RIGHT-NODE WRAPPING: MULTIMODAL CATEGORIAL GRAMMAR AND THE "FRIENDS IN LOW PLACES" COORDINATION

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1. INTRODUCTION

In October 1990, singer Garth Brooks's recording of "Friends in Low Places" topped the *Billboard* country charts, and could be heard on numerous country radio stations and in bars and dance halls across the country. In addition to being a good song for two-stepping, it now occupies the top spot on Country Music Television's list of the "40 Greatest Drinking Songs." The refrain goes like this:

(1) I've got friends in low places,
where the whiskey drowns and the beer chases
my blues away.

("Friends in Low Places," Earl Bud Lee and DeWayne Blackwell)

Whenever I heard this line during the early 1990s, I had to stop and try to parse it. There are two ways of taking the coordination in this refrain strictly literally. One is to take *the whiskey drowns* and *the beer chases my blues away* to be two clauses that are coordinated. That is, in these low places of which Garth sings, two things happen:

(2) a. The whiskey drowns.

b. The beer chases Garth's blues away.

The other way is to take *the whiskey drowns* and just *the beer chases* as coordinated partial verb phrases. Each of these partial verb phrases is completed by the phrase *my blues away*. So under this parsing, the two things that happen are:

(3) a. The whiskey drowns Garth's blues away.

b. The beer chases Garth's blues away.

Under both parsings, the part about the beer is fine. Under both parsings, the part about the whiskey is decidedly unidiomatic. Whiskey doesn't drown, as in reading (2a). And even if you drown something which then goes away, saying that you drowned it away, as in (3a), just doesn't sound right.[1]

[1] Lance Nathan (p.c.) informs me that the phrasal verb *drown [something] away* is attestd in several other songs, found in a Google search. The line "Started raining—drown my blues away" appears in the song "Preachin' Blues" by Robert Johnson; "I keep drinking malted milk / Tryin' to drown my blues away" in "Malted Milk" by Jonny Lang; and "Drowning my sorrows away" in "Quicksand" by the band Travis. Even so, I will keep the name "Friends in Low Places" coordination, since many other examples have come

Of course, the intended meaning is that THESE two things happen (presumably in reverse order):

(4) a. The whiskey drowns Garth's blues.

b. The beer chases Garth's blues away.

In other words, the intended reading is the one that could be phrased in the right-node raising (RNR) construction shown in (5a), or as the ordinary VP coordination shown in (5b):

(5) a. The whiskey drowns, and the beer chases away, my blues.

b. The whiskey drowns my blues, and the beer chases them away.

However, if the writers had opted for (5a), they would have had to get rid of the next line in the refrain, *and I'll be okay*, and replace it with something that rhymed with *blues*. (5b) would have ruined the meter entirely. So for more than a decade, I accepted the lyrics as a case of poetic license. In recent years, however, I have had to question my assumption, as I have found more and more attestations of "Friends in Low Places" coordinations.

2. DEFINITION AND ATTESTATIONS

"Friends in Low Places" coordinations are very similar to nonconstituent coordination (NCC), two examples of which are given in (6). (6a) illustrates right-sided NCC, in which the coordinated nonconstituent sequences *rice on Monday* and *beans on Tuesday* appear to the right of the factor[2] *ate*. (6b) is an example of left-sided NCC (commonly referred to for historical reasons as right-node raising, or RNR[3]), in which the coordinated nonconstituent sequences *John caught* and *Mary ate* appear to the left of the factor *the fish.* As noted above, (5a) is another example of RNR, complicated by the fact that the second verb is the phrasal verb *chases away* instead of the simple transitive verb *ate*.

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to light that do parallel the parsing of *the whiskey drowns and the beer chases my blues away* in which *drowns* is a simple transitive verb.

[2] In discussing the anatomy of coordinate structures, I follow the usage of Huddleston and Pullum (2002) in referring to coordinated elements as COORDINATES. I follow Pullum and Zwicky (1986:754) in using FACTOR to refer to the "material which acts as a sister to a coordinate constituent C—material bearing syntactic and semantic relations to … all the conjuncts in" the coordinate structure, analogous to the factor x in mathematical expressions such as $x(y + z)$.

[3] Dowty (1996) notes that there are differences between fairly ordinary-sounding coordinations such as (6b), and more prosodically marked ones such as *John committed, and Mary was an accessory to, the crime*. In his words: "A Right-Node-Raising construction may exist independently of left-sided NCC—a right-sided across-the-board extraction construction…." (15). For present purposes, however, I will defer to common usage and use the RNR as a synonym for left-sided NCC.

