
13 where there is a misalignment of sorts between acceptability and what we take to be the
14 static representation of grammar. As seen in (1), it is sometimes the case that
15 unacceptable sentences are considered grammatical. This sentence is acceptable and
16 aligns with grammatical theory when parsed correctly. As seen in (2), it is sometimes the
17 case that initially acceptable sentences are actually ungrammatical. Despite semblance to
18 an acceptable sentence, there is no coherent offline interpretation of the sentence.

19

20 (1) The horse raced past the barn fell.

21 (2) More people have been to Russia than I have.

22

23 In the examples above, the sentences are clearly deviant at some level, either
24 online via predictive mis-parsing or offline via semantic incommensurability. In this

1 paper, I argue that right node raising (RNR) sentences like that in (3) exemplify a new
2 type of misalignment between acceptability judgments and offline grammatical structure:
3 one that never results in deviancy at any level of analysis.

4

5 (3) Bruce buys, and Becky sells, old photographs

6

7 RNR sentences are judged acceptable in the general case and they also are
8 described in large part by grammatical offline representations. However, I argue here that
9 their static offline representations do not wholly comport with their transient online
10 representations, but are entailed by them. As such, there is a competence-performance
11 misalignment that is never apparent, but rather one that must be argued for by other
12 means.

13 In short, I posit that the offline grammatical representation of RNR sentences
14 must be something like that in (4), despite their interpretation.

15

16 (4) [[Bruce buys] and [Becky sells old photographs]]

17

18 Here the relevant detail is that there is no grammatically encoded internal
19 argument of *buys*: not syntactically, semantically, or pragmatically. Instead, the
20 interpretation of the sentence in which *old photographs* is the internal argument of *buys* is
21 a parsing effect. In particular it is the persistent effect of transient extra-grammatical
22 composition that is not reflected in the offline representation.

23 This representational underspecification of the form of the sentence with respect
24 to its interpretation has repercussions for conceptions of the grammar-parser relation. As

1 an analysis, this approach has few historical antecedents. A roughly similar case has been
2 made by Otero (1973, 1976) who argues a similar point concerning the “impersonal SE”
3 construction in Spanish. He posits that such constructions qua strings of words are not
4 generable by the grammar of Spanish despite their acceptability. Instead he deems them
5 “agrammatical” in the sense of “outside the scope of the grammar”. He does so in large
6 part because the nature of the rules that would be required to capture the meaning and
7 surface word order of the construction would be unnatural and unique in comparative
8 syntax, and hence unexplanatory. Instead he describes these sentences as repeated
9 mistakes whose etiology lies in “Pavlovian reflexes induced by society” (Otero
10 1973:560).

11 This is far from what I claim of RNR, but reasoning akin to this holds for the
12 construction. I show that the sort of syntactic operations required to account for RNR are
13 unexplanatory as well as empirically inadequate. Moreover, other levels of grammatical
14 analysis are equally ill-suited to explanatorily account for the construction. In this sense,
15 RNR could represent a still clearer case of agrammaticality than Otero’s construction
16 since he only argued in terms of syntactic structure. However, my claim contrasts with
17 that of Otero’s in that I maintain that the structures that underlie RNR constructions are
18 indeed syntactically generable. In this way they have one foot planted firmly in the word
19 of grammaticality.

20 But this is not the whole story.

21 Much like is commonly assumed, these generable RNR structures are ineluctably
22 paired with a consistent semantic interpretation. The difference for RNR is that this
23 structure-meaning correspondence is in part merely external from the point of view of the

1 grammar. The interpreted relation between the shared material in RNR and the first
2 conjunct is the product of online grammar-external processing mechanisms over a certain
3 structure. This relation is not encoded grammatically but it is grammatically conditioned.
4 Because of this I demur from calling it agrammatical in Otero's sense. It would also be
5 incorrect to consider RNR constructions *ungrammatical* as there is nothing going awry at
6 that level of abstraction. For these reasons I consider the standard interpretation of RNR
7 sentences as "nongrammatical".

8 Finally, as a point of historical note, the recognition of the grammatical otherness
9 of RNR is in fact about as old as the modern incarnation of the field itself. Chomsky
10 (1957:35 footnote1) notes the marked nature of what would come to be known as RNR
11 sentences and likens their features to those of "non-grammatical strings".¹ Chomsky is
12 agnostic here about the status of RNR sentences but considers them to be a marked class
13 of sentences distinct from those whose grammaticality is uncontroversial. In subsequent
14 decades researchers have sought to collapse the distinction Chomsky makes here and
15 assimilate RNR sentences into the unmarked class. In this paper I argue that this is a
16 wrong move and is the cause of the analytical problems that such assimilation efforts
17 have faced. This paper can be seen as the reassertion and exploration of the distinction
18 originally made by Chomsky.

19 20 21 22 1.1 Main claims

¹ It is unlikely that Chomsky intends anything other than "ungrammatical" here given his similar

(i) Furiously sleep ideas green colorless

1 In this paper I make a few main claims. In this section I state these and provide some
2 framing discussion. I claim:

3

4 I) The interpretive relation between the intuited gap in the first conjunct of RNR and
5 the shared material is not grammatically encoded.

6 II) The interpretive relation between the intuited gap in the first conjunct of RNR and
7 the shared material is not a possible grammatical relation.

8 III) Online parsing strategies are sensitive to offline constraints such that claim II
9 necessarily prompts recourse to an extra-grammatical interpretive strategy.

10 IV) The effects of the above extra-grammatical interpretive strategy is persistent and
11 occludes certain effects of claim I.

12

13 Claim I is the logical response to results from Larson 2012, 2013 which argue
14 against every current theory of RNR as well as amalgamations of current theories
15 working together. As it now stands, RNR poses serious problems for standard
16 assumptions concerning grammatical relations. In short, the interpretive relations that
17 define RNR cannot be captured by the theoretical approaches that have been applied to
18 them. Worse still, the approaches that have been attempted and shown to fail essentially
19 exhaust the theoretically possible types of grammatical relations. By eschewing the
20 notion that a grammatical relation is involved, such problems are avoided and as I show
21 here, a better grasp on the empirical landscape is made possible.

22 Claim I is made in part because there is a long-distance dependency in RNR
23 sentences that is impervious to any constraints on such dependencies. However, if it were
24 generally possible to skirt dependency formation constraints by fiat like in claim I, it

1 should never be the case that long-distance dependency constraints are ever seen: there
2 will always be a nongrammatical dependency that is also possible.

3 It is necessary to quarantine the anomalous dependency in RNR so as not to be
4 generally applicable for regular long-distance dependencies, like wh-movement for
5 instance. For this reason and others I argue that the relevant theoretically difficult
6 dependency is not a grammatically encoded one because that is not a theoretical
7 possibility. The dependency is simply not in the relevant comparison class with
8 grammatical dependencies and as such can neither be grammatical nor ungrammatical. It
9 is simply nongrammatical. This contrasts with classical long-distance dependencies
10 which are possible grammatical dependencies and therefore must be treated as such. They
11 are not permitted recourse to nongrammatical dependencies. RNR involves a long
12 distance interpretive relation for which the notion of grammaticality is simply not
13 applicable.

14 Claim III holds that the parser is sensitive to the conditions under which a
15 potential long-distance dependency is of the sort that can be grammatically encoded or
16 not. In particular, the parser embodies abstract grammatical knowledge and as such can
17 recognize when there is a potential dependency that it can represent by means of
18 grammatical relations or not. When it is not the case that a dependency is a possibly
19 grammatical one, the parser can in turn recognize this and recourse can be made to extra-
20 grammatical means of encoding the dependency.

21 When this extra-grammatical dependency is pursued it will, in virtue of not being
22 one that the grammar can represent, not align with the offline representation of the
23 sentence. Misalignment is between the grammar and the parser is not novel, however the

1 instance of RNR is different from previously discussed cases in that there is no
2 competing offline representation that would clash with the extra-grammatical one already
3 posited. As such, the effects of the non-grammatical relation persist in a manner that
4 differentiates RNR from other such misalignments.

5 In short, the relevant dependency in RNR cannot be a grammatical one and as
6 such there is no offline representation of the dependency. In virtue of not being a
7 grammatical dependency, there is no grammatical offline representation that can compete
8 with the transient extra-grammatical dependency the parser permits. In the next section I
9 discuss why this is of interest in a more general sense.

10

11 1.2 Import

12 Right node raising constructions have long posed difficult problems for grammatical
13 analysis. Unlike other long-distance dependencies, RNR lacks an uncontroversial
14 structural analysis and the type of relation mediating the shared element to the conjuncts
15 is currently unknown. Contrast this with dependencies such as topicalization,
16 relativization, wh-formation and others. These constructions enjoy not only stable
17 analyses but can also be classed as a single type of dependency at heart (Chomsky 1973).
18 The relevant dependency in RNR does not enjoy membership in such classes of
19 dependencies.

20 The construction has been at one time or another analyzed as involving long-
21 distance movement, phonological deletion predicated on identity, or merely local
22 composition obscured by linearization constraints. Each of these will be discussed
23 presently, but the fact that there has been such contention for so long as to RNR's
24 syntactic representation can be taken as initial reason to suspect that we might be thinking

1 about the problem in the wrong way. Indeed, in this paper I posit that the reason why
2 there have been so many difficulties in analyzing the syntax of this construction is that its
3 defining interpretive relation is simply not stated (in virtue of not being stateable) at the
4 syntactic level. With this approach, not only is it possible to avoid the problems that
5 syntactic analyses face with respect to this construction, it is also possible to explain why
6 those problems arise to begin with in the shape that they do.

7 This paper should be seen as a call to reconceptualize RNR. Though I present a
8 positive account of the basic facts of RNR, it is importantly *not* intended as a panacea.
9 Instead, the main upshot is that the offline, syntactically mediated analyses are deeply
10 wrong and an account akin to the one I present must be right, though the details might
11 differ.

12 It is important for the reader to understand that type of argument being made in
13 this paper. I want to be very clear that the proposed analysis is not intended to be
14 immediately empirically superior to the previous accounts. Each previous account has its
15 empirical advantages and disadvantages and the proposed analysis herein is no different.
16 However, the previous analyses suffer from fundamental theoretical problems which, in
17 the generative/Galilean tradition, crucially methodologically trump the problematic
18 empirical data. It will indeed be possible to devise RNR sentences that the proposed
19 analysis cannot immediately account for, but these will, by the logic of the argument,
20 need to be taken as puzzles given the unavoidable core problems of the previous, syntax-
21 centric solutions. I will address these empirical short-comings to the extent that I am
22 aware of them, but I consider these largely beside the point in light of the compelling
23 theoretical motivations to adopt the proposed analysis.

1 This style of RNR analysis also sheds light on the nature and inherent
2 computational limitations of grammatical representations. In arguing that RNR involves a
3 relation that is not possibly stated by the grammar, it requires that we limn the limits of
4 what can be represented by the syntax, semantics, etc. That is, it is not sufficient to show
5 that the relevant structural relation does not hold for RNR, but could be allowed for some
6 other construction under some other circumstances. Rather, RNR takes the shape that it
7 does because the relation at hand is not even possibly relevant to grammar in the same
8 way that that, say, the relation between a subject and verb-internal phoneme is
9 grammatically irrelevant.

