ABSTRACT

Title of Document:

THE SYNTAX OF NON-SYNTACTIC
DEPENDENCIES

Bradley Theodore Larson, Doctor of Philosophy,
2013

Directed By:

Professor Norbert Hornstein
Professor Howard Lasnik
Department of Linguistics

In this dissertation I explore the nature of interpretive dependencies in human language. In particular I investigate the limits of syntactically mediated interpretive dependencies as well as non-syntactic ones. Broadly speaking I investigate the limits of grammatical dependencies and note that current theory cannot possibly handle certain dependencies. That certain dependencies evade grammatical explanation requires a rethinking of the representations of those dependencies.

The results of this investigation concern the primacy and the purview of the syntax component of the grammar. In short, the purview of syntactic relations is limited to c-command and if a c-command relation holds between two related elements, a syntactic relation must hold between them, either directly or indirectly. When c-command does not hold between the related elements, a syntactic dependency is not possible and the dependency must hold at a subsequent level of representation.

To show this, I explore interpretive dependencies that I argue only superficially resemble standard, syntactically-mediated relations (such as Wh-gap dependencies). I show that these dependencies are not amenable to analysis as syntactically-mediated relations. These include Coordinated-Wh Questions like those explored in Gracanin-Yuksek 2007, Right Node Raising constructions like those explored in Postal 1974, and Across-the-board constructions like those explored in Williams 1978. Each of these involves an interpretive dependency that I claim cannot be derived syntactically. The above constructions evade explanation via traditional syntactic tools as well as semantic and pragmatic means of analysis.

If the above constructions involve dependencies that cannot be construed as syntactically-, semantically-, or pragmatically-mediated, it must be the case that these otherwise normal dependencies are captured via other means, whatever that may be.

THE SYNTAX OF NON-SYNTACTIC DEPENDENCIES

By

Bradley Theodore Larson

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2013

Advisory Committee:
Professor Norbert Hornstein, Chair and Co-Advisor
Professor Howard Lasnik, Chair and Co-Advisor
Professor Jeffrey Lidz
Professor Alexander Williams
Professor Michael Israel

Dedication

For my family. Mom Dad and Aaron.

Acknowledgements

I've read lots of acknowledgement sections. In my time working as a thesis cataloguer at the University of Washington I was guaranteed an interesting read whenever I flipped to this section and took a peek, so I often did. I remember a lot of them in detail: the urban planner thanking her interview subjects for turning her on to baby bok choy, the two physics dissertators who wrote wild mutually incompatible tall tales about their grad school rivalry, the historian from the Caucasus who described a childhood memory of sitting beneath an apple tree with her grandmother. Each of these was a little window into the lives of people who I would never meet and whose words of thanks would likely sit in the stacks unread for decades. Alas. I'm eager to add my little window even if it's only summarily noted and quickly catalogued. With the decline of printed dissertations, even this probably won't happen. I'd still like to imagine someone like me sitting at their terminal in Monographic Acquisitions and coming across this dissertation and these acknowledgements:

I've read a good number of acknowledgements where the writer claims that it was the hardest part of the whole dissertation to write. This has always made me a bit suspicious. I mean, how easy must it have been to write hundreds of pages of recondite content that a few short blurbs thanking people who have helped you is difficult in comparison? I say this now before I have really started in on this section, but I get the feeling that it's gonna be easy and fun. Saying nice things to people who deserve them (especially when actually sincere!) is a pleasure. So let's start in.

This sort of academic culmination would not have taken the shape it does without countless others helping and guiding me along the way. But I'm just a single person and like celestial bodies to the earth the constellations of people in my life are configured mostly due to chance properties. This is to say that there may be people who shine very brightly but due to distance might not loom so large in these acknowledgements. The people mentioned here are nearest and dearest, but I don't intend to snuff anyone's candelas.

First up are the faculty at the Ling department here at Maryland. I could never do justice to this lyceum on the Paint Branch, but I'll try. My co-advisors Norbert Hornstein and Howard Lasnik sculpted my conception of language, linguisitics, and the mind in such a way that my prior world seems sepia-toned in comparison. I came in to Maryland as a naïve goof who wasn't really sure he was getting into. My conceptions of syntax and linguistics in general were rigid and dumb, but Norbert and Howard managed to gently disavow me of my petty preconceptions and show me much wider, uncertain, and interesting view of language. Per Robert Frost, it's hard to know how much discouragement is good for a man, but Norbert and Howard apparently do. They eroded my biases with their ability to set-up elaborate what-if games spiced with some devil's advocacy. They are able to coax, guide, encourage, and dissuade in ways that I now see as instrumental the shaping of me as a linguist. The bright spots in this dissertation are the result of their hard work just as much as mine.

I can imagine my linguistic life without Norbert's guidance, but I don't enjoy it. It is a really sad sight and pithy paeans don't do justice to his positive influence.

Instead I like to think back on our meetings. It's a tableau with a figure feet-up in a relaxed recline. There's a open package of maple sandwich cookies on a desk next to a print-out of something I've written scrawled red with hieroglyphs. This is the old office so there is a looming omnipresence of books old and new and a few boxes of Fresca. There's some classical music, but it's in the background. In the foreground is a question like "even if it's true, so what?", tossed off with insouciant relish. Norbert knows what not to care about. This clears the way for the things worth pursuing (and in turn worth doing well). There is so much more that I have learned form him, but I think this is the most important. I've also never met anyone as genuine and genuinely kind. I cannot express my admiration.

Similarly with Howard, my linguistic life without him would be pitiful. His rigor and enthusiasm have compelled me to up my game more than I ever thought I could. In my meetings with Howard I would sit across his table from him. To my left was a wall full of older, printed-out dissertations. He gave me the comforting feeling that I too would eventually be able to create something like that. Given his status in the field and renown as a teacher, Howard could easily just coast along, but he does the opposite. Even my most inane ideas he would take seriously as a potential instructive experience. Even the most seemingly anodyne theoretical option he extrapolates from to show its good or bad sides. He can find any potential hidden import in an analysis and situate it the grand scheme of things (or politely inform you that it had already been done decades ago). I hope to be able to do that someday. He is the most giving and selfless person I know.

Colin Phillips, Jeff Lidz, Alexander Williams, and Valentine Hacquard, while not my advisors, shaped my sense of linguistics from afar. Their openmindedness and vision as well as the care and breadth of knowledge that they bring to the task made my time here more stimulating than I could ever have imagined. These were the people whose questions I truly feared and truly needed. The novel perspectives they offer stretch my thinking and gave me a true sense of doing linguistics, not just syntax. They are the all-star line-up that make Maryland uniquely enriching. Colin and Jeff are inspiring as deeply theoretically-minded and driven researchers whose work extends far beyond the chalkboard. I only wish I had spent more of my formative time here engaging with them. They are also great beer partners and Ragnar leaders. They are role models to me as linguists and as well-rounded people. Alexander and Valentine are welcoming, kind, and generous and because of that they made me feel more like a member of the department than any others. It's their presence at the lunchtable and in general that I'm going to miss the most. Alexander is so genuine and admirable. I wish I had met him earlier, but it feels like I actually did. Valentine in my mind *is* my Maryland experience. Our Mt. Pleasant days seem encapsulated in amber and my sappy self treasures them. From outside the department (though just barely) Masaya Yoshida has become a true friend and linguistic confidant. His relentlessness inspires me.

Tonia Bleam belongs in the above section as well, but straddles the line as a teaching mentor and deserves her own paragraph. The dedication and linguistic chops she brings to teaching is what I strive for. I hope one day to be a sharp and quick on my feet as she is.

I would never have made it out to the east coast were it not for the nurturing and inspiring group of linguists at the University of Washington. There I latched on to syntax with classes by Julia Herschensohn and Barbara Citko and discussions with Karen Zagona. Barbara served as my first and most encouraging mentor and I can never find the words to express how grateful I am to her. Without her (continued!) time, effort, and encouragement I don't know where I would be. She is what I aspire to be in a syntactician. Although I was only lucky enough to take one class with Edith Aldridge, she too continues to serve as a lodestar in my syntactic navigations. She is warm and kind yet exacting and precise and I am grateful to count her as a friend. The UW linguistics department is the beautiful loving place that got me on my feet.

Also crucial in stoking the language-related fire under me were Karoliina Kuisma, Andy Nestingen, and Mia Spangenberg from UW Finnish Program as well as Brigitte Prutti, Joe Voyles, and Charles Barrack from the UW German Department. I only wish I had made use of my German and Finnish more in doing linguistics!

In David Berlinski's book Black Mischief (suggested to me by Norbert), he rightly notes that science is pursued, basically, to fill up time. In my case this rings true and I am really lucky to have been able to fill up my time with the particular students in the Maryland linguistics department…

Those students who came before me are in my mind permanent elder statesmen: Marble busts enthroned in some sort of College Parkinglot Valhalla. Alex Drummond and Pedro Alcocer were the first people I stayed with as a wide-eyed doofus in Our Nation's Capital so many years ago. I strived after Alex's command of the literature during my time here, and will continue to do so. Pedro is impressive in

his ability to compensate for his formidable intellect with equal nonchalance. Brian Dillon, Annie Gagliardi, and Shannon Barrios round out that cohort. They made me feel at home out here and proved that you could have a life out here and still succeed at linguistics. Brian (and Jorge) kept me in the loop musically, Annie is a great road-trip buddy, Shannon has preternatural calming effect on me and is luckily always happy to chat. In cohorts above there was Ellen Lau, Tim Hunter, Akira Omaki, and Johannes Jurka who continue to be good friends and inspirations.

In the cohorts below me there are too many people to go through in much detail individually. I will single out Dan Parker and Alexis Wellwood as co-conspirators in some exciting joint projects, general all-around good shit-shooters, and cherished drinking buddies. Kenshi Funakoshi, Sayaka Goto, Darryl McAdams, Carolina Peterson, and Dustin Chacon offer hard-hitting syntactic criticisms and exciting suggestions. I have had my most fruitful and engaging conversations with these people. Sol Lago, Kate Harrigan, and Aaron Steven White are of course great budding-linguists but even more valuable as people who can keep you sane. My memories of our exploits are very important to me.

I am hopelessly biased. I think my cohort is clearly the best possible cohort. I see them (as others have) as a sort of superhero group each with their own superpowers. I think our time was a unique one and that the last five years is a world unto itself. I have never met anyone as simultaneously cheerful, relaxed, and smart as Chris LaTerza. You and Ivana kick ass. Wing Yee Chow always provides clear-headed yet kind advice when I need it and in my nostalgic reveries think back to sitting across from her our first year and chatting. Michaël Gagnon is a steadfast

source of linguistic knowledge and insight to be sure, but our conversations about art (movies!) and life were what I think we both enjoyed the most. I'll miss our movie outings. Terje Lohndal was one of the main forces that led to Maryland. I was lucky enough to have him as a housemate and really get to know him. I've learned so much from him and will surely continue to do so. He is a deeply kind person and I am thankful to count him as a friend. Ewan Dunbar made my transition out here. I remember working on some dead-end project when we first came out to Maryland. I still had zero furniture in DC and we had to make a few trips just to compile a place to work at my basement cubby-hole. Though he's a great linguist, his friendship is what I care about the most.

Dave Kush is my best friend out here. Terje may have convinced me to come to Maryland, but Dave compelled me with physical force. At least that's how I remember it. The gamut of life and experience I've shared with him out here. I love hanging out with him. My blood pressure palpably lowers in his presence. I'll cherish our memories for life.

When I signed up for this gig, I knew I'd be getting some sort of good education. I had no clue that I'd also wind up with anyone as lovely and talented as Shevaun Lewis. She is my inspiration and my comfort. Despite my protestations, she enriches my life and makes me a better person. There's more to say, but not to you.

Blah blah blah. Everything is great and everyone is worthwhile. But we're getting closer to the root. It was my close friends who put in a position to succeed here. They hold me to high standards, amaze me with what they do, and make me

pine for the West. Michael Schmitz, Paul Poechlauer, Jon Essinger, Conner Jeffries, Hélène Martin, and Jessica Smith are why I keep going and why I will return.

And again, my family deserves more thanks than it is possible to give.

Table of Contents

Chapter 1: Introduction

1 The Basic aim

The basic aim of this dissertation is to argue there is a problem with theories of interpretive dependencies: they are insufficient. This is rather problematic and here I make explicit the problem. In particular, I argue against recourse to syntactic mechanisms in explaining certain long-distance interpretive dependencies. Syntax can sometimes be mute concerning these while other components of the grammar step in to do the heavy lifting. In fact, there are certain interpretive dependencies that simply defy our theoretical means of explaining them, be it via syntax, semantics, or pragmatics. There are dependencies that force us to re-think our conception of the grammar and representation of dependencies.

But before getting started I will telegraph my intentions. I do not want to waste anyone's time, so I will try to make clear why you might want to continue on. There are to my mind three types of readers who may be interested in or compelled to at least leaf through this dissertation: 1) Those who are interested in the big picture consequences of this work, yet who might not care so much as to the particular constructions I use as bootstraps to get there. 2) Those who concern themselves with the correct analysis of the constructions that I investigate, but who have other conceptual fish to fry. 3) Those who are compelled by tradition and job description to read this as members of my committee. I hope that none of these motivations is mutually exclusive with any other.

1.1 Reason for reading number 1

So let's see if you the reader fall into any one of these types. First up, a few words on the bigger picture consequences that this work addresses. In this dissertation I address the nature of interpretive dependencies and investigate certain instances of them that defy our current theoretical technology. These dependencies all involve coordination to one degree or another. For some reason dependencies across coordination do not work like traditional non-coordinated dependencies. These relations, since they are not amenable to explanation with our current tools, require linguists to make at least one awkward move: Bolster the representational power of the grammar of interpretive dependencies.

Where this bolstering is to take place, I cannot answer. Instead I show that it is necessary. It will be necessary to at least add to the power of the syntax, add to the power of the semantics, add to the power to pragmatics, or (let's really hope not) add another level of interpretive representation.

That this is necessary will have repercussions for not only the off-line computational representations of these dependencies, but also the degree to which the characteristics of interpretive dependencies ought to be captured by the algorithmic processes of language use. The answer to the problems that these dependencies pose will need to be addressed by some joint venture between the off-line and the on-line and determining the allotted workload will tell us important things about the nature of both systems.

This dissertation takes as its native worldview the perspective of a syntactician. This is what I am and therefore my specific focus will be one syntax, for good or ill. The result of what I say will address interpretive dependencies broadly

construed, but a secondary aim will be to address both the primacy and the purview of syntax with respect to other components of the grammar. Syntax is not an omnipotent computational device and in order to study it fruitfully it is important to limn its boundaries. I use certain constructions that superficially involve traditional syntactic dependencies (wh-dependencies for example) and show, empirically and theoretically, that in certain instances they in fact *cannot* involve syntactic dependencies. In short, our analytic syntactic tools cannot capture all the interpretive dependencies that look on the surface like syntactic ones.

These problematic dependencies must then be mediated via some other, extra-syntactical, means. It is in this sense that this dissertation concerns the purview of syntactic computation. It will turn out that when a syntactic relation is not possible, there may be recourse to extra-syntactic relations that are loose enough to capture the relation. Despite arguing for a more limited reach of syntactic influence, I will nevertheless posit that syntactic dependencies enjoy a sort of primacy over other dependencies. In a sense that will be made clear later, when a syntactic dependency is possible, it must be hold; when a syntactic dependency is not a computational possibility, non-syntactic dependencies are entertained.

Those interested in these broader architectural issues will hopefully find something of interest in the numerous pages to follow.

1.2 Reason for reading 2
How do I get to the point where I am arguing for the grand (maybe po-faced) claims above? Answer: mostly via coordination. The constructions in question are

3

Coordinated-Wh questions (CoWh), Right-node raising (RNR), and Across-the-board movement constructions (ATB) and they are exemplified below in (1-3)

(1)   What and when did Lana read?

(2)   Bruce bought, and Sally sold, the old car.

(3)   What did Bruce buy and Sally sell?

Each of the above examples involves a long distance interpretive dependency that will be shown to be rather odd. Without going into exactly why each dependency is strange, I'll clarify which ones are to be the ones to watch out for.

In (1), the odd dependency will be the one between the first wh-word and the verb that gives it its thematic interpretation. This is shown in bold below:

(4)   **What** and when did Lana **read**?

In the RNR example in (2), the odd dependency will hold between the shared material at the end of the sentence and the verb that precedes the coordinator *and*:

(5)   Bruce **bought** and Sally sold **the old car**.

In the ATB example in (3), the dependency in question will be that between the across-the-board moved element (in this case the wh-word) and the verb in the second conjunct:

(6)   **What** did Bruce buy and Sally **sell**?

The question then is how and why the dependencies in question here are formed, if they are so strange. I argue that for each of these, the dependency between the bolded elements is not a syntactic one. This, despite the fact they look superficially very similar to the ostensibly syntactically derived dependencies of long-distance wh-movement (for CoWh and ATB) and extraposition (for RNR). This runs counter to every other formal approach to these constructions that I am aware of and will surely be of interest to connoisseurs of these and related constructions.

1.3 Reason to read 3

Some readers will be different. No matter how much or how little the above reasons intrigue them, they will primarily be reading because they are members of my committee. These people have my utmost gratitude.