(6) a. John ate [rice on Monday] and [beans on Tuesday]. (Dowty 1996, (22b))

b. [John caught] and [Mary ate] the fish. (Dowty 1996, (24a))

The resemblance between the "Friends in Low Places" coordination and RNR can now be seen. In both constructions, two sequences are coordinated: *the whiskey drowns* and *the beer chases* in (1); *John caught* and *Mary ate* in (6b). In both constructions, the factor appears to the right of the coordinates: *my blues* in (1), and *the fish* in (6b). The difference is that the *chase* in (1) is part of the phrasal verb *chase away*, which wraps around its direct object (DO). Taking *chase away* as a discontinuous constituent, the resultative phrase *away* is semantically part of one (and only one) of the coordinates, and yet is located syntactically outside the coordination, inasmuch as it appears to the right of the factor. For this reason, I adopt the name RIGHT-NODE WRAPPING (RNW) for what I have casually referred to as the "Friends in Low Places" coordination, defined below:

> A "Friends in Low Places" (right-node wrapping) coordination has:
>
> 1. the form **[A conjunction B] C D,**
> 2. and the meaning **[A C] conjunction [B C D],**
> 3. NOT the meaning **[A C D] conjunction [B C D].**

Most of the examples of RNW coordination have a DO for part C of the construction, with a resultative or other adverbial phrase for part D, as does the original example. One difference between the following examples and (1) is that in the following examples, parts A and B coordinate just partial VPs, with a single subject appearing to the left. In these and subsequent examples, A and B will be enclosed in square brackets, and D underlined. Additionally, B will be underlined inside its brackets, to indicate its affinity with D. In some examples, it is possible to construe D with both A and B, but in each case, the context of the attestation made it clear that this was not the intended reading. For example, (7e) is not asking the shopper to tap their card through the cardreader, but to tap it on the screen or slide it through the reader.

(7) a. The blast [upended] and [<u>nearly sliced</u>] an armored Chevrolet Suburban <u>in half</u>….
(Henry Chu and Megan K. Stack, "3 Americans die in bomb attack in Gaza," *The Los Angeles Times*, Oct. 16, 2003, p. A1)

b. There is little or no incentive for the contractor to [reduce] or [<u>keep</u>] cost <u>down</u>.
(Bunnatine Greenhouse, quoted in Larry Margasak, "Top Officer Objected to Halliburton Deal," The Associated Press, Oct. 30, 2004)

c. It [rejuvenates] and [pushes] abstraction to a fresh level.[4]
(Michael Kimmelman, "Abstract art's new world, forged for all," *The New York Times*, June 7, 2005)

d. Senators [sign] and [trade] Hossa for Heatley.[5]
(headline on www.tsn.ca website on Aug. 23, 2005)

e. [Tap] or [slide] your card through the cardreader.
(sign at a self-checkout machine at a grocery store)

f. Several years ago, in a Washington, D.C. suburb, an undercover police officer [followed] and [then shot] a young motorist eight times.
(Michele Norris, interviewing author Marita Golden on *All Things Considered,* National Public Radio, July 5, 2006)

Some of these examples coordinate more than two partial VPs (in which case the schematic [A **conj** B] should be understood as [A_1, …, A_n **conj** B]):

(8) a. A Monroe County man, convicted yesterday of [raping], [beating] and [stuffing] a 7-year-old girl into an abandoned well, could be executed by lethal injection.
(article from *The Columbus Dispatch*, December 2004)

b. Picasso [designed], [built], and [gave] a giant sculpture to Chicago.
(spoken by a tour guide)

c. Members of the platoon testified that they [punched], [kicked] and [struck] the detainee with their rifles.[6]
(Noted by *Washington Post* copyeditor Bill Walsh, on the June 17, 2005 posting on Blogslot, http://theslot.blogspot.com/2005/06/potpourri.html)

d. After using dishes, please [wash], [dry], and [put] them away in the proper place.
(sign in a church kitchen)

The last example is particularly interesting, since unlike earlier examples, here the wrapping of B and D around C is obligatory, since part C is a pronoun. Other examples can be made parallel by way of Heavy NP shift; e.g., *upended and nearly sliced in half a Chevrolet Suburban,* or *designed, built, and gave to Chicago a giant sculpture.* In contrast,**Wash, dry, and put away them* is unquestionably ungrammatical. This fact points in the direction of RNW being not an error, but a productive construction that is a natural development of the grammar in places where RNR and wrapping interact.

[4] Thanks to Mark Liberman for this attestation, which he discusses in the Language Log posting "Cubist Syntax," at http://itre.cis.upenn.edu/~myl/languagelog/archives/002235.html.
[5] Thanks to Bob Kennedy for this attestation, which he discusses in the Piloklok posting, "Sign and trade X for Y," at http://biloklok.blogspot.com/2005/08/sign-and-trade-x-for-y.html.
[6] Thanks to Chris Waigl for this attestation.