10 This paper also details how nongrammatical means are triggered to capture the
11 interpretive effects of RNR. Recourse to nongrammatical means in effect means recourse
12 to a performance-level, parsing-based analysis of the construction (as opposed to a
13 strictly competence-based one in Chomsky's parlance). Resorting to a performance
14 account of a construction is not something that should be done casually. And in this paper
15 I do so only after arguing that a grammatical account impossible, as opposed to merely
16 ungainly or counter-intuitive.

17 Since a performance account is offered, a link needs to be made. How should the
18 relation between the offline RNR representation and online RNR parsing be captured?
19 What is the nature of this relation? These types of questions are not new. There has been
20 much recent work on the relation between the offline representation of the grammar and
21 the nature of the language parser. The analysis presented here supports a conception of
22 this relation where the parser and the offline grammar interact very tightly with one
23 another. In particular, this RNR analysis supports a conception of language in which the

1 grammar and the parser are one and the same system, just at differing levels of
2 abstraction (in the sense of Lewis and Phillips 2013).

3 Lewis and Phillips 2013 contrast two views of grammar-parser relations. One is
4 that language processing models and grammatical theories describe distinct cognitive
5 systems. Here, there is no a priori motivation to predict any particular interaction between
6 the two systems. The other view is that there is but one cognitive system, but multiple
7 levels of abstraction. One level of abstraction corresponds the patterns found in offline
8 acceptability judgments and another level corresponds to online data patterns. Under this
9 view the data patterns found at different levels of abstraction should align. When they do
10 not, the mis-alignments should be both systematic and attributable to language-external
11 concerns.

12 The analysis presented here supports the one-system view of the grammar/parser.
13 In such a system, the grammar and the parser are the same system described in different
14 ways. As such, relations that are in principle not described in the grammar will similarly
15 not be available to the parser. This is simply how abstraction works. If it is not
16 mathematically possible to divide by zero, you can be certain that it will not be possible
17 to construct a calculator that can. This forces us to predict that an impossible grammatical
18 dependency will require the parser to somehow reflect that impossibility. As I will
19 discuss later, I posit that this is exactly what is happening in RNR. The parser reflects a
20 grammatically impossible relation in RNR by triggering recourse to a nongrammatical
21 means of composition. A one-system view makes this impingement of the grammar onto
22 the parser predictable.

1 The degree to which we have mis-analyzed RNR in the past is reflected in the
2 severe re-orientation offered here. But before getting to that, it is necessary to show that a
3 change of course is needed. In the next section I rehearse the looming dilemma in the
4 study of RNR and reiterate the idea that syntax is not the answer in this case.

5

6 2 Syntax Problems

7 In this section I show that our traditional syntactic means of relating elements at a
8 distance are not of use in analyzing RNR. Further, even were we to augment our
9 traditional toolkit with a relatively novel and powerful type of syntactic relation, it is still
10 not possible to capture the RNR facts.

11 In a RNR sentence like (5), there is a long-distance interpretive dependency
12 between the underlined gap position and the underlined shared material. This dependency
13 can seemingly hold over arbitrarily long structural distance as shown in (6).

14

15 (5) Bruce buys __ , and Becky sells, old photographs

16 (6) Bruce buys __ , Becky sells,, and Lana heard that ... Ann restores, old
17 photographs

18

19 There is one main way to capture this sort of filler-gap action-at-a-distance in
20 syntax. One denies that it exists. In less glib terms: we posit that there is actually a silent
21 syntactic representative of the overt element in these gap positions. Their relation with
22 the surrounding structure is very local and their relation with the overt material is
23 mediated by syntactic transformations and/or interpretive constraints. These relations
24 have different characteristics and researchers have rightly come up with a corresponding

1 menagerie of unseen elements in the guise of traces or un-pronounced copies for
2 movement, un-pronounced structure in ellipsis, or unpronounceable PRO in control
3 structures.

4 The gap in the RNR example in (5) behaves like none of these. In this section I
5 rehearse previous arguments against each type of analysis and argue that these analyses
6 fail profoundly. This is of course not to say that these analyses fail utterly. They can
7 surely capture some relevant facts, otherwise they would never have been posited in the
8 first place. But the ability to get some facts right becomes moot in the face of deeper
9 problems.

10

11 2.1 Movement

12 Movement is the original analysis of RNR and it has been pursued in various forms by a
13 number of researchers (Ross 1967, Postal 1974, Sabbagh 2007, 2008 as well as Gazdar
14 1981 for GPSG.). However, there are well-known problems with such an approach.
15 Starting with the most parochial, rightward movement is heavily constrained in English.
16 For example, it is not possible to extrapose the object of a preposition as seen in (7).
17 Contrast this with RNR where the shared element can be interpreted as the object of a
18 preposition in the first conjunct as seen in (8). In short, things that cannot move right
19 generally, can seem to move right in RNR.

20

21 (7) *Becky talked to yesterday a tall man.

22 (8) Becky talked to, and Bruce talked about, a tall man.

23

1 This problem holds generally for movement analyses, though Sabbagh's (2007)
2 account cleverly avoids this. However, the following problems afflict every movement
3 analysis and effectively rule them out as viable explanations.

4 First, things that cannot move in any direction seem to be able to in RNR. For
5 example, non-constituents like the shared material in (9) are licit in RNR configurations
6 (see also examples in Abbot 1976, Klein 1981, and Ha 2008). Moreover, sub-word
7 elements seem to be able to 'move' in such constructions as well like in (10) (see also
8 examples in Hartmann 2000).²

9

10 (9) I thought that Becky's, and you thought that Bruce's, car had been stolen

11 (10) That rascal is sometimes over-, and other times counter-, productive.

12

13 Although it is a logical possibility that (9) could be analyzed as involving multiple
14 instances of rightward movement, this would be rather unexplanatory as the movement
15 would be proprietary to RNR. Nowhere else do we find analogous instances of such
16 movement. First, the movement of an intermediate T' constituent (*had been stolen*) has
17 been argued to be independently impossible (Chomsky 1995 and Hornstein 2009 among
18 others). Second, the movement of the noun head (*car*) is similarly independently ruled
19 out as an instance of left-branch sub-extraction (see Ross 1967 among many others).

20 The example in (10) is yet less amenable to movement-based theories. It has long
21 been argued that word-internal elements are not subject to movement operations (see
22 Chomsky 1970, Di Sciullo & Williams 1987, Bresnan & Mchombo 1995, and Ackema

² I credit Clara Sherley-Appel with the inspiration for the example in (10). For a some good investigation into sub-word RNR, see Artstein (2005), Chaves (2008), and Sherley-Appel and Zymet (2014).

1 and Neeleman 2002, among many others). This is exactly what is demanded of a
2 movement account with respect to the sentence in (10). The fact that (10) is an acceptable
3 RNR sentence is sufficient to rule movement analyses out.

4 Further, if RNR is going to be analyzed as movement, it will be necessary to posit
5 movement to structural positions even traditional movers can't get to. That is, the relation
6 between the gap site and the overt element interpreted there is not mediated by c-
7 command. This is deeply problematic. Movement is in part required to result in a c-
8 command relation between the mover and its prior position (Chomsky 1995).³
9 Additionally, Larson (2014) presents an argument to the effect that not only should such
10 movement be ruled out as ungrammatical, it is not even derivationally possible.

11 We can see that this is not the case in RNR as the shared element displays no
12 effects of c-commanding into the conjunct from which it has ostensible moved. Note that
13 both A- and A'-movement of a negative item can license an NPI that ends up c-
14 commanded by the moving element:⁴

15

16 (11) Nobody ever seemed to like my cooking.

17 (12) With no cake was the snooty baker ever happy

18

19 In RNR, the only way for the overt element to c-command the gap site is for it to
20 be high enough to also c-command the rest of the nodes in the first conjunct (and the

³ Even Sideward Movement as proposed by Nunes 2001 must result in c-command relations albeit not derivationally immediately.

⁴ For the sentence in (12) I follow the standard Rizzi 1990 analysis of negative preposing as A'-movement.

1 second conjunct for that matter). Yet, as has been noted before (see Kayne 1994,
2 Hartmann 2000, and Phillips 1996), we see no evidence of this relation.⁵

3

4 (13) *Jackie ever liked, and Jerry ever hated, no dogs.

5

6 Sabbagh (2007) presents two instances where there do seem to be effects of the
7 shared constituent taking scope over the rest of the sentence: quantifier scope and
8 antecedent contained deletion. In (14a), the shared material can be interpreted as taking
9 scope over the indefinite subject and in (14b) the well-known regression problem of
10 antecedent contained deletion is avoided if the shared material moves such that it is no
11 longer contained in the antecedent verb phrase.

12

- 13 (14) a. Some nurse gave a flu shot to __, and administered a blood test for __, every
14 patient who was admitted last night.
15 b. The nurse said that she was going to give a flu shot to __, and administer a blood
16 test for __, every patient that the doctor did *e*.

17

18 However, neither of these examples is dispositive since both can be (and often
19 are) analyzed as involving covert movement and as such fail to support an overt
20 movement analysis. In each example, it could be the case that the shared material exists
21 only in the second conjunct and moves covertly from only there. This is essentially the
22 approach that I will offer later in the paper.

⁵ C-command (or scope) facts like this also militate against CCG-style analyses of the construction like that found in Steedman 2001.

1 Overall, analyzing RNR in terms of a movement relation is eminently unfeasible.
2 Elements that cannot move (either in a particular context or in general) can be targeted
3 and the sentences show evidence of not having moved to the necessary structural position
4 to be considered movement theoretically.

5

6 2.2 Deletion

7 Chronologically, the next mainstream analysis of RNR involves silent structure that is not
8 the result of movement (Wexler and Culicover 1980; Kayne 1994; Wilder 1997;
9 Hartmann 2000; Ha 2006; An 2007; and Ince 2009). The relation between the overt
10 shared material and the gap site in the first conjunct is one of identity, and under said
11 identity the material in the first conjunct can be elided. As with movement, there are deep
12 problems with this account as well.

13 In the previous sub-section we saw that though DPs are in principle movable, they
14 cannot move to the right from within a preposition. A similar point can be made here.
15 Although it is clear that IPs can delete (see (15a), they cannot delete when there is an
16 overt C-head, as seen in (15b).

17

- 18 (15) a. Jill saw someone, but she doesn't know who [_{IP} ~~she saw t~~]
19 b. *Bruce knows that Jill saw someone, but he doesn't know who that [_{IP} ~~she~~
20 ~~saw t~~]

21

22 Yet it seems that RNR is specially endowed with the power to elided IPs that are
23 the complements of overt C-heads:

24

1 (16) Becky believed that, but Bruce doubted that, Jackie would be on time.

2

3 Furthermore, some elements that can never be deleted in English seem to be
4 deleted here. For example, there is no operation of prepositional phrase deletion, yet as
5 we see in (17), a prepositional phrase can serve as the shared element in RNR:

6

7 (17) Becky put the book, and Bruce set the magazine, in the box.

8

9 Moreover, the deletion analysis must target strings that in principle cannot be
10 deleted. Again here, we find that non-constituents and sub-word elements can serve as
11 the gap site in RNR (see examples (9) and (10) above).

12 So it seems RNR can target categories of things (both in context and in general)
13 that cannot be deleted. Although there is no deep theoretical roadblock for this analysis,
14 there is still a strong methodological reason to avoid this analysis. It would require us to
15 permit the targeting of any string (constituent or not) for deletion just for this construction
16 and not elsewhere. This being the case, deletion cannot be the correct explanatory
17 analysis for RNR.