2 The broader picture

2.1 A hierarchy of dependencies

In this dissertation I take as my springboard the following assumptions:

(7)   a.   Syntactic-level dependencies entail semantic-level ones.

        b.   Semantic-level dependencies entail pragmatic-level ones.

This is to say that if a syntactic dependency holds of a sentence, then there is a concomitant semantic-level dependency.[1] This is not such a breath-taking claim. Take for example the syntactic dependency between the wh-word *what* and trace the in (8).

(8)   What did you say t?

Dating back to Chomsky 1957, this dependency has been taken to be the result of a syntactic transformation wherein the wh-word was in the complement position of *eat* at some stage in the life of the sentence. But it is no longer the case that this transformation is merely the formal shuffling around of lexical items within the sentence. Instead, there are interpretive consequences of this movement. In virtue of having moved from its base position and leaving a trace (however traces are to be theoretically construed), the wh-word semantically binds its trace. The wh-word plays the role of operator and binds the trace in the role of a variable. This binding is not something that the syntax directly encodes. The syntax is self-centered and only operators over syntactic entities such as features, and labels, and what have you. Instead this is a purely semantic relation, albeit one that supervenes on the syntactic one. In this sense does every syntactic relation entail a semantic one. Note that the converse is not the case: not every semantic dependency has a syntactic source.

Similarly, every semantic dependency entails a pragmatic dependency. The operator-variable dependency created by the syntactic movement above results in a

---

[1] Morphological agreement may be taken as a syntactic effect that has no semantic repercussions. However, I follow Bobaljik 2005 in taking agreement to be a post-syntactic phenomenon. It however could also be the case that syntactic dependencies merely allow for the possibility of semantic dependencies but do not require them.

logical form that includes a statement like (9). This dependency ensures that the wh-word is interpreted as the same thing as the complement of the verb.

(9)   for what x [you said x]

This basic relation in (9) entails a pragmatic-level dependency of the form: of the relevant things, which one was said by you? Directly addressing entities in this domain of discourse (relevant things, people, etc. in the situation) is not what the semantics codes for, but rather is the domain of the pragmatic component of the grammar. Again, the entailment is one-way. Pragmatic dependencies do not entail formal semantic ones.

The result of this sketch is that we have a chain of unidirectional entailments (>>) like that in (10):

(10)   Syntactic dependency >> Semantic dependency >> Discourse dependency

The form of this hierarchy is nothing new. It dates back to work by Reinhart 1983 (as well as Reinahrt 2000 and 2006 and Grozhinsky and Reinhart 1993) and has seen its most recent formulation in Reuland 2011. These researchers aver that it represents a hierarchy of 'economy' and that syntactic dependencies are the most 'economical' in the sense that they require the fewest resources to compute. Discourse-level dependencies are less economical, take more power to compute, and are shunned in favor of more economical ones when possible.

Under my proposed conception of the hierarchy, the economical syntactic dependency entails each of the putatively more costly dependencies. If there is a syntactic relation, both semantic and pragmatic relations are unavoidable and three total relations are the result. By this metric, syntactic relations are the least economical of all three.

One could conclude from this that the syntactic dependency is the least economical choice because it actually entails all the others. On the other hand, syntactic dependencies could in fact *mitigate* the cost of the other dependencies by guiding them or constraining their domain of application. I will explore this second option in the next subsection.

2.2 Constraints on dependencies

So from the discussion above, it could be that syntactic ones require the most computations be carried out. They force semantic and pragmatic dependencies in turn. It could also be that syntactic dependencies are not more costly, but that they are lest costly in that they are constrained. Semantic dependencies are in turn less constrained than syntactic ones, but more so than pragmatic ones. In this section, I explore this approach.

In this dissertation I take as c-command to be THE syntactic dependency constraint (I will presently discuss what it means to be THE dependency). No c-command, no syntactic relation. Take again our wh-movement example from (8), *what did you say?*. Given the definition of c-command in (11), the wh-word c-commands its trace(s) and I will assert that in virtue of this a syntactic dependency

being ruled in.[2] In (12), the sister of *what* is C', C' dominates the trace: *what* c-commands the trace. The assertion in short: C-command is required of all syntactic dependencies.

(11)   X c-commands Y iff X has a sister Z such that Z dominates Y

(12)   [CP [DP what][C' did you say t]]

Semantic dependencies also require c-command, albeit indirectly. C-command is a strictly syntactical notion and semantic dependencies are simply not directly encoded by c-command. The sketched structure in (12) does not persist into post-syntactic (post LF) logical form and as such nor do the notions of sisterhood and dominance. C-command in the syntax of course does not preclude a semantic relation and given the entailments introduced above, it really couldn't.

Semantic relations instead depend on scope as THE constraint on dependencies. Scope is given a definition in (13) below. This straightforwardly holds for our wh-movement example in (9) (repeated here as (14). In this case the scope-take in question is the interrogative operator *for what x* and its quantificational domain is *[you said x]*. Taking B to be *x*, A scopes over B.

(13)   A scopes over B iff at logical form A has a quantificational domain C such that C contains B.

---

[2] I take this constraint to hold for every derivation step. This rules out the possibility of sideward movement (Nunes 2001). In a later chapter I attempt to re-analyze instances where sideward movement has been profitably used.

(14)   for what x [you said x]

I contend, following May (1977) and others that scope is parasitic on c-command. That is, in order to take scope over something, the scope-taking element must at some point have c-commanded the element within its scope. This c-command can hold in overt syntax like the wh-movement example above or it can hold of covert syntax. Take (15) for example. Here *everyone* does not c-command *they* in the overt syntax. It does however take scope over it in logical form as seen in (16). I again follow May and analyses in that tradition when I assume the quantified DP to move covertly so as to c-command the pronoun at LF. This covert movement is less constrained and because of this, semantic relations are thus less constrained overall than syntactic ones.

(15)   [TP [DP everyone's mother] [T' thinks they are kind]]
(16)   for all x, [x's mother thinks x is kind]

So the relation between *everyone* and the pronoun *they* in the above sentence is not a syntactic one. But thanks to covert movement of the quantified expression, there is a semantic dependency that can hold post-syntactically.[3]

Finally, pragmatic dependencies do not require either c-command *or* scope. Such dependencies can hold across discourses. In these cases c-command and scope

---

[3] This is not to say that the covert movement is not syntactic in nature, but rather that the resulting scopal relation between the covertly moved element in its derived position and the bound pronoun is not syntactic in nature. The covert movement, though not a part of overt syntax, is nevertheless a syntactic relation.

cannot possible hold. Take the dependency between *John* and *he* in the example in (17) (From Reuland 2011:28).

(17)   John has a gun. Will he attack?

The sister of *John* is the T' *has a gun*. This quite obviously does not dominate *he*. Futhermore, the quantificational domain of *John* is only going to be the logical form of the rest of the sentence (*has a gun*) and again, this does not contain the to-be-bound pronoun. The constraint on pragmatic level dependency will need to be pretty loose and not even dependent on the to dependants being in the same sentence. Because of this I take THE constraint on pragmatic-level dependencies to be world knowledge: a rather loose constraint indeed.

In sum, pragmatic dependencies are bounded by world knowledge, semantic dependencies are bounded by logical form (not LF, but rather post-syntactic logical form) scope, and syntactic dependencies are bounded by c-command. Syntactic relations are the most constrained. This raises a question.

2.3 Why do we bother with syntactic dependencies?

If it is the case that purely pragmatic-level interpretive dependencies are the least (read, not at all) constrained representationally, then why are the effects of syntactic or semantic relations ever discernable? In every instance, every possible interpretive dependency involves a pragmatic-level dependency. Further, the constraints on such relations are the same as the boundaries of the individual's world knowledge. Why is

it not the case that human language has the potential for syntactic dependencies always favors the less constrained pragmatic ones? All else being equal, anything ought to go dependency-wise.

Given that we in fact do discern syntactic and semantic constraints on dependencies, it *must* be the case that syntactic dependencies are the default means of construal and that they apply when they can. Anything less allows for the utter obfuscation of syntactic constraints. For example, say there were syntactic constraints that precluded formation of a syntactic dependency between A and B in (18a) below. If pragmatic level dependencies were always equally valid, then the interpretive relation could hold (as in (18b)) and the syntactic constraint would always be moot. A and B could still relate.

(18) a.   A…syntactic barrier…B   Dependency blocked at syntactic level

        b.   A…   …   …B   Dependency fine at non-syntactic level

So we seem forced by empirical necessity to say that syntactic constraints are the default. Is there any reason not to be surprised by this?

I think here is reason not to be surprised by this. The nature of grammatical derivation imbues syntactic derivations with a certain privilege: They occur first. That is, I assume a conception of the grammar wherein its generative capacity lies in the syntax as opposed to semantic or pragmatic representations. As such, syntactic structures are conceptually prioritized and feed semantic interpretation. Take (18a) as a sketch of the syntactic level. The relation is attempted here and fails (given the

syntactic relation barrier). The attempted relation is marked as ungrammatical and this leads to unavoidable syntactic unacceptability. The derivation is deemed ungrammatical at the syntactic level and subsequent interpretive levels (18b) cannot override this since issues of syntactic well-formedness do not fall within their purview.

2.4 When dependencies cannot hold

This has been a relatively informal discussion, but I think it gets at a deeper point. Contra Reinhart's particular formulation, there is nothing *inherently* more taxing about pragmatic dependencies. It is just that the range of possible dependencies within this domain is too great to be the default domain of search. Instead syntax is the default.

But not all interpretive dependencies are mediated by syntax. Take the example in (17) as evidence of that. So under what circumstances is the default not the final answer? To answer this it is necessary to worry about the fundamentals of syntax. Chomsky (2004) posits the Merge is the sole means of building syntactic structure. All else is parasitic on its application either directly via featural relations that hold at Merge sites or indirectly via Agree relations that ride along the infrastructure that is the result of Merge. Syntactic displacement is also derived via Merge, albeit Merge of an element with something that dominates it. That is, we can displace B in (19) below by Merging it with C:

(19)   a.   [C A B]

       b.   [B [C A B]]

I take the term displacement to include both filler gap dependencies and traditional binding theory dependencies following Lidz and Idsardi 1998 (as well as Drummond, Kush, and Hornstein 2011, Zwart 2002, and Kayne 2002 among others). Displacement is the result of Merge-from-within, an instance of the most fundamental (perhaps *only*) structure building operation. There is no way to get syntactic displacement without it and since it necessarily results in c-command we have an answer as to why c-command is THE syntactic relation. Without c-command, a syntactic relation is not a derivational possibility.

Take the relation from (15) (repeated here as (20)). C-command does not hold between the quantifier and the pronoun that it binds. Under the conception of dependencies here, this relation is not possibly a syntactic one.

(20)   Everyone's mother thinks that he is kind.

It could be the case that since the syntactic dependency does not hold, all bets are off and the interpretive dependency is derived via any means necessary. Any means necessary favors the loose and easy pragmatic dependency and world knowledge is all that is required to link up *everyone* with *he*. But this runs into the domain space problem we saw above with respect to syntax. The answer to that problem is to just increase the possible relational domain enough so as to make it

wider while keeping it as constrained as possible. This next step up is the scopal domain. It is important to note that just because the default syntactic sort of relation does not hold, it does not mean all goes awry and that no relation can hold, just not a syntactic one.

There is another way in which a syntactic relation can 'fail' in a way. Take the example in (21). Here we have a syntactic relation (there is c-command), but it fails. The dependency crosses an extraction island:

(21)   *What did you talk about the man who said?

There is an important distinction to be made between the 'failure' of a syntactic dependency in (21) and in (20). In (20) a syntactic dependency 'failed' in the sense that it was not even conceivable definitionally. Instead it was simply not applicable. It failed as a syntactic dependency in the same way that moving a pawn into one's pocket is a failed chess move. It's not a bad move because it's not a move. The terms of the game do not address it. In (20) the overt position of *everyone* is not one that can be moved into given the terms of the game.

The dependency in (21) fails not because it is a definitionally impossible syntactic relation. Instead it is an all too possible syntactic dependency that runs into problems via the interaction of other moving parts in the computation. It failed as a dependency in the same way that moving a pawn one square forward into an occupied location is a failed move. The defined types of pawn movement include movement of one space forward. External circumstances can muck this up however. In (21) wh-

15

words can move to c-commanding spec,CP positions. It just so happens that in (21) there are some other moving parts that get in the way, namely the movement of a null operator into the spec,CP of the relative clause (to pick a theory of this constraint at random).

Finally, when semantic dependencies cannot hold (when scope does not hold), only then are all bets off. Take again our example from (17) (repeated here as (22):

(22)   John has a gun. Will he attack?

Neither the c-command domain nor the possible scopal domain of *John* includes the pronoun *he*. The default and its understudy are not possible by definition as means to capture this relation. How then to achieve the interpretive dependency? At this point the pragmatic level dependency is the last one possible and any means possible to relate the two is available. This gun-wielding character John is relevant and it makes common sense that one would not introduce such a character only to wonder whether someone else might attack. Common sense dictates (or strongly urges) John to be the potential attacker.

But just like syntactic dependencies, so too can semantic ones fail for different reasons. They can fail in the sense of the example in (22) where they are not even definitionally possible. They can also fail along the lines of the island violation in (21). C-command holds in (21) and it is possible syntactic dependency, but it is faulty for other reasons. A similar sort of faultiness can be seen in (23) from Kratzer 1999.

She claims that the German discourse particle *ja* does not allow binding into the clause containing the particle

(23)   *Jeder von diesen Arbeitern hat seinen Job verloren, weil   er (*ja) in der*
       Each of   those workers has his   job lost   because he JA in the
       Gewerkshaft war.
       union   was
       'Each of those workers lost his job because he was in the union.'

Even though the quantified noun phrase *jeder von diesen Arbeitern* takes scope over the bindable pronoun *er*, it is not possible for there to be a co-varying reading between the two when there is the discourse particle *ja* in the lower clause. Without going into exactly why this is the case, suffice it to say that non-structural issues cause the rule out the dependency. Scope of the quantifier over the variable holds, but the dependency is ruled out and the structure never reaches the pragmatic level where greater interpretive powers may have been able to save it.

In sum, I have posited a hierarchy of dependencies with syntactic ones as the primary default. Only when such dependencies are not possible in a strong sense are non-syntactic dependencies entertained. This also holds for semantic dependencies following the syntactic ones. Only when both syntactic and semantic dependencies are not just ruled out but not even conceivable are pragmatic-level relations entertained. This allows us to avoid the problem of syntactic relations being both relatively cumbersome and limited.

3 What is new?

The examples that I have presented so far are mostly old chestnuts of the dependency literature. Wh-movement, quantifier-pronoun binding, and so-called coreference dependencies can be intuitively analyzed as inherently different based solely from their surface properties. One would never expect the relationship between a wh-word and trace within a clause to be the same as the relationship between a name and a pronoun across a discourse. Theoretical, empirical, and superficial considerations all point in the opposite direction.

3.1 Three types of wh-dependency

The novelty of this dissertation is that I show that we can discern different class of dependency with a single dependency phenomenon, filler-gap dependencies. It is possible to capture long-distance interpretive dependencies between fillers and gaps via syntax, semantics, and pragmatics separately. In particular I will assume (it's be argued enough) that examples like (23) are derived via a syntactic dependency between the wh-word and the trace.

(23)   **What** did you say **t**?

This will contrast with examples like (24) where I argue there is no c-command or scopal relation between the wh-word and anything that it might derive

its thematic interpretation from. In absence of these possibilities, pragmatic-level dependencies must be entertained.

(24)   **What** and when did you **eat**?

In (25), there is also no c-command or scopal relation between the filler in the second conjunct and the gap in the first conjunct. This will dictate the interpretive dependency between the two be mediated via a pragmatic-level dependency.

(25)   Bruce bought **e**, and Sally sold, **the old car**.

By explaining the dependencies instantiated in these constructions, I will explain why the seems to be a merely pragmatic-level one in examples like (26) between the wh-word and the gap in the second conjunct:

(26)   **What** did Bruce buy and Sally sell **e**?

3.2 How the arguments will proceed

In order to show that these superficially similar wh-gap relations are in fact very different dependencies, I will go through some basics steps. I will first show conceptually how each dependency matches up with the tripartite distinctions above (c-command, scope, neither). Secondly I will show how, for the interesting cases, there are theoretical and empirical reasons to suspect that syntax is not the answer.

Basically, we do not find the effects of movement. I will then show that the semantic-type dependency cannot hold either. Our last best hope is that a very powerful pragmatic dependency is what mediates the relation. But this too will be shown to not be feasible. This will leave us in the lurch. Our theories cannot work and something must be done.

3.3 Why coordination?

A question arises concerning the test cases in the section above. Each of these (CoWh, RNR, and ATB) involves coordination, but it not immediately clear why this should be the case. One answer is that it is necessarily the case because of the nature of coordination, and in some sense this is true. Coordination is unique in that it's a c-command disrupter that doesn't otherwise affect the core components of the sentence such as altering the information structure or forcing ancillary movements. For example if we want to disrupt the c-command relation between the subject and object in example (27) we can test out the minimally different (28)

(27)   John likes himself

(28)   *John's mother likes himself

Unfortunately, the differences between (27) and (28) extend beyond mere c-command relations. For one, John is no longer an agent in (28). A better test of the c-command differences involves coordination like in (29). While this sentence is still bad, we are better able to argue against the claim that reflexives are licensed by co-

indexed agents, say. This may not be the best possible test, but it is a better one than that in (28).