3. A MULTIMODAL CATEGORIAL GRAMMAR ANALYSIS

In this section I present an analysis of right-node wrapping (RNW) in the framework of multimodal categorial grammar. RNW is a natural candidate for such an analysis, in light of work done in Dowty (1988, 1996). Dowty (1988) shows how an associative Lambek categorial grammar can provide a simple analysis of nonconstituent coordination (NCC). However, sentences such as (9) pose a problem. The categorial grammar analysis of NCC derives this sentence by having the DO combine with the verb before the oblique object does.[7] But for independent and crosslinguistic reasons, it is desirable to analyze *give* (and indeed any three-argument verb) as combining with its oblique object before its DO—in other words, "wrapping" around the DO. Dowty (1996), building on an analysis of Dutch word order by Moortgat and Oehrle (1994), shows how such a wrapping mode in categorial grammar can resolve the contradiction.

(9) Mary gave [a book to John] and [a record to Bill]. (Dowty 1996, (3))

Sentence (9) is an example of right-sided NCC interacting with wrapping. Another such example that Dowty derives is (10), where the DO is the factor:

(10) Mary gave a book [to John yesterday] and [to Bill today].
(Dowty 1996, (59-61))

Taken together, the analyses in Dowty (1988, 1996) elegantly handle right-sided NCC without wrapping; left-sided NCC without wrapping (aka RNR); and right-sided NCC with wrapping. The remaining, unexplored possibility is left-sided NCC with wrapping, i.e. right-node wrapping.

Given space considerations, I will assume basic knowledge of associative Lambek categorial grammar, and begin the theoretical background with the extension to a multimodal system. As in a Lambek categorial grammar, the set of syntactic categories is the transitive closure of a small number of atomic categories under all category constructors, typically / and \. In a multimodal system, however, there is more than one mode of syntactically combining expressions. The typical means of associative concatenation would be one, but there could be others; for example, nonassociative concatenation, or for our purposes, wrapping. In a multimodal system with *i* modes of combination, each category constructor comes in *i* varieties, and there are *i* sets of rules of inference, where each set of rules is the same basic set of slash elimination and introduction. These rules are presented in (11):

[7] When I say that a sequence can be derived, it should be taken as shorthand for "the sequence is licensed because it can be proven with the logical and structural rules of the grammar"; it is not intended to imply an actual process of derivation that takes place in a speaker's mind.

(11) Rules of inference for any mode *i* in a multimodal categorial grammar

a. Slash elimination rules

$$\frac{a\text{: A}/_i\text{B} \qquad b\text{: B}}{(a \circ_i b)\text{: A}}\,/_i\text{E} \qquad\qquad \frac{b\text{: B} \qquad a\text{: B}\backslash_i\text{A}}{(b \circ_i a)\text{: A}}\,\backslash_i\text{E}$$

b. Slash introduction rules

$$\frac{\begin{array}{c}\vdots \qquad [e\text{: B}]^n \\ \vdots \qquad\quad \vdots \\ (a \circ_i e)\text{: A}\end{array}}{a\text{: A}/_i\text{B}}\,/_i\text{I}^n \qquad\qquad \frac{\begin{array}{c}[e\text{: B}]^n \qquad \vdots \\ \vdots \qquad\quad \vdots \\ (e \circ_i a)\text{: A}\end{array}}{a\text{: B}\backslash_i\text{A}}\,\backslash_i\text{I}^n$$

In these rules, the lowercase letters stand for the phonetic form of the expression, with the uppercase letters standing for syntactic categories. (Semantic terms are not shown, though as with any Lambek categorial grammar, they would be computed in tandem with the syntactic and phonetic portions, with slash elimination corresponding to functional application, and slash introduction to lambda abstraction.)

As an illustration of how to read these rules, consider the $/_i$E rule. This is the rule for syntactically combining two expressions in mode *i*, one of category A/B; the other of category B to its right. As with the ordinary /E rule of associative Lambek categorial grammar, the resulting expression has category A. The phonetic component of the resulting expression is written $(a \circ_i b)$, which indicates that strings *a* and *b* have been combined in mode *i*.

Next consider the $/_i$I rule. As with the ordinary /I rule, the bracketing around the B in the top line indicates that this expression has been hypothesized. The *e* indicates that it has no phonetic value. The rest of the rule shows that if $(a \circ_i e)$: A can be derived with the hypothesized *e*: B, then one can infer that whatever string of expressions was used to derive it—minus the *e*: B—can have category A$/_i$B. The superscript *n* shows which hypothesis the $/_i$I step is discharging (in this case, the only hypothesis).