18

19 2.3 Linearization

20 As shown in the above section, no silent element can stand in the first conjunct gap
21 position in RNR. Whether derived as a residue of movement or not, the class of null
22 elements required simply would not cohere with any class of elements targetable by
23 either movement or deletion. It is of course possible to posit a separate class of things
24 specially deletable or moveable in RNR constructions. But in the case of movement this

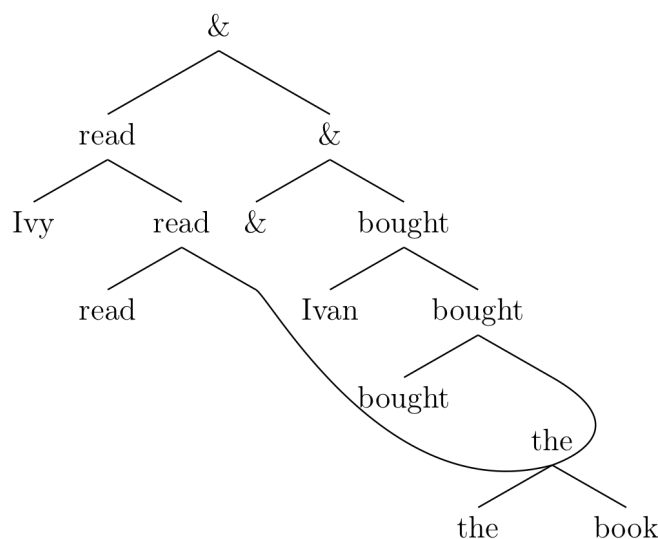
1 would run afoul of fundamental structure building axioms and in the case of deletion this
2 would simply be ad hoc. Neither option is palatable.

3 Another option would be to further deny any action-at-a-distance and to maintain
4 that that the overt element actually *is* in the gap position despite appearances. There is no
5 proxy or stand-in for that element in the guise of a trace or otherwise. Rather, the overt,
6 shared element is indeed the syntactic complement of the verb in a sentence like (18), but
7 due to external factors this complement is phonologically expressed elsewhere. Such an
8 approach is chronologically speaking the most recent analysis of RNR. Call it the
9 multidominance approach (McCawley 1982, Goodall 1987, Phillips 1996, Wilder 1999,
10 de Vos and Vicente 2005, Gracanin-Yuksek 2007, Bachrach and Katzir 2009, Grosz
11 2009, and Larson 2009). A sentence like in (18) would be represented like in (19) with
12 the shared element simultaneously the complement of two verbs.

13

14 (18) Ivy read, and Ivan bought, the book

15 (19)



16

17

1 Although the shared material is literally in the first conjunct, it only appears to the
2 right in the overt string due to an interface requirement on linearization (see Wilder 1999
3 or Bachrach and Katzir 2009 for ways of implementing this).

4 Such an approach presupposes a departure from traditional notions of structure
5 building (see Sampson 1975 for discussion). Nevertheless, there are various potential
6 reasons to stray from tradition in this way and in this instance. The first author to posit
7 the structure in (19) for RNR was McCawley 1982. For a generative semanticist, there
8 was strong theoretical compulsion to force the syntactic representation to encode the
9 argument structure of the sentence, even it meant stretching what the syntax could do.
10 Contemporary motivation for such representations comes from Citko's (2005)
11 compelling deduction that structures like (19) should be possible given the definition of
12 Merge in Chomsky 1995.⁶

13 A generative semantics-style drive (either conscious or not) to encode all of
14 meaning into the syntax underlies multidominance approaches to RNR. With the
15 newfound theoretical sanction of multidominance, there is means to satisfy this
16 theoretical preference. Yet, while there is clear interpretive symmetry between the shared
17 element and the two conjuncts. There is much less evidence for the sort of syntactic
18 symmetry that such analysis would predict (see Larson 2013 and Barros and Vicente
19 2010 more discussion of the problems with multidominance approaches).

20 If a structure like that in (19) is the correct one for RNR, we expect the clauses
21 that shared the same element to have symmetric structural effects in relation to that
22 element. The share element is just as much in the structural domain of one conjunct as it

⁶ It is important to note that while Citko's reasoning is used by many adherents of multidomnant RNR, she herself never promotes such an analysis for RNR.

1 is the other. Yet when a reflexive is in the shared material, we find an asymmetry.
 2 Although the reflexive should be licensed as long as there is a sufficiently local binder of
 3 the right sort, it seems that only the potential binder in the second conjunct can license it:⁷

4

- 5 (20) a. I hate, but you love, yourself in that picture.
 6 b. *You hate, but I love, yourself in that picture.

7

8 A multidominance approach should predict that the sentences in (20) are either
 9 equally grammatical or equally ungrammatical. The same holds for examples like those
 10 in (21) concerning the licensing of NPI (examples here are adopted from Kayne 1994).

11

- 12 (21) a. *Bruce didn't buy, but Becky sold, any old cars.
 13 b. Bruce bought, but Becky didn't sell, any old cars.

14

⁷ Of course, binding principle obviation effects will only hold insofar as their etiology crucially depends on structure and not linear order per se. This allows for an explanation of puzzle concerning vehicle change facts (Fiengo and May 1994) and condition C effects. Ha offers (i) which allows the null R-expression in the first conjunct to function as a pronoun. However, when the sentence is shorter, the possibility of vehicle change seems to go away (ii). Moreover, when the first conjunct antecedent is a pronoun, the result is even worse (iii)

- (i) John_i hopes that Susan won't, but the secretary knows that she will, fire John_i at the end of the year.
 (ii) ?John_i thinks, and Susan doubts, John_i is the best.
 (iii) *He_i thinks, and Susan doubts, John_i is the best.

That is, a failure to obviate a principle C violation could be attributable to the same thing that creates the acceptability cline below:

- (iv) John_i thinks that Susan won't fire him. John_i is delusional
 (v) ?John_i walked in. John_i sat down.
 (vi) He_i walked in. *John_i sat down.

1 Multidominance approaches clearly capture the intuition that the shared material
2 semantically composes with the material in the first conjunct. But beyond composition,
3 there do not seem to be structural effects of shared element actually being there. Instead,
4 it is the second conjunct material that is subject to syntactic relations with the shared
5 material.⁸ As noted above, it seems to be this intuition of semantic composition that really
6 drives multidominance proposals. More unambiguously structure-based evidence for
7 such an analysis is less forthcoming.⁹

8 Unlike the previous accounts of RNR, we cannot compare multidominance in
9 RNR with independent structures that uncontroversially involve multidominance. With
10 movement and deletion, there is a clear comparison class of constructions. This is not the
11 case here. As such, we can only rely on the seeming prediction of structural symmetry.
12 The results indicate that multidominance cannot be the correct analysis of RNR, or at
13 least not the whole story.

14

15 2.4 Eclectic Accounts

16 In the above subsections, it was shown that each of the current syntactic analyses of RNR
17 cannot be correct. Yet it is still a logical possibility that the above analyses share duties in
18 accounting for the construction. That is, it could be the case that a multidominance

⁸ Peterson (1999) proposes the intuitive notion that the second conjunct of RNR sentences (sans the shared material) is parenthetical in nature and does not enjoy a traditional syntactic relation with the rest of the sentence as indicated in (i). The asymmetries presented here militate against this account by showing the syntactic relation between the shared element and the rest of the second conjunct.

(i) Bruce buys (and Becky sells) old photographs.

⁹ Grosz (2009) presents examples of “cumulative agreement” like that in (i) below as evidence in favor of a multidominance account. The shared verb seems to agree with subjects in separate conjuncts. The acceptability of these sentence however varies between speakers and I am forced to construe such examples as due to grammar-external forces.

(i) %Jill is happy that Brooke, and Dana is proud that Lana, have left for home.

1 account captures the facts that the movement and deletion accounts cannot, say for a
2 sentence where the shared string is not something that can elide or be moved in English.
3 For examples that multidominance accounts do not handle, an ellipsis account could be
4 the correct analysis.

5 However such an eclectic account (first so christened in an ingenious paper by
6 Barros and Vicente (2010)) does not seem to be empirically viable. I do not explore this
7 issue in depth here because the idea has already been investigated in Larson 2012. In
8 Larson 2012 it is shown that when characteristics incompatible with the various
9 approaches are found in a single RNR sentence, the result is still acceptable. To see this,
10 take example (20a) from above (repeated here as (22)).

11

12 (22) I hate, but you love, yourself in that picture.

13

14 This example was shown not to be compatible with a multidominance account.
15 Under an eclectic account, it should thus be movement or deletion that is the correct
16 analysis for this sentence. However, the shared element in (22) is not a constituent and
17 can neither delete nor move. The result is that not only can the syntactic approaches to
18 RNR not work on their own; they cannot also not work together. Larson 2012 concludes
19 that none of the syntactic accounts for RNR are correct.

20 In the next section I explore whether the relevant long distance relation in RNR
21 can in principle be analyzed in an explanatory manner as concern of concern of
22 grammatical competence, be it at heart a syntactic, semantic, or pragmatic phenomenon.

23

24

1 3 A grammatical problem

2 The above section concerned the inadequacy of current syntactic approaches to RNR.
3 Unfortunately, those options entirely exhaust the possible range of syntactic approaches
4 to the long-distance dependency in RNR. There is no silent syntactic structure in the
5 second conjunct's gap site nor is there overt syntactic structure in that position obscured
6 by linearization. If it cannot be there overtly or covertly, only one option remains: there is
7 no syntactic structure there.

8 That is, the gap site in RNR is literally syntactically empty. Moreover, as we saw
9 in the previous section the shared material is not in a c-commanding position vis a vis the
10 first conjunct. This being the case, the syntactic representation for a sentence like (23a)
11 must be like that in (23b).

12

- 13 (23) a. Bruce bought, and Becky sold, old photographs
14 b. [Bruce bought] and [Becky sold old photographs]

15

16 This representation is consonant with the syntactic facts discussed earlier. It can
17 handle the fact that inverse scope and ACD-related issues by allowing covert raising of
18 the second conjunct's object, yet it doesn't force this like the movement accounts and as
19 such avoids the NPI problems discussed above. This advantage is shared by
20 multidominance accounts, however the representation above makes sense of the effects of
21 asymmetry that the multidominance accounts cannot. The only salient (though not
22 necessarily syntactic) fact that goes unaddressed in this structure is the interpretation of
23 internal argument in the first conjunct. However, this fact is not a priori a concern of
24 syntax and I will discuss it later.

1 More importantly, there is no c-command relation between the object of the
2 second conjunct and the verb (or the intuited gap site) in the first conjunct in the
3 representation in (23). It is this lack of c-command is what fundamentally precludes the
4 relation between the shared material and the first conjunct from being syntactic in nature.
5 Not only is there no syntactic relation between the two in point of fact, there is no
6 *possible* syntactic relation between the two.

7 As discussed by a variety of researchers, Merge is the sole structure building
8 operation in syntax. Given the Extension Condition (Chomsky 1995) and the principled
9 prohibition on sideward movement espoused in Larson 2014, when a long distance
10 relation is derived via Merge, it must result in a c-command relation. In addition to
11 Merge other researchers have posited that the operation Agree can mediate between
12 syntactic elements over structural distance in the syntax (as in Chomsky 1999). This too
13 requires c-command to operate under any published definition.