(29)   *John and his mother like himself

In another sense however, coordination per se is not crucial to the point made in this work. Instead it may simply be the easier means to the end. In each chapter I will provide certain extensions beyond coordination that can (in the light of the coordination examples) be seen as making the same point. For example, very similar things can be said for Parasitic Gap constructions like in (30) as can be said for ATB constructions.

(30)   What did you eat before cooking?

This may be because these non-coordination examples actually in some deeper sense *do* involve coordination. Or it could be that there is a broader description (they involve parallelism in some sense). I do not know the answer, but what I hope to do is pose the question in a sufficiently structured way so as to make an answer possible.

Nevertheless, the generalization stands. The difficult relations cross conjuncts. This is essentially the main result of this dissertation and it is stated below:

(31)   **The problem with coordination:** Current grammatical theory (syntax,

semantics, and pragmatics) is incapable of accurately characterizing and theoretically explaining interpretive filler-gap dependencies that span coordination.[4]

The result of (31) is that we are forced to make important changes to our conception of these grammatical systems. We arrive at (31) because of effects of what I will call the closest dependency condition:

(32)   **Closest dependency condition:** In any one-to-many interpretive relation, only the dependency that holds between the two closest elements shows all the characteristics of a syntactic relation. All other dependencies are not mediated by syntax and behave differently

The condition above describes a generalization that is built up throughout the course of this dissertation. The dependencies that are not the closest lead us to (31). This is an important take-home point of this dissertation and one that will lead to future investigation. I leave it here un-explained.

4 Other concerns

In this last sub-section of the introduction I discuss a few auxiliary concerns of this dissertation, one backward looking and the other forward looking.

---

[4] This holds as long as the interpretive dependency cannot be analyzed as involving ellipsis. More on this later.

4.1 Power differences

Chomsky (1957) argues that phrase-structure rules are insufficient to interestingly capture natural language. In addition to these, transformational rules are necessary. This is perhaps elementary syntax for practitioners, but this bit of history contains an important lesson that is too often overlooked. This dissertation relies on the lesson imparted and it is my hope that this dissertation in some small way keeps it alive in the minds of syntacticians.

First, let's look back at the basics of the motivation to adopt transformations. A In a phrase structure grammar, a sentence like (32a) could be derived with a simple set of rules like those in (33b). However, generating a sentence like (34) requires an additional set of rules. Those in (33b) are insufficient.

(33) a. Bruce was standing.

  b. S → NP aux VP

  NP → Bruce

  aux → was

  VP → V

  V → standing

(34) Was Bruce standing?

This might become problematic quickly. If we were to maintain only a phrase structure grammar, we would have an explosion of phrase structure rules that would essentially be tracking the data without explaining much of it.

For these and other reasons Chomsky argued that examples like that in (33) were derived not just from phrase structure rules, but also that transformation applied to their results. Sentence (33) shares a common ancestor with sentence (31). It is just that (33) has undergone a transformation that (31) has not.

The above discussion is background for a simple but important point. In positing a new, more powerful computational device, Chomsky did *not* in effect scrap phrase structure grammar (footnote about finite state machines). Phrase structure grammars were still part of the theory and they in fact fed the transformations.

This is important because big vacuous controversies have recently arisen due to a misunderstanding of this sort of issue. It seems trivial, but ushering forth evidence in favor of phrase structure grammars (using the above example as a toy case) is not the same thing as arguing against transformations. The possibility of transformations does not force their employment.

This is just one of many types of flaws in reasoning that we find in the debate over the Pirahã language. Everett (2005) purports to show evidence of speakers of Pirahã not utilizing a component of language taken to be fundamental, for simplicity let's call this component self-embedding. These speakers do not show (though the evidence itself is debatable) some superficial exponent of self-embedding. Since self-embedding is claimed by Chomsky as a possibility but not evinced here, then self-embedding cannot be a core component of human language and we should even question its existence. The reader should be baffled at this point.

In addition to the stern reminder about absence of evidence and vice versa, this is also an issue of the capacity of the language system. Just as showing evidence

for the less powerful phrase structure grammar was not evidence against the system

that presupposes it, so too is showing evidence of simplistic communication systems

not evidence against the self-embedding capacity. It is not required that self-

embedding be used. If anything, it is more of an upper limit than a lower limit on

expressivity. An analogy can be found in physics. Einstein claims that the speed of

light is the universal speed limit, nothing can move faster than that. One does not

trumpet to the unknowing masses that Einstein's theory is wrong and issue forth some

grainy footage of a baseball traveling at what looks to be much less than the speed of

light.

With this in mind, I want to make clear that I do not intend to say anything so

silly. I claim that syntactic answers are sometimes not the right ones, but that looser

systems may account for some dependencies without it. This is not the same as

arguing that syntax is dispensable in any wider sense. In fact, I want to in effect claim

the opposite. Syntax is so indispensible that sentences must be strangely contorted to

discern the *absence* of its effects.

Certain analyses in this dissertation may recall the syntax-light analyses of

Culicover and Jackendoff (2005), but I take my syntax-light analyses to be the

exceptions that prove the rule of syntax's primacy, not the normal state of affairs. In

Culicover and Jackendoff's analyses, there is always a little as possible going on in

terms of syntactic structure. Whenever there is an instance of interpretation without

pronunciation, they posit that there are not actually very many null syntactic elements

at all. Instead, there are other generative modules that help out where syntax slacks

off. This is superficially similar to what I claim: when syntax doesn't work, other

systems do. But I argue that syntax is the default and primary generative component. Recourse to other modules is always a second- or third-tier option, not an equally viable one.

4.2 Processing

Another extension of this work is that by divorcing syntactic relations from non-syntactic ones, we can make some interesting potential predictions about the processing of dependencies. We can compare the processing of syntactically-mediated wh-gap dependencies with the processing of purely semantically-mediated wh-gap ones. In doing so it is logically possible that differential effects of syntactic and non-syntactic processing could arise. In fact, in some experiments discussed herein, I argue that it *is* the case that different types of wh-dependency display different processing profiles.

This need not have been the case. It is not a given that psycholinguistic methods need shed light on theoretical concerns. It could be the case that the experimental methods employed are to coarse-grained to pick up on the algorithmic expressions of the underlying computations. That is, it could be the case that syntactic wh-gap dependencies are processed a nano-second faster than non-syntactic ones. In this obviously made up scenario, modern behavioral psycholinguistic methods are not going to be able to show this distinction.

More interesting is that the psycholinguistic methods could fail to evidence different computation dependency for deeper reasons, ones pertaining to the nature of the grammar-parser relation. It could be that syntax works according to its own

druthers and the parser is subject to radically different constraints. Mappings between the two would be complicated and difficult to provide evidence for. In this case there would be no hope for compelling evidence of grammar-parser imbrication any time soon.

Important for the claims in this dissertation is that others (such as Phillips 2006) have brought forth evidence that there *is* a certain degree of transparency between the abstract computation system theorized by syntacticians and the strategies of the human language parser. For many effects it is as if the parser follows quite to the letter the instructions of the syntactic homunculus. Given this initial evidence of transparency, we might expect behavioral evidence to reflect the different dependencies here. They do to a degree, although not in any way that is totally conclusive. Instead, the results suggest future fruitful interactions between current syntactic theorizing and online parsing strategies.

5 A pause before the breach

In this introductory chapter, I hope to have laid out a few things. First, you should know by now whether you will be interested in continuing on with reading this large bit of writing (the bulk of which still lies ahead). Though if you are still not sure, do not abandon hope yet. In the previous sections I have explicated the basic idea of the dissertation and this introduction plus the various additional versions of it in the main text will serve as a sort of Virgilian guide. There will be muck and mire of the minutiae of the particular constructions at hand, but these will be in the end instructive and the reader will be reminded of the broader importance throughout.

The structure is as follows. In chapter 2 I discuss the CoWh construction. Here I argue that a syntactic dependency cannot hold for a wh-gap dependency, nor can a semantic, scope-based dependency hold, nor can a pragmatic dependency hold. In chapter 3, I show that RNR involves a dependency that similarly cannot be captured by any current interpretive system. In chapter 4, I give an analysis of ATB wh-questions that builds off the analysis of RNR. Here we find wh-gap dependencies that are not mediated by syntactic, semantic, or pragmatic relations either. Chapter 5 summarizes everything and looks to the future.

Chapter 2: A Non-syntactic Wh-dependency

1 Introduction

In this chapter I discuss instances of wh-gap dependencies that, I argue, are not

mediated via syntactic movement either overt or covert and are not mediated by any

sort of semantic of pragmatic binding. The construction in which these appear I will

deem Coordinated-Wh questions (CoWh). These are instances like (1) below. Here,

an argument wh-word is coordinated with an adjunct wh-word in what appears to be

an otherwise normal wh-dependency.

(1)   What and when did Becky eat?

I have two main goals with this chapter. The first is to support the central

claims of this thesis: Syntactic relations are the primary, but not sole, means of

deriving long-distance interpretive dependencies. Here we find an instance of a long-

distance wh-dependency that is not mediated by any known syntactic, semantic, or

pragmatic relation.

I also intend this chapter to function as a sort of stand-alone paper on this

construction. I provide a novel account of the problems facing theorists with respect

to this construction and argue against the previous ones. I will begin the discussion

with a short explanation of why the construction is interesting independently of my

broader aims. Following this, I will discuss the specific point I am making.

1.1 Why CoWh? (general answer)

Coordinated-Wh questions are of interest for a few reasons. First, as an empirical explanandum, this construction is particularly odd, at least at first appearance. Generative syntactic theory takes as fundamental certain notions of constituency and compositionality and it is exactly in these cases where these notions do not seem to hold. That is, it is apparently possible to conjoin argument and adjunct in (1), whereas this is not possible generally (2) cf. (3). The sentence in (1) is possible despite the fact that there seems to be a constituent *what and when* that does not compose compositionally.

(2)   *Becky ate a cake and at four c'clock.

(3)   a.   Becky ate a cake and a pie.

         b.   Becky ate at four o'clock and at seven o'clock.

Second, as will be argued more fully herein, previous accounts that attempt to explain away the aforementioned troubling aspects are insufficient for other reasons. While making unremarkable the apparent coordination of argument and adjunct, these other theories make some incorrect predictions concerning the construction.

Finally, what we are forced to say about this puzzle requires exploiting a theoretical possibility that has not been widely explored in the literature. There are no longer any construction-specific operations in current theory and instead structure is built via a generalized transformation Merge. Wh-question formation can proceed in

any way that the structure building component allows so long as the result obeys

grammatical strictures. We are thus allowed two means of question formation. The

first is the traditional way in which a wh-word is initially Merged into its thematic

position before being re-Merged into its operator position, binding its lower position

(taken to be a variable). Another logically possible means of deriving the required

operator-variable representation is to Merge the wh-word solely into its operator

position. It is this latter conception of wh-question formation that I propose is relevant

for explaining the conjoined wh-question data. That is, I propose the following

account of sentences like in (1):

(4)   a.   First, a wh-word is Merged as per usual in its low base position.

        b.   That wh-word is moved to the spec,CP position of the relevant clause

        c.   Simultaneously, another wh-word is Merged with a C-head in another

                derivation workspace, forming a CP.

        d.   These two CPs are conjoined. The wh-word that was base-generated

                via Merge to the C-head is in no possible syntactic (nor semantic or

                pragmatic) relation with the verb and a discourse-level relation must

                be forged.

1.2 Why CoWh? (particular answer)

As explicated in the previous chapter, when an interpretive dependency is not

possibly derived via syntax, other means are available. The next possible means to

capture the dependency is via semantic representation. If this is not possible, then

discourse level representations may do what they can. I argue here that CoWh

constructions are an instance of a syntactic dependency not being possible

definitionally. That is, in contrast to island constraints, there are some dependencies

that are not just ruled out by the syntax in one way or another, but rather inherently of

a sort that cannot be created by the syntax. In this case it is the relation between the

first wh-word in (1) (repeated here as (5)) and the verb that it is interpreted with.

(5)   **What** and when did Becky **eat**?

I argue here that there is no c-command relation between the two and in turn

that the syntax has no role in relating them. Further, there is no scopal relation

between the two: the wh-word qua operator does not scope over any potential

variable that is introduced by the verb. The syntax has nothing to say about this

relation and nor does the semantics. Finally I argue that any coherent notion of a

pragmatic relation will not suffice either.

1.3 Chapter layout

The layout of the chapter is as follows. In section 2 I will discuss the previous

accounts of the construction and show that they are not adequate. Following this in

section 3 I show how the above derivation can capture the basic data in question. This

is a sketch of a possible analysis, but the problems that this construction poses are too

great to be handled by current theory. Section 4 concerns itself with extensions of the

approach here and I present a pair of judgment studies that support the claims made in the previous section. Section 5 sums up the paper.

2 Previous analyses of CoWh

In this section I discuss and critique what others have said about this construction. The previous analyses that I look into exhaust both the traditional and the cutting-edge syntactic approaches to CoWh. I take the fact that no syntactic approach is likely to be correct to urge a non-syntactic approach. Following this section I posit that non-syntactic approach.

The range of syntactic dependencies for CoWh is the same as the range of syntactic dependencies for any long-distance dependency. There are movement relations, deletion under identity relations, and multidominance relations. I explore each of these in turn before turning to my alternative.

First, let's explore our analytical options. In sentence like our, by now familiar, (6) we find the conjunction *and*. In English this coordinator is used to link a constituent on its right to a constituent on its left. The basic constituency to its left is clear: it is *what*. We have two options as to what *what* is paired with on the right. I can either link with the other wh-word *when* or the rest of the sentence *when did Becky eat*. These are shown in (7) below.

(6)　　　What and when did Becky eat?

(7)　　a.　　[[What] and [when]] did Becky eat?

　　　　b.　　[[What] and [when did Becky eat]]?

33

Assuming that only constituents can coordinate, we are not allowed to analyze (6) as involving coordinations like those in (8) as the right hand side coordinands are not syntactic constituents:

(9)   a.   [[What] and [when did]] Becky eat?

        b.   [[What] and [when did Becky]] eat?

There are various approaches to these constructions that either opt of a (7a)- or (7b)-type approach. I will first discuss the (7a) type.

2.1 Taking "coordinated-wh" at face value

If it were the case that the argument wh-word formed a constituent with the adjunct one (to the exclusion of the rest of the sentence) then we would have a true case of wh-coordination. In other words, the sentence in (6) would have a derivation like that in (10).

(10)   [what and when]$_i$ did Becky eat t$_i$?

This is not so far-fetched at face value. It seems possible to front coordinated argument wh-words with the same thematic role like in (11). If this is possible, why not (10)?

(11)   [who and what]$_i$ did Becky see t$_i$?

        The problem lies in the facts that we found above: unlike arguments with the

same thematic role, arguments and adjuncts cannot normally be coordinated as seen

in (12). For this reason alone it should not be possible for them to move together as a

constituent in CoWh constructions.

(12)   *Becky ate cake and at four o'clock.

        There are however other options that exploit a structural analysis in which the

two wh-words do not alone form a constituent. We will explore these below.

2.2 Movement approaches

The first approach is that for a sentence like (13) (I use two adjunct wh-words so the

placement of the traces is not an distraction as it is not so important here), the wh-

words move to their overt positions via multiple independent movement operations.

Abstracting away from the details, the sentence in (13) is given a representation like

in (14). .

(13)   Where and when did Ivy read her book?

(14)   [$_{CP}$ Where$_i$ [$_{CP}$ [and when$_j$] [$_{C'}$ did Ivy read her book t$_i$ t$_j$]]]

This type of approach has been proposed and defended by a number of authors (see Zoerner 1995, Kazenin 2002, Skrabalova 2006, Zhang 2007, and Gribanova 2009). However, these authors generally only apply this analysis for languages that employ multiple wh-movement. I find no reason to contest this analysis with respect to those languages, but this analysis is unlikely to be correct for single wh-movement languages. Such languages only move a single wh-word overtly and thus it cannot be the case that sentences like (13) are derived via two movement operations in a single clause. In English it is not possible to form questions like those in (15):

(15) a. *What when did Becky eat?

      b. *Where when did Ivy read her book?

It is thus impossible wihtout stipulation to propose that a multiple movement approach like that in (14) for coordinated wh-words can be the correct analysis for single wh-movement languages.

2.3 Ellipsis approaches

The reason that the above approach fails is that it couples mono-clausality with movement. There is only one clause in which wh-movement can take place, two wh-words must move, and English does not allow this. If mono-clausality is no longer assumed, then the separate movements can occur in different clauses and not run counter to the generalization that only one wh-word moves per clause in such

languages. This requires a different sort of covert syntax. Recall that we are forced into an analysis like that in (16).

(16)   [What] and [when did Becky eat]?