In addition to the inference rules, each mode may have its own set of structural rules stating how expressions combined in that mode can be manipulated. In associative Lambek categorial grammar, the only structural rules are those of Associativity, shown in (12). These structural rules will also be in our multimodal system. The ○ is not labeled with a mode subscript, as associative concatenation will be taken as the default mode:

(12) Structural rules of Associativity

$$\frac{(a \circ b) \circ c}{a \circ (b \circ c)}\,\text{Assoc1} \qquad\qquad \frac{a \circ (b \circ c)}{(a \circ b) \circ c}\,\text{Assoc2}$$

These rules state that if you have a string of expressions $(a \circ b) \circ c$, you can derive the string $a \circ (b \circ c)$, or vice versa. No change in semantics or syntactic category is licensed by these rules; they are structural only. For that reason, syntactic and semantic information has not been notated in these rules, but when they are used in a derivation, such information will continue to be written.

In addition to declaring how expressions combined in a single mode can be manipulated, structural rules can also specify how expressions combined in one mode can interact with those combined in other modes. At this point we transition from a presentation of multimodal categorial grammars in general to the one presented in Dowty (1996), which makes use of the following structural rules:

(13) Structural rules for mode interaction employed in Dowty (1996)

$$\frac{(a \circ b) \circ_w c}{(a \circ_w c) \circ b}\text{M-Comm2}$$

$$\frac{a \circ_w (b \circ c)}{(a \circ_w b) \circ c}\text{M-Assoc1} \qquad \frac{(a \circ b) \circ_w c}{a \circ (b \circ_w c)}\text{M-Assoc2}$$

Mixed Commutativity (M-Comm2) states that a sequence $(a \circ_w c) \circ b$ can be derived from sequence $(a \circ c) \circ_w b$. It is this rule that allows the NP *a book* to combine with *gave to John yesterday and Bill today* and end up adjacent to *gave* in Dowty's analysis. Mixed Associativity (M-Assoc) 1 and 2 allow reassociation such that when an element is combined via wrapping with a pair of elements that have been combined in the associative mode, it can become more closely associated with the closer of those two elements. M-Assoc1 is used in Dowty's derivation of *give a book to John and a record to Bill*. Dowty later uses M-Assoc2 to allow the phrase *easy to please* to wrap around *person* to yield *easy person to please.* Of these mode interaction rules, M-Comm2 and M-Assoc2 are relevant in the analysis of RNW.

The last components of Dowty's analysis are inclusion rules and type sorting for prosodic classes of expressions. These components are necessary because the rules as presented thus far overgenerate. Though it is already possible to derive sentences such as (9) and (10), it is also possible to derive sentences such as **Mary gave to John yesterday (and Bill today) a book* because there is no requirement that the structural rules be used in a derivation. Dowty's solution is to assume that in English, a phrase is complete only when all elements have been combined in the associative mode, and that the wrapping mode becomes inactive (radioactively decays to associative mode, as it were) only when two elements combined in the wrapping mode meet a certain condition. What is that condition? The condition is that whatever lexical item originally had a syntactic category constructed with $/_w$ or $\backslash_w$ must come to be in a wrapping configuration with another element. If we indicate this by boldfacing the particular lexical item, the rule for deactivating the wrapping mode can be written as the following inclusion rule:

(14) Inclusion rule adapted from Dowty (1996, (56))

$$\frac{(\boldsymbol{a} \circ_w b)_{ph}}{(\boldsymbol{a} \circ b)_c}\text{Incl}$$

This rule indicates that if a structure consists of a word, ***a,*** that is syntactically wired for wrapping, and an expression *b* to its right, combined via the wrapping mode, then that structure counts as a case of associative concatenation.[8]

The subscript *ph* and *c* in this rule stand for *phrase* and *cluster*, which are part of the type sorting proposed by Moortgat and Oehrle (1994) and adopted by Dowty. The idea is that phrases stand in the superset relation to clusters (e.g., clitic+host), which stand in the superset relation to words (hence the word *inclusion*). Any word counts trivially as a cluster, which counts trivially as a phrase. And in one special, stipulated case, some phrases count as clusters, as specified in (14). In other words, in Dowty's analysis, the deactivation of the wrapping mode simultaneously creates a cluster out of the wrapping word and the element that comes to be adjacent to it, for example *gave the book* or *easy person*. The motivation for such a move comes from evidence that pronominal DOs in verb+DO clusters behave phonologically similarly to clitics, and even when the DO is nonpronominal, "the one exceptional position in which an adverb CANNOT appear is between verb and object" (Dowty 1996, 24-25).