14 Merge and Agree exhaust the means by which long distance relations can be
15 encoded syntactically. Both of these require c-command to hold (either as an ineluctable
16 result of Merge plus the Extension Condition, or simply definitionally). However, we
17 have seen that the relevant relation in RNR does not involve c-command. In other words,
18 a necessary condition of a syntactic relation does not hold for RNR. Given current theory,
19 the long distance relation in RNR is not possibly mediated by syntax.

20 This fact should be heartening to a degree. The reason our syntactic analyses
21 failed in the face of RNR data was not due to a problem with the syntactician's toolkit,
22 but rather due to the toolkit's inapplicability. We should expect nothing different when
23 applying syntactic analyses to non-syntactic phenomena. It should be noted that this sort

of result is only possible when working in a minimalist setting. If the means of structural manipulation were as unconstrained as GB's ultimate operation *affect alpha*, the lack of syntactic means to analyze RNR would be deeply mysterious.

3.1 Semantic Representation

This methodological relief is short-lived. The troublesome relation in RNR is not a possible semantic relation either. In mainstream semantic theory (as in Heim and Kratzer 1996), long distance interpretive dependencies are mediated via scope. For example, the binding of a variable over a distance occurs when the relevant variable is within the scope of the binder. Perhaps this is the means through which the shared material is related to the first conjunct in RNR. The shared material would be related to the two conjunctions via lambda abstraction over the coordination like that in (24).

(24) λx . Becky bought x and Bruce sold x

Perhaps the shared element could covertly raise from the second conjunct so as to be able to compose with the function in (24) as shown in (25):

(25) $[\lambda x$. Becky bought x and Bruce sold x](old photographs)

The shared material could be applied to the above function and as such be interpreted in each conjunct. This could capture the interpretation of the sentence without relying necessarily on any syntactic relation between the shared material and the second conjunct.

1 This would also entail that the shared material take scope over the conjunction.
 2 Evidence against this can be found again in NPI licensing. To license an NPI requires that
 3 the NPI in question be in a downward entailing environment like the scope of negation.¹⁰
 4 When there is a negative element used as the shared material in RNR, it does not license
 5 an NPI in the first conjunct. If there were a scopal relation between the two, we would
 6 expect otherwise:

7
 8 (26) Becky ever ate, and Bruce baked, no cookies with sprinkles.

9
 10 Since it is not the case that the shared material scopes over the first conjunct, we
 11 cannot create the long distance relation. For such a relation to be possible, it would also
 12 need to be the case that we find other effects of high scope for the shared material. But
 13 we don't. In other words, the relation in RNR cannot possibly be captured by the sole
 14 means of long-distance interpretive relation formation in Montagovian semantics.

15 Another potential means to capture the relation is via the adoption of a Discourse
 16 Representation (DRT) style of semantic formalism (in the sense of Kamp 1981 or Heim
 17 1982). Here, information concerning discourse referents is updated in an online way as a
 18 sentence is parsed. For example, the first conjunct of the RNR sentence in (27) could be
 19 roughly represented like in (28) with one variable not yet specified:

20
 21 (27) Bruce bought, and Becky sold, old photographs

22 (28) [x,y: Bruce(x), buy(x,y)]

¹⁰ By no means should this be taken to mean that the shared material can *never* take scope over the rest of the sentence (it may, say, for inverse scope effects or ACD reasons). However, the fact that this does not always happen (viz. the NPI facts) militates against this sort of semantic analysis as the correct analysis of RNR.

1

2 Yet when the discourse representation is updated upon hearing the second
3 conjunct, there is no means to force the shared material to be interpreted as that missing
4 variable from the first conjunct. The representation simply does not make the link. The
5 shared material is in no way anaphoric to anything and as such is not forced to derive its
6 interpretation from elsewhere in the representation. Additionally, the potential variable
7 ‘y’ in the preliminary representation has nothing forcing its interpretation to be with the
8 second conjunct’s object as opposed to its subject or anything else for that matter. That is,
9 a DRT theory of RNR has no means to enforce the parallelism between the two
10 conjuncts. It has no way to preclude the second conjunct’s subject from being interpreted
11 as the first conjunct’s internal argument.

12 To reiterate, the relevant relation in RNR is not possibly one captured by semantic
13 representations. Either the shared material is not in a position to dictate the interpretation
14 of the gap site like we saw with the scope facts, or the theory is simply not robust enough
15 to encode the relevant relation like we see in the DRT theory. It seems likely neither
16 syntactic nor semantic representations have the characteristics required to adequately
17 handle RNR.

18 Finally, we turn to a pragmatic account. If the long distance relation in RNR
19 cannot be syntactic or semantic in essence, the last stand for a competence-level account
20 is pragmatics. However, this too will be shown not to be possible.

21

22 3.2 A Pragmatic Account

23 Larson 2013a proposes a pragmatic means of accounting for the long distance
24 dependency in RNR. There it is claimed that since the first conjunct is literally missing

1 syntactic structure, there is pragmatic motivation to find that content elsewhere even if it
2 is never directly encoded in the syntax or the semantics. For example, in the RNR
3 sentence we've been looking at this section, the first conjunct is merely *Bruce bought*.
4 Larson claims that it is pragmatically odd for a buying event not to have something
5 bought. Because of this, some pragmatic module seeks to rectify that oddity by supplying
6 the verb with relevant interpretive content. In this case, *old photographs* is a plausible
7 internal argument for *bought* and it is used as such.

8 Although it is clear that this approach is liable to overgenerate the facts, it has a
9 deeper problem. The pragmatic motivation to make such a link simply isn't there. Under
10 this account, there is something pragmatically wrong with a word that means *bought* not
11 having an overt internal argument. This sort of reasoning cannot hold generally as seen in
12 (29).

13

14 (29) Jack ate, and Rita played with, the food on the plate.

15

16 In (29) under the pragmatic account, the reason that the food on the plate is
17 interpreted as the internal argument of *ate* is because that word requires an overt internal
18 argument to be pragmatically sound. This is transparently not the case.

19 Further, any nominalized form a verb will maintain its argument structure and
20 thus presumably its pragmatic necessities under this account. However, it is clear that
21 nominalized forms can arise without overt internal arguments relatively freely without
22 the pragmatic seeking to procure one. Compare (30a) and (30b) in this regard. If it were
23 the case that the meaning of the word *purchase* was such that there was a pragmatic
24 required of an overt object, then we could not explain the distinction:

1

2 (30) a. Becky purchased *(the car)

3 b. Becky's purchase (of a car)

4

5 So there does not seem to be any pragmatic motivation to make the link needed in
6 RNR. Pragmatic relations are not subject to the constraining restrictions of c-command
7 and scope. However, even with the freedom of representation that such a level of analysis
8 allows, that power does not seem applicable to the RNR relation. What is representable at
9 the level of pragmatics is not very constrained and can draw on essentially any
10 knowledge the speaker/hearer has. If such power is not used in RNR, the conclusion is
11 that the relation is in principle not pragmatic in nature. Though it may not be clear what
12 that principle is that precludes this.

13 In short, we have seen in this section that none of the syntax, semantics, or
14 pragmatics is the right level of analysis for the relevant relation in RNR. It is not simply
15 that analyses couched in the terms available at each level make the wrong predictions.
16 Rather, it is that the relation is, by its very nature, not the sort that can be encoded at these
17 levels, for one reason or another. This is unfortunate methodologically as these three
18 levels exhaust representations at which interpretive dependencies hold. In the next section
19 we will explore what this means for RNR.

20

21 3.3 Options

22 In the above sections I show that RNR poses daunting problems for theories of grammar.
23 As an empirical phenomenon, the construction is not explicable by any current theory. In
24 this section I discuss the methodological options that this state of affairs presents us.

1 If RNR is so deeply problematic for grammatical theory, one possible tack would
2 be to leverage that against the entire edifice of grammatical theory. That is, much like
3 Postal 1976, RNR could be used to “...show beyond any doubt that there exists no
4 linguistic theory whatever.” Since the only means of encoding long distance
5 dependencies do not work for RNR, we must rethink grammatical theory from scratch.
6 This of course would be an egregious case of throwing the baby out with the bathwater
7 and a modicum of methodological scruple should compel any theoretician to maintain the
8 grammatical apparatus as much as possible and modify things only slightly.

9 Short of razing grammatical theory for its inability to explain a particular (perhaps
10 peripheral) construction, what options are there? One would be alter or augment the
11 fundamental means of long-distance dependency in the theory. For instance, perhaps we
12 could change the way syntax works to allow in this sort of RNR dependency. Instead of
13 mere Merge as the fundamental structure building operation in syntax, we could posit a
14 novel Merge-like operation whose properties could capture RNR. Such ideas have been
15 presented by de Vries 2012 as well as Heringa 2012. Although this is a logically possible
16 approach, by its very nature cannot explain RNR. It can only recode RNR’s effects in a
17 novel theoretical apparatus.

18 I can sympathize with the above approach, given certain premises. If it is the case
19 that the levels of syntax, semantics, and pragmatics are the only grammatical levels in
20 which long distance interpretive dependencies can be stated, and if it is the case that RNR
21 involves a grammatical long distance interpretive dependency, something drastic must be
22 done. Given those background assumptions, adding to the theoretical armament is the

1 only option. But maybe one of these premises is faulty. For instance, perhaps instead of
2 altering an existing level, the dependency could be stated at an altogether different level.

3 Just as one might be loathe to posit fundamental changes or additions to the
4 theory of grammatical levels, so too would adding an entirely new level of grammatical
5 representation be unfortunate. If there were another grammatical level whose
6 representations could feed interpretation, then it would in principle be possible to capture
7 the RNR relation there. The present author has no desire to make such a daunting (and
8 perhaps dubious) move. But other researchers have indeed done so and it should be seen
9 how well RNR might be made coherent at this level. Chomsky 1982, Safir 1986,
10 Hornstein 1990, and Tsimpli and Smith 1993 have all in one way or another posited a
11 novel interpretive level that they dub LF'.¹¹

12 For Chomsky and Safir, this LF' level concerns the indexation of nominals
13 involved relative clauses. It is only at this level of representation that the head of the
14 relative clause, the A-bar moved operator and its trace are all co-indexed. That re-
15 indexing in this sense may be the purview of such a level is clearly irrelevant to RNR, but
16 Safir proposes an additional operation that may obtain at this level of representation. His
17 novel operation *Attach α* also applies at LF' and allows for “extra” arguments or
18 constituents to be added to the LF representation. However, this rule does not seem
19 applicable to the RNR problem either. The deployment of *Attach α* does not result in
20 novel long-distance dependencies, but rather allows for extra-thematic elements such as
21 parentheticals to be incorporated into the structure.

¹¹ Note that Chomsky remains agnostic as to whether LF' is a new level of representation or a snapshot of a multi-step LF representation (Chomsky 1982:93).

1 For Hornstein, this LF' level feeds the phonological component since he claims
2 that there are interpretive processes relevant to meaning that can affect the overt output of
3 a sentence. In particular, he posits this level to capture sequence of tense phenomena.
4 This level, as presented by Hornstein, however does not seem to be powerful enough to
5 capture the RNR dependency. Hornstein claims that "the domain of an element's
6 influence [at LF'] is the domain that it governs." Government, though an outdated
7 theoretical notion, can be defined in contemporary terms (very roughly) as the relation
8 between heads and their complements, specifiers, and adjuncts. This is of course a gross
9 simplification, but it suffices here. In effect, Hornstein's LF' recycles structural notions
10 from the SS representation of the syntax (or spell-out). Since we have already seen that
11 the relevant RNR dependency is not mediated by structurally syntactic terms,
12 Government (or any modern re-interpretation thereof) cannot hold and in turn cannot
13 relate the elements in RNR at LF'.