However, there can be more than meets the eye in that first conjunct. It is a possibility to posit elided elements in there. Under such an ellipsis-based approach there are underlyingly two conjoined full CPs in which a single operation of wh-movement has applied (Browne 1972, Bánréti 1992, Giannakidou and Merchant 1998, and Whitman 2002). A sentence like (16) is thus underlyingly like that in (17):

(17)   [What did Becky eat] and [when did Becky eat]?

The representation in (17) then undergoes sluicing in the leftward clause (18), and the result is the phonologically, the sentence in (16).

(18)   [What ~~did Becky eat~~] and [when did Becky eat]?

This approach does not run into the same problems as the mono-clausal approach, but it is nevertheless unlikely to be correct. First, there is a clear difference in interpretation between the sluiced version and the unsluiced version. That is, (19a) means something different than (19b) does. The choice of a different example here is due to the difference in interpretation being clearer.

(19)   a.   What and where did Ivy sing?

          b.   What did Ivy sing and where did Ivy sing?

The sentence (19b) allows an interpretation in which there are (at least) two independent singings. It is felicitous to answer that she sang the star spangled banner in one instance and that she sang at four o'clock but at another instance but it need not be the star spangled banner. The sentence in (19a) on the other hand can only have the interpretation in (20).

(20)   What did Ivy sing and when did she sing that which she sung?

This difference in interpretation is unexpected if there is merely phonological deletion going on in CoWh. This contrasts with the general case: in (21), the sluiced and un-sluiced version are essentially synonymous.

(21)   a.   Jerry said something, but I don't know what he said
          b.   Jerry said something, but I don't know what.

This synonymy between elided and unelided TPs holds even when the antecedent TP has been vacated by a wh-word. This can be seen in (22).

(22)   Roger was generally aware of when Jerry ate, and Jill was generally aware of

what.

Here it is still possible to get a two-event reading in which Roger was generally aware of when Jerry ate and Jill was generally aware of what Jerry ate. But the eaten things that Roger was aware of need not correspond to times that Jill was aware of Jerry eating.

Another problem for this approach concerns the 'antecedent' of this putative ellipsis. It is generally possible to sluice a wh-word when the antecedent clause contains either an overt or covert indefinite that corresponds to the wh-word. The sluicing example in (23) is acceptability whether there is an overt indefinite (*something*) of a covert indefinite (Ø) serving as the internal argument of the antecedent clause.

(23)   Iris ate (something), but I don't know what.

This contrasts sharply with the conjoined wh-word constructions at issue. It is only possible to conjoin the wh-words if there is no corresponding overt indefinite in the rightward clause as seen in (24). Further, it is not the case that the leftward wh-word cannot possibly precede an overt indefinite correlate as seen in (25).

(24)   What and when did Iris eat (*something)

(25)   I don't know exactly what and when Iris ate, but I know that she ate

        something with garlic relatively recently.

        It seems to be that the leftward wh-word may have an overt indefinite

correlate. The only restriction is that the indefinite antecedent not occur in the clause

in which the rightward wh-word has moved. This is unexpected and unexplained in

an ellipsis account as this can happen generally with sluicing.

        One final problem with the ellipsis account is that ellipsis sites cannot

generally precede their antecedents. Only derived ellipsis sites can precede their

antecedents. This is generally referred to as the Backward Anaphora Constraint (see

Langacker 1969 and Ross 1967) In (26), the ellipsis site (that which follows *who*) is

preceded by its antecedent which is *Dan is dating someone.* This is fine. Also, when

the ellipsis site has undergone a fronting transformation such that it now precedes its

antecedent, the sentence is still fine (27). However when the ellipsis site precedes its

antecedent absent any relevant transformations, the example is ruled out as seen in

(28). The (a) examples below are borrowed from Barros and Vicente 2009, though

the (b) examples are clearer.

(26)   a.   I know that Dan is dating someone, although I don't know who __

        b.   Jim thinks he won, though Bruce does too.

(27)   a.   [Although I don't know who __]$_i$, I know that Dan is dating someone t$_i$

        b.   [Though Bruce does too]$_i$, Jim thinks he won t$_i$

(28)   a.   *I don't know who __, although I know that Dan is dating someone.

b.   *Bruce does too, although Jim thinks he won.

Note that the illicit example in (28) is of essentially the same form as that which the deletion analysis of CoWh would posit. It would be odd if CoWh were a unique exception to this constraint.

2.4 A movement approach

There is yet another possible analysis of CoWh, one that involves ATB rightward movement of the underlined constituent in (29). The underlying form of (29) would look something like that in (30). Here the C' constituent was at some point in the derivation in both the first conjunct feeding the argument wh-movement and in the second conjunct feeding the adjunct wh-movement.

(29)   What and when <u>did Becky eat</u>?

(30)   What$_j$ t$_i$ and when$_k$ t$_i$ [$_{C'}$ did Becky eat t$_{j/k}$]$_i$

This account is not likely to be correct. For one, the movement of intermediate projections like C' is not taken to be possible (Travis 1984). Further, movement like that shown in (30) is predicated on the traces being either syntactically or semantically identical (Williams 1988). This cannot have been the case in (30). Say that (30) was at an earlier stage in a derivation something like that in (31). Here it is clear that the to-be traces are syntactically different in that they contain different

traces. The first conjunct has an argument wh-word trace; the second conjunct bears a adjunct wh-word trace.

(31)   What$_j$ [did Becky eat t$_j$] and when$_k$ [did Becky eat t$_k$]?

It should be fairly clear that this is not a analysis of CoWh that is likely to be correct.

2.5 Our last analytical options

Recall from above that we were forced to analyze CoWh constructions roughly along the following lines. There is some sort of coordination between the wh-word on the left of the coordinator and rest of the clause on the right:

(32)   [What] and [when did Becky eat]?

That first wh-word cannot have moved by itself into that position from the second conjunct's clause, nor could there have been movement or ellipsis of the anything following that first wh-word. We are left with very few analytical options.

One way to analyze the construction is to accept that syntax is not powerful enough to capture the dependency between the wh-word in the first conjunct and the verb in the second. If it is no the case that our means of deriving structure in the first conjunct fail, then maybe there is simply less structure there. This is the tack I take and explicated it further below.

42

Another way is to alter some syntactic fundamentals such that we posit more structure in that first conjunct without relying on deletion to hide it. This may sound cryptic, but this has in fact been proposed I will discuss it now.

2.6 Multidominance approaches

The reason that the deletion account fails is that it crucially relies on ellipsis to allow the multiple movements and thus evade the problems of the multiple movement account. However, positing ellipsis carries along with it further problems as discussed above. The next and final previous account avoids both of these obstacles. One final means of incorporating cover syntax into the construction would be to posit that there are local syntactic relations that are obscured by linearization. This roughly describes the multidominance account proposed for English by Citko & Gracanin-Yuksek 2013 and Gracanin-Yuksek 2007 among others. It is shown in (33) below. To allow (33), it must be possible that a given node may have more than one immediately dominating node.

(33)
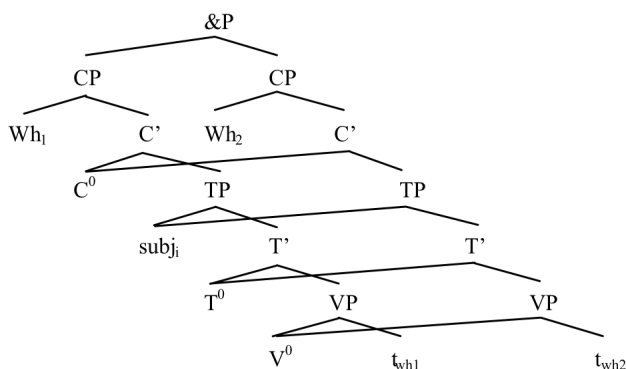
The example in (33) is initially bewildering. Let's go through it. With the above representation, there are in effect two who clauses albeit sharing many of their nodes. For example the V-head combines with two separate elements: an argument wh-word and an adjunct one. This creates two VPs and in effect two spines and two clauses. It is thus possible to allow independent wh-movements in both clauses, crucial for accounting for the single wh-movement case. Further, this approach avoids the pitfalls that ellipsis brings with it. By utilizing a specific linearization scheme, it is possible to produce the string in which the two wh-words (Wh_1 and Wh_2) appear coordinated with one another despite the fact that it is in fact clausal coordination. Without going into the details, this is accomplished by forcing all *shared* nodes (C, spec,TP, T, and V) to be linearized as if they were only in their second, or rightmost position.

This account makes an interesting prediction. Only lexical items that can arise in both clauses independently ought to be allowable in the multidominated nodes. More specifically, for coordinated argument and adjunct wh-words, the relevant verb in the construction must be acceptable either with an internal argument or without. An optionally transitive verb like *eat* fits perfectly as shown in (34) however an obligatorily transitive verb like *fix* will not work (35).

(34)

eat   what   when

(35)

fix   what   *when

44
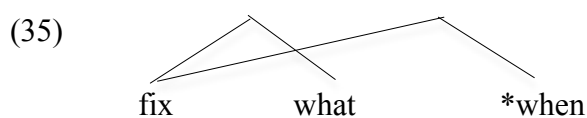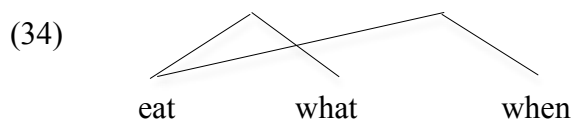
This prediction has already by discussed for English in Whitman 2002 and seems to be borne out in English generally as well as other single wh-fronting languages (examples from Larson 2012). Only optionally transitive verbs are acceptable in argument-adjunct coordinated wh-word constructions.

(36) a.   What and when did Ivy eat?

     b.   *What and when did Ivy fix?

(37) a.   Was und wann hat Dieter gegessen?

            What and when has Dieter eaten?

            'What and when did Dieter eat?'

     b.   *Was und wann hat Dieter repariert?

            What and when has Dieter repaired

            'What and when did Dieter repair?'   (German)

(38) a.   Hva   og   hvor spiste Jon?

            What and where ate   Jon?

            'What and where did Jon eat?'

     b.   *Hva og hvor fikset Jon?

            What and where fixed Jon

            'What and when did Jon fix?'   (Norwegian)

(39) a.   Mitä ja   milloin Matti söi?

            What and when   Matti ate?

            'What and when did Matti eat?'

b.   *Ketä ja   million Matti rakasti?

Who and when   Matti loved

'who and when did Matti love?'   (Finnish)

The multidomiance approach relies solely on the verb type to get the distinctions we see above. The linear order of the wh-words is not relevant in this account and were the wh-word order switched such that the adjunct precedes the argument, the same verb-type split should arise. This is shown below in Table 1.

Table 1. Predictions of the Multidominance account

	Verb-Type: eat	**Verb-Type: fix**
Wh-order: Arg first	**Good**	**Bad**
Wh-order: adj first	**Good**	**Bad**

However, this account runs in problems when the word order of the wh-words is altered. For conjoined adjunct-argument constructions, verb order no longer matters as long as the adjunct is the leftward conjunct. I have shown this rigourously in an experimental judgment study along with other colleagues (Lewis, Larson, and Kush 2012). When the argument is in the leftward conjunct, the verb must be optionally transitive. This is shown in the examples below from Larson 2012:

(40) a.   When and what did Becky eat?

b.   When and what did Becky fix?

(41) a.   Wann und was hat Dieter gegessen?

46

When and what has Dieter eaten

'When and what did Dieter eat?'

b.   Wann und was hat Dieter repariert?

When and what has Dieter fixed

'When and what did Dieter fixed?'   (German)

(42) a.   Hvor en hva spiste Jon?

Where and what ate Jon

'Where and what did Jon eat?'

b.   Hva en hvor fikset Jon?

Where and what fixed Jon

'where and what did Jon fix?'   (Norwegian)

(43) a.   Milloin ja mitä Matti söi?

When and what Matti ate

'When and what did Matti eat?'

b.   Milloin ja ketä Matti rakasti?

When and who Matti loved

'When ad who did Matti love?'   (Finnish)

The multidominance account predicts that (40b) should still be bad because, independently of word order, it is not the case that *fix* can merge with both an argument and an adjunct separately. Since this is the case, we have effectively exhausted all possible structures that can underlie the first conjunct in CoWh

constructions. In the next section I explore one final, syntax-light possibility and argue that the relation between the first conjunct's wh-word and the verb is not mediated via a syntactic relation.

3 Syntax-light CoWh

In this section I present the basic proposal for CoWh. After that I address certain interpretive concerns and explore other consequences of this analysis. In the end, this is but a sketch and I lay out why there are deep problems for the theory concerning this construction.

3.1 The basics

The problem that mono-clausal approaches to CoWh are rather mundane: It is not possible to maintain an analysis whereby two wh-words move in a single clause. The other approaches discussed here avoided this by denying the mono-clausality of the construction while maintaining the two movements. Those were shown to also be insufficient. The approach offered here takes the other logically possible route: it denies the dual movement and maintains (to a degree) the mono-clausilty. That is, for our familiar sentence in (44) only the rightward wh-word has actually undergone syntactic movement. The leftward wh-word is base generated high. Further, there is only one fully formed clause, that of the rightward conjunct. The leftward conjunct is not fully formed. This is shown representationally in (45) with the conjunction taken to be adjoined to the leftward CP (following Munn 1993).

(44)   What and when did Becky eat?

(45)   [$_{CP}$ [$_{CP}$ What C] [$_{\&P}$ and [$_{CP}$ when$_i$ C did Becky eat t$_i$]]]?

Why the structure in (45). It follows fairly simply syllogistically given a few assumptions. First, the element coordinated are the ones underlined in (46). I've argued for this premise already.

(46)   <u>What</u> and <u>when did Becky eat</u>?

Second, given that the second conjunct is clearly a CP, the law of coordination of likes requires that the first conjunct also be a CP:

(47)   [$_{CP}$What] and [$_{CP}$ when did Becky eat]

Third, every phrase is endocentric. This forces there to be a C-head in the first conjunct qua CP. This is shown below in (48). This is the structure in (45) and we do not want to posit any more structure so as to avoid the problems with the previous analyses.

(48)   [$_{CP}$What C] and [$_{CP}$ when did Becky eat]

The sentence in (41) is derived by first Merging the incipient rightward

conjunct into its base position, low in the structure, and then building the structure to

the C-domain. This is shown in (49):

(49)   [C [Ivan$_i$ [t$_j$ eat when]]]

Once the C-domain is constructed, the wh-word will move to the specifier

position of the C-head, as per usual in wh-movement languages. This is shown in

(50). The wh-word leaves behind a copy of itself (shown as a trace here for

typographical ease) that the moved copy will bind.

(50)   [when$_i$ C [Ivan$_j$ [t$_j$ eat t$_i$]]]

Derivationally simultaneouly to this in a different workspace, the rightward

conjunct will be built. This conjunct, as shown above, is not fully formed. It only

consists of a C-head and a wh-word base-generated there. This is shown below in

(51).

(51)   [what C]

For a representation like that in (51) to be licit, it cannot be the case that the

subcategorization constraints apply when the subcategorizing element fails to take a

complement. Nowhere in the course of deriving or representing these sentences will

the leftward conjunct's C-head be merged with a T(P). I am forced to assume here that the subcategorization restriction that states that C-heads must take a TP complement is not enforced vacuously when there is nothing to check it against. That is, subcategorization constraints must take the form: "*if this head takes a complement, the complement must be a(n) ___*". So this is not to say that subcategorization flies out the window, but rather that it is only enforced when there is sufficient fodder for its enforcement, which includes the complement.

At this point, the derivation has produced two CPs, one fully formed with wh-movement having applied, the other inchoate and only consisting of a C-head and an un-moved wh-word. These two CPs are then conjoined as shown in (52):

(52)   [[what C] and [when$_i$ C [Ivan$_j$ [t$_j$ eat t$_i$]]]]

Once this coordination has occurred, the derivation ends. In terms of interpretation, the first conjunct was complete before the conjunct and thus is interpreted no differently than any other sentence with wh-movement. As seen in (53) the first conjunct however was not complete before the conjunct. It is obviously not the case that the first conjunct is acceptable as a sentence on its own (outside of some the context in which there is an antecedent such that (53) could be a sluiced response):

(53) *what

In (53), there is simply no way to interpret the wh-word. It has no thematic interpretation on its own. Only after coordination does that wh-word arrive at a thematic interpretation. The question is then *how* does the wh-word arrive at its thematic interpretation. Below I explore two options

3.2 A semantic binding option

In earlier work (Larson 2012), I have argued that the wh-word in question achieves its thematic interpretation by binding a variable introduced by the verb in the rightward conjunct. Despite the fact that the wh-word in question in (52) does not strictly speaking c-command the verb, it may nevertheless take scope over it.

Why might this scope possibility matter? If there is something relevant for the wh-word to bind, it may be possible to derive the thematic interpretation for the wh-word via this. Without any variable to bind, the wh-word in the leftward conjunct will not be able to arrive at an interpretation and the sentence will be ungrammatical.

Johnson (2001) following Bresnan (1978) posits that the implicit argument introduced by the verb in (54) is a variable that is generally unselectively existentially bound at LF. That is, (54) would have a rough LF representation like that in (55):

(54)   Jane ate

(55) $\exists$x Jane ate-x $\approx$ 'Jane ate something'

It may be the case that verbs like *eat* work for these constructions because they introduce the requisite type of variable. This is the approach I adopt in Larson 2012.