Except for MAssoc1, all the above structural and inclusion rules (i.e. Assoc1, Assoc2, M-Comm2, M-Assoc2, Incl) are relevant to the proposed analysis of RNW. In addition, one more structural rule of mixed associativity must be postulated for English (or at least, the English of speakers for whom RNW is grammatical), a rule I will call M-Assoc3.

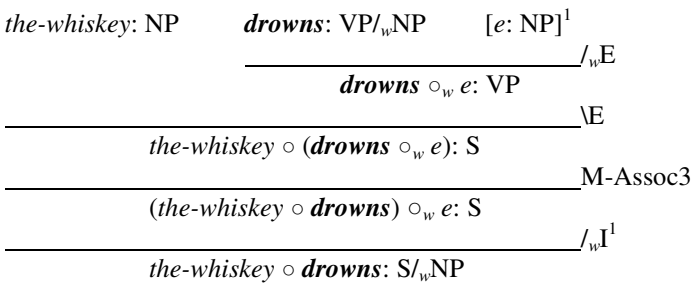
(15) Additional mode interaction postulated for English

$$\frac{a \circ (b \circ_w c)}{(a \circ b) \circ_w c}\text{M-Assoc3}$$

At this point, derivation of *the whiskey drowns and the beer chases my blues away* can proceed. The basic strategy will be to derive both *the whiskey drowns* and *the beer chases away* as $S/_wNP$, coordinate the two, and then wrap *chases away* around *my blues*. The first step is shown in (16). (In the interest of perspicuity, phonological type—*word, cluster, phrase*—is not notated except where relevant for the Incl rule.) Note that *drowns* is in boldface, as it is a lexical item with a wrapping category, $VP/_wNP$. (In these derivations, VP is used as an abbreviation for NP\S.) M-Assoc3 is used to disassociate *drowns* from the null *e,* and reassociate it with *the whiskey*, so that the $/_wI$ step can take place.

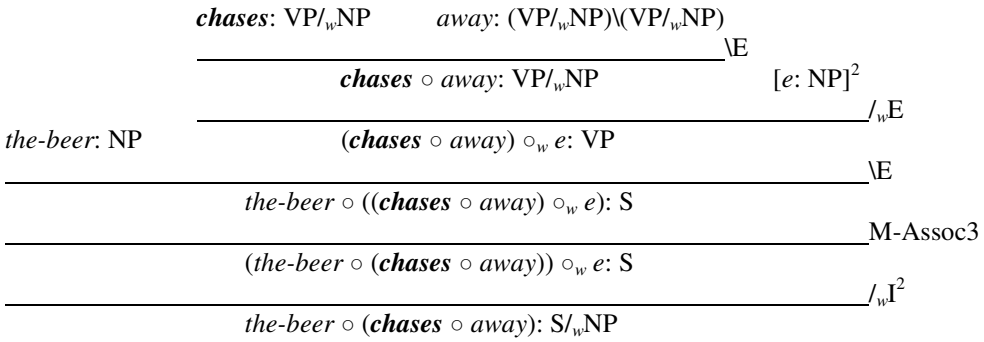
[8] Formally, the boldfacing of the word indicates a prosodic type in addition to *c* and *ph* discussed in the subsequent paragraph. For consistency, it should be labeled with a subscript as well, which is what Dowty (1996) does. He uses the subscript *i* to label this "infixing" subtype of word. Here, however, boldfacing is used for the sake of an easier-to-read derivation.

(16) Deriving *the whiskey drowns* as S/$_w$NP



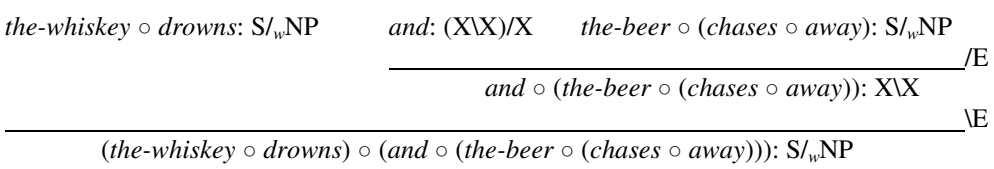
The next step is shown in (17). Here, *chases* is boldfaced for the same reason as *drowns* was above. The resultative *away* is assigned the category (VP/$_w$NP)\(VP/$_w$NP), instead of the ordinary adverbial category VP\VP, in light of its status as an object-modifying adjunct: What ends up away is the blues, not the beer. (For further reasoning behind the categorization of object-modifying adjuncts, see Dowty forthcoming, section 6.) As its category contains wrapping constructors, *away* also appears in boldface, though this is irrelevant to the derivation. Except for the extra \E step at the beginning, this derivation proceeds in the same way as (16).

