A Timing Analysis of Right Node Raising Identity*

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The proper analysis of Right Node Raising (RNR), like other cases of non-standard coordination, has deep repercussions for syntactic theory in general, and the notion of constituency in particular. Such structures are typified by a coordinate structure in which some element shared by both coordinates—the pivot—is only realized once, usually in the right periphery of the coordinate structure, even while it may be simultaneously interpreted in a gap internal to each coordinate. I advocate a hybrid analysis of RNR, motivating it on the basis of a heuristic I call pivot-gap identity. I argue that when the pivot is identical to its in-situ representation in both gaps or the rightmost gap, it is derived via rightward movement from the rightmost conjunction to a conjunct-external position, followed by ellipsis in all other conjuncts. When the pivot is unique with respect to its gaps, it is derived by means of unstructured feature sets in each conjunct being cashed out by the later merger of a genuine lexical item external to the conjunction. The resulting theory is capable of capturing the difference in pivot-gap identity conditions and reconstruction possibilities that characterize different RNR variants.

1 Introduction

Non-Constituent Coordination (NCC) is coordination in which an element shared by two or more coordinates (henceforth the pivot) is only realized inside or beside one of those coordinates. This yields a coordination in which at least one of the coordinates lacks an overt element that is required for constituency. Right-Node Raising (RNR) is an NCC structure in which the pivot appears in the right periphery of the coordinate structure.

(1) Scully loves but Mulder hates ‘monster of the week’ episodes.

There are numerous analyses of these structures in the literature: ellipsis as in [Ha] (2008b) and [Hartmann] (2000); analyses based on multi-dominance as in [Grosz] (2015) and [Bachrach and Katzir] (2009); analyses based on movement, especially of the ATB variety, as in [Sabbagh] (2007) and [Postal] (1974, 1998). 1

*This paper benefited from conversations with my colleagues in the Linguistics Department and the Mathematical Linguistics reading group at The University of Toronto, as well as the participants of MOTH2016. All errors are solely my own. This text is a much reduced version of my MA thesis, [greenStevens-Guille] (green in press). Large portions of it are taken verbatim from that paper. The reader is invited to consult that paper for deeper explanation of certain phenomena that cannot be adequately addressed in the space provided here, including but not limited to alternative analyses and justification for certain ancillary hypotheses.

1I treat Postal as advocating a movement analysis, but this slightly misleading. Postal advocates a rightward displacement analysis that, in many respects, is like a movement analysis. However, due to the formalism he employs it is important to dissociate rightward displacement from the type of movement operations Minimalists are familiar with. Nonetheless, the rightward displacement property is my concern here, hence the categorization.
In the following I will refer to all accounts that support a conjunction-external position for the pivot as ‘ex-situ’, and those that deny such a position ‘in-situ’. In the non-transformational literature it is common to propose an ex-situ analysis, as found in Dowty (1997), Kubota and Levine (2015), Gazdar (1981).

RNR allows for various asymmetries between the pivot and its gaps. In addition to the simple case in (1) above, there are a variety of structures in which either the semantic interpretation or the phonological form of the realized pivot is unavailable in one or both of the conjuncts alone. More specifically, a pivot may be semantically and/or morphologically identical to all of its gaps—pivot gap strict identity; identical to just the rightmost gap—pivot-gap partial identity; distinct from any of its gaps—pivot-gap uniqueness. Since gaps are dependency positions, I will, for the purpose of exposition, assume two gaps—one for each conjunct—with the pivot potentially being in the position of the second gap. Examples of the pivot-gap relations can then be exemplified as follows:

(2) **Strict Identity**: Scully loves ‘monster of the week’ episodes but Mulder hates ‘monster of the week’ episodes.

(3) **Partial Identity**: Baba-Yaga won’t pass her test but Rumpelstiltskin will pass his test.

(4) **Uniqueness**: Baba-Yaga is pleased that Rumpelstiltskin has spun flax into gold and Scully is happy that Mulder has spun flax into gold.

These are difficult to account for with any single mechanism, since such mechanisms often privilege a particular identity relation between the pivot and its gaps over others. (2) is a case of simple symmetric RNR, (3) is an example of a pronominal binding asymmetry between the pivot and its first gap, (4) is a case of cumulative agreement where the pivot agrees with the conjunction as a whole and so is unique with respect to both its gaps.

In this paper, I propose that the difference in pivot-gap identity correlates with a difference in derivation strategy. Importantly, B. Larson (2012) provides arguments to the effect that none of the current derivation strategies alone provide a satisfying coverage of RNR; moreover, of the mixed analyses that have been proposed, their predictions are systematically falsified. I argue that pivot-gap identity is a better heuristic and that a different form of mixed analysis is preferable. The proposal advocated here is one attempt at such a hybrid analysis.

I argue that strict and partial pivot-gap identity is derived by asymmetric movement of the rightmost pivot-token outside the conjunction, followed by ellipsis of each pivot-token in all non-final coordinates. This directly captures the generalization that where pivot-gap identity is partial, the pivot may only mismatches with non-final gaps. Pivot-gap uniqueness is derived by the introduction of assumptions of unstructured ‘hypothetical’ pivot-tokens in each conjunct, which are discharged by the later merger of a genuine, lexically-contentful pivot-token into a coordination-external position. This mechanism allows for the

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2 This is by no means an exhaustive list. On multi-dominance analyses of RNR see also McCawley (1982) and Wilder (1999); on ellipsis see Hartmann (2000); on movement see Ross (1967). Most of the classical analyses are cast in terms of movement, as Sabbagh (2007) points out.

3 I am here using a coarse-grained notion of identity. It could reasonably be argued that such a notion masks distinctions between different ‘levels’ of identity, e.g. syntactic, semantic, or (morpho)phonological. I find this unconvincing; the pivot-gap identity I am working with here is of heuristic value, there is reason to believe that more coarse-grained notion of identity is preferable. For instance, one of the most significant difficulties with Barros and Vicente’s (2011) analysis is that the pivot-gap identity conditions are structure specific. The pivot-gap identity conditions identified here simply capture relatively clear distinctions between the form and meaning a pivot may have in RNR and the restrictions on the equivalent (or lack thereof) form and meaning it would have in the corresponding canonical coordination.

4 When discussing the pivot-gap relations explicitly, I will usually use ‘strike-out’ text to indicate the gaps’ form and interpretation; this is not, however, an endorsement of e.g. ellipsis, but merely a notation. Where ambiguity is unlikely, I simply write [...] for the gap. For clarification I will sometimes enclose the pivot in square brackets, as in [x].

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construction of dependency relations between a lexical item and its derivation context prior to the actual introduction of that lexical item into the derivation.

The former strategy is novel and requires a reconsideration of different constraints on coordination and rightward movement, including the Coordinate Structure Constraint (CSC), Focus Parallelism, the Right Roof Constraint (RRC), and the Right Edge Restriction (RER). The latter strategy, though also novel in its application, is indebted to the work of Kobele (2008, 2010), among others, and is much closer in kind to the early non-transformational analysis of Gazdar (1981), whose use of slash-features is analogous to the hypothesis introduction and elimination operations I will introduce subsequently. In effect, the structures I propose may be approximately represented in Figures 1 and 2.

Figure 1: Pivot-Gap Partial Identity
Figure 2 represents the derivation for a case of pivot-gap uniqueness, while Figure 1 represents the mechanism responsible for pivot-gap (partial-)identity. The rest of this paper is devoted to justifying these representations and providing a coherent formal account of their derivation. In section 2 I survey the variety of RNR variants in English and summarize their structures with respect to pivot-gap identity relations. In section 3 I review a set of constraints proposed for coordination and rightward movement and provide a theory of RNR yielding the structures represented by (5) and (6). I argue that the constraints that apparently pose a problem to a movement analysis are actually consistent with it once the movement operation is clarified and certain constraints are defined over derivations rather than operations. In section 4 I show how my theory can be instantiated within the framework of Minimalist Grammars, originally introduced by Stabler (1997). The formal environment provided by these grammars allows the mechanism of RNR to be spelled-out explicitly. This in turn allows for clear identification of the strengths and weaknesses of the analysis proposed as well as future avenues for research. Section 5 concludes.

2 Data

As mentioned, RNR exhibits various identity relations between the pivot and gap. Consider the following variants of RNR.

2.1 Vehicle Change Effects

Vehicle Change Effects are so-called because the index of an R-expression can re-associate with or ‘change vehicles’ to a pronoun in the same syntactic position under the condition that the R-expression be elided. In the first example below the RNR operation obviates what would otherwise be a principle C violation. If the conjuncts were to be realized overtly the elided R-expression would have to be a pronoun. The second example should allow the pronoun in the first conjunct to share an index with Mary by virtue of the latter’s surface absence. While there is some debate in the literature, I find all such sentences grammatical.5

5Note that both Levine (1985) and Sabbagh (2007) take this to be ungrammatical. I do not. See Ha (2008a)[79]; she argues that this case is ungrammatical due to a violation of the backwards anaphora constraint, not because of anything
In the final example, the elided pronoun in the first conjunct must be interpreted as a reflexive or else violate Principle B.

(5) John hopes that Susan won’t fire John, but the secretary knows that she will fire John. (B. Larson, 2012: 144)

(6) *? She said that Mary needs a new car, and I happen to agree, that Mary needs a new car. (Levine, 1985), quoted in (Sabbagh, 2007: 361).

(7) John couldn’t nominate him* (self), so I nominated him. (Ha, 2008a: 78).

2.2 Morphological Mismatch

In cases of Morphological Mismatch the features of the pivot may reflect feature agreement with just a single conjunct. In the cases below, the pivot appears with the features it would have if it were realized only in the first. This identity relation is effectively the inverse of VP-ellipsis. Crucially this provides compelling evidence that the conditions on RNR do not include strict identity, at least in terms of phonology.

(8) Pronominal Mismatch: I didn’t pass my math exam, but I’m sure that Alice will, pass her math exam. (B. Larson, 2012: 145)

(9) VP-ellipsis: Ivy has slept in her office but I haven’t slept in my office. (ibid)

(10) Tense Mismatch: John wanted/tried to buy artichoke hearts, but only Bill was successful in buying artichoke hearts.

(11) Tense Mismatch: John tried to buy artichoke hearts but only Bill successfully bought artichoke hearts.

(12) Number Mismatch: Bill has to read two essays, and Mary must write one essay(*s) by tomorrow. (Ha, 2006: 24)

2.3 Cumulative Agreement

In cases of Cumulative Agreement the pivot agrees with the conjuncts as a whole rather than individually, suggesting that either in-situ agreement is flexible, which is dubious, or the pivot’s agreement is derived from a conjunct-external position.

(13) Alice is happy that Iris, and Claire is proud that Diane (have/*has) negotiated with the manager. (B. Larson, 2012: 144)

2.4 Inverse Scope

In cases of Inverse Scope the quantifier in the pivot may move to a position dominating the conjunction, thereby creating a scope ambiguity. In the examples below we have possible readings for both $\forall > \exists$ and $\exists > \forall$.

(14) Some nurse gave a flu shot to, and administered a blood test for, every patient who was admitted last night. (Sabbagh, 2007: 365)

(15) Some woman hates, and some man loves, every dog in the pound.

*Note that while Sabbagh doesn’t mention it, this is actually a combination of RNR with Argument Cluster Coordination (which I refer to as Left Lumping); it might be surprising that inverse scope is still available under this condition.

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2.5 Cumulative vs. Distributive readings

There exists a variant of RNR in which the pivot can have a Cumulative or a Distributive reading. In the example below the interpretation of the sentence can be Cumulative such that John’s borrowing and Mary’s theft have the total combined value of 3000 dollars. The following example shows that overt realization in both conjuncts results in only a Distributive reading such that each individual action netted a total of value of 3000 dollars.

(16)  John borrowed, and Mary stole, a total of 3000 dollars from the Chase Manhattan Bank. Adapted from (Bachrach & Katzir, 2009: 286)
   a.  **Cumulative** (John’s loan = x < 3000) + (Mary’s theft = x < 3000) = 3000
   b.  **Distributive** (John’s loan = x = 3000) + (Mary’s theft = x = 3000) = 6000

(17)  John borrowed a total of 3000 dollars from the Chase Manhattan Bank, and Mary stole a total of 3000 dollars from the Chase Manhattan Bank.
   a.  *Cumulative* (John’s loan = x < 3000) + (Mary’s theft = x < 3000) = 3000
   b.  **Distributive** (John’s loan = x = 3000) + (Mary’s theft = x = 3000) = 6000

2.6 Multiply Embedded Pivots

In cases of RNR from a multiply embedded position the pivot crosses overt phonological content to appear conjunct-final. Such data is strongly suggestive of displacement, since the effects of the RNR rewrite the order provided by base-generation. These are important examples of what appears to be non-string-vacuous movement in the context of RNR. Sabbagh (2007) takes these as evidence for rightward movement being implicated in at least a subset of RNR structures. An alternative explanation might make use of light predicate raising or heavy NP shift to derive a conjunct-internal order in which the pivot is the rightmost element.