Though I disavow it here, let's explore it.

Verbs with the ability to take null variable internal arguments are the only type of verb that is grammatical when the first wh-conjunct is an argument. Thus, eat-type verbs are predicted to be acceptable with this order and fix-type verbs are not. Fix-type verbs simply cannot introduce null variable internal arguments (56):[5]

(56)   *Jane fixed

The wh-word introduced high in the leftward conjunct lacks an interpretation as there is no relevant variable for it to bind. However, when the wh-word order is changed, a different prediction is made. When the argument wh-word is the rightward conjunct, it has moved there and binds its lower copy. When the leftward conjunct is an adjunct, it can bind null variables that are much more freely available and that do not depend on particular lexical items for their introduction. For example, if the leftward wh-adjunct where *when*, what would be required is some null time-related variable for it to bind. When the word order is changed, whether the verb introduced a null argument variable becomes no longer relevant and the eat-type verb/fix-type verb distinction goes away.

This approach allows for us to capture some interesting distinctions that have been introduced throughout this chapter. For example, sentence (57) differed from

---

[5] It may be the case that *fix* can do without an internal argument, but even so it would not necessarily the case that this missing argument would effect an indefinite interpretation of its internal argument like as is the case with *eat*-type verbs. A transitive verb's meaning might always entail an internal argument of some sort, but this does not mean that the argument entailed needs to be interpreted as indefinite.

sentence (58).

(57)   What and when did Ivy eat?

(58)   *A cake and at four o'clock, Ivy ate.

This distinction arises because the leftward conjunct can only semantically bind a variable if it is inherently quantificational. Wh-words are in fact inherently quantificational whereas the topicalized, referential noun phrase *a cake* is not (see Lasnik and Stowell 1991). The leftward conjunct in (58) is incapable of unselectively binding the variable introduced by the verb; the leftward conjunct in (57) can.

We also saw that null argument of the verb must necessarily co-refer with the wh-word. The sentence in (57) means something like *what did Ivy eat and when did she eat that which she ate*. This inference is captured by the obligatory binding of the null variable by the leftward wh-word. We also saw that when the internal argument of the verb is expressed overtly the sentence is no longer acceptable. This is now captured by the fact that there is no longer any relevant variable to bind. That is, (59a) is ruled out for the same reason that (59b) is.

(59) a.   *What and when did Ivy eat something?

     b.   *What did Ivy eat something?

There are however serious problems with this analysis. First, if the wh-word merely semantically binds a variable post-syntactically, it is unclear why there are

constraints on the case morphology of the first wh-word. This is best seen in examples from Finnish which employs a rich system of case morphology.

(60)   Mitä   ja   milloin Matti söi?

          What.part and when   Matti ate

          'What and when did Matti eat?'

In (60), the argument wh-word *mitä* bears partitiva case morphology. This is the case that the wh-word would have been assigned had it moved from the complement position of the verb. If the only constraint on CoWh is that the wh-word be able to bind a variable, it should be possible (and perhaps necessary) to use a default case here. Cross-linguistically, when a noun appears some isolated position and it is arguable that no movement has occurred (like in left-dislocation contexts) the default case is generally used. In Finnish, the default case is nominative (Kiparsky 2001), but when this is used, the result is unacceptable. This is unexpected if the only requirement of the wh-word is to bind a null variable.

(61)   *Mikä ja million Matti söi?

           What.nom and when Matti ate

          'What and when did Matti eat?'

Another problem concerns prepositions. Certain verbs like *eat* when used

intransitively produce interpretations that correspond to overt indefinite pronouns. There are other similar types of verbs that produce interpretations to correspond to overt indefinite pronouns that must be objects of prepositions. Take something like *complain*. When used intransitively like in (62), it is essentially synonymous with (63) which bears a prepositional phrase:

(62) Dana was complaining

(63) Dana was complaining about something

If it is the case that the indefinite interpretation of (62) is the result of a logical form variable, it should be possible to bind this variable with a wh-word. The fact that the prepositional phrase is for whatever reason required in the syntax is irrelevant. We are talking about post-syntax logical form here. But as seen in (64) and (65), we require a prepositional phrase in a CoWh context:

(64) *What and when was Dana complaining?

(65) About what and when was Dana complaining?

Further, these purported logical form variables are not generally bindable. Williams (2012) notes that these indefiniteness inducing verbs, when used intransitively, cannot be bound by quantified expression that would otherwise be in a position to do so. Compare the example in (66) where the overt pronoun can be understood as bound by the matrix subject. This is not the case in (67) where the

internal argument of the relevant verb does not allow a bound reading (examples from

Williams 2012):

(66) No cake was praised by the student who baked it.

(67) No cake was praised by the student who baked.

So there are morphological, syntactic, and semantic reasons to doubt the

variable binding approach to CoWh constructions. It is simply not the case that CoWh

constructions can be analyzed as having an semantic relation like that in (68) below.

In the following sub-section I explore an alternative.

(68) What$_i$ and when did Becky eat x$_i$

3.3 A discourse dependency

Recall from the first chapter. There I laid out requirements for various sorts of

dependency. Syntactic dependencies require c-command. Given the structure in (69),

there is clearly no c-command relation between the wh-word and the relevant verb:

(69)   [$_{CP}$What C] and [$_{CP}$ when did Becky eat]

For this reason, a syntactic dependency is ruled out. In the above sub-section,

it was assumed that the wh-word could take scope over the second conjunct and thus

bind a variable there. This assumption needs to be explored. Is it the case that an

element in the analogous position can bind into another conjunct? This is not very easy to test. It requires the potential binder to not c-command the relevant conjunct, but rather be in the specifier position of the element being coordinated. In the examples below, the quantified expressions are in the spec,TP position of a coordination of TPs (as forced by the obligatory complementizer). It seems that binding is not possible here. That is, the quantified noun phrases and the pronoun cannot be interpreted as being in a binding relation.

(70) a.   That no one arrived and he stayed at home instead annoyed the host of the party.

b.   That everyone arrived and he had neglected to bring beer annoyed the host of the party.

Compare this with the examples in (71a) and (71b). In (71a) we see that pronouns can exist in the same position above as long as they are not semantically bound. In (71b) we see that binding relations can hold across coordination given that the binder c-commands the bindee. In (71c) we again see that when the c-command relation does not hold, there can be no binding across the coordination: the bound reading of the pronoun is not possible.

(71) a.   That she left and he stayed annoyed the host of the party.

b.   Bruce met every girl and her mother at the party.

c.   Every girl's father and her were at the fair.

So the wh-word does not seem to be in a position where it would be able to take scope over any putative variable. Given the discussion in the first chapter, a semantic dependency cannot possible hold and a discourse-level dependency can be that which relates the two.

In this section I explore a pragmatic/discourse level dependency for CoWh. First I sketch out what it might look like and then I show that this approach also cannot be the right one.

Before going into exactly how this dependency might actually function, I will offer a word of warning. This dependency is not mediated via syntax or semantics. So resorting to syntactic or semantic concepts will not be allowed here. Instead, the dependency at issue between the first wh-word and the rest of the sentence is carried out with recourse to world knowledge. By its very nature this will require a rather superficial and non-technical explanation.

In the relevant example (72), the second conjunct is entirely accounted for. What remains to be ruled in or out is the first wh-word.

(72)   What and when did Becky eat?

At this discourse level, there are very few aspects of this wh-word that are still relevant to the grammar. One is the thematic role of the wh-word. The other is the particular overt morphological form that it should be overtly expressed in. These two aspects would have been already determined had the wh-word moved syntactically,

but since it has not, they need to be determined in some other way. We are beyond the syntactic or semantic levels and cannot derive the wh-word's thematic interpretation using notions proprietary to them. Instead, the grammar must use the superficial lexical evidence available to it. If the wh-word in question is an argument wh-word, its thematic role will be that which is available in the rest of the sentence and is not already assigned to another argument. In (72), there is a verb *eat* and it has already assigned an external role. Because of this, the wh-word will be assigned the internal role. This does not cause the clash that assigning the external role to it would.

The wh-word must also be assigned the correct morphological case in languages that employ this for wh-words. There is a superficial means to derive this as well. The wh-word must have the morphological case that corresponds with that particular role that it now has for that verb. This knowledge is encoded in the lexical entry of the verb, essentially in the form of "theme of *eat*: accusative". This is a plausible bit of knowledge that competent speakers have. For the Finnish example used above (repeated here as (73)), the bit of knowledge required is "theme of *eat*: partitive".

(73) Mitä ja   milloin Matti söi?

        What and when   Matti ate?

        'What and when did Matti eat?'

This precludes the use of default case morphology for the leftward wh-words which is unacceptable as we have seen above. This same sort of constraint holds for

60

wh-words that require particular prepositions to achieve their thematic roles relative to the verb. For the example in (74), the preposition is necessary.

(74)   *(about) what and when was Jill complaining.

Were the sentence to not have the preposition, it would run afoul of the bit of knowledge that states: "theme of *complain*: object of *about*". As long as this holds for the leftward wh-word in CoWh, the sentence will not be ruled out. This sounds pat, but these are the sorts of non-technical explanations this level permits. Again, the syntactic and semantic levels of representation and explanation are in the derivational past at this point. The aspects of the wh-word that remain relevant at this level must be determined with the superficial knowledge available. Aside from the thematic role and morphological case question, there is nothing more that must be determined for the wh-word. If these are satisfied, and if the second conjunct is licit, the CoWh sentence will be grammatical.

Why then are the *fix*-type examples unacceptable? An example like (75), as we have seen before, sounds bad. But if it is possible to find an internal argument for the verb post-syntactically, it is no longer clear why this should be bad.

(75)   *What and when did Becky fix?

However, the verb *fix* is in a position where the gap following it could have been derived via ellipsis. It is unfortunately not possible to elide DPs in English the

gap following *fix* causes the syntax to attempt, yet fail at, an ellipsis-derived structure for (75).

In the next section I explore how this hybrid syntactic (viz. the derivation of the second conjunct) and non-syntactic (viz. the derivation of the first conjunct) account can explain a wide range of CoWh-related data, some new some old.

However, this type of analysis is not going to be possible as the correct one for CoWh. The wh-word gets its interpretation from the verb based on the meaning of the verb. It is independent of any other argument that the verb may have taken. For example, if the verb already has its internal argument, this should not disrupt the relation between the wh-word and the verb. That is, we expect sentences like (76) to be acceptable when they clearly are not:

(76)   *What and when did Becky eat the cake?

Here there is no syntactic or semantic relation between the wh-word and the argument position of the verb. Rather there is simply a pragmatic last resort that the wh-word avails itself of: there is a verb, and it gets its thematic interpretation from it. The second conjunct is fully formed and grammatical, and the relation between the wh-word and the verb is unconstrained. This sentence should be fine. It should be able to bear a meaning like that in (77) (modulo the adjunct wh-word).

(77)   What was such that Becky ate it and the cake.

This is a perfectly sensible question, but it is not what (76) means even if it were acceptable. The power of the syntactic and semantic components was insufficient to capture CoWh constructions. But the power of the pragmatic relation is too great.

3.4 What we are left with

This section leaves us with a deep problem. None of our levels of interpretation representation are able to accurately capture the CoWh construction. A syntactic relation is not possible as there is no c-command. A semantic relation is not possible as there is no scope relation between the two relevant parties. And a pragmatic relation is too powerful to rule out simple bad sentences. These are our only means of capturing interpretive dependencies. They are the only interpretive levels in any sensible model of language (that is, positing a sound-side relation will get us no where with respect to the interpretive dependency). It is not clear how we will be able to fix this problem. Adding a new type of relation at any given level run afoul of what we consider to be fundamental aspects of that level. Even worse would be to add an entirely novel representational level of interpretation.

I come back to this issue In chapter 5, but for now I will explore some extension of the syntactic structure that I argue is behind CoWh.

4 Extensions of the Analysis

In section I discuss some extension and predictions made by the proposed syntactic account of CoWh. I explore further evidence of the lack of movement of the first wh-

word, predictions concerning the linear directionality of the construction, as well as some online psycholinguistic extensions of my analysis.

4.1 Backwards CoWh?

One prediction that this approach makes concerns the directionality of the incomplete conjunct. All of the instances that we have been discussing are ones in which it precedes the more fully-fledged conjunct. Suppose the conjuncts were swapped and the inchoate conjunct followed the main one. The result would be a structure like that represented in (78a) for the sentence in (78b)

(78)   a.   When did Becky eat and what?

        b.   [CP [CP When did Becky eat] [&P and [CP what]]]

Again, I assume a Munn (1993)-style analysis of the coordination wherein it adjoins to the leftward CP. In the above representation, is the non-syntactic approach an option? Well, it is clear that the lone wh-word *what* does not c-command the verb. Nor does it take scope over it. This seems to suggest that again here we need recourse to the a discourse-level dependency. But this is a deception. There is a syntax-level dependency that is derivable here. The sentence in (78) is licit configuration for IP-deletion and can be construed as involving the structure in (79):

(79)   [CP [CP When did Becky eat] [&P and [CP what ~~did Becky eat~~]]]

In (79) the antecedent to the ellipsis is in the correct precedence relation and is not ruled out by the backwards anaphora constraint. Since there is a possible syntactic derivation for this dependency, it must be attempted. Whether it succeeds or fails will determine the grammaticality of the sentence. This contrasts with CoWh where a syntactic dependency is not possible at all and never considered.

This allows us to make a few predictions. These backwards CoWh constructions, call them tag-wh questions (TWh), should show the effects of sluicing in contrast to traditional CoWh constructions. One such effect of sluicing is that of swiping (Merchant 2002). Sluicing is the sole environment in which swiping can take place (80).

(80)   a.   Jane was seen, but I don't know who by (*she was seen)

       b.   Becky was talking, but I can't remember who with (*she was talking)

As noted by Gracanin-Yuksek 2007, swiping is not allowed in CoWh. It must be the case that the prepositions are not inverted:

(81)   a.   *Who by and when was Jane seen?

       b.   *Who with and when was Becky talking?

(82)   a.   By who and when was Jane seen?

       b.   With who and when was Becky talking?

However, Swiping is easily allowed in TWh constructions. This is strongly indicative of a sluicing-mediated derivation.

(83) a. When was Jane seen and who by?

   b. When was Becky talking and who with?

Similarly, unlike the CoWh construction, the TWh constructions is synonymous with its would-be unreduced form and this is indicative a semantics-independent phonological deletion operation has applied. Show below, (84a) and (84b) are synonymous, while (84b) and (84c) are not. The sentence in (84a) can be interpreted as two independent questions but (84c) is asking about a pair of what Ivy sang and when she sang it.

(84) a. What did Ivy sing and where?

   b. What did Ivy sing and where did Ivy sing?

   c. What and where did Ivy sing?

Another distinction between CoWh and TWh concerns overt indefinites. Recall that CoWh constructions with overt indefinites that correspond to the first wh-word are not acceptable:

(85) *What and when did Becky eat something?

However, it is possible for there to be an analogous overt indefinite in TWh constructions as seen in (86). The example is slightly degraded, but definitely much better than (85)

(86)   ?When did Becky eat something and what?

In short, we see that when a syntactic analysis is derivationally conceivable, it is attempted. Despite superficially similarities, TWh and CoWh are derived in radically different ways that are predicted based on the grammatical level hierarchy proposed in chapter 1.

4.2 Lack of movement evidence

Another prediction made by this approach is that the wh-word in the inchoate left conjunct should not show evidence of having moved into that position. In this next subsection I argue that typical signatures of movement go missing with respect to the leftword wh-word in these cases.

First, quantifier float should not be possible when the floated quantifier corresponds to the un-moved wh-word. This is shown below in German, a language with relatively free quantifier float. Only when the argument wh-word is in the rightward conjunct is quantifier float licit, as predicted.[6]

---

[6] It is not clear to me or to speakers I have consulted as to whether more complex wh-phrases are acceptable in CoWh sentences in English. An example is shown below:

(i)   Which cake and when did Joe eat?

(87) a.   *Welche torten und wann hast du alle essen muessen?

which cakes and when have you all to.eat must

'All of which cakes and when did you need to eat?'

b.   Wann und welche torten hast du   alle essen muessen?

when and which cakes have you all to.eat must

'When and all of which cakes have did you need to eat?'

Another argument against movement of the first conjunct comes from the colloquial English wh-phrase *how come* (meaning roughly *why*). Contrasting with other wh-words in English, fronting *how come* does not correspond with auxiliary fronting in matrix clauses:

(88) a.   How come Iris left?

b.   *How come did Iris leave?

When *how come* is coordinated with another wh-word we see a difference arise. Only the right conjunct, namely the one that undergoes movement, determines whether auxiliary fronting is licit.[7]

(89) a.   %When and how come Iris left?

b.   How come and when did Iris leave?

---

[7] Note above that when the lack of auxiliary inversion is what is expected, only some speakers find them acceptable or unacceptable. Here I use the symbol '%' to indicate this. I suspect this has something to do with the colloquial nature of the *how come* construction, but I have nothing definite to say about this.