(17) Deriving *the beer chases away* as S/$_w$NP



Coordinating the two S/$_w$NP, shown in (18), is simple. The polymorphic category (X\X)/X is used for *and*; in this derivation, X stands for S/$_w$NP.

(18) Deriving *the whiskey drowns and the beer chases away* as S/$_w$NP



Finally, *chases away* can be wrapped around *my blues*, as shown in (19). The first step is for the S/$_w$NP *the whiskey drowns and the beer chases* to combine with *my blues* by way of the /$_w$E rule. Next, Assoc2 applies repeatedly in order to reassociate the component chunks until we have a structure of form $(a \circ b) \circ_w c$, where b = *away*, and c = *my blues.* At this point, M-Comm2 applies to permute these two elements, so that *chases away*

wraps around *my blues.* Except for *away,* the structure now is of form $(a \circ b) \circ_w c$, where b = *chases* and c = *my blues.* This structure is eligible for M-Assoc2, which reassociates *chases* with *my blues.* Now, *chases* is in a wrapping structure with a phrase to its right, and is eligible for the Incl rule to finalize the sequence. Incl deactivates the wrapping mode and converts *chases my blues* into a phonological cluster. The derivation is finished.

(19) Deriving *the whiskey drowns and the beer chases my blues away* as S

(*the-whiskey* ∘ ***drowns***) ∘ (*and* ∘ (*the-beer* ∘ (***chases*** ∘ *away*))): S/$_w$NP *my-blues*: NP
/$_w$E
((*the-whiskey* ∘ ***drowns***) ∘ (*and* ∘ (*the-beer* ∘ (***chases*** ∘ *away*)))) ∘$_w$ *my-blues*: S
Assoc2
(((*the-whiskey* ∘ ***drowns***) ∘ *and*) ∘ (*the-beer* ∘ (***chases*** ∘ *away*))) ∘$_w$ *my-blues*: S
Assoc2
((((*the-whiskey* ∘ ***drowns***) ∘ *and*) ∘ *the-beer*) ∘ (***chases*** ∘ *away*)) ∘$_w$ *my-blues*: S
Assoc2
(((((*the-whiskey* ∘ ***drowns***) ∘ *and*) ∘ *the-beer*) ∘ ***chases***) ∘ *away*) ∘$_w$ *my-blues*: S
M-Comm2
(((((*the-whiskey* ∘ ***drowns***) ∘ *and*) ∘ *the-beer*) ∘ ***chases***) ∘$_w$ *my-blues*) ∘ *away*: S
M-Assoc2
((((*the-whiskey* ∘ ***drowns***) ∘ *and*) ∘ *the-beer*) ∘ (***chases*** ∘$_w$ *my-blues*)) ∘ *away*: S
Incl
((((*the-whiskey* ∘ ***drowns***) ∘ *and*) ∘ *the-beer*) ∘ (***chases*** ∘ *my-blues*)$_c$) ∘ *away*: S

The other RNW coordinations in (7) and (8) can be derived similarly, but with one fewer applications of Assoc2, since the subject is not part of the coordination in these examples.

4. COMPLICATIONS

Though the preceding analysis allowed RNW coordinations to be derived with only one rule (M-Assoc3) proposed beyond what was already in place, it is not a perfect fit for the data, in that it both overgenerates and undergenerates. In all the RNW examples so far, part A always had category S/$_w$NP or VP/$_w$NP; C always had category NP; and B and D always had categories such that when they were combined, they produced another S/$_w$NP or VP/$_w$NP. This could happen by C taking D as a complement (as in *gave to Chicago*), or by D modifying C (as in *chases away*).

The overgeneration problem arises if both A and B are phrasal verbs. For example, a sentence such as (20) could be easily derived with the rules as currently proposed:

(20) *John [put away] and then [got] the dishes back out.

Even though RNW coordinations are not entirely grammatical for me, I find that (20) sounds worse; furthermore, in the years in which I've been hyperaware of RNW coordinations, I have yet to hear one with this pattern.

However, I have found attestations in which A_1 is a phrasal verb; A_2 is an ordinary transitive; B is a phrasal verb; and D completes both A_1 and B. These "RNW sandwiches" are listed in (21), where both A_1 and B are underlined along with D:

(21) a. Led by France and Canada, a majority of countries are asserting the right of governments to [safeguard], [promote] and even [protect] their cultures from outside competition.[9]
(Alan Riding, "A global culture war pits protectionists against free trade," *The New York Times*, Feb. 7, 2005)

b. What I do mourn is what we lose when by official policy or official neglect we [allow], [confuse], or [encourage] our soldiers to forget… that which is our greatest strength….
(John R. McCain, "Torture's terrible toll," *Newsweek*, Nov. 21, 2005, p. 36)

These RNW sandwiches are where the proposed analysis undergenerates, as they are not derivable with the current structural rules. The trouble is that part D, for example, *to forget...*in (21b), would need to be placed right next to A_1, in this case *allow*, in order for the derivation to proceed. It cannot be placed there, however, because it also needs to be placed next to B, *encourage*. It is possible to introduce modes which allow an expression to be used more than once; this has in fact been done for parasitic gaps (Morrill et al. 1990). However, an investigation of how such a mode would interact with the wrapping mode is beyond the scope of this paper.