(18)  Josh will donate a large collection of ancient texts to the museum, and Jamie will donate a large collection of ancient texts to the library, a large collection of ancient texts. (Sabbagh, 2007: 360)

2.7 Medial RNR

In cases of Medial RNR, the pivot surfaces in one conjunct with additional material it cannot be interpreted with in the other. In the first example below the pivot is wrapped by slice and in half but in half cannot be realized with the pivot in the first conjunct. The second example is a more pedestrian case of the same phenomenon.

(19)  The blast upended an armoured Chevrolet suburban and nearly slices [an armoured Chevrolet suburban] in half. (Whitman, 2009), quoted in (Kubota, N/A: 2)

(20)  John should fetch the book and give [the book] to Mary. (Wilder, 1999), quoted in (Kubota, N/A: 2)

2.8 Displaced Non-constituents

RNR can target non-constituents for displacement. In the following case, the PP is an argument of the verb rather than a modifier of the DP:

(21)  John borrowed [...] , and Mary stole [...] , [large sums of money from Chase Manhattan Bank].³ (Abbott, 1976), quoted in (Bachrach & Katzir, 2009: 286)

³To clarify, although both conjuncts are non-constituents, in this case the pivot is also a non-constituent—though see Ha (2008b); R. K. Larson (1988); Sabbagh (2007) for counter-arguments. None of the arguments against the non-
2.9 Morphological RNR

RNR can target elements that are arguably below the word level.

(22) His theory under-generates, and her theory over-generates. (Sabbagh, 2007: 390)

2.10 RNR without Conjunction

Although RNR is most often seen in the context of overt conjunction, it is not restricted to these positions. So long as there are multiple mostly identical gaps and a single pivot we can find cases of what is arguably RNR.

(23) I talked to everyone on the committee without meeting [everyone on the committee]. (Wilder, 1997: 87)

2.11 Comparative Pivot

In some cases, the pivot may be a comparative. In these constructions the comparative may be ungrammatical if realized in-situ in each conjunct. The pivot may be modified with each or together, further confirming that it cannot appear grammatically in each conjunct. Note also that the presence of comparative ellipses leaves the antecedent ambiguous between either conjunct alone, or the conjunction of VPs.

(24) John stole [...] and Bill borrowed [...] [more money (together) than they (each) did separately].
   a. *John stole more money (together) than they (each) did separately.
   b. *Bill stole more money (together) than they (each) did separately.
(25) John\textsubscript{i} stole [...] and Bill\textsubscript{j} borrowed [...] [more money (together) than he\textsubscript{i}/?j/k did alone].
   a. John\textsubscript{i} stole more money (*together) than he\textsubscript{i}/?j/k did separately.
   b. Bill\textsubscript{j} stole more money (*together) than he\textsubscript{i}/?j/k did separately.
(26) John\textsubscript{i} stole [...] and Bill\textsubscript{j} borrowed [...] [more money together than either\textsubscript{i}/j did alone].
   a. *John\textsubscript{i} stole more money together than either\textsubscript{i}/j did alone.
   b. *Bill\textsubscript{j} stole more money together than either\textsubscript{i}/j did alone.
(27) John stole more than Bill did [...] ‘[...’] = (steal, *? borrow, *? steal and borrow)
(28) John stole and Mary borrowed more than Bill did [...] ‘[...’] = (steal, borrow, steal and borrow).

2.12 Same modification

(Sabbagh, 2007) points out that regardless of one’s analysis of RNR, there are near indisputable cases of rightward movement of the pivot. The addition of same modifiers outside the conjunction provides an overt element with respect to which the pivot may be reordered. This data provides counter-evidence to the claim frequently made in the literature that RNR doesn’t affect linear order.

(29) Joss will [vP sell all of his old manuscripts to a library, and donate all of his old manuscripts to a shelter] on the same day, [all of his old manuscripts]. (Sabbagh, 2007: 356)
(30) Jamie [a short review of my recent book, and two longer reviews of my recent book] for the same journal, [of my recent book]. (ibid.)

According to Sabbagh (2007), the use of same controls for the possibility of treating these structures as multiple RNR derived via deletion. Such an analysis would predict an in-situ base in which the same clause would appear in each conjunct individually:

(31) Jamie read one short review of the same journal of my recent book, and two long reviews in the same journal of my recent book. (ibid.)

It is assumed that these structures can’t receive a proper interpretation—the in-situ configuration doesn’t yield a structure in which the same applies to the conjunction as a whole, it is restricted to clause-internal modification. Sabbagh argues that there is a contrast between the grammatical cases of same modification—where the pivot appears to respect constraints on locality—and the following, where the pivot is ‘too far’ from the cyclic node in which it is first merged:

(32) *Joss [said that he was going to fire the crazy guy from accounting], and insisted that no one would ever consider [rehiring the crazy guy from accounting] on the same day, [the crazy guy from accounting]. (Sabbagh, 2007: 358)

(33) *Jamie [read one long review of a 10 page article about my new book], and two long reviews [of a 20 page article about my new book] for the same journal, [about my new book]. (ibid.)

However, contrary to Sabbagh’s judgements, I do not find a significant difference in the acceptability of these same modifications in comparison to the previous canonically grammatical cases. The contrast is subtle to say the least.

2.13 Pivot Size

In addition to the variants of RNR seen above, the actual rightward dependency relation appears effectively unbounded with respect to the size of the pivot. Examples of rightward dependencies that are plausibly cases of RNR are given below:

(34) John loves and Mary hates [that David Duchovny has left the X-Files].
(35) John will but Mary won’t [have watched the newest episode of X-Files].
(36) Matilda can but Rumpelstiltskin can’t [spin the flax into gold].
(37) He sold and I bought [iced cold lemonade].
(38) Mary gave an umbrella and I gave coal [to Rumpelstiltskin].
(39) John loves and Mary hates [all of the muskrats in the garden].
(40) This or that [umbrella].

2.13.1 Island (in)Sensitivity and A Supposed Parallel with Wh-Movement

Bachrach and Katzir (2009) argue that RNR feeds wh-movement and moreover that some of these wh-movements are illicit outside of the conjunction context. On this basis they propose to reduce coordinated wh-movement and RNR to a single mechanism. For instance, consider the following contrast:

(41) John met a man who wrote [...], and Mary met a man who published [...] [a recent book about bats]. (Bachrach & Katzir, 2009: 288)
Which book did John meet the man who wrote \( t_i \)? (Bachrach & Katzir, 2009: 289)

(43) * Which book did John meet the man who wrote \( t_i \)? (ibid).

This data suggests that wh-movement behaves differently in coordination, licensing long-distance dependences that are otherwise unavailable. Bachrach and Katzir point out that this form of leftward movement is available in just those cases where RNR is also available, suggesting a tight relation between the two. There are certainly cases where RNR unambiguously feeds RNR:

Which animal did John say that Mary knew [a man who wrote [...] ] and [a woman who published [...] ] [an encyclopedia article about t_i]? (Bachrach & Katzir, 2009: 289)

Moreover, where RNR is unavailable, so too is wh-movement:

*[a man who loves [...] danced], and [a woman who hates [...] went home] [a book by Kafka]. (ibid.)

(46) *Which book did [a man who loves \( t_i \) dance], and [a woman who hates \( t_i \) go home]? (ibid.)

In the case above, neither wh-movement nor RNR appears to allow extraction from a complex DP when it is flanked by a verb. Importantly this cannot be a ban on targeting complex DPs, since we saw grammatical cases of just this, above. However, it’s worth noting that in general rightward movement is also unavailable in the same cases, suggesting that the ungrammaticality may not be due to anything coordination-specific:

(47) *a woman who hates [...] went home [a book by Kafka].

There are reasons to be skeptical of conflating the conditions on RNR and wh-movement. While they certainly converge in many cases, there are crucial differences between them. That wh-movement is licensed in the same cases as RNR doesn’t mean that it is always directly extracted from the pivot. In fact, wh-movement cannot always directly target the RNR pivot. In many cases the wh-movement must precede the RNR operation or else the surface form will be ungrammatical. This is typified by the following:

(48) a. **RNR**: Mulder did pass his test but Scully didn’t pass her test

b. **Ungrammatical extraction from RNR**: *What did Mulder but Scully didn’t pass.

c. **Amended form for extraction from RNR**: What did Mulder but not Scully pass.

Clearly the wh-movement cannot simply target the pivot after RNR takes place but must also have parallel T-to-C movement in each conjunct individually. The result is a dissociation between the environment for wh-extraction and the range of possible structures for RNR. This is further corroborated by the existence of coordinated wh-movement which has no RNR analogue:

(49) a. Who did [John support [...] ] and [Mary say [...] would win]? (Salzmann, 2012a: 411), quoting (Munn, 1993).

b. *John supported [...] ] and Mary said [...] would win [the Yankees].

(50) a. I know the man who [John likes [...] ] and [we hope [...] will win]. (Salzmann, 2012a: 411), quoting (Williams, 1978).

11As we will see in subsequent section on parallelism, an in-situ ellipsis analysis can straightforwardly accommodate this as a violation of the Complex NP constraint. However, an alternative analysis might point out that although the pivot itself has the right conditions for RNR, the material around it does not. See the next section for details.
b. *John likes [...] and we hope [...] will win [the man] (I know).

If there were a reduction of coordinated wh-movement and RNR we would expect to find them available in the same cases. The foregoing data suggests that this is false, leaving it mysterious why, on the reduction view, this is so. If there were reduction of coordinated wh-movement and RNR we would expect to find them available in the same cases. The foregoing data suggests that this is false, leaving it mysterious why, on the reduction view, this is so. If there were reduction of coordinated wh-movement and RNR we would expect to find them available in the same cases. The foregoing data suggests that this is false, leaving it mysterious why, on the reduction view, this is so. If there were reduction of coordinated wh-movement and RNR we would expect to find them available in the same cases. The foregoing data suggests that this is false, leaving it mysterious why, on the reduction view, this is so. If there were reduction of coordinated wh-movement and RNR we would expect to find them available in the same cases. The foregoing data suggests that this is false, leaving it mysterious why, on the reduction view, this is so.

There are further reasons to dissociate RNR from coordinated wh-movement. The structures instantiate opposite mismatches and opposite reconstruction profiles. For instance, Salzmann (2012a) notes the following data.

a. Who does he like and they hate?

b. *Who do he like(s) and they hate? (Salzmann, 2012a: 403), building on (An, 2006)

This contrast is entirely unexpected on the theory of Bachrach and Katzir (2009), who adopt a multidominance analysis. Since there is only a single pivot token on their analysis there should be no difference in the wh-word being co-indexed with the plural they rather than the singular he of the first conjunct. The do, which is also extracted from the conjunction, should be agnostic to the number features of the wh-word but it is clearly only capable of agreeing with the singular who, as would be expected if the wh-word were extracted from the first conjunct, rather than both. The fact that there is an asymmetry between the two wh-words and the agreement patterns they instantiate is at odds with a theory that posits extraction from a single multiply dominated node.

Salzmann points out that although reconstruction of coordinated wh-movement is symmetrical with respect to a variety of phenomena, reconstruction of Principles A and C, as well as weak crossover, only target the first conjunct. The examples below demonstrate this asymmetry:

Principle C:

a. *[Which picture of John_i ] did [he_i like [...] ] and [Mary dislike [...] ]?

b. Which picture of John_i d

id [Mary like [...] ] and [he_i dislike [...] ]? (Salzmann, 2012a: 406), quoting (Citko, 2005)

Principle A:

a. Which pictures of himself_j, d

id [John_i buy [...] ] and [Mary paint [...] ]?

b. *[Which pictures of herself_j ] did [John_i buy [...] ] and [Mary_j paint [...] ]? (Salzmann, 2012a: 406), quoting (Munn, 1993)

These asymmetries don’t have a straight-forward analysis if there is but a single pivot. The direction of asymmetry here is exactly opposite that found in RNR. RNR allows pivot-gap partial identity with the rightmost conjunct; coordinated wh-movement allows pivot-gap partial identity with the left. A theory like

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12 Importantly, the problem is not that these forms of RNR are unavailable; there are good independent reasons for this, namely a violation of the RER. The point is rather that coordinated wh-movement is possible in the same cases, suggesting a fundamental dissociation between their licensing conditions.

13 Note that we saw similar asymmetries in RNR, above.

14 There are similar and more severe cases in languages with richer inflectional paradigms; see Salzmann (2012a) for details.

15 Salzmann notes that variable binding, idiom reconstruction, scope and Strong Crossover are all symmetrically reconstructed. Salzmann also notes that there is some disagreement in the literature here. For instance, Nissenbaum (2000) argues that Principle A isn’t reconstructable at all, while Principle C is symmetrical. See Salzmann (2012a) for discussion.
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Bachrach and Katzir’s—which conflates coordinated wh-movement with RNR—fails to capture this difference in identity relations and in fact predicts that the reconstruction possibilities are identical, in opposition to fact. Moreover, such an analysis fails to capture the difference between those structures that admit symmetric reconstruction and those that admit only asymmetric reconstruction.