If the auxiliary fronting does not match what the second conjunct's wh-word requires, the sentence is unacceptable:

(90) a. %When and how come did Iris leave?

b. *How come and when Iris left?

Another prediction that can be made about CoWh concerning interpretations of wh-words vis a vis quantifiers. To see this, first note the interpretive possibilities when extracting wh-words across *everyone*:

(91) What did everyone eat?

The question in (91) can be answered in two ways. It can be answered with what is known as a function answer like in (92a) or with a pair-list answer like in (92b):

(92) a. Everyone ate apples

b. John ate apples, Mary ate pears…

This is relevant because pair-list readings of wh-questions (or readings of wh-questions that allow for answers like in (92b)) rely on reconstruction of the moved

wh-word into its base position (see Hornstein 1995 and Agüero-Bautista 2001). If reconstruction is not possible, then pair-list answers are not possible.

When the wh-word has not moved, like as I hypothesize for CoWh, it should not be able to reconstruct and in turn not allow pair-list answers. This seems to hold. The example in (93a) can only felicitously be answered with a functional reading: an answer like that in (93b) but not (93c).

(93)   a.   What and when did everyone eat?

        b.   Everyone ate apples at noon

        c.   John ate apples at noon, Mary ate pears at two, …

When the argument wh-word has moved, the ambiguity holds for the argument, but is lost for the first wh-word, in this case the adjunct one. The sentence in (94a) can only felicitously be answered with (94b), not (94c)

(94)   a.   When and what did everyone eat?

        b.   At noon, John ate apples, Mary ate pears, …

        c.   John ate apples at noon, Mary ate pears at two, …

The first wh-word has not moved and cannot reconstruct. It only allows the functional reading. These judgments are admittedly subtle, but I have confirmed them with numerous naïve native speakers.

We find another instance where movement effects are not felt with islands. In order to get this argument off the ground, it is first necessary to show that CoWh dependencies can hold across multiple clauses. This is indeed the case as seen in (95).

(95)　　What and when did Joe decide to eat?

Now we can make some interesting tests concerning island. Chomsky 1986 and others note that non-finite wh-islands preclude adjunct movement, but not argument movement. That is, moving an argument wh-word from within a non-finite wh-island is judged to be better than adjunct extraction from the same sort of clause. This is shown below in (96a) and (96b).

(96)　　a.　　What was Joe wondering whether to eat?

　　　　b.　　*How was Joe wondering whether to eat?

The example in (96b) is not acceptable under the relevant reading. The relevant reading is the one in which the question is interpreted as asking about the manner in which Joe was wondering whether to eat in that manner.

There seems to be a difference in CoWh. When the adjunct wh-word is the first of the two, the reading that is blocked for (96b) is now allowed. This is expected under the analysis in which there has been no movement of the wh-word, but rather base-generation in an extra-island position. In short, the sentence in (97) can be interpreted as asking about the manner and the thing that Joe was wondering whether

71

to eat that thing in that manner. An example of a felicitous answer might be: Sushi, chopsticks.

(97)   How and what was Joe wondering whether to eat?

When the order of the wh-words altered, the adjunct wh-word is now in a position where it must have moved. Because of this, it should be subject to the island constraint. This seems to be the case in (98) which cannot be interpreted and answered in the same manner as the question above.

(98)   *What and how was Joe wondering whether to eat?

Another repercussion of the movement-less analysis is that if the leftward wh-word is an adjunct, the rightward one need not just be an object wh-word. In previous studies of the CoWh phenomenon, it has been argued that subject wh-words cannot take part in CoWh constructions by presenting examples like (99a). Examples like (99a) are ruled out here because there is no variable for them to bind, but when the subject wh-word appears in the rightward conjunct, the result is a fine sentence as seen in (99b-c).

(99) a.   *Who and when saw the movie?
     b.   When and who invented the television
     c.   When and who did Bill say disappeared?

The contrast again is not predicted by the multidominance analysis which holds that subject wh-words in English should never be possible conjuncts in CoWh constructions.[8]

4.3 Psycholinguistic evidence

The sort of analysis is potentially interesting from a psycholinguistic point of view. There has been recent work showing that online parsing strategies display a substantial degree of fidelity to the constraints of the grammar. For instance, Philips (2006) has shown that active gap filling mechanisms obey syntactic island constraints. That is, the parsing processes though which displaced elements are integrated in their loci of thematic interpretation are discerned by certain online processing slowdowns. These slowdowns do not arise in locations in the sentence where the displaced element could not have moved from.

Parsing strategies are thus transparent in a sense. The structural constraints that we find in online intuitive judgments and in grammatical theories shine through when interpreting a sentence online. This is relevant to my analysis of CoWh constructions because the wh-dependency between the first wh-word and its verb is radically different theoretically from a traditional wh-dependency. We might expect that this difference might be reflected in online parsing. This suspicion led me and

---

[8] It is not licit for a CoWh construction to consist of a leftward argument wh-word and a rightward subject wh-word:

(i)   *What and who ate?

It is not clear to me why this should be the case.

colleagues Shevaun Lewis and Dave Kush to devise an experiment to that would show whether these non-syntactic dependencies show the effects of active gap filling.

The particular active gap filling effect that we tested was the filled gap effect Stowe (1986), Tanenhaus et al. (1989). Filled gap effects arise when the parser attempts to integrate a displaced element in a position that is already filled by a similar element. In an example like (100), the parser will attempt to integrate the wh-word into every possible location as the sentence unfolds. One such spot is the position following the word *eat*. This is a viable locus of interpretation for the wh-word and the wh-word is plugged in therer. However, it soon becomes clear that that position is already filled. The direct object *lunch* is in that position and this causes a clash: the wh-word is cannot be interpreted in that position because something is already there. As the sentence continues to unfold a licit locus of interpretation arise in the form of the complement of *with* and the wh-word achieves its thematic interpretation. Nevertheless, the slowdown in reading-time happens.

(100)   What did you eat !lunch! with

The question is whether filling the gap that corresponds to the first wh-word of a CoWh construction would cause a similar slowdown or not. We created an a self-paced reading experiment that compared the following three types of sentence. In (99a) the attempt to integrate the wh-word with the verb should effect a filled gap effect because there is already a noun in its complement position. In (101b) there should be no such effect as the adjunct wh-word is not vying for argument position

74

that *something* is in. Example (101c) is the real test case. Would the presence of a filled gap in the CoWh sentence cause a slowdown or not? Would it have a reading-time profile like that of (101a) or (101b)?

(101)   a.   What did Dan eat something?

         b.   When did Dan eat something?

         c.   What and when did Dan eat something?

The results for filled gap effect for sentences like that in (101c) showed no slowdown at the filled gap site. Instead, the CoWh sentences with filled gaps patterned like the adjunct-only sentences like in (101b). The sentences in (101a) did however show the effects of filled gaps. These results are displayed in figure 1 below from Lewis, Larson, and Kush 2012.

Figure 1
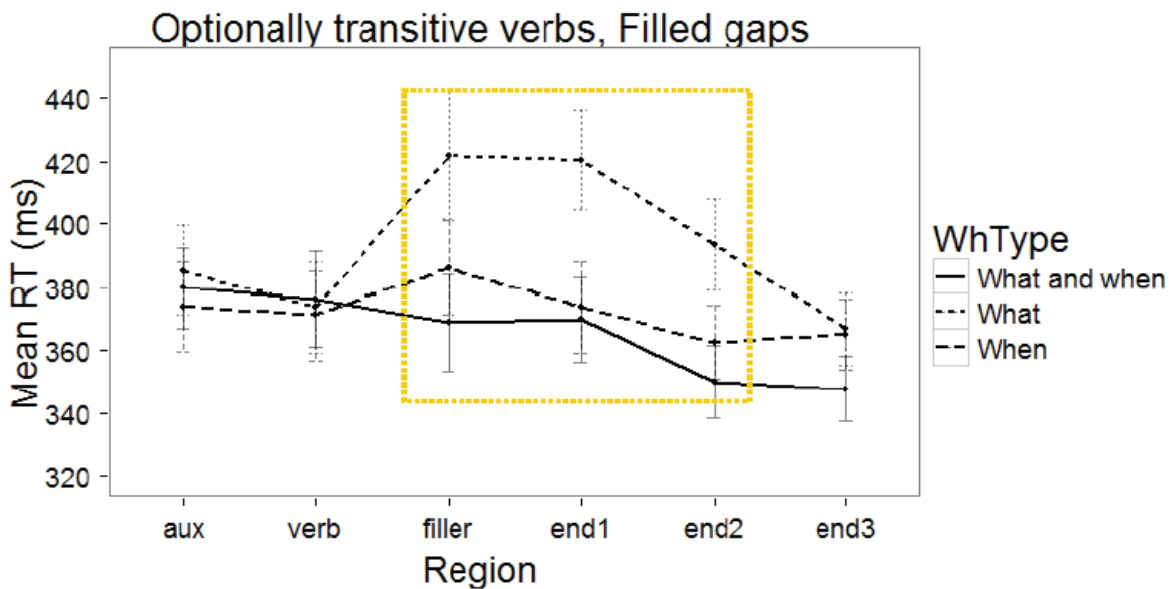
This is evidence that the dependency formed between the wh-word and its verb in CoWh constructions is of a different type from that in traditional movement. The analysis proposed here readily makes sense of this data. Filled gap effects are in part due to the parser reflecting the syntactically-mediated relation. When this relation does not hold, nor does the effect.

4.4 Summary

I have shown in this section that there is evidence to believe that the leftward wh-word in CoWh does not undergo movement. The leftward wh-word does not allow for quantifier stranding, does not affect auxiliary inversion, and is not subject to weak islands. This is predicted only under the syntactic account presented here in which that leftward wh-word does not actually move. This account further predicts an asymmetry between a left-conjoined wh-word and a right-conjoined one, the latter being derived via ellipsis which is a possible derivation in that order. Finally, this account is further bolstered by psycholinguistic evidence that suggest that a non-syntactic dependency is that which mediates the first wh-word to its locus of interpretation.

This is still not very satisfactory however. There is a syntactic account for a wh-word that is never met with an explanation as to how that wh-word gets its interpretation. Again, this is a deep problem that will require more than a syntactic solution to answer.

5 Conclusion

In this chapter I have attempted three things. The first was to show that the current

analyses of coordinated wh-questions do not readily account for the range of data in

CoWh constructions. Second, I argue for a new approach for CoWh in single wh-

fronting languages. More importantly, to the extant that the analysis presented is

syntactically correct, I have shown that a syntactic, semantic, and pragmatic relations

cannot capture the relevant dependencies here. The only option left is a to change our

notions of interpretive representations. In this section, I recap these results.

5.1 Other accounts are wrong

None of the previous approaches can handle the range of data seen with these

constructions. Mono-clausal approach necessitates too many independent movements.

The ellipsis approach skirts that problem by using multiple conjoined clauses coupled

with backward sluicing, but this approach is burdened by working rather differently

that the sluicing constructions it is modeled after. The multidominance approach

avoids both the movement problem and the ellipsis problem by maintaining a two

clause approach while deriving the appearance of ellipsis via a particular linearization

scheme. This approach however fails to account for effects of wh-word order.

The last best syntactic option is to hold that there is no syntactic relation

between the wh-word and the verb. This is interesting also for the following reason. It

has been taken as axiomatic that the creation overt long distance dependencies is

monolithic. It is either always derived via a transformation (in Chomskyan theories)

or always captured via lexical properties (in transformationless grammars). In pre-

Minimalist theories, this monolithic approach to movement was indeed unavoidable

in that thematic relations were necessarily determined in certain D-structure positions

and nowhere else. It was thus impossible for a wh-word to arise apart from its

relevant verb without having moved. In current Minimalist theorizing, it is no long

axiomatic that movement feeds overt long distant dependencies. It is merely a widely

held assumption. The arguments and evidence presented here challenge that

assumption and any other uniform approach to overt wh-movement.

This is not the only instance where 'wh-movement' need not be derived via

syntactic dependencies. In the next chapter I investigate a similar instance of a

discourse-level dependency that also bucks the syntax-interpretation isomorphism.

5.2 All currently possible accounts are wrong

The analysis here shows that CoWh constructions are not completely analyzable via

syntactic, semantic, or pragmatic operations. The wh-word neither c-commands nor

scopes over the position that it is interpreted in. Further, a pragmatic dependency is

too powerful to rule out the bad sentences. The syntactic dependency, crucially

mediated by c-command, is not possible and can neither succeed nor fail. The same

holds for the scopal relation. The defaults cannot hold and the more powerful option

comes to the rescue, but is too powerful and cannot work either.

Chapter 3: A Sparse Approach to Right Node Raising

In this chapter I discuss right node raising (RNR), the challenges it poses for current syntactic analysis. I have two main goals here. First I hope this chapter can stand alone as a discussion on RNR in particular. Second, the particular approach advocated for here should serve as a column in the main thrust of the dissertation. I show that the theoretical syntactic toolkit at hand for grammatical phenomena is insufficient to capture the characteristics of RNR. Much worse, the toolkits of semantic and pragmatics also do not work.

I argue for an approach to RNR that will succeed in avoiding the pitfalls that current syntax-based approaches the others run into. Again, this cannot be the whole story as there is no offered means of capturing the interpretive dependency. I call this alternative syntactic approach a "sparse" approach to RNR. It is sparse in the sense that less is attributed to the syntax than the current analyses. For example, that there is a gap in all but the last conjunct of RNR sentences is due to there not being any grammatical entity there to pronounce. That is, nothing there has been elided or vacated. In short, I propose a representation like (2) for the example in (1) (I assume an analysis of coordination along the lines of Munn 1993 where the second conjunct adjoins to the first).

(1)   Ivan bought, and Ivy read, the book.

(2)   [[Ivan bought] [and [Ivy read the book]]]

The interpretive dependency between the shared material and its locus of interpretation are shown below in (3), the shared material underlined and the verb in the first conjunct taken to be the locus of its interpretation. Capturing this dependency will be shown to not be possible given the current state of grammatical theory.

(3)   Ivan <u>bought</u> and Ivy read <u>the book</u>

This sort of sparse account is not intended as a disavowal of covert syntax in general as there is ample evidence of such elements. Rather, RNR is offered as an instance where there is evidence of a lack of covert elements where one might expect them. That this is the case forces us to adopt a non-syntactic approach.

1 Background

The sentence in (1) is typical of RNR sentences: there are two conjuncts that involve an element that is interpreted in both conjuncts despite only being pronounced once, to the right of the final conjunct. This is superficially similar to many other familiar constructions. It is fairly common for human language to display a sort of 'interpretation at a distance'. In (1) above, the internal argument in the second conjunct is also interpreted as the internal argument of the first conjunct. Now, it is usually the case that all else being equal internal arguments appear adjacent to the verb they are the argument of. This is not the case in (1) and hence we have an instance of interpretation at a distance. Other such instances are found in wh-displacement (4), raising and control structures (5), and ellipsis (6).

(4)   What did you fix?

(5)   a. The dog seems to have eaten the roast beef.

        b. The dog wants to eat roast beef.

(6)   a. Lana bought a book and Jim did too

        b. Lana left something, but I don't know what.

In (4) above, the internal argument of the verb (*what*) does not appear adjacent to its verb despite being interpreted as composing with it semantically. In (5), *the dog* is interpreted as the external argument of the embedded clause yet it appears in a distant position. In (6), elements from the antecedent clause are used to interpret gaps in the subsequent clause.

For each of the instances above, syntacticians have resorted to various tools to explain the long-distance interpretation of the overt elements in each position they are interpreted in. The example in (4) is captured by recourse to a grammatical movement transformation in which the element in question was at some point actually in its interpreted position and still bears a tight relation with the position via some syntactic residue (trace or copy) and relation between that position and the overt one (chain or coindexation). There have also been analyses of (4) in which the overt element is simultaneously in its overt position and in its place of interpretation. Under such analyses there is a particular process of externalization that forces the interpretation of the element in the displaced position.

The examples in (5) have also been analyzed as the result of syntactic movement operations wherein the matrix subject was at some point sitting in the embedded subject position (Hornstein 1999). The example in (5b) has also been analyzed as involving a null element in the embedded subject position. This embedded element bears a special relation with the matrix subject and derives its interpretation from it.

Finally, the examples in (6) have been analyzed as the result of an operation that rids elements of their phonetic expression. The antecedent clauses in (6) help fix the interpretation of the unpronounced elements, but the elements are 'still there' syntactically and in turn cause a certain semantic interpretation independent of the antecedent clause.

In sum, interpretation at a distance in mainstream generative syntax is captured by movement operations, null element base generation, and phonological deletion. These are the tools in our toolkit and the question that I tackle here is this: is RNR is an instance of interpretation at a distance? If so, which, if any, of the tools in our toolkit adequately captures its properties?

2 Basics of RNR

First, let us look at the basics of the construction. In addition to the basic RNR-type sentence above, it should be noted that RNR can involve an unbounded number of conjuncts (7):

(7)   Ivan bought, and Iris heard about, ... and Ivy read, the book.

Further, there does not appear to be any restriction on the type of element that can serve as the shared material. The evidence shown in (8) below speaks to the construction's categorical promiscuity though by no means should be taken to delineate the limits of the construction.