In other RNW attestations, parts B and D do not form a syntactic/semantic unit that wraps around part C, as they have in the earlier examples. In the following examples, part D is neither a complement of B nor a modifier of it. As a result, derivations like the one shown in Section 3 are impossible. The first such example involves infinitive-taking adjectives:

(22) Please move from the exit rows if you are [unwilling] or [unable] to perform the necessary actions without injury.
(spoken during a pre-flight safety presentation)

If we assumed that part B (*unable*) was a wrapping-type word, with category $Adj/_w Inf$, and took part D (*without injury*) to be a modifier of *unable,* with category $(Adj/_w Inf)\backslash(Adj/_w Inf)$, we could derive (22) in the same way as we derived the RNW coordination in Section 3. However, *without injury* does not modify *unable* (nor is it a complement to it). Rather, it modifies the complement to *unable*, i.e. part C *to perform the necessary actions.* The discontinuous string *unable … without injury* is not a constituent that wraps around *to perform the necessary actions*.

A similar though more complicated problem occurs in (23):

[9] Thanks to Glen Whitman for this attestation.

(23) In the players' box was Tony Nadal, the [uncle] and [coach] of Rafael Nadal since he started playing as a youngster.[10]
(noted by *Washington Post* copyeditor Bill Walsh, on the June 17, 2006 posting on Blogslot, http://theslot.blogspot.com/2005/06/potpourri.html)

Once again, B and D (in this case *coach … since he started playing as a youngster*) do not form a semantic unit. *Since he started playing…* is neither complement to nor modifier of *coach;* instead, it modifies the entire proposition that Tony Nadal is Rafael's coach. As far as I can see, the only way to make an RNW-style derivation succeed here is to ignore this fact, and moreover stipulate that relational nouns such as *coach* have category $N/_w PP_{of}$ and that *since* clauses can have category $(N/_w PP_{of})\backslash(N/_w PP_{of})$.

More troublesome still are attestations such as the following:

(24) a. [Mothers now cheerfully push strollers] and [kids dash] through his sculptures as if they were playgrounds.[11]
(Michael Kimmelman, "Abstract art's new world, forged for all," *The New York Times*, June 7, 2005)

b. We've got information on [where else] and [what else] he's wanted for.
(teaser for an evening newscast regarding a suspected criminal)

(24a) could be derived in the same way as the verbal RNWs by type raising *kids dash* from S to $S/_w(S\backslash_w S)$, and declaring the *as* clause to have category $S\backslash_w S$, but again, motivation for this categorization is questionable. Furthermore, even with *kids dash* having the wrapping category $S/_w(S\backslash_w S)$, there is no lexical item that starts out with this category, and therefore no lexical item to trigger the Incl rule at the appropriate time.

Like the other troublesome examples, (24b) could be derived with a suitable choice of category for *what else* and *for* such that they could be parsed as a discontinuous constituent wrapping around *he's wanted*. Again, though, the choice would be unmotivated.

There is one additional drawback to forcing the examples in (22)-(24) to be derived as RNW coordinations by means of unmotivated category choices. Doing so would imply that part B and part D of these various examples could appear adjacent to each other, forming an ordinary continuous constituent instead of a discontinuous one. Thus, in the same way as we could say *the whiskey drowns and the beer chases away my blues*, these analyses would be generated:

(25) a. ??…if you are [unwilling] or [unable without injury] to perform the necessary actions.

b. ??Tony Nadal, the [uncle] and [coach since he started playing as a youngster] of Spanish tennis champion Rafael Nadal

[10] Thanks to Chris Waigl for this attestation.
[11] Thanks to Mark Liberman for this attestation, as noted also for (7).

c. *[Mothers now cheerfully push strollers] and [kids dash as if they were playgrounds] through his sculptures.

d. ??We've got information on [where else] and [what else for] he's wanted.