Bachrach and Katzir also produce curious judgements concerning certain islands they claim ‘never go away’. For instance, according to them RNR is incapable of bleeding Relativized Minimal islands. Their evidence for this assertion is the judgement that the following utterances contrast in grammaticality:

(55) Who cooked [...] and who ate [...] [the black beans]. (Bachrach & Katzir, 2009: 290)

(56) *What did who cook ti and who eat ti. (ibid.)

I do not share this contrast. In fact, I find (56) more acceptable than many cases of supposedly licit wh-movement, such as (42). Imagine the following context: I have entered my home to find that certain members of my family have evidently cooked and eaten my meal. I do not know what was cooked, who it was cooked by, or who it was eaten by. In such a situation it is perfectly acceptable to me to utter (56). Consequently I do not accept the assertion that the operation responsible for this utterance is sensitive to Relativized Minimality; if it were it would rule out a variety of cases just like this which are perfectly acceptable to me. Bachrach and Katzir argue that if this is ungrammatical then it poses a problem for theories which posit RNR as island insensitive. After all, if this demonstrates island sensitivity then it would mean that RNR is both sensitive and insensitive to islands. However, even assuming that (56) is unacceptable to some it’s not clear that this is necessarily a problem; we saw above that wh-movement and wh-islands are dissociable from both the reconstruction profile of RNR and the islands that it is apparently (in)sensitive to.

On the basis of my own judgements and those of some kind confidants I will proceed on the assumption that these utterances are grammatical and consequently the theory I develop will generate them. In addition to the foregoing criticisms, it’s not even clear that this is a case of wh-movement being fed by RNR. Although we saw above some cases of RNR potentially feeding wh-movement, as in (44), there is no evidence that RNR feeds wh-movement in (56) beyond the fact that there is a parallel RNR structure. So even if the operation responsible for this case is sensitive to Relativised Minimality—as is apparently the case for Bachrach and Katzir–this wouldn’t furnish evidence for the conclusion that the operation is fed by RNR.

Recall from earlier the possibility of cumulative and distributive readings, as well as more straightforwardly scopal phenomena like inverse-scope readings. These facts demonstrated that RNR is island-insensitive insofar as it could scope over the conjunction as a whole. However, Bachrach and Katzir point out that island sensitivity reappears above the conjunction:

(57) * Which animal does John know a reporter who made famous [a man who published [...] and [a woman who illustrated [...] ] [a book about ti]? (Bachrach & Katzir, 2009: 291)

It should be noted that nothing in the present theory hinges on this data and the theory can be extended for those grammars that disallow these utterances by means of the ordering of features in a lexical item. For those people who don’t accept these utterances it is claimed that wh-movement must precede RNR, which predicts a competition and consequent derivation crash as there are multiple wh-words competing for the same position. For those who do accept these utterances the wh-movement is plausibly preceded by RNR. However, as we will see, this predicts that wh-movement cannot reconstruct into anything but the final coordinate as all other coordinates’ pivot-tokens will have been elided after RNR. This is only a problem if it can be shown that there are wh-word reconstruction asymmetries in these particular structures in addition to the others noted by Salzmann; this remains an open question. However, the theory of RNR proposed here doesn’t at present predict that wh-movement proceeds from the surface pivot, and so this problem is really a very specific tangential hiccup. It may be that RNR simply allows for certain island-amelioration effects. This contrasts with theories like Bachrach and Katzir (2009) and Ha (2008a) which reduce coordinated wh-movement and RNR to the same mechanism in all cases.

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Some student made the claim that [John can speak [...]], and [Mary can write [...] [every Germanic language]. ($\exists > \forall, \forall > \exists$) (ibid.)

I will have little to say about these facts in the present paper. They are certainly interesting and provide a novel contribution to the debate concerning RNR, but contra Bachrach and Katzir I do not believe they provide any direct evidence for determining the local operation responsible for RNR. This is especially true if one finds the supposed Relativized Minimality bleeding cases acceptable, as I do. The general fact appears to be that embedding RNR instantiates an upper bound on the island-insensitivity of the operation responsible. Bachrach and Katzir argue that theories positing island (in)sensitivity are unable to explain one of either the sensitivity to embedding or the coordination-local insensitivity, depending on whether the theory takes one or the other property as primitive.

At least appears to be a violation of the Shortest Move Constraint (SMC), a constraint that will be discussed in detail below. Briefly, I argue that (57) is ungrammatical due to a competition between the wh-feature hosted by which and the wh-feature hosted by the highest who, which both compete for the same Spec-CP in the relative clause. The conjunction of an ex-situ RNR analysis with a feature-based system of structure building allows us to restrict movement of a pivot to movement satisfying certain features. As I will argue below, the relevant feature feeding RNR is a Givenness feature, G. The checking of the G feature moves the pivot out of the conjunction. In the present case, if RNR precedes the wh-movement then at the point that the wh-feature of the pivot is available for checking, the wh-feature of the matrix object’s who is also available for checking. Due to the way the SMC will be defined, such a context will cause the derivation to crash.

In fact, this problem persists whether one believes that coordinated wh-movement proceeds from the pivot or from the first conjunct; movement of the wh-feature on the pivot will be triggered as soon as the C head of the relative clause is introduced. But at this point in the derivation there will be the wh-feature active on who—which is in Spec-T of the relative clause and therefore directly below the C head—and there will be the wh-feature active on which. Regardless of whether the which is to move from the left-most conjunct or the right-most conjunct or even both there will still be a competition between the who and the which. Since this competition causes the derivation to crash, the sentence is expected to be ungrammatical.

However, although (57) is relatively straightforward, there are other less clear cases like the following:

(59) * Whose work do you know a man who likes [...] and a clone who hates [...]? (Oehrle, 1990: 412)
(60) I know a man who likes [...] and you know a clone who hates [...] [the work of Reynard]. (Oehrle, 1990: 411)

In this case the coordinated wh-movement behaves just like any other case of wh-movement and cannot escape the island it is embedded in, even while RNR is perfectly licit. The SMC naturally explains why this is ungrammatical but by the same token it is unclear why (44) and (56) might then be grammatical, for they should equally well be violations of the SMC. Moreover, it is unclear why (59) should be ungrammatical when (42) is not, given that they are both cases of extraction from a relative clause island. What this demonstrates is that, contra Bachrach and Katzir (2009), it is not as simple as island constraints reappearing above the coordination but not below, since here the only clear block on the movement is internal to the coordination. It thus appears that coordinated wh-movement has extraction conditions that are independent of those constraining RNR. If the conjunction of (44), (53) and (57) shows anything it is that the conditions on coordinated wh-movement are less clear than those on RNR. (44) showed that coordinated wh-movement

17 In fact, even if one wants to analyze relative clause wh-words as base-generated in Spec-CP, this will still block the relevant movement because there will be no landing site for the which animal, and consequently movement to Spec-CP of the matrix would not be successive-cyclic, thereby causing a derivation crash. I take it that in general the wh-words of relative clauses are taken to occupy Spec-CP.

18 Recall that I find (54) quite acceptable while Bachrach and Katzir (2009) do not.
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is acceptable when there is pivot remnant; however both (59) and (57) show that without the pivot remnant the wh-movement is ungrammatical. Bachrach and Katzir’s judgement of (56) would support this generalization, but my own judgements do not. I cannot explain this difference for one would expect that the same reason (59) is ungrammatical, namely a clash of wh-features, should also rule out (56). Despite these contrasts there is as yet no reason to believe these structures are reducible to RNR. This is particularly true when the reconstruction asymmetries are considered. As we noted above, Bachrach and Katzir’s reduction of coordinated wh-movement and RNR to a single mechanism fails to predict that the reconstruction profiles for these structure are completely opposite.

I cannot do justice here to the complexities of coordinated wh-movement, let alone their interaction with RNR. I can, however, point in the direction of some possible avenues such an analysis might take. On an asymmetric movement analysis like Salzmann’s, (44) must involve binding into the surface RNR pivot. If the RNR pivot is also a product of asymmetric movement then the pivot is outside the coordination. The grammaticality of this utterance is perhaps then due to the fact that the wh-word binds a variable that is outside the coordination, namely the rightmost wh-token, thereby saving what would otherwise be an apparent island violation. As for the contrast between (56) and (59), I note that the latter but not the former is movement out of a relative clause. Relative clauses impose different extraction conditions than regular CP islands; (59) might then be explained as a violation of the complex NP constraint. Though if this is the case it is mysterious why (42) should be grammatical, given that it too is extraction from a relative clause.

Postal (1998) argues that the pivot undergoing RNR is dissociable not just from wh-movement but from L(right)-extractions altogether. He points out that it is an undisclosed assumption of most reduction arguments that because an L-extraction may target some element in an RNR pivot, that L-extraction must be preceded by the RNR operation. But prima facie there is no reason to suppose that RNR precedes L-extraction. It is perfectly coherent to suppose that RNR targets a remnant of L-extraction rather than vice versa. We have already seen earlier that there is good reason to believe coordinated wh-movement is from the leftmost conjunct only. On a Postal-style analysis, it’s reasonable that this wh-movement is independent of the RNR operation because for him L-extraction must precede RNR. Consequently we would expect that the constraints on L-extraction might not always converge with those on R-extraction. Postal goes as far as suggesting that after the operation of RNR, the pivot is an island itself. If a route like this is taken then the analysis of coordinated wh-movement is independent of the analysis of RNR and arguments from the former will not straightforwardly translate into arguments for an analysis of the latter. The foregoing discussion provides strong empirical backing for Postal’s dissociation and consequently the analysis of RNR I will develop here is consistent with the claim that RNR and coordinated wh-movement differ in kind.

3 The Analysis in Brief

In this section I provide an overview of the moving pieces for the analysis. First I review a couple of potential constraints on coordination in general and rightward movement in particular. Second I reproduce the derived tree representations for the various pivot-gap identity relations and provide a coarse explanation of the derivation, including the operations of Hypothesis Assumption and Discharge. However, these

\footnote{Salzmann (2012b) notes that the same problem persists for Ha (2008a); Ha suggests an ellipsis analysis of RNR and links it to a theory of coordinated wh-movement whereby all movement comes from the rightmost pivot token, with all non-final pivot tokens elided under semantic conditions. Obviously, if wh-movement comes from the rightmost pivot token it predicts that the reconstruction profiles of RNR and coordinated wh-movement are identical, contrary to fact.

In fact, Postal goes further, suggesting the pivot is a ‘locked’ island, in the sense developed in that book. He puts forth a partial theory whereby RNR is an island and RNR is capable of targeting L-extraction remnants. See Postal (1998) for discussion.}
representations are primarily heuristic; the actual analysis takes place at the level of derivation trees and so the derived counterparts are given as a visual aid. Finally I explain how these constraints interact with the structure-building operations to give rise to the surface profile of RNR. This yields an informal theory of RNR which, in the following section, is instantiated in the framework of Minimalist Grammars.

### 3.1 Information Structural Restrictions

My analysis makes use of a constraint on parallel focus structures to license the movement of the pivot. In broad strokes RNR is only available when the pivot is ‘given’ in some sense (to be explained below) and when the pivot is embedded adjacent to an element that is contrastively focused or capable of contrastive focus. This builds on work due to Ha (2008b), who in turn develops the idea from Hartmann (2000). She defines a focus parallelism constraint informally as follows:

(61) **Parallel focus structure in coordination:** Focus structure must be parallel in the coordinate structure. If there is focus movement in one coordinate there must be corresponding focus movement in all other coordinates. (Ha, 2008b: 76)

This constraint nicely explains the following contrast between (63) and (64). Indeed, though Ha advocates an ellipsis analysis her constraint shows that ellipsis alone isn’t the source of RNR. That is, it isn’t as simple as having an antecedent to license ellipsis; substantial restrictions on the context of the ellipsis site must be maintained.

(62) Every American loves his president best but every German loves his president least.

(63) Every American loves [FOC best] his president but every German loves [FOC least]–his president. (Ha, 2008b: 75)

(64) *Every American loves best but every German (loves) his president least. (ibid.)

In (63) the focus movement in the first conjunct is paralleled by a corresponding focus movement in the rightmost conjunct. However, in (64) there is no corresponding focus movement in the rightmost conjunct, thereby leading to a degraded, if not outright ungrammatical utterance. That the contrast in grammaticality parallels the contrast in focus structure is expected under the Focus Parallelism constraint advocated above. Throughout the following I will assume that RNR only becomes a possible or relevant derivation strategy when there is contrastive material in each conjunct, and I will assume that contrastive material only receives its force by occupying a Focus position. Notice that the pivot itself must remain ‘given’ with respect to the conjunction as a whole. This intuitive notion requires sharpening if it is to do any work in our theory.