14 Unlike Hornstein's, Tsimpli and Smith's notion of LF' is presented as a level of
15 representation external to the syntax. Its independence from syntax might make it a better
16 potential candidate as the correct level of representation for the RNR dependency. This
17 level of representation appeals to processes of what they deem the 'central system', a
18 non-modular system of cognition distinct from language proper (Similar to that proposed
19 in Fodor 1983). Central system concerns impinge on LF' but not directly on language
20 proper. As such, an individual could have an unimpaired language faculty, but an
21 impaired central system and in turn an impaired LF'.

22 They claim that the effects of an impaired LF' can be found in their subject
23 Christopher, a language savant with cognitive impairments independent of language.

1 They note that there is a class of English sentences that are acceptable to English native
2 speakers generally, yet unacceptable for him. The type of otherwise generally acceptable
3 sentences are hypothesized by Tsimpli and Smith as LF' effects. Since Christopher's
4 'general system' is impaired and since LF' effects are the purview of the central system,
5 this class of constructions that Christopher anomalously deems unacceptable are reasoned
6 to crucially rely on some LF' component.

7 Included in this class are instances of sequence of tense, aligning (perhaps
8 coincidentally) with Hornstein's hypothesis, and certain left dislocation and topicalization
9 phenomena like those below:

10

- 11 (31) a. Steven, they saw during the break
12 b. Me, I don't like football
13 c. I met her yesterday, Mary

14

15 The above sentence types, especially (31b) and (31c), could conceivably comprise
16 a class with RNR sentences in that they involve a sort of one-to-many interpretive
17 dependency between overt non-anaphoric elements and loci of interpretation. In RNR,
18 there is a single overt element paired with two loci of interpretation, in (31b) and (31c)
19 there are two overt elements with one locus of interpretation. Indeed, Smith surmises that
20 Christopher would in fact not accept RNR sentences as acceptable (Niel Smith p.c.).
21 Were this the case, it could indicate that RNR is in some way crucially mediated by some
22 grammar-independent level of representation. However it is not known whether
23 Christopher accepts RNR sentences or not and this notion of LF' remains unsupported as
24 a means of analyzing RNR.

1 In this section we have explored three methodological options in light of the
2 problems that grammatical theory faces in RNR. The first was to condemn all of
3 grammatical theory, the second to augment existing grammatical levels, the third to posit
4 a novel grammatical level. None of these seem very explanatory or compelling. Adding
5 to our current theory new means of long distance interpretive dependency is not
6 explanatory and perhaps dubious theoretically. Positing a novel level of representation is
7 similarly unexplanatory in absence of a predictive theory behind it. Instances where there
8 is such a theory, as in Hornstein 1990 and Tsimpli and Smith 1993, the reasoning does
9 not hold for RNR.

10 In short, RNR does not seem to be explainable by current or hypothetical
11 grammatical means nor by current or hypothetical levels of representation. This is quite a
12 problem if we want to maintain RNR as falling within the explanatory purview of
13 grammatical competence. However, if we were to allow the possibility that this were not
14 the case, that RNR were not solely the effect of offline, competence level mechanisms,
15 then the problem as it stands would not exist. It is this final option that I posit and pursue
16 in the next section.

17

18 4 A performance account

19 If there can be no competence level account of the relevant long distance RNR
20 dependency, then it follows that that dependency is not strictly speaking grammatical in
21 nature. That is, the interpretation of the shared material in the first conjunct of RNR is not
22 an effect of competence, but performance. The appropriate description of it as a piece of

1 data is that it is acceptable, not grammatical.¹² In this section I provide a performance-
2 level account of that dependency.

3 Again, this section should be taken as an exploration of the sort of analysis of
4 RNR that is forced upon us given the deep problems with offline grammatical
5 approaches. It is certainly the case that this analysis is not detailed enough to immediately
6 speak to the vast landscape of RNR data. However, unlike the grammatical approaches,
7 this analysis is *possible* in the sense that it is couched in the correct domain of inquiry.

8

9 4.1 RNR as an illusion

10 If it is the case that RNR sentences involve a relation that is acceptable despite not being
11 encoded in the grammar, then that relation is in essence a grammatical illusion (though a
12 particularly persistent one as I will discuss later). It is an illusion that arises when the
13 parser both predicts a dependency and recognizes that the dependency is not going to be
14 grammatically possible. When this situation occurs, the parser makes recourse to an
15 nongrammatical means of dependency formation. The illusion persists because no
16 grammatical representation arises to supplant the nongrammatical one.

17 The basic idea is this, the interpretive relation between the two bolded elements
18 below in (32) is ‘not there’ in the offline grammatical representation of the sentence but
19 is a side effect grammar-parser interactions. The relation is derived online, but does not
20 hold of the final representation, much like analyses of other illusions.

21

22 (32) Bruce **bought**, and Becky sold, **old photographs**

¹² Crucially, the dependency is not *un*grammatical either. Unlike the ungrammatical dependency between a *wh*-filler and its gap across an island boundary, this relation is simply not a stateable relation in the grammar and is hence *non*-grammatical.

1

2 For classical illusion examples like (33), an initial representation in (34a) is
3 entertained. That is, the string ‘the old man’ is shaped by grammatical notions into the
4 representation in (34a). One can tell that this representation is entertained because when
5 an equally grammatical parse is made necessary (when the sentence is completed) readers
6 balk. The final state representation of the sentence in (33) is such that the parse in (34a)
7 becomes no longer possible. It be supplanted with the representation in (34b). Readers of
8 (33) judge the sentence unacceptable by maintaining the initial possible representation
9 and not considering the parse in (34b). In this sense the illusion is driven by the parser
10 being sensitive to possible grammatical representations and latching onto them despite
11 other possibilities.

12

13 (33) The old man the ship

14 (34) a. [the [old man]

15 b. [the old] man]

16

17 In the case above, there is a prediction that prompts a grammatical representation
18 that must be overridden with something that was not predicted. RNR as an illusion is
19 different in two aspects. First, the temporary representation is never overridden. Second,
20 the temporary representation is prompted not by a grammatically possible parse, but
21 rather by the lack of any possible parse.

22 In both cases, there is a point in the incoming string of words where grammatical
23 competence intervenes in a way that makes the illusion inevitable. In the above case it is
24 three words in where the string is analyzed as in (34a). In the RNR example in (35) it is

1 four words in: the point at which it becomes clear that there will be *no possible*
2 competence level relation between the verb and its anticipated internal argument:

3

4 (35) Bruce bought and Becky

5

6 At this point in the parse, the only acceptable continuation of the sentence is a
7 RNR construction. Since the RNR relation (between verb and object in this case) is not
8 one stateable by the grammar, it is necessary at this point that a different tack be taken,
9 one that does not implement a grammatical relation. This relation will lead to the
10 interpretive relation mentioned above which will be illusory in that that same interpretive
11 relation is not represented grammatically. The question then is, what is the nature of this
12 non-grammatical relation?

13 A final point that is important to make concerning the nature of the claim here and
14 potential apparent counterevidence. The claim is that the relation between the shared
15 material and the first conjunct's gap site is only seemingly grammatically represented.
16 That is, it is of course possible to present, say, morphological facts consistent with a
17 relation between the two, but this cannot in principle constitute evidence against the
18 illusion. That would be akin to taking the spurious morphological effects found in
19 agreement attraction illusions (*the key to cabinets are on the table* as in Bock and Miller,
20 1991) to be evidence that there is in fact a grammatical agreement relation holding of the
21 syntax. But it is exactly this sort of superficial counterevidence that motivates the term
22 *illusion* in the first place.

23

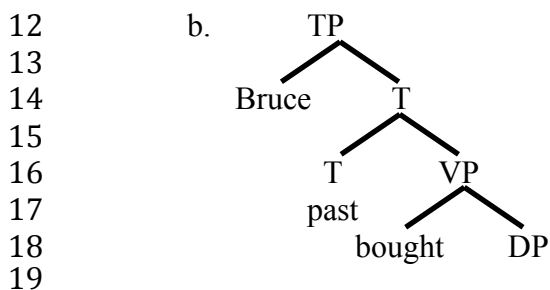
24

1 4.2 Instigating the illusion

2 The parsing of sentences has been shown over the past few decades to be both very
3 incremental as well as very rapid (see Marslen-Wilson 1973, Tanenhaus et al. 1989,
4 Traxler et al. 1997 among others). In particular it has be argued that incremental word
5 comprehension projects a predicted grammatical structure before the elements that
6 comprise that structure are received. That is, for a string like that in (36a), the parser has
7 projected a (simplified) structure like that in (36b) (following Altmann and Kamide
8 1999). That is, the presence of the verb predicts upcoming composition between that verb
9 and a direct object.

10

11 (36) a. Bruce bought



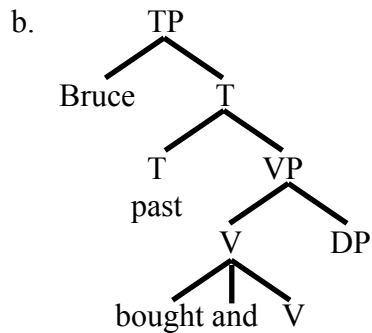
20 The predicted direct composition of the direct object to the verb is disrupted when
21 the next word in the string is encountered. However, there is still a possible grammatical
22 representation. Given a string like that (37a), a possible predicted representation like that
23 in (37b). That is, the verb could be part of a larger coordinated verb that takes a direct
24 object.

25

26

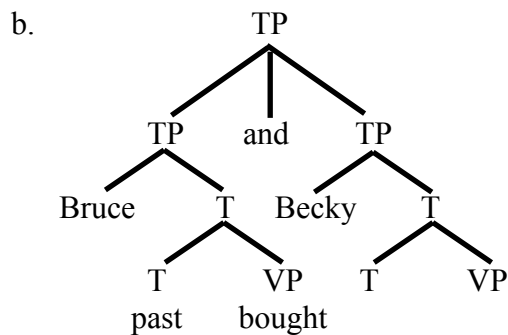
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1 (37) a. Bruce bought and



12 However, when the next word is encountered, the only possible parse is like that
13 in (38b). It cannot be the case that the verb and the recently encountered DP are
14 coordinated together, nor can it be the case that the verb is coordinated with.

15
16 (38) a. Bruce bought and Becky



27 In the above representation, the first conjunct's verb is represented without a
28 direct object. This reflects the fact that there can be no possible forthcoming relation
29 between that position and any upcoming nominal. Even at this stage in the parse this is
30 known. This position cannot be filled by an elided element as DPs cannot elide in
31 English. The position cannot be filled by the trace of a moved element because any such
32 movement would need to be to a c-commanding location which is no longer possible
33 given the projected structure of the second conjunct and of English. In other words, at

1 this stage of the parse, when an RNR-style continuation is the only one possible, the
2 parser already “knows” that a syntactic relation is not possible between ‘bought’ and any
3 upcoming nominal.¹³

4 If the parser is attuned to grammatical constraints, it is then at this point that the
5 nongrammatical relation will be pursued. One possible nongrammatical solution to
6 problem would be to store the verb in short term memory and to hold it there until a
7 nominal is encountered that could serve as its internal argument, for instance the next
8 nominal that is a buyable thing. However, this approach is implausible on its face. The
9 sentence in (39) cannot bear the RNR interpretation in which Bruce bought an old book
10
11 (39) Bruce bought, and an old book was found.