To be fair, some of the badness of There is one additional drawback to forcing the examples in (22)-(24) to be derived as RNW coordinations by means of unmotivated category choices. Doing so would imply that part B and part D of these various examples could appear adjacent to each other, forming an ordinary continuous constituent instead of a discontinuous one. Thus, in the same way as we could say *the whiskey drowns and the beer chases away my blues*, these analyses would be generated:

(25c) can be attributed to the lack of a clear referent for *they* after moving it to before *his sculptures*, but even without this problem, it would probably be at least as awkward as the others.

So there is some evidence that the examples in (22)-(24) are not the same kind of phenomenon as the verbal RNWs seen in (1), (7), and (8). Nonetheless, there are still the verbal RNW sandwiches of (21) that remain to be derived, so the analysis presented in section 3 must be considered incomplete. Moreover, the question remains of how the examples in (22)-(24) should be analyzed, if they are not true cases of RNW.

5. CONCLUSION

Cases of right-node wrapping (RNW), i.e., "Friends in Low Places" coordinations, were successfully derived by extending the multimodal categorial grammar analysis of wrapping and NCC of Dowty (1996) with a single Mixed Associativity mode interaction rule. Cases of RNW that did not involve object-wrapping verbs were not covered under this analysis, and it is an open question whether RNW is a unified phenomenon that requires a different analysis than the one proposed here, or there are different processes at work for the RNWs not involving verbs.

In introducing his analysis of wrapping and NCC, Dowty states that one goal of the paper is "to lay the groundwork for a thorough linguistic description of English non-constituent coordination and related phenomena (gapping, etc.) in a framework that assumes an object-wrapping analysis" (1). The analysis of RNW presented here is intended to be a step toward such a description. Another step that has been taken is Morrill and Solias's (1993) treatment of gapping, though wrapping does not play a part in their analysis.

Beyond gapping, there are other kinds of NCC or asymmetric coordination that should be considered. For example, there are the subject-gap in finite/fronting (SGF) and similar coordinations such as the one in (26a), first noted by Höhle (see for example Höhle 1990), and later given HPSG and LFG analyses (Kathol 1999, Frank 2002). The canonical example is (26). In it, the VPs 'went into the forest' and 'caught a hare' are coordinated, but the PP 'into the forest' (*in den Wald*) is topicalized. Given German's V2 syntax, 'went' (*ging*) comes next, with the subject 'the hunter' (*der Jäger*) appearing afterward. VPs are coordinated, but the subject for both VPs appears inside the

coordination, much like the object does in the RNW constructions. As a result, *der Jäger* is embedded inside one coordinate, though it is semantically linked to both.

(26)	[In	den Wald	ging	(der Jäger)]	und	[fing	einen Hasen].
	In	the forest	went	the hunter	and	caught	a hare

'Into the forest went the hunter and caught a hare.'

In fact, there is even a categorial analysis of SGF, in Steedman (1990). However, Frank (2002) notes that it overgenerates somewhat, and the version of categorial grammar used (combinatory categorial grammar) differs significantly from the type-logical multimodal system used here. Even so, it would be good to take Steedman's insights and see how they could be integrated into a multimodal categorial grammar analysis.

Though SGF is considered mainly a German construction, it also exists in English, as illustrated in (27a). Because of the locative inversion in the first VP, not only does *Santa* appear inside the coordination, but *will* appears inside one of the coordinates despite semantically scoping over both *come* and *fill*. (The parentheses indicate that semantically it belongs outside the coordinate.) A similar case occurs with quotative inversion, shown in (27b, c):

(27) a. [Down (will) come (Santa)] and [fill the stockings].

b. ["No," said (John)], and [left the room].

c. ["No," (John) said], and [left the room].

Other asymmetric coordination involve markers of negation, modality, or interrogation/relativization that scope over coordinated clauses, but are infixed inside only the first coordinate. For example, in (28a), the modal *can* scopes over both clauses, but surfaces inside just the first one. In (28b), the negative *didn't* behaves similarly. In (28c) *can't* carries both modality and negation for both bracketed clauses, but appears inside only the first one. In (28d), the question marking by subject-auxiliary inversion scopes over both clauses, but is realized only on the first.

(28) a. [I (can) be on the computer] and [she's talking on the phone].

b. I was amazed [the car (didn't) crash[and [Jim go flying through the windshield].

c. You can push this and these'll move, but [you can't push these] and [this will move].

d. [Did you reboot] but [the problem still wasn't fixed]?

Will the normal and wrapping modes of combination discussed in this paper prove sufficient to allow for an analysis of RNW and the other varieties of unusual coordination? If not, the question becomes how many and what kinds of modes would be needed (and could be sufficiently motivated independently) to do so, and whether the unexplored interaction of these modes would prove to be useful in licensing other

unusual coordinations, or a source of overgeneration. And finally, there is the question of what light such analyses could shed on the analysis of coordination phenomena in other languages, or vice versa.

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