(8)   a. Ivan said, and Mary denied, that Iris had been there.

    b. Ivan said that Mary, and Ivy said that John, should read the book.

    c. Ivan should, and Ivy must, attend the class.

    d. Ivan sold, and Ivy donated, a book to the school.

    e. Ivan donated a book, and Ivy donated a chalkboard, to the school.

Any approach to RNR should be general enough to predict the above examples. That is, no reference ought to be made to particular categories or grammatical features. In addition to this, the construction appears to be cross-linguistically ubiquitous (if not universal). Shown below are but a few examples from disparate languages. I know of no language that has been found to lack this construction.

(9)   German:

    Hans soll   und Ute muss heimfahren

    Hans should and Ute must home.go

    'Hans should, and Ute must, go home.'

(10) Tagalog (from Sabbagh, 2008):

Hindi nagluto' ng bigas at hindi kumain ng fish abs same woman

not cooked erg rice and not ate erg isda ang parehong babae

'The same woman did not cook rice and did not eat fish.'

(11) Mandarin:

John hui dan Mary bu-hui mai na-ben shu

John will but Mary not-will buy that-CL book

'John will, but Mary won't, buy that book.'

(12) Hindi:

Shiti-ne seb aur Ivan-ne nashpati khay-ii

Shiti-Erg apple(Masc.) and Ivan-Erg pear(Fem) ate-Fem

'Shiti [ate] an apple, and Ivan ate a pear.'

(13) Japanese (from Saito 1987):

John-ni hanao, sosite Bill-ni tyokoreetoo Mary-ga okutta (koto).

John-to flower and Bill-to chocolate Mary sent fact

'Mary sent flowers to John, and she sent chocolates to Bill.'

(14) Russian (from Asarina 2011):

On ne soxranil, a vybrosil, pechen'e iz poezdki v Angliju.

he not kept, but discarded, cookie from trip to England

'He did not keep, but rather threw out, cookies from a trip to England.'

RNR can involve phrases of any category and is cross-linguistically mundane. It therefore deserves an analysis general enough to make those facts unsurprising. Were

RNR to be subject to features (in the general or technical sense) that are proprietary to a particular set of languages or subject to any sort of theoretical parameters it would have to be considered coincidental that so little variation is seen empirically. The approach offered here is one that predicts the ubiquity of the construction as it relies on aspects of grammatical computation that have been assumed to be universal and invariant, namely simple syntactic structure building and semantic composition. The extent to which an analysis relies on grammatical elements subject to language-specific idiosyncrasies is the extent to which it should be doubted.

In the coming section, I discuss the current analyses and show them to be inadequate. The arguments are based on empirical evidence, but the more or less methodological considerations above should be kept in mind.

3 Previous Accounts

In the previous section I noted the various means of capturing interpretation at a distance and wondered which of these might be profitably used in analyzing RNR. In this section, I argue that none of them can. In short, the study of RNR finds itself at an impasse. There are currently three main avenues of analysis for the construction that more or less exhaust the toolkit introduced above. Unfortunately, each is inherently incapable of accounting for certain data points. The same features that grant each of them certain successes preclude them from extending to recalcitrant cases. The three cannot account for the data by working on their own and they cannot work in concert either. Such is the source of the dilemma. This dilemma prompts the new analysis offered here.

The three accounts are Deletion, Movement, and Multidominance, and each

enjoys strong support in the literature. In what follows I will discuss the merits of

each as a prelude to the stubborn facts that are unaccounted for. Following this, I

show that the analyses cannot work in concert to handle the data either.

3.1 Deletion

Proposed most notably by Wexler and Culicover (1980) (see also Kayne 1994,

Wilder 1997, Hartmann 2000, Ha, 2006, An 2007, and Ince 2009 among others) the

deletion account holds that an element in the first conjunct is phonologically deleted

under some form of identity with an element in the second conjunct, just like in VP-

deletion. Portrayed graphically, this operation takes a string like (15) and generates a

string like (18).

(15)   Ivan bought the short stories and Ivy read the short stories.

(16)   Ivan bought [the short stories] and Ivy read [the short stories].
                                   |_____identity_____|

(17)   Ivan bought [~~the short stories~~] and Ivy read [the short stories].
                                   |_____deletion_____|

(18)   Ivan bought and Ivy read the short stories.

3.1.1 Advantages
The analysis straightforwardly captures the fact that there always exists in RNR an

overt element in one conjunct that is also interpreted in the other one despite not

appearing there overtly. It also predicts some surprising facts about RNR: island

insensitivity and vehicle change capability.

Islands are violated when an element is extracted from inside one. Under the Deletion analysis no movement occurs in deriving RNR, only deletion. We should thus expect that when an element is right node "raised" (i.e. deleted) out of an island there is no violation. And this is indeed the case, as shown in the complex NP island below (adopted from McCawley 1982). The sentence in (19a) is derived from that in (19b):

(19)   a.   John knows a man who sells, and Fred knows a man who repairs,

                     washing machines.

        b.   John knows [$_{island}$ a man who sells ~~washing machines~~] and Fred knows

                     a man who repairs washing machines.

In addition to this, the Deletion (qua deletion of the same sort as VP-deletion as is uniformly assumed) account correctly predicts that certain binding principle violations can be avoided via vehicle change (Fiengo and May, 1994). Example (20c) in its un-deleted form (20a) represents a Principle C violation. If deleted, the offending bound R-expression can undergo vehicle change into a more suitable guise. That is, at LF the R-expression can be represented as its pronominal correlate. The same goes for the RNR example in (21) as shown by Ha (2006).

(20)   a.   *Mary [loves John$_i$] and he$_i$ thinks Sally does [love John$_i$] too

        b.   Mary [loves John$_i$] and he$_i$ thinks Sally does [~~love him$_i$~~] too

        c.   Mary [loves John$_i$] and he$_i$ thinks Sally does too

(21)   a.   *He$_i$ hopes that Susan won't [fire John$_i$], but the secretary knows that

she will [fire John$_i$]

b.   He$_i$ hopes that Susan won't [~~fire him$_i$~~], but the secretary knows that

she will [fire John$_i$]

c.   He$_i$ hopes that Susan won't, but the secretary knows that she will [fire

John$_i$]

These are strong predictions, correctly made under a Deletion account, but

there are other data points that such accounts cannot easily handle. In the next section

I lay these out.

3.1.2 Disadvantages

Because the Deletion account does not posit any movement to derive RNR, the

account is able to predict that it is island insensitive. But the fact that no overt

movement has taken place also will essentially preclude scope ambiguities from

arising.

To see why this is precluded, consider the following. As noted by Bošković

and Franks (2000), there is no scope ambiguity in (22). Only surface scope is

available:

(22)   Some delegate represented every candidate and nominated every candidate.

That is, the above sentence cannot have a reading in which the universal

quantifier scopes over the existential. This would be a reading in which for every

88

candidate, there was a different delegate that represented and nominated them. In order to get a existential quantifier scoping low, it is necessary for it be low in the surface form like in (23). This sentence only has a reading in which there is only one candidate that is represented and nominated by every delegate.

(23)   Every delegate represented a candidate and nominated a candidate.

   This contrasts with the monoclausal examples in (24) in which there is no obvious overt movement, yet there is indeed scope ambiguity.

 (24)   a.   Some delegate represented every candidate.

          b.   Every delegate repsented a candidate.

   Bošković and Franks (see also Cho and Zhou 1999, Wu 1999, and Citko 2005) take the above data point to suggest that there are no across-the-board covert movement operations. Whereas we can grant a covert Quantifier Raising operation to get the scope facts in (24), granting the same ability in (22) and (23) where there is a quantified expression in each conjunct would falsely predict two available scope readings. That is, when two identical quantified expressions arise in separate conjuncts, they cannot take wide scope. We can't get the reading that across-the-board QR would grant and as such we do not want to posit this covert across-the-board movement as a possibility.

In more agnostic terms, the data above at least shows that elements that are in some sense identical in coordinated structures cannot scope high. Taking this to be the case, the Deletion analysis would predict that RNR sentences also fail to display scope ambiguity. Though covert at PF, the deleted elements in (25a) still exist at LF (25b).

(25) a. Some policeman arrested, but ended up releasing every teenager who was near the crime scene

b. Some policeman arrested [~~every teenager who was near the crime scene~~] but ended up releasing every teenager who was near the crime scene

However, there is indeed scopal ambiguity in (25a) despite the fact that at LF, it would have two universally quantified elements just like the unambiguous (25b). In sum, in the case of island sensitivity, deletion doesn't involve movement and the right prediction is made; in the case of scope ambiguity, deletion doesn't involve movement and the wrong prediction is made.

As with the advantages and disadvantages stemming from the lack of movement in such accounts, so too does the deletion aspect of the account bring with it good and bad. While phonological deletion predicts the vehicle change facts, it sets the account up for failure in dealing with relational modifiers. Conjunction reduction accounts of coordination traditionally cannot handle sentences where reciprocal anaphors are deleted:

(26)   a.   Ivan and Ivy saw each other   *cannot be derived from:*

       b.   *Ivan saw each other and Ivy saw each other.

Also, the interpretation of (27a) differs from its un-reduced form in (27b). That is, in (27a) the books that Ivan read are similar to those that Ivy read yet in (27b) the books that Ivan read were all of a type, similar to each other and independent of Ivy's books.

(27)   a.   Ivan and Ivy read similar books.

       b.   Ivan read similar books and Ivy read similar books.

Similar facts are problematic for Deletion accounts of RNR. The sentence in (28a) differs from its un-reduced form, shown in (28b). The interpretation of *similar* below tracks those of the pair above (similar arguments to this effect can be found in Abels 2004).

(28)   a.   Ivan wrote, and Ivy read, similar books.

       b.   Ivan wrote similar books and Ivy read similar books.

Again, the deletion account presents a double-edged sword. We want deletion for the vehicle change aspect, but cannot have it for relational modifiers. Deletion allows us to explain the lack of island effects (there has been no movement from

within an island), but deletion requires that the attested scope ambiguities be derived

via covert ATB movement which has been argued to not be possible. By their very

nature, deletion accounts cannot avoid this tension.

3.2 Movement

The same advantages and disadvantages above can be found in reverse with

Movement accounts (as in Ross 1967, Postal 1974, Gazdar 1981, Williams 1981, and

Sabbagh 2007, 2008). Shown below, Movement analyses of RNR posit a form of

across-the-board movement of like constituents to right-preripheral position.

(29)
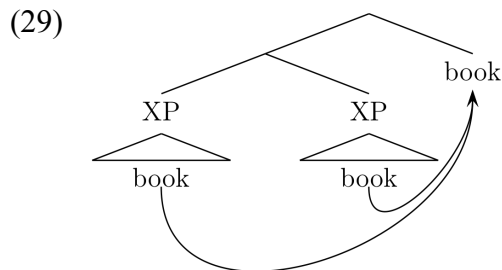
Such analyses fail to predict island insensitivity of the sort that we have

encountered above. But they do allow for the scope ambiguity by giving the target for

movement a landing site to take scope from. That is, a scope taking element, when

moved to a higher position like in (29) can by hypothesis take scope from either its

base or derived position. This optionality leads to scopally ambiguous readings. Also,

they do not straightforwardly account for the vehicle change facts, but allow for the

correct readings of relational modifiers (so long as they scope high).

Another disadvantage to this approach is that preposition stranding in RNR is licit in languages that otherwise do not allow it, say German. In (30) (adapted from Hartmann 2000 though see similar facts in McCloskey 1986 for Irish) it is clear that German prohibits movement-derived preposition stranding. In (31) the same preposition is stranded in the first conjunct, yet the sentence is fine.

(30)   *Wem sass die Katze auf?

          whom sat   the cat   on

         'Who did the cat sit on?

(31)   Die Katze sass auf, und der Hund sass unter, dem dicken Mann.

         The cat   sat   on and the dog   sat under the fat   man

         'The cat sat on, and the dog sat under, the fat man.'

Furthermore, preposition stranding is disallowed in English with rightward movement, see the extraposition example in (32a). Such stranding is fine in English RNR (32b).

(32)   a.   *The cat sat on yesterday the fat man.

         b.   The cat sat on, and the dog sat near, the fat man.

The analysis of Sabbagh 2007 and 2008 can generally account for the problems discussed in this section.[9] However, Sabbagh's approach fails to account for the asymmetry found in the following pair of sentences. In (33), there is a stranded preposition followed by an adverbial in the first conjunct. Under Sabbagh's movement analysis, this should be sufficient to rule the sentence out. The sentence is however not bad and its counterpart with the extraposition in the second conjunct is much worse. Under a rightward movement analysis like that of Sabbagh's, these sentences should be equally acceptable or unacceptable.

(33)   ?Ivy sat near on Tuesday, and Iris avoided on Wednesday, a strange old man.

(34)   *Iris avoided on Wednesday, and Ivy sat near on Tuesday, a strange old man.

Finally, it is an oft-noted empirical generalization that sub-extraction from extraposed elements is degraded (see Drummond 2009 for discussion). This is shown for clear cases of extraposition in (35). For RNR however, the extraction is by no means degraded.

(35)   a. Who did you take a picture of yesterday?

        b. *Who did you take yesterday a picture of?

(36)   Who did John buy and Mary sell biographies of?

---

[9] Sabbagh's analysis posits that rightward movement is free as long as it does not cause linearization problems of the sort discussed by Fox and Pesetsky 2005. Larson 2011 argues against the Sabbagh analysis 2008 for Tagalog.

We again find an approach that falls short empirically due directly to what is its saving grace with respect to some other construction. Movement gets the scope and relational modifier facts correct, but in turn gets the island and preposition stranding wrong. There is no apparent escape from this tension.

3.3 Multidominance

The last existing account presented here is Multidominance. Originally proposed by McCawley (1982) (see also Phillips 1996, Wilder 1999, de Vos and Vicente 2005, Gracanin-Yuksek 2007, Bachrach and Katzir 2009, Grosz 2009, and Larson 2009 among others).[10] Multidominance approaches posit that the element that is interpreted in both conjuncts is actually simultaneously, token-identically in both conjuncts and only overtly realized in the second one. This is roughly sketched in (37) below:

---

[10] The analysis that I present here is very amenable to the approach in Phillips 1996. Further, the multidominance that he employs seems to me less central to the larger point of the analysis. This distinguishes his approach from the other Multidominance approaches.

(37)

```
                    CP
            ┌────────┴────────┐
           TP                TP
        ┌───┴───┐         ┌───┴───┐
       Ivy      VP  Ivan      VP
            ┌────┴────┐   ┌────┴────┐
          read     bought
                              DP
                          ┌───┴───┐
                        the     book
```
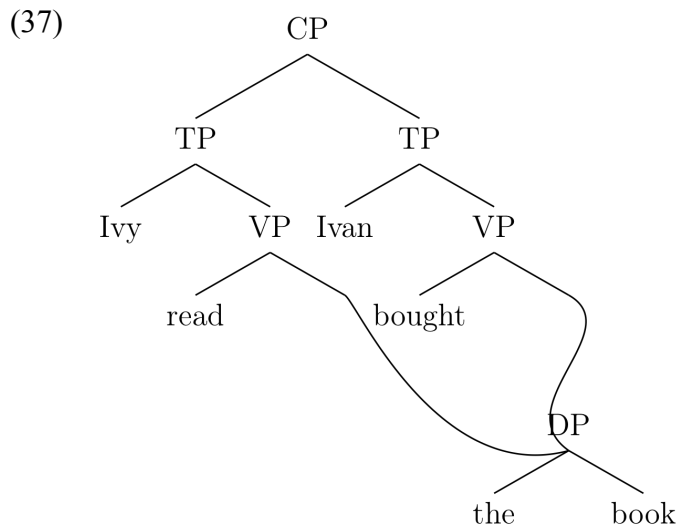
This sort of tree is made possible via the operation External Remerge proposed by Citko (2005) whereby an element X is first externally merged with an element Y (38) and then externally merged with subsequent element Z (39).[11]

(38)

```
        YP
       ╱  ╲
      X    Y
```

(39)

```
      ZP        YP
     ╱  ╲      ╱  ╲
    Z    X    Y
```
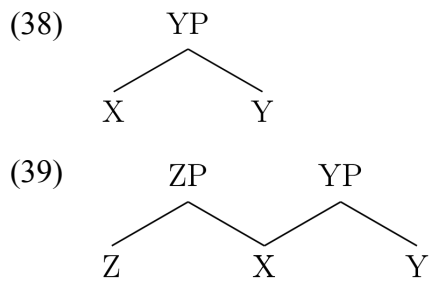
This approach has the obvious advantages of being consistent with the island effects discussed above. The shared element simply does not move. Also, it is able to

---

[11] Whether this happens in the stepwise fashion as presented here or simultaneously is not important here. Though it is interesting to note that if it is stepwise, the operation is difficult to distinguish from Sideward Movement (Nunes 2004).

account for the scope facts since any covert movement would not be across-the-board in the traditional sense. That is, with covert quantifier raising of the shared element there would only be a single instance of movement from one position, nothing across-the-board.