[21] See Ha (2008b) for additional evidence that this constraint applies regardless of ellipsis or RNR. She points out contrasts like the following:

(1) a. John loves every new Red Sox player in this season BEST, and his friend loves every new Red Sox layer in this season LEAST. (Ha, 2008b: 76)

b. *John loves every new Red Sox player in this season BEST, and his friend loves LEAST every new Red Sox player in this season LEAST. (ibid.)

[22] There is reason to believe we don’t want a constraint here that would force the initial focus movement in either conjunct; otherwise we would have a deterministic procedure that forced focus movement when it’s quite clearly optional. There are unfocused standard coordinations that parallel the focussed RNR counterparts.
Ha herself provides a slightly more formal notion of givenness. I mention it here but only as a possible analysis. The notions of Focus and Givenness are usually cashed out in terms of their semantic character and are meant to reflect properties of information structure. Givenness, at least as Ha conceives of it, is analyzed as a condition of mutual entailment under certain semantic conditions and across a set of utterances, in this case–conjunctions.

Following earlier literature on ellipsis in the tradition of Merchant (2001), Ha’s analysis makes crucial use of an ‘E’ feature hosted by a syntactic head and received by a lexical item. An E-feature, when checked, forces deletion of everything subsequent to it. Semantically it requires that for any two conjuncts E and A the Focus Closure of A must entail E and the Focus Closure of E must entail A. More specifically E is said to be ‘e-given’ (which for Ha licenses ellipsis) if the antecedent A entails E and E entails A under existential type shifting. Below I provide Ha’s definition and the more robust but still informal version of Schwarzschild (1999):

(65) e-GIVEN: An expression E is e-GIVEN iff there is an antecedent A which entails E and which is entailed by E, modulo ∃-type shifting. (Ha, 2008b: 71), quoting (Merchant, 2001)

(66) GIVEN: An utterance U counts as GIVEN iff it has a salient antecedent A and
  a. if U is type e, then A and U corefer;
  b. otherwise: modulo ∃-type shifting, A entails the Existential F-Closure of U.

Instead of an ‘E’ feature, I will allow optional marking of lexical items with a G feature for Givenness. A string that is marked as Given may move outside the conjunction if it is selected for. I am adopting a feature-based system and all movement is motivated by feature checking. To check the G feature we may posit an operator that selects a coordinated complement and projects Given material from inside. It will be shown that this operator is necessary in the case of pivot-gap uniqueness, and so available in the case of pivot-gap (strict/partial) identity on reasonable assumptions. However, further considerations–outlined below–are necessary to form a consistent theory using this technology.

3.2 Asymmetric Extraction and the CSC

Like ATB wh-movement, RNR is sensitive to the coordinate structure constraint (CSC) first proposed in Ross (1967). In fact, the origins of ATB movement lie in accounting for the interaction of transformations with the CSC. Ross noticed that coordinations admit movement transformations, but (generally) only if the displaced element has a corresponding gap in each coordinate. Importantly this is merely a descriptive generalization and can be dissociated from Ross’s particular formulation of the CSC as a ban on extraction from a coordinate structure. The descriptive generalization becomes a genuine theoretical object when, for instance, it is formalized as a constraint on movement transformations. However, this isn’t the only strategy.

23For instance, a more formal definition is available in Schwarzschild (1999), though the (alternative) informal constraint I outline below is directly taken from an earlier, informal specification of the constraint Schwarzschild employs. The analysis proposed here is agnostic to the particular conception of givenness, as far as I can tell. The choice of e-Givenness presented here is due to convenience and ease of exposition. In practice, Schwarzschild’s more formal definition is preferable, since it straightforwardly handles difficulties concerning the interaction of focus and givenness.

24Schwarzschild defines F-Closure as “the result of replacing F-marked phrases in U with variables and existentially closing the result, modulo existential type shifting” (Schwarzschild, 1999: 150)

25In fact, the CSC originally prohibited extraction from coordination in general, with exceptions mediated by structure specific rules like ATB. Importantly there are many counter-examples to this generalization; see Kubota and Lee (2008) for discussion. Kubota and Lee discuss the possibility of developing the CSC as a pragmatic rather than syntactic principle along the lines of Kehler (2002). This is an intriguing idea but space restrictions prevent an adequate discussion of this possibility here; see Stevens-Guille (in press) for discussion.
One can either accept that the CSC applies to movement transformations, making it operation-specific, or one can see it as a more general constraint on derivations. If the former strategy is accepted then it is natural, even necessary, to devise some form of ATB movement rule.

However, there is a tradition in the literature arguing against ATB movement; this has been applied to wh-movement by Salzmann (2012a) and parallels between ATB and same constructions by Zhang (2009). For instance, Salzmann develops an analysis of wh-movement as asymmetric movement from the leftmost conjunct, followed by ellipsis in subsequent conjuncts. His analysis is developed primarily on the basis of reconstruction asymmetries between the first and subsequent gaps. The opposite asymmetries are also present in RNR, as the pivot-gap partial identity data testifies. I will argue that the ATB profile is due to a syntactic version of the CSC while the apparent semantic effects of the CSC are due instead to an independent parallelism constraint over coordinations. More specifically I will adopt the so-called ‘Axiom of Semantic Symmetry’ from Reich (2007):

(67) **Axiom of Semantic Symmetry (SemSym)**

Any two conjuncts in a given coordination are semantically symmetric. Reich (2007)

I argue that the CSC only concerns the number of gaps that appear across coordinations. However, SemSym requires parallel typing across coordinations. In some cases, notably those in RNR and coordinated wh-movement, this can be enforced through binding into gaps created by the CSC. SemSym can straightforwardly account for cases where the first conjunct is a question and the second a proposition. These are commonly taken to be ruled out by the CSC. Consider a case like the following:

(68) *What did Mary [send t₁ on Monday] and [receive the parcel on Wednesday]? (Kato, 2007: 113)

Here there is a type mismatch between the two conjuncts. Abstracting away from the absence of a subject, the first conjunct is quite clearly a function with a variable matching the type of ‘what’ whereas the second conjunct is fully saturated with respect to such a type. SemSym requires that these conjuncts match in type; if they do not then the derivation is predicted ungrammatical. It thus correctly rules out the case above. The same constraint naturally rules out type mismatches resulting from movement in RNR:

(69) * [TP John will send [...] to the bank] and [TP Mary will receive letters from the government]
(70) * [TP John will send letters to the bank] and [TP Mary will receive [...] from the government]

26 In fact, since both the CSC and ATB movement encode very similar information, Williams (1977), Williams (1978) proposed replacing the CSC altogether with an ATB schema for any rule. Williams argues raises various problems for the combination of the CSC with a Coordinate Structure Reduction (CSR) rule that that are otherwise straightforwardly explained by the presence of an ATB rule scheme. But see Gazdar (1981) for criticism of this formulation of ATB operations.

27 Note that Salzmann’s theory is inspired, in part, by the ellipsis analysis of RNR proposed by Ha (2008b). However, he raises significant problems for that analysis; see Salzmann (2012a) for discussion.

28 In fact, Reich is self-professedly vague about the content of symmetry, which could mean any number of things. I follow him in treating symmetry as a matter of typing, at least for present purposes.

29 Note that other purely semantic versions of the CSC also account for this case; see, e.g., Kato (2007) and references therein.

30 It’s possible to see this as a representational constraint insofar as it requires that the typing established by a coordination cannot be subsequently changed, thereby preventing the otherwise plausible counter-argument to SemSym that wh-movement, and thus type change, applies after the derivational construction of the coordination. However, it’s not immediately clear how to import this into the denotation of the coordinator. One strategy might be to cast SemSym as a constraint that ensures the typing established by coordination is maintained throughout the derivation.

31 Note that this is not to be confused with the lict reordering of arguments internal to the second conjunct by means of Heavy-NP Shift. The example here is ungrammatical because the gap can’t be filled within the coordinate, not because there is a gap *per se.*
On the assumption that gaps must be bound and therefore serve as variables, the cases above will be ruled out by failing to ensure typing across coordinates. In (69) there is a gap in the first conjunct that cannot be bound by the rightmost pivot, since the latter is in-situ and therefore not in a c-commanding position. Conversely, if the pivot is interpreted ex-situ in (70) it’s ungrammatical because there is no gap into which it can bind in the first conjunct. Thus the ATB surface profile is partially a property of type parallelism. The upshot of the foregoing is that it is at least possible to rephrase the CSC so that it doesn’t restrict the movement operation itself; or rather, so that it doesn’t restrict movement out of a coordination. I argue that the CSC is a constraint on derivations rather than a constraint on any one of the operations applied to a coordination in the course of the derivation itself. The CSC would then not block movement out of a conjunction. It would instead block spell-out of a structure in which material that began inside a conjunction could be phonologically realized outside of that conjunction while semantically identical material remains overt inside the conjunction. This means that movement outside of a conjunction requires that the phonological evidence of there ever being semantically identical content inside the conjunction must be erased at the level of PF. This marks a difference between both LF and movement based versions of the CSC. While it remains syntactic in character, it doesn’t directly prohibit any particular movement out of a coordination. That the coordinates are parallel in type is enforced by the SemSym which is arguably a lexical property of coordinators. Consider how this compares with the earlier conception of the CSC:

(71) **Old vs. New:**

a. **Coordinate Structure Constraint:** Extraction out of a single conjunct in a coordination is prohibited.

b. **Amended Coordinate Structure Constraint:** Syntactic material shared across a coordinate structure cannot be phonologically realized both internal and external to that structure if it began internal to the coordination.

But this should be more specific; at the moment it may block the wrong kinds of things by accident. Moreover, it isn’t formally specified. One conception of syntax, clearly developed in Minimalist Grammars, is of resource manipulation and consumption, with syntactic features serving the role of resources. The CSC might be seen as a constraint on resource consumption. More specifically, as a constraint on phonologically realized strings requiring exhaustive and parallel consumption of resources across conjuncts. Consider some slightly more specific alternatives, the first of which is not particular to coordinate structures:

(72) **Alternative 1:** All features must be checked in the course of a derivation.

(73) **Alternative 2:** The same set of checked features may not appear simultaneously inside and outside of a conjunction iff the first feature was checked inside the conjunction.

(74) **Alternative 3:** All phonologically realized elements of a coordination must have all their features checked in the course of a derivation.

Alternative 1 is conceptually straightforward in a grammatical architecture that operates by feature checking. Suppose there are two objects marked as given in a coordinate structure, one in each conjunct, but only the rightmost may move—as is the case in our theory. Then unless the evidence of the unchecked feature is eliminated then the derivation will crash. Ellipsis can then be seen as a repair mechanism, eliminating the offending string and yielding the surface structure of RNR. However, this particular alternative has effectively nothing to do with coordination. Perhaps we really needn’t have a CSC to conjure its effects, but this possibility is beyond the bounds of what can be reasonably explored in the present paper. I will therefore remain agnostic to this particular conclusion.

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Though in practical terms, the constraint will still be defined at the level of a particular operation at a particular stage in the derivation.
The effects of Alternative 2 are similar to Alternative 1. Since antecedents will usually match their elided counterparts in features, it follows that any in-situ antecedents will violate this version of the CSC once a pivot-token leaves the coordination. Like above, ellipsis then repairs the violation. Whereas Alternative 1 is entirely independent of coordination, Alternative 2 strikes me as perhaps too specific. While it seems descriptively adequate, it’s not immediately clear how it would be formally enforced; it makes reference to the derivational history of particular syntactic objects rather than a particular operation.

Alternative 3, by contrast, concerns only features and phonological form and maintains an essential reference to coordination. If ellipsis can eliminate features, or at least their role in the derivation, then this alternative gives a coherent notion of derivation ‘repair’—a derivation repair is effected by eliminating any string coupled with an offending feature. If alternative 1 is broad, and alternative 2 is specific, alternative 3 is arguably just right, so to speak. Nonetheless, it’s plausible that any constraint above will simulate the behaviour of both the amended and original CSCs we reviewed earlier, given a suitable theory of structure-building operations. What is necessary for present purposes is simply that the constraint is concerned with the whole derivation and not a single operation of movement out of a coordinate. I will adopt a constraint approximating Alternative 3, and provide a more formal equivalent when I introduce Minimalist Grammars subsequently. In essence, the CSC will be enforced by means of a condition on any operation of Move (or potentially Merge) that would reduce a coordination-containing string to a sentential syntactic type, like a CP.

### 3.3 The Right Roof Constraint and The Right Edge Restriction

Since Ross (1967), it’s been argued that something approximating the so-called Right Roof Constraint must be operative in the grammar. Sabbagh (2007), summarizing somewhat, defines this constraint as follows:

\[(75) \text{Right Roof Constraint (RRC):} \]

Rightward movement may move and right adjoin an element X to the cyclic node in which X is merged, but no further. (Sabbagh, 2007: 351)

This constraint is meant to explain the following contrasts:

(76) Josh [\text{vP returned [...] to the library for Jamie}], [each of the books she checked out last week]. (Sabbagh, 2007: 250)

(77) Josh \text{[vP edited [a review [...] for Sue], [of Jamie’s article]. (ibid.)}

(78) *Max said that he was going to [\text{vP return [...] to the library}] yesterday, [each of the books that he checked out last week]. (ibid.)