12
13 A more structured means of capturing the relation is needed. It is not simply the
14 case that the relevant verb needs an object. Rather it seems that the verbs needs a object
15 that arises in roughly parallel location in the next conjunct. In the next section I present a
16 means to model the relation and apply it to RNR sentences.

17

18 4.3 Modeling the illusion

19 To relate the first conjunct’s verb to its interpreted internal argument in the second
20 conjunct recourse should be made to the parsing strategy presented in Ferreira et al. 2004
21 and Ferreira and Bailey 2004 to model the processing of spoken language disfluencies.

¹³ From this discussion it should be clear that the coordinator *and* is not strictly speaking necessary to effect RNR. Indeed, other similar unexpected structures should allow for this as well like in (i) from Chaves and Sag 2007:

(i) The people who hate are in fact not very different from the people who love George W. Bush.

1 Their approach deals with analogous constructions that pose similar problems for RNR.
2 Further, their approach makes use of structured notions that seem to be necessary in
3 capturing the RNR problem.

4 The Ferreira et al. model of disfluency processing concerns itself with examples
5 akin to (40) among others wherein a speaker self-corrects mid-speech and in essence
6 over-writes some earlier utterance.

7
8 (40) Bruce picked, I mean selected, the correct answer.

9
10 Examples such as this are superficially rather similar RNR sentences. Both
11 involve an element that that is interpreted in more than one position. In this case *the*
12 *correct answer* is the internal argument to both *picked* and *selected*. Further, much like
13 RNR there is contrastive focus on right “edges” of the compared strings.

14 The Ferreira et al. model holds that when building an online parse structure for an
15 utterance, incoming lexical items are assigned positions in projected structures much like
16 parse discussed above. They deem this “Substitution”.¹⁴ However, if the incoming lexical
17 items are not grammatically parsable into the existing structure (that is, if Substitution
18 fails), the parser resorts to an operation dubbed “Overlay”. Note that for examples like
19 (40), Substitution indeed fails as *he selected* cannot possibly serve as the direct object of
20 *picked*. The same hold for the RNR instances above where *and SUBJECT* cannot serve as
21 the direct object for the first conjunct’s verb.

¹⁴ Ferreira et al. assume a TAG approach to structure building (Joshi and Schabes 1997). I do not, but this distinction is inconsequential to the point at hand.

1 Overlay is attempted if Substitute fails. Per Ferreira et al., this operation works by
2 searching for node identities amongst the parsed structure and aligning the trees where
3 the identities exists. This allows the two trees to share information with one another such
4 that, for example, *Bruce* from (40) will be interpreted as external argument of *selected*. In
5 their representations, Ferreira et al. would align the two sub-trees in (41) at their root CP
6 nodes and the Overlay process would result in (42).

7

8 (41) a. [_{CP} [_{IP} Bruce [_{VP} picked NP]]]

9 b. [_{CP} [_{IP} NP [_{VP} selected the correct answer]]]

10 (42) [_{CP} [_{IP} Bruce [_{VP} selected the correct answer]]]

11

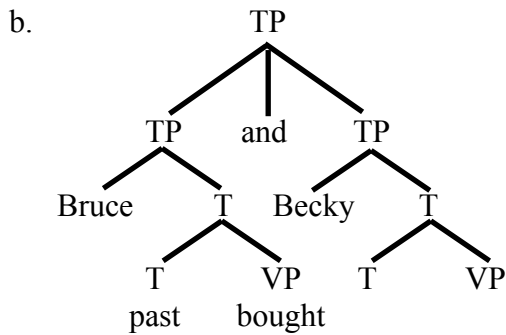
12 The verb in (41b) overwrites the verb in (41a) not because of any feature inherent
13 to Overlay, but rather due to that sub-tree being corrective in nature. As such, the empty
14 NP node in (41b) does not overwrite *Bruce* from (41a), but rather takes *Bruce* as its
15 content.

16 RNR differs from the above case in two ways. First, the second half of an RNR
17 sentence is not corrective in the same way as this disfluency. As such, the result of
18 Overlay should not be the overwriting of material, but something more additive. Second,
19 unlike the above example, there are not two root nodes in the structure at the time when
20 Overlay would become necessary for RNR. Repeating (38) from above, there is but one
21 root node once it becomes clear that there is no grammatical means for the first
22 conjunct's verb to have a direct object.

23

24

1 (43) a. Bruce bought and Becky



12 When Overlay applies here, it must not involve overwriting and it must involve
13 comparing non-root node identities so as to bar the vacuous search for root self-identity.

14 Let's see how this would work. At the point in the parse represented in (43b), an
15 offline grammatical means of getting the verb *bought* a direct object is ruled out.¹⁵
16 Overlay will have to apply. But there is no point in it applying immediately since there is
17 no possible direct object in a position parallel to the missing one (forced by aligning
18 identical nodes). Instead, overlay must be delayed and only once the parse reaches the
19 point presented in (44) can it be fruitfully applied.

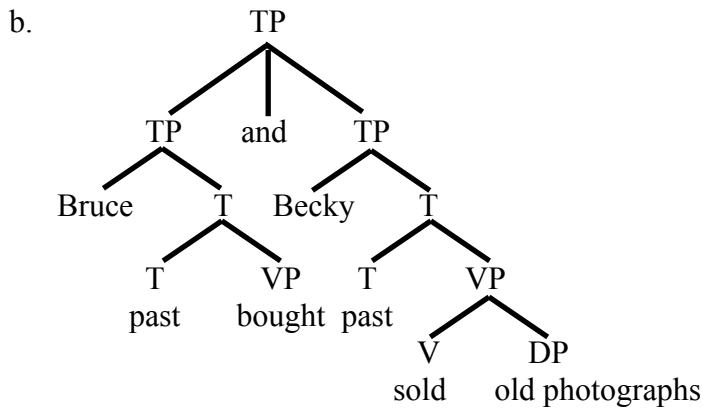
¹⁵ There are certain RNR sentences whose right edges do not consist of material that unambiguously entails a nongrammatical relation. These are found with optionally transitive verbs like *eat* in (i) and with shared adjuncts like in (ii)

- (i) Brooke ate, and Becky played with, the food on the plate.
(ii) Ivy danced, and Audrey sang, in the park.

There is no inherent motivation for the first conjuncts in the above sentences to prompt Overlay, yet nevertheless they are interpreted as bearing the shared material. To be precise, they are interpreted as bearing that material *only if* there is sufficient contrastive focus on the right edge. Without that intonation, it is not licit to interpret the post-comma material as being composed in the first conjunct. I take this as indicative of a second means to prompt Overlay. The particular contrastive intonation found on the right edge of RNR sentences also serves to prompt Overlay. That is, it alerts the parser to the fact that the clause is not yet complete.

This is a quasi-functionalist explanation of the sort that is normally avoided in mainstream syntactic theorizing. However, since we are by hypothesis dealing with a performance phenomenon, there is less reason to avoid functionalist notions.

1 (44) a. Bruce bought and Becky sold old photographs



14 Now Overlay can apply, but since there is but one root node in the structure, sub-
15 trees must be used. Because of this, a choice must be made as to which sub-trees will
16 enter into the Overlay operation. There are a few reasons to suppose that only the VPs in
17 the above example serve as input to Overlay, but before getting to that it is important to
18 see how Overlay would work in a successful case.

19 Assuming that the VPs are selected for Overlay, the relevant structures will be as
20 represented in (45) below:

21
22 (45). a. [_{VP} bought]

23 b. [_{VP} sold [_{DP} old photographs]]

24
25 That is, the first conjunct's VP will be copied and stored until the second input is
26 created. Once that second input is created in the parse, it too is copied and enters into
27 Overlay as in (45).¹⁶

¹⁶ It should be noted that Overlay works in a very similar manner to what is proposed by Williams (1978) for across-the-board constructions. The difference, of course, is that Overlay takes place outside the

1 The result of Overlay will differ from the previous case since RNR does not
2 involve ‘correction’ of the same sort as found in the disfluency case. If Overlay worked
3 identically for both cases, the interpretation of the RNR in (44a) would be like that in
4 (46) as the first conjunct’s verb would have been overwritten:

5

6 (46) Bruce sold and Becky sold old photographs

7

8 Yet as noted above, the overwriting process is not inherent to Overlay in Ferreira
9 et al.’s sense. In the instance of RNR it must be the case that Overlay has an additive
10 effect (in virtue of the coordinator *and* as opposed to the corrective *I mean* in self-repairs)
11 such that the result in of the operation applying to (45) results in (47). This result allows
12 the old photographs to be interpreted both as the internal argument of the buying but also
13 of the selling.¹⁷

14

15 (47) [_{VP} bought/sold [_{DP} old photographs]]

16

17 Note that the representation in (47) is the result of an online parsing mechanism
18 that does not exist in the grammar proper. As such the representation of the VP in (47)
19 will not be found in the static end-state offline representation. As I argued above, there is
20 no computational-level means of deriving a direct object for the first conjunct. The
21 transient online representation is by its nature a joint effect of extra-grammatical

grammar proper and is conditioned by more than mere parallelism. I assume that Merge is the only structure building operation in syntax and as such do not take this approach to be viable.

¹⁷ Following Schein 1993 and Kratzer 1996 among others, I take the Agent to be thematically separate from the verb and as such, the result in (47) does not force Bruce to be the Agent of a selling event nor Becky the Agent of a buying event.

1 operations and grammatical constraints. This does not mean that the representation in
2 (47) will fail to affect interpretation.

3 The structure in (47) exists, albeit for a short time, in the parse space just as much
4 as the structures it was derived from. This short-lived composition is that which the
5 shared element to be interpreted in the first conjunct. Again, this is identical to traditional
6 grammatical illusions where there are semantic effects of parsing that do not find
7 representation in the final-state structure.¹⁸

8 In a more complicated example we can see how Overlay would work for
9 instances in which RNR involves the sharing of a non-constituent. In (48) below (adapted
10 from An 2006), the shared element is the non-constituent comprised of the possessed
11 subject NP and the TP that it is the subject of.

12

13 (48) I think that Bill's, but you think that Mary's, father is sick.

14

15 In this sentence, the parse of the first sentence would result in a structure like
16 (49a) where there is predicted/projected structure enough such that possessive finds itself
17 in the spec,DP position of the subject of an otherwise empty clause. The second conjunct
18 of course is fully formed by the time the Overlay operation takes place. The result as seen
19 in (50) is derived despite not being able to manipulate the string *father is sick* as a
20 constituent

¹⁸ In particular this is reminiscent of results presented in Christianson, Hollingworth, Halliwell, and Ferreira 2001. In this work they note that for sentences like (i) which allow for an initial mis-parse like in (ii), the semantic effects of that mis-parse persist such that subjects will respond in the affirmative to questions like 'Did Anna dress the baby?'.

(i) While Anna dressed the baby that was small and cute spit up on the bed.
(ii) While Anna dressed the baby...

1

2 (49) a. [_{TP} [_{DP} Bill's]]

3 b. [_{TP} [_{DP} Mary's father] is sick]

4 (50) [_{TP} [_{DP} Bill's/Mary's father] is sick]

5

6 In short, the effect of Overlay in RNR is additive and need not work solely over
7 constituents, but the question remains as to how much structure enters into the operation.