(79) *Jamie walked [PP into [...] suddenly, [the dean’s office]. (ibid.)

Though there is variation in acceptability, and though not all examples are as degraded as above, the RRC nonetheless appears to capture the generalization that rightward movement is upwardly bounded. That is, rightward movement is substantially constrained by its relation to certain higher nodes that dominate the would-be evacuee. More specifically, I note that rightward movement may reorder an element with respect to the internal arguments of a vP, but may not rightward move said element over material external to the vP. This is seen by the illicit movement in (78), though I personally do not find this particularly degraded. PP provides a similar restriction on the domain of movement, as seen in (79). It should be obvious that a movement analysis of RNR is explicitly at odds with the RRC for a movement analysis presupposes a

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33 Exactly what a ‘cyclic node’ is depends on one’s theory. Sabbagh assumes that at least vP and PP are cyclic nodes.
conjunct-external landing site; by moving the pivot above its cyclic node to such a site the operation of Move would violate the RRC.

However, the RRC is not without its detractors. For instance, Sabbagh himself proposes to do away with it. Instead, he argues for the Right Edge Restriction, a constraint that is derived from his phase-based theory of spell-out. According to Sabbagh’s dating, the idea goes back to at least Postal (1974):

(80)  **The Right Edge Restriction:**

In the configuration: \([[A...X...]\) Conj. \[[B...X...]\]

X must be rightmost within A and B before either (i) X can be deleted from A; (ii) X can be rightward ATB-moved; or (iii) X can be multiply dominated by A and B. (Sabbagh, 2007: 356)

Sabbagh derives this restriction by means of the interaction of rightward movement with Fox and Pesetsky (2005)’s theory of cyclic spell-out, the relation between syntactic computation and phonological form. Linearization principles and the order preserving property of string-vacuous (rightward) movement are argued to conspire in yielding the RER. In essence, Sabbagh proposes movement of a pivot-token in each conjunct to the rightmost position of its immediate spell-out domain, which serves as a sort of escape hatch from linearization. It is only from this position that the pivot tokens may move to their final conjunction-external position. This, coupled with a restriction on landing sites for rightward movement, derives the patterns that the RER and RRC are meant to capture. Of course, the RER is agnostic to the operations responsible for RNR; whether it is stipulated or derived, something approximating it ought to be respected. Such a restriction naturally explains the following cases of ungrammatical attempted RNR:

(81)  *Joss said that he was going to \([v_P \text{ donate } [...] \text{ to the library}] \) yesterday, and Jamie claimed that she would \([v_P \text{ donate } [...] \text{ to the museum}] \) last week, [a large collection of ancient texts]. (Sabbagh, 2007: 355)

(82)  *I sent one of those books \([P_P \text{ to } [...] \) in perfect condition, and sent the other ones \([P_P \text{ to } [...] \) in poor condition, [the Somerville public library]. (ibid.)

(83)  *Joss will \([v_P \text{ donate } [...] \text{ to the library}] \), and Maria will \([v_P \text{ donate several old novels to the museum}] \). (ibid.)

The same mechanism is also taken to rule out the non-coordinated cases of RRC violations as well.

It’s possible that a ban on P-stranding is in effect here as well, since neither conjunct alone is grammatical under the same conditions. For example:

(1)  *I sent one of those book to [...] in perfect condition, [the Somerville public library].

In general P-stranding in simple rightward movement is far more degraded to my ear than rightward movement out of the cyclic vP. However, this won’t explain the apparently licit cases of P-stranding in other RNR cases. A more important point in the context of RNR is that P-stranding seems to be available in just those cases where the content directly preceding the pivot-tokens is contrastively focused. An ellipsis analysis might then treat the non-contrastive P-stranding as a violation of max-elide; such an option is also possible for my own asymmetric movement analysis because I also invoke ellipsis as a parse-saving mechanism that relies on the rightmost pivot-token moving out of the coordination. On my analysis, the G feature is hosted by the highest Given element. In this case that’s the PP headed by to. Consequently there should be no way of moving the argument of the PP without the PP since the argument of the PP doesn’t have its own G feature. This correctly predicts the surface profile we find. This explains why the following is grammatical:

(2)  I borrowed the tractor that John sold to [...] and Mary bought from [...] [the farmers].

Here the prepositions aren’t given—they are in fact contrastive, and so the stranding is acceptable. Importantly this doesn’t obviate the RER restrictions, so they aren’t dispensable on this basis.
In all of these cases, and in a number of others that are straightforwardly concocted, the pivot is flanked by additional material that prevents it from being string-final in each conjunct individually. This is straightforwardly ruled out by the RER. Although I do not here endorse Sabbagh’s method of deriving the RER, I agree with the thrust of his argument—namely, rightward dependencies are unbounded, with the apparent restrictions having an extrasyntactic explanation. A similar point was made much earlier by Gazdar (1981). Gazdar argues that the appropriate level of analysis for the RRC is performance, specifically parsing. He points out that Andrews (1975) had already shown that of the sentences that were used by Ross to motivate the RRC, each was independently ruled out by the Sentential Subject Constraint (SSC). Moreover, when the SSC isn’t violated, the RRC-violators are improved; see Andrews (1975) for discussion.

There is no doubt that there is something that explains the contrast in acceptability between different rightward dependences, but the contention here is that this something may not be located directly in the grammar. Gazdar provides further evidence in the form of clear RRC violations that are nonetheless entirely grammatical.36

(84)  a. I have wanted to know exactly what happened to Rosa Luxembourg for many years. (Gazdar, 1981: 177), quoting (Postal, 1974), quoting (Witten, 1972).

b. I have wanted to know [...] for many years [exactly what happened to Rosa Luxembourg].37

(85)  The blast upended an armoured Chevrolet suburban and nearly sliced an armoured Chevrolet suburban in half. (Kubota, N/A: 2), quoting (Whitman, 2009)

(86)  John should fetch the book and give the book to Mary. (Kubota, N/A: 2), quoting (Wilder, 1999)

(87)  Mulder should catch the ball and pass the ball to Scully.38

36I am not here necessarily endorsing his alternative vision of explanation at the level of parsing, but I take his arguments against the RRC to be persuasive nonetheless. However, Gazdar’s alternative explanation at the level of parsing is quite plausible and no doubt worth reviewing in light of the difficulties with currently proposed constraints. He also notes that the RRC fails to apply to a variety of languages other than English; see Gazdar (1981) for discussion.

37Note that Gazdar is arguing against an earlier view of the Right Roof Constraint. Nevertheless I believe the point still stands. I cite only one of the many examples he produces; see Gazdar (1981) for further details.

38See Gazdar (1981) for further examples.

39Compare with:

(1) ? Mulder should pass [...] to Scully and catch the ball.
These ought to be ruled out by the RER, but are not. Consequently I remain agnostic to the status of the RER at present. There is certainly more to be said about it, but an exhaustive discussion of options is out of the scope of the present paper.

Note that the data that the RER explains is mostly the same data that the parallelism constraint explains. If focus is a crucial licensing factor for RNR, and if focus movement/marking applies in the leftmost conjunct, then there must be a corresponding focus movement/marking in the rightmost conjunct, thereby leaving the pivot rightmost in each conjunct prior to RNR. If this is the case then what appeared to be syntactic constraint—the RER—could actually be regarded as stemming from more general discourse constraints. However, it’s not clear that the RER is entirely dispensable. For instance, the parallelism constraint seems capable of obviating some of the violations of complex DP islands. But it doesn’t immediately explain the cases where the violation isn’t string-vacuous, as discussed by Bachrach and Katzir (2009) and mentioned above. Recall the following example, repeated from last section:

(88) * A man who loves [...] danced, and a woman who hates [...] went home, [a book by Kafka].

Here the relevant conditions of parallelism are met and yet the utterance is still ungrammatical. Why is this so? In general this violation falls under the purview of the Right Edge Restriction but this data actually provides a generalization paralleling the RER. Namely, RNR is available just in case the minimal constituent containing the focus-closure of the pivot is at the edge of each coordinate. It happens to be that the RNR pivot usually coincides with the edge of the coordinate because the minimal constituent which includes the pivot and a focused element always appears at the edge. We saw this even where the pivot’s most obvious gap preceded the focused element, as in (29). But even in these cases, the focused element was at the edge of the coordinate.

Current theories of the RER have little to say about the relation of Focus to the edge of each coordinate. For instance, Sabbagh (2007)’s derivation of the RER is based on ensuring linear order is maintained through phases in the derivation. Bachrach and Katzir (2009) are likewise concerned with linear order, but

41Ha (2008b) argues that (86) is actually a complex predicate since such structures are comparatively rare. Compare for instance with the following:

(1) *? John should give after fetching the book for Mary.

However, it’s not clear what’s solved by pushing the analysis back to complex predication, nor will this straightforwardly handle the other cases of medial RNR.

42Bachrach and Katzir (2009) actually derive linearizations that are consistent with Medial RNR but erroneously rule them out on alternative grounds. In effect, the linearization scheme permits such structures but their theory of spell-out rules them out. The same linearization scheme subsumes the RER as a consequence but it is only coherent if one adopts a network of assumptions about the relation between dominance and precedence that are objectionable. I take this challenge up in Stevens-Guille (in press) where I attempt to show that a simplified version of the linearization scheme is preferable and consistent with my own theory.

43Note that this needn’t be driven by the ellipsis mechanism, as in Ha (2008b); the same or similar effect can plausibly be derived from the F-closure condition on Givenness. What’s necessary is to force contrasting material to appear in the cyclic node dominating the original position of each pivot-token.

44If this were the case it would also mean that the explanations based on phase-theory and linearization, like in both Sabbagh (2007) and Bachrach and Katzir (2009), would be dispensable. Moreover, it would provide a constraint amenable to more direct observation than the largely theory-internal RER proposals, which are difficult to disentangle from the assumptions used to motivate them.

45In theory, both the linearization schemes of Bachrach and Katzir (2009) and Sabbagh (2007) are independent of their particular analyses. If wh-movement precedes RNR, as I have argued here, then Sabbagh’s linearization scheme can be purged of inconsistency and it can serve as a basis for the RER. Likewise, a simpler version of Bachrach
make certain exemptions for multi-dominance structures that allow the RER to be derived by consequence. However, as we shall see, both of these theories have endemic problems of their own. Nonetheless, if RNR is dissociable from wh-movement, as I argued for above, then in principle the linearization proposals of either theory could be adapted for present purposes. I conclude that further investigation of the locality conditions on the Focus Parallelism constraint and Givenness is required to determine whether the RER is dispensable in favour of a more general parallelism constraint or whether it ought to be stated at the level of linearization. At present, I will leave this aspect of the theory unformalized, and simply state the RER as above.

3.4 Explanation of Derivations

In this section I introduce the notion of feature percolation to explain cases of pivot-gap uniqueness. This involves enriching the structure-building operations in the grammar with operations for both the assumption and discharge of hypotheses. I argue the addition of this mechanism allows us to divide the derivation of RNR into two strategies. These strategies correspond to the split between pivot-gap (partial) identity on the one hand and pivot-gap uniqueness on the other. I explain this distinction informally, using the tree representation proposed in the introduction. This informal presentation serves as a guide for the more formal derivations presented in the following section. While the derivations are here cast in terms of labelled trees, we will see in subsequent sections that these may be replaced with less rich representations. Consequently the presentation of the analysis in terms of trees is primarily heuristic.

3.4.1 Feature Percolation

The mechanisms above suffice to generate the cases of partial and strict pivot-gap identity, as I will show subsequently. But what of pivot-gap uniqueness? In such a case it is undesirable to attempt a direct generation of the pivot in-situ, since by definition the surface pivot will differ from either of its in-situ counterparts. To handle these cases I resort to a mechanism of ‘feature percolation’ whereby feature sets without labels are introduced to satisfy syntactic dependencies on the assumption that they will be replaced later in the derivation with corresponding labelled lexical items. Thus the distinction between derivation strategies reduces to a distinction between manipulating lexical items or just their (sub-)categories.