8 The resultant representation in (47) hints at why it would be disadvantageous to
9 posit that any structure larger than VP be used as input to the Overlay operation. Were
10 TPs used as shown in (51), the result would be (52). If Overlay is additive in RNR, the
11 result would allow the sentence to bear interpretations where Bruce was the Agent of a
12 selling and Becky the Agent of a buying, contrary to fact.

13

14 (51) a. [_{IP} Bruce [_{VP} bought]]

15 b. [_{IP} Becky [_{VP} sold old photographs]]

16 (52) [_{IP} Bruce/Becky [_{VP} bought/sold old photographs]]

17

18 A similar problem would arise if T-bars were used for Overlay and the highest
19 paired nodes would represent tense. RNR sentences cannot share tense across the
20 coordination as seen in (53) which does not permit the interpretation where Becky sells
21 old photographs:

22

23 (53) Bruce buys, and Becky sold, old photographs.

24

1 As a result, that which enters into Overlay should be the smallest element that
2 contains the missing structure. In the case above it is the VP.¹⁹ The result of Overlay for
3 RNR is additive, not contrastive. Finally, the output of Overlay is only represented online
4 and does not persist in any offline representation. In the next section the predictions and
5 consequences of this approach to RNR will be explored.

6 7 5 Predictions of this approach

8 In this section the analysis of RNR proposed in the previous sections is shown to make
9 correct predictions about RNR and capture some recalcitrant facts concerning
10 acceptability. First I will explore how the particular triggers for initiating Overlay make
11 predictions concerning the purview of RNR. Second I explore how the mechanism of
12 Overlay itself leads to certain predictions. I finish this section with predictions
13 concerning typological concerns.

14 15 5.1 Triggering Overlay

16 One fundamental descriptive generalization of RNR sentences is that they obey what has
17 come to be known as the “right-edge-restriction” (see Wilder 1999 among others). This
18 restriction concerns the fact that the gap position in RNR sentences must generally be on
19 the right edge of the first conjunct. That is, when the gap is in the right-most position like
20 in (54), all else being equal, the sentence will be acceptable. When there is a non-final
21 gap like in (55), the result is unacceptable.

¹⁹ Note that the choice of the inputs to Overlay must be flexible to a degree so as to permit differing categories to take part. For example, in (i) it is a preposition in the first conjunct that goes without its object, yet it is paired up with a verb-object combination in the second conjunct.

(i) Bruce talked about, and Becky praised, the old songs.

1

2 (54) Bruce bought ___ and Becky sold old photographs

3 (55) *Bruce ___ old books and Becky sells old photographs

4

5 There is a variety of ways to capture this effect under earlier analyses (see Wilder
6 1999 and Bachrach and Katzir 2009 for some multidominance accounts and Sabbagh
7 2007 for movement accounts). However these will not apply for the approach offered
8 here. Instead it must be the case that the potentially very powerful and flexible Overlay
9 operation can only be triggered in instances where there is a parse that can create a right-
10 edge gap.

11 For an illustrative example, take (56) below. Here it seems that, if triggered,
12 Overlay could easily function so as to effect an illusory effect of acceptability in this
13 sentence in exactly the same way that does for traditional RNR sentences. That is the
14 underlined gap in the first conjunct could derive its transient interpretation from the
15 analogous position in the second conjunct.

16

17 (56) *___ went to the store, and Bruce bought apples

18

19 However, for Overlay to be triggered, there must be no grammatical means to fill
20 the gap. Recall that “grammatical” in this sense refers to the repertoire of items and
21 operations that the grammar can manipulate, not that which necessarily leads to a

1 grammatical sentence.²⁰ In short, to trigger Overlay, the gap must be nongrammatical
2 instead of ungrammatical.

3 The gap in (56) is ungrammatical in English because it runs afoul of the classical
4 EPP (Chomsky 1982) which requires subject positions to be filled in English.²¹ The EPP
5 constraint is not a fundamental dividing line between grammatical and nongrammatical
6 as it has been argued to be a parameter (see McCloskey 1996 and Alexiadou and
7 Anagnostopoulou 1998). Since the gap is ruled out independently as a grammatical
8 violation, no recourse is made to Overlay.

9 This reasoning can be generalized to encompass all potential gaps in specifier
10 positions. Assuming that elements arrive in specifier positions solely due to generalized
11 EPP (or *edge*) features (as in Chomsky 2007), then the failure of specifier to be filled
12 with an argument when it otherwise should be should lead to ungrammaticality and thus
13 preclude the application of Overlay. That is, missing specifiers should never lead to
14 acceptable RNR sentences. Following the standard Kaynean (1994) approach to phrase
15 structure, these specifiers will uniformly be linearized to the left of their host head and as
16 such contribute to the explanation of why the nongrammatical RNR gap must be right-
17 peripheral in the first conjunct. In short, we can state the result as in (57)

18

19 (57) The first conjunct gap cannot be a specifier

20

²⁰ Perhaps it is helpful to think back to the island violation scenario. Wh-gap relations across island boundaries are generally ungrammatical in this second sense. They are grammatically stateable relations that are liable to grammatical assessment. However the relation between the first phoneme of the displaced wh-word and the gap across the island is not grammatical in the sense that I intend and cannot be subject grammatical assessment.

²¹ Note that there is no analogous condition that requires verbs to take objects. As such, the normal RNR cases do not run afoul of a syntactic constraint in the same way. There will be lexically idiosyncratic demands (ie *eat* versus *devour*), but these not *syntactic* constraints in the same way that EPP demands are.

1 Another means of ruling out Overlay for non-final gaps is for its potential input to
2 be unsuitable for it. Take for example the sentence (58) below. Here there is a non-final
3 gap and an unacceptable RNR-style sentence. Instead of a missing argument, there is a
4 missing argument-taker.

5

6 (58) *Becky __ the president, and Bruce met the queen

7

8 It is indeed possible for verbal gaps to arise to arise between subjects and objects
9 as seen in traditional gapping like in (59). So it cannot be the case that the gap itself is
10 ungrammatical in the same way as above.

11

12 (59) Becky met the president, and Bruce __ the queen.

13

14 The problem in (58) lies in the fact that the gap is not predictable and the intended
15 direct object cannot be inserted into any structure.²² Following Ferreira et al (2004),
16 arguments are only parsed in particular positions in a structure in virtue of the presence of
17 the argument takers (things like verbs and prepositions). When these are not present in
18 the parse, there is no means to incorporate the arguments. There are no syntactic slots for
19 them to fill. This is the case in (59), there is no way to provide a structured parse for
20 *Becky and the president*.

²² Kaan, Wijnen, and Swaab (2004) as well as Kaan, Overfelt, Tromp, and Wijnen (2013) find that the gap site in gapping constructions like (59) is detected at the earliest unambiguous occasion (upon meeting the determiner following the gap site). If the parser is as particularly attuned to such gaps as their studies suggest, then the fact that the sentence in (59) exhibits such an asymmetrical judgment with respect to (58) may in turn suggest that there is no gap detected in (58).

1 Given that there is no online means of building the full structure of the first
 2 conjunct in (58), Overlay cannot apply. It has nothing to work with. This in effect means
 3 that argument-takers cannot be gapped in the first conjunct to the exclusion of their
 4 arguments. The only way for an argument-taker to go missing is for its attendant
 5 arguments to go missing as well. This forces the nongrammatical gap to be right-
 6 peripheral in the clause.²³

7 Taken together, the grammatical constraint of the generalized EPP and the parsing
 8 concerns for gapped argument-takers make it such that nongrammatical gaps will only be
 9 allowed in the right-periphery of the first RNR conjunct.

10 An apparent counterexample to the to the right edge restriction can be found in
 11 sentences like (59) where the first conjunct is missing a direct object in a non-final
 12 position:

13

14 (59) Bruce gave ___ to Becky, and Ivy wanted to read, an old book

15

16 Here however there is a parse where the direct object has extraposed in the first
 17 conjunct as shown in in (60). Given that possibility, there is a parse wherein the first gap
 18 is not ungrammatical and the second, true RNR gap is nongrammatical as seen in (60).

19

20 (59) Bruce gave t to Becky [an old book].

²³ However for SOV languages a missing verb will fail to foul-up Overlay as the verb position will be predicted by the presence of the object. This can be found in the Hindi example below from Larson 2009.

(i) Shiti-ne seb aur Ivan-ne nashpati khay-ii
 Shiti-Erg apple(Masc.) and Ivan-Erg pear(Fem) ate-Fem
 ‘Shiti [ate] an apple, and Ivan ate a pear.’

1 (60) Bruce gave t to Becky ___ and Ivy wanted to read an old book.

2

3 These are a few test cases and there are innumerable others, but the point should
4 be clear: RNR can allow gaps in any position in the first conjunct as long as Overlay is
5 applicable. For Overlay to be applicable it must be the case the first conjunct gaps can be
6 recognized as gaps and that they cannot be analyzed as grammatically possible. If the gap
7 is grammatically possible, then the filling of that gap can either comport with the rules of
8 that particular language's grammar or not. If the gap is grammatically impossible, the
9 sentence is nongrammatical and Overlay may apply.

10 Another important descriptive generalization about RNR is that the relevant gap
11 must arise in the very first conjunct. In short, the counterparts to sentences like (61a) are
12 not possible as shown in (61b)

13

14 (61) a. Bruce bought ___ and Becky sold old photographs

15 b. *Bruce bought old photographs and Becky sold ___.

16

17 This fact can also be explained by the agrammatical gap detection plus Overlay
18 approach. In the successful case, it becomes clear by the time the subject of the second
19 clause is reached that the first conjunct's gap is grammatically insolvent. When this
20 becomes certain, the VP in this case is copied and stored, awaiting Overlay. However in
21 (61b) it is the fully-fledged VP that must be specially stored yet there is no indication that
22 this will be helpful until the end of the sentence. Even at the end of the sentence, there is
23 no unambiguous indication of a gap. It is always possible that a suitable direct object will

1 be uttered. As such, there is zero impetus to initiate Overlay in instances where the gap is
2 in the second conjunct.

3

4 5.2 Right node wrapping

5 From what we have seen above, two independent forces make it so that the gap in RNR
6 sentences must be right-peripheral in the first conjunct. There is no analogous restriction
7 for the filler in the second conjunct. It is not necessarily the case that the filler must also
8 show up in the right-peripheral position. But before getting into the data, let us see why
9 an application like Overlay makes this prediction.

10 Recall that Overlay in the RNR case must provide a filler for a gap in the right-
11 peripheral position like that in (62).

12

13 (62) [X ... _]

14

15 In the second conjunct, there must be an element that aligns with this gap site, but
16 this does not mean that there cannot be more elements that trail the filler. Imagine that
17 (63) is the second conjunct to be overlayed with (62). The result would be like that in
18 (64) where the filler finds its first conjunct gap but there is extra material inserted into it
19 as well.

20

21 (63) [Y ... filler Z]

22 (64) [X/Y ... filler Z]

23

1 As such, this extra material Z may clash with the subcategorical restrictions of
2 element Y and in turn make the resulting sentence less acceptable. However, since this is
3 a transient online process, any subcategorization clash will not persist in the final
4 representation. I discuss this lack of persistence in an upcoming section, but for now let
5 us investigate the predictions of this type of Overlay.

6 If Overlay works like this, we should predict sentences of the form in (65) where
7 there is material following the filler in the second conjunct and that filler is interpreted in
8 the first conjunct.