Feature percolation is an operation that mimics many of the properties of movement, but not all. Superficially it looks similar to slash-feature percolation in GPSG. The idea is that a syntactic object can begin satisfying dependencies before it literally enters the derivation. In effect, a syntactic object may be distributed across a derivation prior to its phonological ‘label’ occupying any one of these positions. In this sense, the feature set is ‘percolated’ through the derivation. This informal notion is cashed out in the formalism of Minimalist Grammars, which were originally defined by Stabler (1997). An extension allows for the introduction of operations for assumption and discharge. These operations, due to Kobele (2005, 2008, 2010, 2012a) allow the grammar to operate with label-less objects as if they were there on the condition that they are later discharged by the introduction of corresponding lexical items with actual labels. If we adopt such an operation into our system we are able to provide alternative derivation strategies for the same structure. I explain the two derivations and their corresponding environments of application below.
3.4.2 Structural Representation

*Figure 3: Closest Conjunct Agreement*
We are now in a position to begin explaining the derived trees from the introduction. On my analysis there is a pivot token instantiated within every conjunct. In cases where the pivot-gap relation is full or partial identity the pivot moves from the rightmost conjunct to a position external to the &P. Because the grammar is driven by feature checking, the operations of merge and move must be motivated by features. Consequently any form of movement must consume some feature to apply and so anything like focus movement or, as is the case here, Given movement, must be marked with a relevant feature. The movement itself is driven by a phonologically null operator that may attach to a conjunction and select for given material. For present purposes, it will be assumed that givenness is marked as a feature in the numeration, but differentiated with an index when it is hosted by a labelled—rather than hypothetical—lexical item. Consequently any form of movement must consume some feature to apply and so anything like focus movement or, as is the case here, Given movement, must be marked with a relevant feature. The movement itself is driven by a phonologically null operator that may attach to a conjunction and select for given material. For present purposes, it will be assumed that givenness is marked as a feature in the numeration, but differentiated with an index when it is hosted by a labelled—rather than hypothetical—lexical item.

Note that the ex-situ pivot cannot be deleted, for doing so would leave a type mismatch that is impossible to rectify. From outside the conjunction a pivot can bind the ellipsis in the first conjunct, since it dominates it; but the converse is not true since the in-situ pivot cannot upwardly bind an ellipsis site that dominates it. Thus the CSC requires internal deletion of all unchecked G-features, and therefore deletion of all in-situ pivot-tokens. SemSym forces the ex-situ pivot to bind all the ellipsis sites, thereby enforcing parallel typing. The resulting structure is seen in Figure 3. Note that I’ve left out Focus movement for reasons of space. If one so chooses one can imagine a focus position just above the TP for the sentential subject to occupy.

In the case of pivot-gap uniqueness a unique pivot is introduced into the derivation after each conjunct is built up. The conjuncts themselves are built with hypothetical elements. These hypotheticals both carry an uninterpretable givenness feature, just like in the strict and partial identical cases. However, here the

47This is perhaps due to the multiple instances of the same—or in some cases different but related—labels in the numeration. Whereas lexical items plausibly have distinct G features that differentiate them, hypothetical lexical items are always indistinct because they are simply bundles of features. In fact, due to the nature of the operations proposed, our formalism will force this difference between differentiated and undifferentiated Givenness features. Alternatively we can stipulate that the G-selecting operator selects only the rightmost conjunct; this option is explored below but it must be noted that this is fundamentally a question of notation and not a question of ontology. See Stevens-Guille (in press) for discussion.
hypotheses are unified into a single item. At this point in the derivation the lexically contentful pivot is introduced and projected above the givenness operator. This in turn discharges the hypotheses internal to the conjunction, yielding the structure seen in Figure 4.

4 Embedding the analysis in a Minimalist Grammar

In this section I introduce a Minimalist Grammar and show how it can instantiate the analysis outlined above. First I introduce the grammar itself. Then I specify the rules and constraints. Finally I provide derivations for two simple cases, one of pivot-gap strict identity and one of pivot-gap uniqueness. It is shown that a number of the constraints discussed in the foregoing can be cast as conditions on the structure-building operations. Suggestions are made for modifying those constraints that don’t have a Merge-based representation.

4.1 A Minimalist Grammar

The MG presented here is a modified rendition of the formalism presented in Kobele (2010). We define an MG as a four-tuple \( \langle V, \text{Cat}, \text{Lex}, F \rangle \) such that the following holds:

(89) **Minimalist Grammar**

a. \( V \) is a finite set we call the alphabet

b. \( \text{Cat} \) is the set of features and is composed of the union of two disjoint sets, defined as follows:

i. \( \text{sel} \times \text{Bool} \) such that:
   - For \( \langle x, 0 \rangle \in \text{sel} \times \text{Bool} \) we write \( =x \) and call it a selector feature
   - For \( \langle x, 1 \rangle \in \text{sel} \times \text{Bool} \) we write \( x \) and call it a selectee feature

ii. \( \text{lic} \times \text{Bool} \) such that:
   - For \( \langle y, 0 \rangle \in \text{lic} \times \text{Bool} \) we write \( +y \) and call it a licensor feature
   - For \( \langle y, 1 \rangle \in \text{lic} \times \text{Bool} \) we write \( -y \) and call it a licensee feature

c. \( \text{Lex} \) is the lexicon and is composed of a finite set of pairs \( \langle \nu, \delta \rangle \) where \( \nu \in V \cup \{ \epsilon \} \) and \( \delta \in \text{Cat} \)

d. \( F = \{ \text{merge, move, assume, discharge, elide, delete} \} \) = the set of structure building operations.

4.1.1 But what does this mean?

The expressions of a Minimalist Grammar can be conceived as binary trees that encode both precedence and projection/dominance. Leaves take the same form as lexical items; precedence is determined by linear left-right ordering; projection is determined by angle brackets. Lexical items are defined as a pair where the first element belongs to the set of alphabet symbols plus the empty string and the second is a sequence of features. The order of the features in this sequence determines the order of operations that may be applied to that lexical item. Thus, if there is more than a single feature in the lexical item the second feature cannot be checked until after the first has been checked. The structure building operations, which I define below, are only sensitive to certain kinds of features. Merge operates over selectors and selectees.

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48 All errors are my own.
49 We can easily modify the notation to express directionality by treating \( =x \) as selecting on the right and \( x= \) as selecting on the left. However, this is orthogonal to the present discussion so I leave it undefined.
50 Expressions have an independent formal definition that I gloss over at present for reasons of space. Since we will switch representations shortly, I leave the curious reader to consult Morawietz (2003, Reprint 2013); Stabler (1997) regarding the definition of tree-based Minimalist Expressions.
while Move operates over licensor and licensee features. Consider a basic Minimalist Grammar expression, due to Kobele (2010: 150) in Figure 5. Note that I’m here using a particular notational representation; there is nothing necessary about this notation and I employ it here primarily for expository purposes, to bring out the relation between the trees generable by Minimalist Grammars and the more familiar derived trees with phrase-markers—or BPS trees as is a more apt comparison.51

Figure 5: Basic MG Expression

\[
\langle \text{will}, +k s \rangle \\
\langle \text{Mary}, -k \rangle \\
\langle \text{feed}, \epsilon \rangle \\
\langle \text{the}, \epsilon \rangle \\
\langle \text{dog}, \epsilon \rangle
\]

In the case above the angle brackets indicate projections. If we follow the angle brackets Mary is a maximal projection of the head feed, while will is the head of the whole expression. Kobele provides a simple way of tracking the relation ‘head of’ and ‘maximal projection’. First we say that for a subtree \( t' \) of \( t \) we may rewrite \( t \) as \( C(t') \). We then say that a tree identical to \( t \) except for the subtree \( t' \) can be represented as \( C(t'') \). We say that for a tree \( t \) with a head \( \langle \nu, \delta \rangle \) the expression \( [\delta] \) means that the head of \( t \) has the features \( \delta \). Kobele then defines a proper subtree \( t' \) of \( t \) as a maximal projection if and only if the sister \( t_s \) of \( t' \) has the relation \( t_s < t' \) in \( t \). The head is always just that leaf that a bracket is pointing to: Follow the brackets, arrive at the head.

There is just one more point to be made before we define the structure building operations. Kobele follows Stabler and Keenan (2003) in adopting a simplified form of expressions for MGs that allows for the treatment of expressions that are not doubly ordered leaf labelled binary trees.52 This new expression’s type is a sequence \( \phi_0, \phi_1, ..., \phi_n \). Each \( \phi_i \) is a lexical item as defined above with the following restriction that for each \( \langle \nu, \delta \rangle \) it is the case that \( \nu \in V^* \) and \( \delta \in \text{Cat}^+ \). For each \( \phi_i \) such that \( 1 \leq i \leq n \) holds, that \( \phi_i \) is understood to be the ‘phonetic yield’, in Kobele’s terminology, of a moving subtree; the rest of the (phonetic yield of the) tree is represented by \( \phi_0 \).

51See Kobele (2012b) for a different tree-based representation. Because the lexical items of Minimalist Grammars already encode the relations they will enter into in a derivation, the actual representation of these relations has a significant range of choice. Note also that the mapping from Minimalist derivations to derived structures is flexible enough to allow for multi-dominance or traditional phrase-structure derived trees Graf (2013). More generally, Kracht (2001) proves that trace chain structures and multi-dominance structures carry the same information and provides straightforward algorithms for conversion between them. This result is entirely independent of Minimalist Grammars. However, because the elements of chains are always ordered by dominance relations, the multi-dominance style analysis of RNR and other ATB phenomena cannot be described by chains. More specifically, an essential feature of chains (and pre-chains) is that for any two members of such a chain there is an (asymmetric) \( c \)-command relation between them; in ATB phenomena neither of the two gaps \( c \)-command each other and so cannot form either a movement or multi-dominance chain. Consequently although chains consistent with traditional notions of movement have well-understood formal properties, the in-situ multi-dominance analysis and ATB movement analysis of RNR do not enjoy any of the results concerning chains that hold for chain-based multi-dominance and movement.

52I do not provide a formal definition for these expressions; the reader is invited to consult Stabler and Keenan (2003) for discussion.
Because we’re also introducing operations for assumption and discharge we have broadened the expression type to deal with phonetically ‘empty’ or ‘label-less’ categories. We represent this formally, following [Kobele 2012a], by defining expressions as sequences over \((V^* \times Cat^+) \cup (Cat^+ \times Cat^+)\). We adopt the following convention: a subexpression \(\langle \delta, \delta' \rangle\) such that both \(\delta, \delta' \in Cat^+\) represents a hypothesized expression that has been partly discharged and that has a feature sequence beginning \(\delta, \delta'\). This allows us to record hypotheses. The first \(\delta\) represents the set of features that have been checked; the second \(\delta'\) represents the set of features that remain to be checked. We can then easily track our hypotheses in the course of a derivation.

### 4.1.2 Structure-Building Operations in a Minimalist Grammar

(90) **Structure Building Operations**

#### a. Merge Variants

i. **Merge 1**

\[
\langle \nu_1, = x \delta_1, \phi_1, ..., \phi_m; \nu_2, x, \psi_1, ..., \psi_n \rangle =
\langle \nu_1 \nu_2, \delta_1, \phi_1, ..., \phi_m, \psi_1, ..., \psi_n \rangle
\]

ii. **Merge 2**

\[
\langle \nu_1, = x \delta_1, \phi_1, ..., \phi_m; \nu_2, x \delta_2, \psi_1, ..., \psi_n \rangle =
\langle \nu_1, \delta_1, \phi_1, ..., \phi_m, \nu_2, x \delta_2, \psi_1, ..., \psi_n \rangle
\]

#### b. Move Variants

i. **Move 1**

\[
\langle \nu_1, + y \delta_1, \phi_1, ..., \nu_2, - y, ..., \phi_m \rangle =
\langle \nu_2 \nu_1, \delta_1, \phi_1, ..., \phi_m \rangle
\]

ii. **Move 2**

\[
\langle \nu_1, + y \delta_1, \phi_1, ..., \nu_2, - y \delta_2, ..., \phi_m \rangle =
\langle \nu_1, \delta_1, \phi_1, ..., \nu_2, \delta_2, ..., \phi_m \rangle
\]

iii. **Move 3**

\[
\langle \nu_1, + y \delta_1, \phi_1, ..., \nu_2, - y \delta_2, ..., \phi_m \rangle =
\langle \nu_1, \delta_1, \phi_1, ..., \nu_2, \delta_2, ..., \phi_m \rangle
\]

#### c. Assume

i. **Assume 1**

\[
\langle \nu_1, = x \delta_1, \phi_1, ..., \phi_m \rangle =
\langle \nu_1, \delta_1, x, \delta_2, \phi_1, ..., \phi_m \rangle
\]

#### d. Discharge Variants

i. **Discharge 1**

\[
\langle \nu_2, \delta - y, \psi_1, ..., \psi_n \rangle =
\langle \nu_2 \nu_1, \delta_1, \phi_1, ..., \phi_m, \psi_1, ..., \psi_n \rangle
\]

ii. **Discharge 2**

\[
\langle \nu_2, \delta - y \delta_2, \psi_1, ..., \psi_n \rangle =
\langle \nu_1, \delta_1, \phi_1, ..., \phi_m, \nu_2, \delta_2, \psi_1, ..., \psi_n \rangle
\]

#### c. Unification

53The definition of unification is my own and is meant to mirror the more informal presentation of the same operation in [Kobele 2008]. The definitions of elide, delete, and their constraints are my own and are meant to mirror the definitions in [Kobele 2012b]. The definitions of the CSC and Focus Parallelism are my own. Any difficulties stemming from this definition are my own and not Kobele’s.