9
10 (65) [A B C _] & [X Y Z filler N]

11
12 This is what we find in instances of Right Node Wrapping, first so coined and
13 investigated in Whitman (2009).²⁴ Whitman notes a variety of corpus examples of the for
14 in (65). The leading example he uses comes from the song “Friends in low places” and is
15 excerpted in (66) below:

16
17 (66) I’ve got friends in low places, where the whiskey drowns and the beer chases my
18 blues away.

19
20 In the above sentence there is a phrasal verb in the second conjunct (*chase away*)
21 that has been interrupted by its direct object (*my blues*). The direct object is interpreted in
22 the gap position of the first conjunct, but the preposition is not.

²⁴ This type of example may have first been discussed as a type of RNR by Wilder 1999 with his sentence in (i).

(i) John should fetch, and give the book to Mary.

1 Another example from Whitman can be seen below in (67). Here, the phrase *eight*
2 *times* is only modifying the second conjunct verb, not the first. The underlined filler
3 however is interpreted in both conjuncts.

4

5 (67) ...an undercover police officer [followed] and [then shot] a young motorist eight
6 times.

7

8 These sentences are not perfectly acceptable rather, but rather more fuzzy in their
9 judgments. There seems to be a gradual cline in their acceptability in that the longer the
10 post-filler material, the worse the sentence is judged. When the extra material is the
11 preposition of a phrasal verb, the acceptability is high. With clause-length post-filler
12 material, the acceptability is less clear:

13

14 (68) Bruce stopped, and Becky told, the old man that the game was already over.

15

16 This sort of gradient acceptability is coherent under this analysis where the
17 acceptability of RNR sentence is due in large part to non-grammatical concerns.

18 Moreover, that the restriction so obediently followed in the first conjunct does not
19 apply in the second conjunct is additional support for the application of Overlay as
20 adapted from Ferreira et al. (2004). Additionally, this would allow us to subsume right
21 node wrapping as a sub-type of RNR, not a different construction. In the next section, we
22 will see that the instances that the Overlay operation was originally proposed for share a
23 strong similarity to RNR.

24

1 5.3 Repairs

2 Ferreira et al. (2004) initially propose the Overlay operation for instances of online
3 speech disfluencies in which the speaker ‘repairs’ mistakes in their speech by uttering a
4 string intended to take the place of the mistake. For example, the analyze an utterance
5 like that in (69) as in (70).

6

7 (69) Bill said that you will put, uh, you should drop the ball.

8 (70) Original Delivery: Bill said that you will put

9 Reparandum: you will put

10 Edit Term: uh

11 Repair: you should drop

12 Resumption: the ball

13

14 As presented by Ferreira et al., the parser takes the repair plus the resumption and
15 overlays it onto the representation of the reparandum. Given the corrective nature of the
16 repair, the reparandum is overwritten by the repair and the resumption.

17 A similar analysis can easily be made for RNR as seen in (71) and (72) below:

18

19 (71) Bruce bought, and Becky sold, old photographs

20 (72) Initial Conjunct: Bruce bought

21 Interruption: and

22 Parallel Structure: Becky sold

23 Shared material: old photographs

24

1 This similarity in analysis has an interesting empirical implication: If the same
2 online analysis holds for both RNR and self-repairs of the sort that Ferreira et al.
3 investigate, then the asymmetrical syntactic effects found in RNR should also be found in
4 self-repairs. And this indeed turns out to be the case. Husband (forthcoming) presents
5 data from self-repairs that uniformly mimic the attested asymmetrical patterns in the
6 RNR data.

7 For example, recall the asymmetrical NPI facts from earlier (repeated here as
8 (73)). Only when the negation was in the second conjunct was the NPI in the shared
9 material licensed.

10

- 11 (73) a. *Bruce didn't buy, but Becky sold, any old cars.
12 b. Bruce bought, but Becky didn't sell, any old cars

13

14 Husband (forthcoming) notes that the analogous positions in self-repairs show the
15 same asymmetry (examples modeled of Husband's).

16

- 17 (74) a. *Bruce didn't buy, I mean DID BUY, any old cars.
18 b. Bruce bought, I mean DIDN'T BUY, any old cars.

19

20 Based on these parallelisms in patterning, Husband argues that have the same
21 structure as RNR. By Husband's argumentation the explanation of the self-repair facts is
22 to be found in the nature of RNR. This may well be true, but arguing in this direction gets
23 us no closer to the correct structure of RNR. Instead, looking for the explanation for RNR
24 in online self-repairs is to be preferred, as I have been arguing. Nevertheless, the

1 prediction is borne out: both RNR and self-repairs display the same asymmetrical effects.
2 This is due to Overlay applying in both cases.

3

4 5.4 Persistence

5 Another prediction of the online illusion approach to RNR is the nature of what persists
6 after the sentence is completed. It is a descriptive fact of RNR that the essentially the
7 only evidence of the shared material being in the first conjunct comes from
8 thematic/argument structure intuitions. There is little evidence of a syntactic or semantic
9 nature that suggests that the shared material is in the first conjunct either as a trace or as
10 an elided element. This sort of evidence comes from the asymmetrical data above in (74)
11 and below in (75) (repeated from above).

12

- 13 (75) a. I hate, but you love, yourself in that picture.
14 b. *You hate, but I love, yourself in that picture.

15

16 Evidence of a link between the shared material and the first conjunct gap is non-
17 uniform. There is thematic evidence, but no clear grammatical/structural evidence. This
18 dichotomy must be address in any plausible account of the construction.

19 Under the proposed account, the link between the shared material and the first
20 conjunct is created in a extra-grammatical transient representation which by intuitive
21 hypothesis would not have the capacity to encode grammatical relations like principle A.
22 However, conceptual information like that relating a verb to an argument is not inherently
23 structural, but rather lexical and plausibly amenable to domain-general nongrammatical
24 interpretation online.

1 This nongrammatical online “composition” can also explain how RNR as a
2 grammatical illusion differs from other, better-known illusions. Recall that traditional
3 grammatical illusions come in two flavors. The first, like that in (76), involves a licit
4 offline grammatical representation that is obscured by a mis-parse. The parser is devoted
5 to its representation and has robust evidence to maintain it, but this proves to be incorrect
6 and the parse fails.

7
8 (76) The horse raced past the barn fell
9

10 Even though the initial parse turns out to be incorrect, the effects of similar mis-
11 parses have been shown to persist even after structural reanalysis (see Christianson,
12 Hollingworth, Halliwell, and Ferreira 2001 Sturt 2007). Lewis and Phillips (2013) posit that this
13 may be due to the incremental updating of beliefs on the part of the comprehender. That
14 is, as the comprehender takes in the sentence, they update their non-linguistic
15 representations based on the parse of the sentence. Once this link has been made, the
16 belief is fixed, even though the parse related to that belief may not exist in the end-state
17 offline representation.

18 In the case of the traditional sort of illusion, the persistence of the beliefs
19 associated with the initial mis-parse must compete with the beliefs associated with the
20 final parse. In the case of RNR there is no such competition as the transient parse and its
21 associated beliefs entail the beliefs associated with the final representation. Take for
22 example (77). The online non-linguistic belief state includes Bruce being the buyer of the
23 old photographs. The offline representation does not recapitulate that since it does not
24 represent the old photographs as being related to any buying. Nevertheless, Bruce buying

1 old photographs entails bruce buying and as such the illusory interpretation meets with no
2 competition.

3
4 (77) Bruce bought, and Becky sold, old photographs.

5
6 This being the case, the interpretation persists even though it is never represented
7 grammatically offline. Further, it is only this sort of belief-level information that persists
8 and not grammatical information of the sort that would pertain to NPI or reflexive
9 licensing.

10 11 5.5 Typology

12 One final prediction that this sort of analysis makes lies in the fact that the main
13 conditions for RNR lie outside the grammar proper. Unlike other analyses of RNR, the
14 one proposed here is not of a sort that could be subject to cross-linguistic variation. All
15 else being equal, the directionality and placement of the gap as well as the categorial
16 diversity of the filler should be consistent from language to language.²⁵ As seen in (78)
17 below, a cursory look into a typologically diverse collection of languages supports this
18 prediction.

19
20
21
22
23

²⁵ All things are of course not always equal however. Various other factor may work to additionally constrain RNR, like focus in Tagalog RNR as argued for by Larson 2011.

- 1 (78) a. German:
- 2 Hans soll und Ute muss heimfahren
- 3 Hans should and Ute must home.go
- 4 ‘Hans should, and Ute must, go home.’ (Hartmann, 2000)
- 5
- 6 b. Tagalog:
- 7 Hindi nagluto' ng bigas at hindi kumain ng fish abs same woman
- 8 not cooked erg rice and not ate erg isda ang parehong babae
- 9 ‘The same woman did not cook rice and did not eat fish.’ (Sabbagh, 2008)
- 10
- 11 c. Mandarin:
- 12 John hui dan Mary bu-hui mai na-ben shu
- 13 John will but Mary not-will buy that-CL book
- 14 ‘John will, but Mary won't, buy that book.’ (Larson, 2009)
- 15
- 16 d. Hindi:
- 17 Shiti-ne seb aur Ivan-ne nashpati khay-ii
- 18 Shiti-Erg apple(Masc.) and Ivan-Erg pear(Fem) ate-Fem
- 19 ‘Shiti [ate] an apple, and Ivan ate a pear.’ (Larson, 2009)
- 20
- 21 e. Japanese:
- 22 John-ni hanao, sosite Bill-ni tyokoreetoo Mary-ga okutta (koto).
- 23 John-to flower and Bill-to chocolate Mary sent fact
- 24 ‘Mary sent flowers to John, and she sent chocolates to Bill.’ (Saito, 1987)

1

2 Given how typologically common RNR seems to be, the adoption of a movement
3 or a deletion analysis would not be very explanatory. The capabilities of movement and
4 deletion are subject to cross-linguistic variation to degree that would lead us to expect the
5 same of RNR. For example, English allows for VP deletion yet German does not and
6 English allows for wh-movement yet Japanese does not. We fail to see this sort of
7 variation in RNR and as such it militates against analyses that would, *ceteris paribus*, lead
8 us to expect such variation.

9 However, if RNR in fact in large part takes the shape that it does due to
10 processing strategies, then we expect exactly the sort of cross-linguistic uniformity hinted
11 at above since processing strategies are not subject to variation in the same way that
12 grammatical constraints are.

13

14 5.6 Conclusion

15 In this section we have seen that by assuming an operation like Overlay it is possible to
16 account for a wide range of RNR facts as well as make correct predictions concerning the
17 parallelism asymmetrical effects found in RNR and other constructions where Overlay
18 has been claimed to apply. Further, we have seen how it makes correct predictions
19 concerning the nature of the dependency between the shared material and the first
20 conjunct as well as the persistence of that dependency's interpretation. Finally, the
21 typological commonality and consistency of RNR was shown to be an additional correct
22 prediction.

23

6 Overall Conclusion.

In this paper I have argued that the propositional interpretation that holds of the first conjunct in RNR sentences is illusory. It is illusory in the sense that it is not generated by the grammar but is the result of an online parsing strategy that is employed when grammatical relations are not possible. This is a relief of sorts given the extent to which the construction has stymied previous grammatical analyses. This result also suggests that the parser is keenly attuned to offline grammatical constraints and only deviates from them when they are necessarily ruled-out. This close relation further supports the notion of a general alignment between grammar and parser that is the result of the two being the same thing describe at different levels of abstraction.

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