54Note that while it is presented here as operating over a single feature, Kobele actually conceives of the operation as ranging over arbitrary feature sets up to an entire lexical feature sequence. For present purposes we are concerned primarily with the weaker version, but it’s important to keep in mind that the operation as it is conceived in [Kobele 2010] need not be restricted in the manner I do here; see that paper for discussion.

55One might worry that this could over-generate and apply to cases that aren’t coordinations. I am sympathetic to the worry but am unclear how well-founded it is. For instance, I am unaware of any other lexical item of the same type as a coordinator that would merge with a constituent containing an identical hypothesis. In any case, the definition can be made more specific by specifying that \(\langle \nu_1, = xx \delta_1 \rangle = \langle \nu... \{x \in COORDINATORS\}, ..., = xx \delta_1 \rangle\) if one so chooses.

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27
i. **Unification** \((\nu_1, x_1x_2\delta_1), (\delta, \delta_2), \phi_1, \ldots, \phi_m;\)
   \((\nu_2, x), (\delta, \delta_2), \psi_1, \ldots, \psi_n =
   \langle \nu_2\nu_1, x\delta_1\rangle, (\delta, \delta_2), \phi_1, \ldots, \phi_m, \psi_1, \ldots, \psi_n\)

f. **Delete**
   i. **Delete**\((\nu, \delta), \phi_1, \ldots, \phi_m) =
      \((\nu, \delta)^*, \phi_1, \ldots, \phi_m)\)

g. **Elide**
   i. **Elide**\((\nu_1, \delta_1)^*, \phi_1, \ldots, (\nu_n, \delta_n)^*, \ldots, \phi_m) =
      \langle \nu, \delta \rangle^E, \phi_1, \ldots, \langle \nu_n, \delta_n \rangle^*, \ldots, \phi_m\)

h. **Shortest Move Constraint (SMC)**
   i. **Move**\((\nu, +y\delta), \phi_1, \ldots, \phi_m) is defined iff exactly one \(\phi_i = \langle \nu_i, \delta_i \rangle\) is such that \(\delta_i\) begins with \(-y\).
   ii. **Discharge**\((\nu, +y\delta), \phi_1, \ldots, \phi_m) is defined iff exactly one \(\phi_i = \langle \nu_i, \delta_i \rangle\) is such that \(\delta_i\) begins with \(-y\).

i. **Constraints on Elide and Delete**
   i. **Delete**\((\nu, \delta), \phi_1, \ldots, \phi_m) is defined iff \((\nu, \delta)^*\) is dominated by another node marked as deleted or is dominated by another node marked as elided.
   ii. **Elide**\((\nu_1, \delta_1)^*, \phi_1, \ldots, (\nu_n, \delta_n)^*, \ldots, \phi_m) is defined iff there exists there exists an identical \(\langle \nu_n, \delta_n \rangle\) for each \(\langle \nu_n, \delta_n \rangle^*\) in the largest tree in which \(\langle \nu_n, \delta_n \rangle^*\) is merged, modulo deletion.

j. **The Coordinate Structure Constraints (CSC)**
   i. **Move**\((\nu\{x \in \text{COORDINATORS}\}, +yS), \phi_1, \ldots, \phi_m) is defined iff for all \(\phi_i = \langle \nu_i, \delta_i \rangle, \phi_i = \langle \nu_i, -y \rangle\) or \(\phi_i = \langle \nu_i, \delta_i \rangle^*/E\), where the set \text{COORDINATORS} = \{\text{and, or, , etc.}\}.
   ii. **Discharge**\((\nu\{x \in \text{COORDINATORS}\}, +yS), \phi_1, \ldots, \phi_m) is defined iff for all \(\phi_i = \langle \nu_i, \delta_i \rangle, \phi_i = \langle \nu_i, -y \rangle\) or \(\phi_i = \langle \nu_i, \delta_i \rangle^*/E\), where the set \text{COORDINATORS} = \{\text{and, or, , etc.}\}.

k. **Parallel Focus Constraint**
   i. **Parallel Focus**: A coordination is defined iff focus features are parallel across conjuncts.

l. **Axiom of Semantic Symmetry**
   i. **SemSym** A coordination is defined iff typing across coordinates is symmetrical.

m. **Givenness**:
   i. **Givenness**: \(G_i\) is licensed iff \([G_i\ldots X\ldots]\) is e-GIVEN.

Some explanation of these operations and constraints is in order. Merge operates over selection features to produce new structures, while Move operates over license features to produce new structures. The\(^{56}\)\(^{Kobele 2012 b}\) notes that the restriction requiring an identical antecedent somewhere in the tree cannot be represented as a regular constraint and so the system employing such a constraint produces a set of well-formed trees that are not regular. Note also that these operations are defined at the computational rather than algorithmic levels; see\(^{Kobele 2012 b}\) for discussion.

\(^{57}\)Please note that I have not here defined the RER constraints. I have deliberately chosen—as noted in earlier sections—to be agnostic as to whether it’s needed or whether there is an alternative. Nonetheless it can be introduced if necessary.

\(^{58}\)Though I am defining the constraint over Focus features here, for reasons of space I will omit Focus features in the derivations.

\(^{59}\)Note that there will have to be provisions for the asymmetric coordinations we saw in the previous section. This will not be taken up here.
difference between the 1 and 2 variants is the same across the different rules. We might call the 1 variants exhaustive since they only apply when the object being merged/moved will have no features left to check after the operation. In this case that means the operation will leave $\delta_2 = \epsilon$, that is it will leave the feature bundle of the second lexical item empty. In the 2 variants the second lexical item is not exhausted by the operation and so does not end up in the position that it otherwise would in the 1 variants; it checks a feature but lingers only a short time since it must continue to merge/move until its features are exhausted. The 3rd variant of Move relates to the assumption operation. It basically says that a dummy was moved to satisfy some licensor feature but must still be discharged at a later step in the derivation.

Assume looks superficially similar to Merge except that the lexical item being merged doesn’t yet exist; it is simply a dummy expression consisting of features but no label. Assume takes this dummy expression, saturates a selector feature with it, and then keeps a record of which selectees were assumed. Discharge allows these assumptions to be eliminated and replaced with genuine lexical items—namely, labelled lexical items. The condition on discharge, as can be seen from the definition, is that there be a single unchecked licensee feature on the assumption. Discharge takes place when a genuine lexical item enters the derivation to satisfy the licensor feature. Once this happens the dummy lexical item is discharged and can no longer be operated over in subsequent derivation steps.

Unification takes two elements, each of which has the exact same assumption, and merges them. This is constrained by the condition that the two trees would also merge if they had their dummies discharged. The resulting structure is a unification of the dummies such that there is just a single dummy instance left. This suffices to account for (a subset of) ATB phenomena, as we will see in the next section.

Delete takes a single element and marks it as deleted material. Elide applies over an $n$-ary sequence of deleted material, marking the highest node—the deleted node dominating all other deleted nodes—and marks that node as the head of an Elided sequence, replacing the deletion marker in the process. In practical terms it marks a start state for ellipsis which applies from this dominating node down the tree to every subsequent deleted node, thereby delimiting the range of ellipsis and specifying its treatment as a single object unto itself. Both of these operations are strongly constrained. Deletion is defined only when the deleted node is immediately dominated by another deleted node or a node marked with the start state of ellipsis—an elide feature. Elide is defined only if deleted object in its domain of application has an antecedent elsewhere in the tree.

Both Movement and Discharge operations are strongly constrained by the Shortest Move Constraint due to [Stabler, 1997]. This is meant to parallel the constraint of the same name proposed in [Chomsky, 1995]. Of course, this is not the same constraint but it is meant to make the same sort of restriction. It is defined for both Move and Discharge and requires that if there is something that can move, that thing must move. Moreover, it blocks competition for licensor features—there can only ever be a single active licensor position for a given licensee feature and vice versa.

Finally we have encoded the CSC as a well-formedness condition on Move and Discharge such that all elements in a coordination must either have their (movement) features checked to finish the derivation or else be elided at the point that the derivation concludes under a(n) S(tart) node. Notably, because it is defined over Move and Discharge, this constraint doesn’t result in a violation when unification leaves unchecked assumed features. In fact, the assumptions are forced to discharge independently on the basis that if they

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60 Note that the node marked Elide trivially satisfies the constraint on deletion since once a node is specified with the Elide marker the Delete marker it hosted before is consumed. Note however, that these markers are NOT features from the lexicon.

61 One might wonder about a Merge version of this constraint. As far as I can tell this is unnecessary. I assume that a derivation terminates when it reaches some category S and any left-over subtrees will not move or are marked as elided if they have left-over features that will be unchecked. This is a simplifying assumption but nothing crucial hangs on it. I assume further that there will always be a movement that yields the final S, minimally Spec-VP to Spec-TP. In any case a Merge variant could easily be added in to account for coordinated DPs, for instance an RNRed
aren’t discharged the derivation never really finishes. SemSym is stated as a well-formedness condition on typing across coordination. Focus Parallelism is cashed out by specifying that the focus features within each conjunct are parallel. I have left this constraint relatively informal for as far as I can see the only way of enforcing it is to determine that the lexical items used for each conjunct have the same number of focus features. This can’t just apply to finished conjuncts because such a constraint essentially involves reference to the derivational history of conjuncts, which is inaccessible once the features have been consumed by the operations responsible for building them. Space and time restrictions prevent a deeper investigation of this constraint. Finally, note that, as mentioned in section 3, I am remaining agnostic to both the RRC and RER since there are apparent counter-examples to both. With this core grammar in place let us consider now a derivation for both pivot-gap partial identity and pivot-gap uniqueness.

### 4.2 Derivations

Below I give a fragment of the lexicon, partially borrowed from Kobele (2010), that suffices to generate the sentence *John will but Mary won’t pass her test*. The ‘k’ features are case features; the ‘V’ is the verbal category; ‘G’ is the givenness feature with a subscript that will match maximally one corresponding feature in the tree; ‘v’ is responsible for the familiar little vP; ‘n’ is noun; ‘s’ is sentence or start. A similar set of lexical items and derivations will apply to any case of strict or partial identity:

(91) Lexical Fragment 1

| a.  | ⟨ pass, =d V ⟩ |
| b.  | ⟨ ε, =v =d v -Gi ⟩ |
| c.  | ⟨ ε, =v +k V ⟩ |
| d.  | ⟨ ε, =s +Gi s ⟩ |
| e.  | ⟨ and, =s =s s ⟩ |
| f.  | ⟨ will, =v +k s ⟩ |
| g.  | ⟨ won’t, =v +k s ⟩ |
| h.  | ⟨ her, =n d -k ⟩ |
| i.  | ⟨ his, =n d -k ⟩ |
| j.  | ⟨ John, d -k ⟩ |
| k.  | ⟨ Mary, d -k ⟩ |
| l.  | ⟨ test, n ⟩ |

Now here’s a derivation with that fragment. Note that I’ve assumed the deletion and ellipsis operations apply early in the derivation. This is simply because the formalism is agnostic to the particular timing of these operations, since their identity conditions aren’t local:

(92) Derivation 1

1. Delete(i) =
   ⟨ his, =n d -k ⟩
2. Delete(l) =
   ⟨ test, n ⟩
3. Delete(a) =
   ⟨ pass, =d V ⟩

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62 This might be tweaked by defining the constraint over a tree-based representation instead of the flat representation I’ve been working with here. I won’t investigate this possibility further here.
63 Due to the SMC the givenness features cannot be identical across conjuncts
64 This => is a combination of Merge plus head Movement. It simulates the idea of head movement from V to v and the resulting need to merge with an external argument.
65 This allows an internal argument to check its case in the Spec of V, assuming that it has first been merged in the complement of V.
4. Delete(b) =
   \langle \epsilon, = > V = d \cdot V - G_1 \rangle

5. Delete(c) =
   \langle \epsilon, = > V + k \cdot V \rangle

6. Merge(1, 2) =
   \langle \text{his test}, d \cdot - k \rangle

7. Merge(6, 3) =
   \langle \text{pass (his test, -k)}, V \rangle

8. Merge(7, 5) =
   \langle \text{pass (his test, -k)}, + k \cdot V \rangle

9. Move(8) =
   \langle \text{his test \text{-pass}, V} \rangle

10. Merge(9, 4) =
    \langle \text{pass (his test, -d \cdot V)} \rangle

11. Elide(10) =
    \langle \text{(pass (his test, -d \cdot V), E)} \rangle

12. Merge(11, k) =
    \langle \text{(John, -k) (pass (his test, v \cdot -G_2)^E)} \rangle

13. Merge(12, f) =
    \langle \text{will (John, -k) (pass (his test, -G_2)^E, +k)} \rangle

14. Move(13) =
    \langle \text{John will (pass (his test, -G_2)^E, s)} \rangle

15. Assume that we’ve already built the following:
    \langle \text{Mary will (pass her test, -G_1), s} \rangle

16. Merge(15, e) =
    \langle \text{and Mary won’t (pass her test, -G_2), = s s} \rangle

17. Merge(16, 8) =
    \langle \text{John will (pass (his test, -G_2)^E and Mary won’t pass her test, -G_1), s} \rangle

18. Merge(17, d) =
    \langle \text{(John will (pass (his test, -G_2)^E and Mary won’t (pass her test, -G_1)) \epsilon, + G_1 \ s)} \rangle

19. Move(19) =
    \langle \text{John will (pass (his test, -G_2)^E and Mary won’t \epsilon pass her test, s)} \rangle

This derivation is explained as follows, using the language of phrase-structure for expository purposes. In steps 1 to 5 we have localized the deletion operation so that each element of the pivot is individually marked for ellipsis. The derivation proper begins at step 6; between this step and step 10 we build the

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Note that for ease of presentation I am omitting many of the Deletion and Ellipsis markers in the Merge and Move derivation steps; this allows me to omit additional brackets in the derivation.

I am here treating unchecked features as paired with their labels under brackets.

In terms of hierarchy the final sentence can more properly be represented as ((John will but Mary won’t) pass her test)–this just isn’t captured by the present notational conventions.

P-markers are more properly the domain of derived trees rather than these, the derivation trees. But even here we are not using trees but the more simple linear notation explained earlier.
structure of the pivot, up to and including the vP, which is specified with the G feature G\textsubscript{1}. At this point in the derivation we have reached the highest deleted position, so Elide applies and demarcates the entirety of the vP to be unpronounced at PF. In steps 11 to 14, we first merge the sentential subject, then the T head, and then project the subject into Spec-TP. At Step 15 we assume we have built the second conjunct minus Delete and Elide, which is otherwise identical to the first. In steps 16 to 17 the coordination is constructed asymmetrically. Step 18 the operator is merged to the coordination, searching internal to it for a Given element to project. Finally, step 19 allows the rightmost pivot to leave the coordination and check its G feature against that of the operator.

4.3 Derivation 2

When the pivot-gap relation is one of full or partial identity the rightmost pivot token moves from the right edge of the conjunction to a topic position above the conjunction. But this alone cannot extend to cases of pivot-gap uniqueness in which the pivot cannot match either of its gaps. However, with the operations of assumption and discharge it’s possible to treat the gap positions as dummy pivots to be later discharged from the topic position.

Below I provide a derivation for the sentence Mary is happy that Rumpelstiltskin and John is happy that Baba Yaga eat. This is a case of cumulative agreement on the verb eat. Consider that either conjunct alone with the cumulatively agreeing verb is ungrammatical. We cannot say either Mary is happy that Rumpelstiltskin eat or John is happy that Baba Yaga eat. The verb here can only be grammatical as plural when it is the predicate of the entire conjunction. I have deliberately chosen an intransitive case to make the mechanism of assume and discharge salient.\footnote{I also do not provide a theory of the agreement operation here. See Stevens-Guille (in press) for discussion.} With some caveats the analysis should extend to pivots of any size. However, for ease of exposition I will restrict the derivation to the relative clause within each conjunct and the introduction of the pivot.\footnote{The rest of the conjuncts are easily handled by the formalism but constructing them needlessly takes up space. The preceding derivation of closest conjunct agreement adequately demonstrates the operations of Merge and Move.} I assume the following non-exhaustive list of lexical items for this derivation:

\begin{enumerate}
\item \rule{1cm}{.5pt} Lexical Fragment 2
\item a. \langle Rumpelstiltskin, d \rangle
\item b. \langle Baba Yaga, d \rangle
\item c. \langle eat, V -G\textsubscript{1} \rangle\footnote{Note that I’m here treating the verb as entirely saturated except for its givenness feature. That is, I’m treating it as though any selector features it might have have already been checked. I justify this in Stevens-Guille (in press). The addition of the givenness feature on the lexical item is due to the restriction that an assumption can only be discharged when it has a single remaining feature. It’s possible that a givenness feature may be added to an assumption just as it was added to a real lexical item in derivation 1. However, this is simpler to operate with. Further research is necessary to determine whether deriving givenness or marking it lexically is preferable.} \footnote{This is like a null T head. It does the exact same thing as will and won’t: it assigns case to the subject DP and produces a sentence.}\footnote{Note, however, that it is not a problem with Assume in general, but the particular incarnation we’ve chosen to facilitate ease of use.}
\item d. \langle \epsilon, =\rangle V +k s \rangle \footnote{This is for the derivation we’re about to walk through because eat is technically a functor}
\item e. \langle \epsilon, =\rangle V =d v \rangle
\item f. \langle \epsilon, =s +G\textsubscript{1} s \rangle
\item g. \langle \text{and}, =s =s s \rangle
\item h. \langle \epsilon, =\rangle V V -G\textsubscript{1} \rangle
\end{enumerate}

Note that the current rules only allow for the assumption of selectee features. But we need to be assuming larger constructs here, like the feature-set equivalent of VPs or CPs. The root of the problem is that these larger structures have selector features and selector features aren’t assumed under the current set of rules.\footnote{This is for the derivation we’re about to walk through because eat is technically a functor} This is a problem for the derivation we’re about to walk through because eat is technically a functor...
(in the sense that it takes arguments), not an argument.

There are three solutions to this quandary that I have considered. The first is to loosen our current assumption rule to its original conception, \( n \)-ary feature assumption, or add a new assumption rule that allows for a functor—a lexical item with selector features—to be assumed on its own. The second option is to treat dummy versions of functors as lacking in selector features; this would allow us to assume dummy VPs. Finally we could introduce a type-shifting operation to turn DPs into functors. This last option would allow us to take dummy functors as arguments of the DP.

I will take the second option. My reasons for taking option two are vulgar. I avoid defining a new rule for assuming functors simply because doing so would take us too far astray from the present exposition. In principle nothing prevents a rule of this sort but I have not yet determined the ramifications of introducing such a rule and so will refrain until these ramifications are better understood.\(^{75}\) With these assumptions in place we can now generate the case of pivot-gap uniqueness, which I derive below:

(94) Derivation 2

1. Assume\( (d, f) = \)  
   \( \langle \epsilon \cdot t, =d v \rangle, \langle V, -G_1 \rangle \)

2. Merge\( (1, b) = \)  
   \( \langle (Baba Yaga, -k) \epsilon \cdot t, v \rangle, \langle V, -G_1 \rangle \)

3. Merge\( (2, e) = \)  
   \( \langle \epsilon \cdot \epsilon \cdot t (Baba Yaga, -k), +k s \rangle, \langle V, -G_1 \rangle \)

4. Move\( (4) = \)  
   \( \langle Baba Yaga \epsilon \cdot \epsilon \cdot t, s \rangle, \langle V, -G_1 \rangle \)

5. Assume we’ve built the rest of the conjunct:  
   \( \langle Mary \ is \ happy \ that \ Baba \ Yaga \ \epsilon \cdot \epsilon \cdot t, s \rangle, \langle V, -G_1 \rangle \)

6. Merge\( (5, h) = \)  
   \( \langle and \ Mary \ is \ happy \ that \ Baba \ Yaga \ \epsilon \cdot \epsilon \cdot t, s \rangle, \langle V, -G_1 \rangle \)

7. Assume\( (d, f) = \)  
   \( \langle \epsilon \cdot t, =d v \rangle, \langle V, -G_1 \rangle \)

8. Merge\( (1, a) = \)  
   \( \langle (Rumpelstiltskin, -k) \epsilon \cdot t, v \rangle, \langle V, -G_1 \rangle \)

9. Merge\( (2, e) = \)  
   \( \langle \epsilon \cdot \epsilon \cdot t (Rumpelstiltskin, -k), +k s \rangle, \langle V, -G_1 \rangle \)

10. Move\( (4) = \)  
   \( \langle Rumpelstiltskin \epsilon \cdot \epsilon \cdot t, s \rangle, \langle V, -G_1 \rangle \)

11. Assume we’ve built the rest of the conjunct:  
   \( \langle John \ is \ happy \ that \ Rumpelstiltskin \ \epsilon \cdot t, s \rangle, \langle V, -G_1 \rangle \)

12. Unification\( (11, 6) = \)  
   \( \langle John \ is \ happy \ that \ Rumpelstiltskin \ \epsilon \cdot \epsilon \cdot t \ and \ Mary \ is \ happy \ that \ Baba \ Yaga \ \epsilon \cdot t, s \rangle, \langle V, -G_1 \rangle \)

\(^{75}\)For instance, it is not yet clear whether the discharge rules would need extension. Discharging multiple assumptions could potentially disrupt the correct surface order those assumptions are meant to represent. I leave this query to future work.
13. Merge(12, g) = 
   \langle \text{John is happy that Rumpelstiltskin } \epsilon \text{-e-t and Mary is happy that Baba Yaga } \epsilon \text{-e-t) } \epsilon +G_1, s \rangle, 
   \langle V, -G_1 \rangle 

14. Merge(d, i) = 
   \langle \epsilon \text{-eat}, V -G_1 \rangle 

15. Discharge(13, 14) = 
   \langle \text{John is happy that Rumpelstiltskin } \epsilon \text{-e-t and Mary is happy that Baba Yaga } \epsilon \text{-e-t) } \epsilon \text{-eat, s} \rangle 

In step 1 we assume the existence of a feature bundle beginning with the value V, which carried with it a G-feature. Consequently our pivot will consist of the same feature sequence. The result of this assumption was equivalent to building a little v. This little v introduces the external argument Baba Yaga in step 2. In step 3 a T head is added. In step 4, the vP-internal subject is projected by the T-head, thereby checking its case. In step 5, for reasons of space and ease of exposition, we imagine that the rest of the conjunct was built. This is no difficulty as that portion of the conjunct is a straightforward construction using Merge and Move, which we saw already demonstrated earlier. In step 6 we merge the rightmost conjunct, which we’ve just built, with the coordinator and. Steps 7 to 11 produce the leftmost conjunct using the same method seen in steps 1 to 5. In step 12 we employ the rule of Unification to merge conjuncts and unify their hypotheses. In step 13 the G-operator is introduced above the coordination. In step 14 we create a Given V by merging eat with a verbal head that returned a G feature. This leaves us with the right kind of object to discharge the unified assumptions, which we do in step 15. This suffices to explain the derivation of basic pivot-gap uniqueness.

5 Conclusion

In the foregoing I have investigated the wide variety of RNR variants, potential constraints governing their construction, and the analysis best capable of capturing the widest range of variation—a hybrid system employing both Assume and Discharge on the one hand and Merge and Move on the other. We began in section 1 with the novel heuristic of pivot-gap identity. It was shown there that the pivot-gap identity conditions were split three ways between strict and partial identity and uniqueness. Section 2 provided evidence of the range of RNR variation as well as the pivot-gap identity conditions such variants canonically instantiated. This provided further evidence for the utility of the identity condition heuristic. In this section we also saw that a supposed tension between the alleged island insensitivity of RNR and the corresponding sensitivity of wh-movement from coordinations was a) not evidence for the claim that coordinated wh-movement is always fed by RNR and b) consequently consistent with RNR being canonically island insensitive within the domain of coordination.

In section 3 we discussed a variety of potential constraints on RNR. It was shown that of those surveyed, Focus Parallelism appears to capture something essential about the licensing of RNR. Other constraints such as the RER and RRC were reviewed and although it was conceded that Focus Parallelism alone couldn’t explain all of the restrictions on RNR it was shown that there are apparent counter-examples to both the RER and the RRC. Consequently, I chose to remain agnostic to these constraints; space restrictions prevented an adequate discussion of alternatives but this remains an area for future research. Finally I showed that the CSC could be viewed not as a constraint on a single operation—movement transformations—but rather as a well-formedness condition on coordinations requiring that all features of all phonologically realized lexical items be checked. This was complemented with the semantic condition of SemSym, which helped distinguish between the syntactic and semantic properties of the CSC. It was shown that the foregoing

\[\text{Notably Parallelism alone didn’t immediately explain the ban on pivots being derived from embedded NPs.}\]
A Timing Analysis of RNR Identity

Constraints and the addition of an operation of feature percolation allow for the development of a theory of RNR that splits the pivot-gap identity conditions by the operations responsible for them: feature-percolation is responsible for pivot-gap uniqueness, the combination of movement and ellipsis is responsible for pivot-gap strict and partial identity.

In section 4 I showed how to formalize the foregoing analysis within a Minimalist Grammar. Following earlier work on the development of these formalisms I showed that the moving pieces for my analysis of RNR were, for the most part, already available in the technology of a Minimalist Grammar enriched with feature percolation. I added the relevant constraints to such a grammar and provided derivations paralleling those proposed informally in section 3, thereby providing an operational and formally respectable instantiation of my analysis of RNR. Ultimately, future research is necessary to a) iron out some lingering deficiencies in the formalization of the theory and b) determine how cross-linguistically robust it is. At least the former of these concerns are addressed in considerable depth in [Stevens-Guille (in press)]. The lasting import of the present study is in showing that a hybrid analysis of RNR is not only possible but also preferable to alternatives that fail to capture the pivot-gap identity conditions in a unified manner.

References


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