Recall the sentence from (24a) repeated here as (40a). Here, there is really only one instance of *every teenager…* and it can undergo quantifier raising just like any other singly-instantiated quantified element as seen in (40b). It is not the case that there is a silent instance of *every teenager…* that must also undergo QR from the first conjunct and in turn run afoul of the stricture that holds that this is not possible. In short, the two traces in (40b) represent the same trace token, not two different traces that represent separate, parallel movements.

(40) a. Some policeman arrested, but ended up releasing every teenager who was near the crime scene

  b. at LF: [every teenager who was near the crime scene] Some policeman arrested t, but ended up releasing t.

Multidominance approaches enjoy the added bonus of accounting for the preposition stranding effects mentioned earlier. In languages that do not allow preposition stranding, like German, apparent preposition stranding is fine in RNR as we saw in (30) above. This is readily explained under a multidominance account. The object of the preposition it *dem dicken Mann* is literally "still there" in both conjuncts.

It is only phonetically realized in one (see Wilder 1999, Bachrach and Katzir 2009, Johnson 2007 for linearization schemes).

But again here, there are data points that Multidominance cannot handle without unmotivated stipulation. For one, NPIs are licit as the target of RNR sentences (41a) and Multidominance approaches handle this fact easily. But the simple symmetry found in (37) above makes the wrong predictions with respect to sentences like (41b) and (41c) where only one conjunct contains a negative element.

(41)   a.   Ivan didn't buy, and Ivy didn't read, any books.

        b.   Ivan bought, but Ivy didn't read, any books

        c.   *Ivan didn't buy, but Ivy read, any books

The multidominance approach does not make differential predictions concerning the sentences in (41b) and (41c). The tree above shows the same relation between the conjunct with the negation as the conjunct without it, regardless of order, and as such should either predict the sentences in (41b) and (41c) to both be grammatical since the NPI is licensed in at least one conjunct or predict that they are both ungrammatical as the NPI is not licensed in each conjunct.

The Multidominance account does not involve any sort of deletion. That is, the apparent gap in the first conjunct is not derived via ellipsis, but rather the linearization of shared material in the second conjunct. There is only one token of the shared material and it is only pronounced once. Given this, we also do not expect the

vehicle change effects evinced by Deletion accounts. That is, there is no way to keep *he* from c-commanding *John* in sentence (42) repeated from above.

(42)   He hopes that Susan won't, but the secretary knows that she will, fire John

In sum, thanks to the local advantages of the multidominance account, it fails to fully account for the entirety of the facts.

3.4 Summary

We have seen that each approach to RNR, despite enjoying various advantages, is incapable for principled reasons of handling some core data that the others can.[12] The power of any given approach only serves to undermine it in the end. It would be a different matter if all the approaches failed in the face of the same sort of data: everyone's problem is nobody's problem. But this is not the case here.

We can summarize their failures in a chain of sorts:

1.   Deletion can handle vehicle change and island facts but not scope facts or BAC.

2.   Movement can handle scope facts but not extraposition facts or island facts.

---

[12] Another logically possible analysis of the construction is that the first conjunct's gap site is filled with a *pro* that is co-indexed with the element in the second conjunct. For this to work, it would require that there be a *pro* corresponding to basically every category in every language. This panacean solution does not strike me as very explanatory or empirically plausible. That is, *pro* would need to be freely indexed with any string and uniquely available in RNR.

3.   Multidominance can handle island facts but not the asymmetry facts or

        vehicle change facts.

        Short of ignoring some of these problems, there is no obvious way of

maintaining any one of these three previous analyses on its own. In the next

subsection I show that the analyses cannot function together either.

3.4 An eclectic account

No single current analysis can account for the entire range of data. We are thus left

with two options:

(43)   None of the analyses are correct.

(44)   More than one analysis is correct, each in its limited purview, and duties

          are shared such that all the data are accounted for.

In this section I argue for the option in (43).

        This point has been made more comprehensively in Larson 2012. Here I

merely rehearse the mode of argumentation with one example. Barros and Vicente

(2011) suggest an eclectic approach to RNR. That is, there is no single way to derive

RNR sentences. Rather, they suggest that Deletion accounts and Multidominance

accounts can work in concert to account for the facts. The term RNR actually covers a

family of constructions that are only superficially similar.

3.5.1 How to test for eclecticism

Barros and Vicente propose a recipe of sorts for testing the proposed eclectic

hypothesis. If runs as presented in (45) below:

(45)   a.   Take a sentence that unambiguously marks a derivation requiring one

analysis.

   b.   Take a sentence that unambiguously marks a derivation requiring another

analysis.

   c.   Create a test sentence that contains the markings of both analyses.

If the sentence resulting from (45c) is unacceptable, it follows that no single

account can produce both markings (call them prompts) and that both accounts are

needed to account for the data. If the sentence is acceptable, it follows that one (or

both) of the analyses is superfluous. In what follows, I present one of these tests in

action.

3.5.2   Ellipsis prompts and anti-ellipsis prompts

For our exemplification of the first step of the recipe in (45), an instance of

"morphological mismatch" can be used. Barros and Vicente note that ellipsis can

handle instance of morphological mismatch while Multidomiance analyses cannot.

Shown in (46), VP ellipsis can abide the elided material bearing morphology that is

not found in the antecedent clause. That is, *ought to* subcategorizes for the bare form

of verb in English, yet the antecedent VP in (46) is in the progressive form *is*

working.

(46)   Ivy is working on the project and Ivan ought to as well.

        The same goes for RNR cases. In (41), we find the same mismatch:

(47)   Ivan ought to, and Ivy already is, working on the project.

        Multidominance approaches to (47) fail because the shared material could not have been subcategorized for by the final element in the first conjunct. Take this mismatch as a prompt for an ellipsis approach.

        For the non-ellipsis prompt, let us take an example like (48) below. Recall that the ellipsis account cannot capture the scopal ambiguity intuited here. The reading in which the shared material takes high scope will be the non-ellipsis prompt.

(48)   Some man loves, and some woman hates, every project at the science fair.

        When we create a sentence with both prompts, the high scope reading of the shared material is still possible:

(49)   Some man must, and some woman already ought to be, working with every
        student.

Since both prompts are available simultaneously in the example above, this shows that one account must somehow reduce to another. At least one of the approaches is unnecessary. However, we have already seen that each approach cannot work on its own. That is, we are left in the unfortunate position that the three current analyses of RNR do not work separately and cannot work in concert. There is but one option: none of the current accounts is the right one. In the following section I propose a new account. It should be noted that whether or not this new analysis is ultimately correct, it simply cannot be the case that previous approaches are correct. Something must be done.

4 A Sparse Approach

In this section I propose a syntactic representation for RNR that avoids the pitfalls discussed above. The section is structured as follows: First, I lay out the basics of the analysis. Second, I investigate the advantages to this approach in terms of capturing the problematic facts above and in making novel predictions.

4.1 Representation

I take the gaps in pre-final conjuncts in RNR to be indicative of an actual absence of syntactic objects. In a two-conjunct RNR sentence, the final conjunct is constructed in the traditional fashion. But the initial conjunct can fail to build in an internal object in this case. The example in (50) has the representation in (51).

(50)   Ivan bought, and Ivy read, the book.

(51)   [[Ivan bought] [and [Ivy read the book]]]

Note that the first conjunct in the above representation is syntactically inchoate. There is an obligatorily transitive verb *bought* that does not have an object here. This is to say that the subcategorization frame of the verb goes unfulfilled. This presumably ought to effect an ungrammatical sentence. However, the representation above violates no further strictures and should be otherwise grammatical. It by no means clear that subcategorization failures are due to syntactic ill-formedness and I assume that this is not the case. The particular flavor of minimalism (Chomsky 1995) that I am assuming is one in which syntactic structure is freely generated by Merge and so long as the output is legitimate and legible to the interfaces, the sentence is grammatical. I posit that the syntax can indeed generate (51) and the potential subcategorization stumbling block is avoided via interface considerations that I will discuss in later sections.

As far as the syntax is concerned, (51) is legitimate and ought to have syntactic repercussions. These will be explored below.

4.2 Advantages

Recall the problems that we found with the previous three analyses in the section above. There was a list of empirical hurdles that need to be cleared. The most pressing ones are shown below:

1.   The shared material can be island-internal.

2.   There is ostensible violation of the Backwards Anaphora Constraint.

3.   There is an asymmetry in the licensing of NPIs.

4.   The shared material shows vehicle change effects with respect to the gap position.

It turns out to be the case that none of the analyses in the literature can account for all of them. Each account fails at one or the other and this was argued to stem not from the particulars of each theory but rather from its foundations. The approach posited in the above in (51) however succeeds in the instances where the others fail.

First, the fact that the shared material does not show island effects is captured in a similar manner to ellipsis and multidominance accounts: the shared material does not move. So unlike a movement analysis, this in-situ analysis predicts the lack of island effects. Further, there is no BAC violation because there is a syntactic gap (i.e. nothing), not an anaphor in the first conjunct.[13] This account evades the purview of whatever underlies the BAC by not positing any anaphora.

Further, in this account, the vehicle change effects and the asymmetry facts are captured in the same way: only elements in the second conjunct actually c-command the shared material. In the following subsection, I will argue that the prediction of "asymmetryical" c-command is borne out by the facts.

---

[13] How this conjunct gets its full interpretation will be explained in the next section.

4.3 "Asymmetrical" C-command

In this analysis, the lack of NPI licensing between the first conjunct and the shared material is now accounted for. Unlike the traditional multidominance approach, nothing in the first conjunct c-commands (and the negation does not scope over) the shared material. As such we correctly predict that it is irrelevant to NPIs whether there is negation in the first conjunct. We saw this in (41) repeated as (52) below.

(52) a. Ivan bought, but Ivy didn't read, any books

   b. *Ivan didn't buy, but Ivy read, any books

  The vehicle change effects are also predicted. There is nothing to bar the co-indexation of *he* and *John* in (53) as there is no c-command relation between them. The R-expression *John* is, per the binding principles' strictures, free. It is not c-commanded by any co-indexed expression.

(53) a. He$_i$ hopes that Susan won't, but the secretary knows that she will fire John$_i$

   b. He$_i$ wanted, but Mary didn't want, Jill to praise John$_i$

  If the co-indexed expression finds itself instead in the second conjunct, the sentence is no longer acceptable (54).

(54) a. *The secretary hopes that Susan won't, but he$_i$ knows that she will, fire

     John$_i$

   b. *Mary wanted, but he$_i$ didn't want, Jill to praise John$_i$

However, I do not take this to be strong evidence for or against any type of RNR analysis. The generalization exemplified in (53) and (54) does not seem to hold in instances where the conjuncts are monoclausal:

(56)   *He$_i$ praised, buy Mary secretly disparaged, [the leader of the section]$_i$.

I suspect that this is a result of linear proximity. That is, the Principle C effects do not stem from the nature of RNR, but rather from the fact that Principle C-like violations can sometimes hold in absence of c-command. For example, when the R-expression is close in space or time following the pronoun, even when there is no c-command, the result is hard to accept:[14]

(57)   *He walked into the room. John sat down.

---

[14] The Principle C-like violation in (57) seems to hold over an arbitrarily long distance as suggest by the example in (i). This constraint seems to extend to RNR as seen in (ii)

(i)   *He walked into the room. It was around 4 o'clock and the radio was playing. John sat down
(ii)   *He praised, and Mary (who we are all really quite fond of) secretly disparaged, the leader of the section.

Another diagnostic relating to c-command is that of crossover effects. Crossover effects have been categorized into weak- and strong-crossover.[15] Strong crossover effects are found when a certain element crosses over another c-commanding, co-varying element like in (58). In (58), there is assumed covert movement of the quantified phrase *each boy* to a left-peripheral position. In moving to this position it has to cross over the c-commanding pronoun *he* and cannot co-vary with it.

(58)   He likes each boy

Weak crossover effects resemble the example in (58) except that the pronoun is further embedded in the subject and does not c-command the moving element. In the sentences below, the prohibition of covariance is not nearly as strong. It is, like the term suggests, weak. Sentence (59) can marginally be a statement concerning each mother and her own personal son.

---

[15] The crossover phenomena discussed here do not include examples of "traditional" strong crossover like in (i) below which shows that a wh-phrase cannot move above A c-commanding pronoun and still co-vary with it.

(i) Who does he like?

To shoehorn the above type of sentence into an RNR-like configuration would result in an ATB wh-question, a construction that independently requires a different analysis.

(59)   ?His mother loves each boy.

The sole difference between these two types of crossover is that there is a c-command relationship between pronoun and object in (58) and a lack of such a relationship in (59).

Given the proposed take on RNR, we expect that with our non-c-commanding first conjunct we should be able to make a weak-crossover effect out of a strong one. That is, take a strong crossover string and split it across an RNR sentence such that pronoun is in the first conjunct and the object is in the shared material. When we do this, we find that the co-varying reading is, like weak-crossover sentences, marginally available.

(60)   *marginally available co-varying reading:* ?He$_i$ selected, but Sally bought, each boy$_i$'s fathers day present.

Again, when the same potentially strong-crossover inducing pronoun is in the second RNR conjunct, its strength is undiminished.

(61)   Sally bought, but he selected, each boy's fathers day present.

We saw in the examples above that the relevant elements in the first conjunct do not seem to c-command the shared material as far as NPIs and principle C of the

binding theory are concerned. Here, further instances where c-command should play a role are investigated.

Further, with principle A, we see that an anaphor must be c-commanded by a co-indexed expression, as seen below.

(62) John$_i$ likes himself$_i$

(63) *Mary likes himself

When there is a co-indexed expression in the second conjunct, the anaphor in the shared material is bound and the sentence is fine, no matter what is in the first conjunct. But when the co-indexed R-expression in second conjunct is not in a position to license the reflexive, the sentence is bad.

(64) Ivan$_j$ thinks that Mary$_k$ isn't, but that John$_i$ is, happy with himself$_i$

(65) *Ivan$_j$ thinks that Mary$_k$ isn't, but that John$_i$ thinks that Ivy is, happy with himself$_i$.

Also, when the co-indexed expression is in the first conjunct, it fails to license the anaphor. Yet flip the conjuncts and the acceptability reverses.

(66) a. *John$_i$ isn't, but Mary$_j$ is, happy with himself$_i$

b. Mary$_j$ isn't, but John$_i$ is, happy with himself$_i$

Given the results concerning principle A, we should expect that reciprocals would not be licit in RNR when the antecedents are shared by the two conjuncts. The reciprocal anaphor, if it is only c-commanded by a single, singular expression, should not be licensed. And this is what we find in (67) below. The sentence, if grammatical, would mean something like: Ivan saw Ivy and Ivy hear Ivan. This does not seem to be possible.

(67)   *Ivan$_i$ saw, and Ivy$_j$ heard, each other$_{i+j}$

When there is a plural expression in the first conjunct and a singular one in the second conjunct, the reciprocal is also not licensed.

(68)   *Ivan$_i$ and Igor$_j$ saw, and Ivy$_k$ heard, each other$_{i+j(+k)}$.

However, if there is a plural expression in the second conjunct, we not only get an acceptable sentence, more interestingly, we get a particular interpretation. The sentence below is interpreted as Ivan and Igor seeing each other, Ivy hearing the both of them, but no reciprocity in either seeing or hearing Ivy by the two males. That Ivan and Igor can license the reciprocal is expected in this account as is the fact that Ivy, not c-commanding the reciprocal, can play no part in the reciprocity.[16]

---

[16] This reading may be difficult to arrive at, but naïve speakers have agreed to it being a possible one. I suspect its difficult is due to the extra-syntactic derivation of the reading. This will be explicated later in the chapter.

(69)   Ivy heard, and Ivan and Igor saw, each other

As will be shown in the an upcoming section Ivy will still act as a thematic

agent to the reciprocal, which will explain that she can hear the two males, but not be

seen or heard by either of them.

4.3.3 Further asymmetries

We find further, c-command independent, asymmetries in RNR that the proposed

account predicts. I will offer three such examples, but many others exist. These are

particularly difficult cases for Multidominance accounts of RNR to capture. Such

accounts propose no asymmetry between the conjuncts, and those analyses face a

problem to the extent that such asymmetries arise. The first examples concern plural

agreement in English. Shown in (70), only the second conjunct seems to be relevant

in determining the plurality marking on the verb in the shared material.[17]

(70)   a.   Bill is happy that Iris, and James is happy that his parents, {like/*likes}

               reading fiction.

       b.   Bill is happy that his parents, and James is happy that Iris, {*like/likes}

               reading fiction.

Seen above, when the subject in the second conjunct is plural, so too must the

verb in the shared material. This is the case even where the relevant subject in the

---

[17] These examples surprisingly hold independently of whether the speaker allows "cumulative

agreement" as discussed in Grosz 2009.

first conjunct is singular. The opposite holds when the conjuncts are transposed.[18]

Another asymmetry comes from morphological case marking in German. As is well know, some verbs (or prepositions) in German require that their complements appear in the dative case, others in the accusative. When a noun phrase is the shared material in a German RNR sentence and the verbs that take it as their complement are of two different types in the above respect, we again find asymmetries. Shown in (71), only the second conjunct is relevant for determining the case marking:

(71) a.   *Johannes kennt   und Ute vertraut   den   alten Mann.

                Johannes knows-Acc and Ute trusts-Dat the.Acc old man

                'Johannes knows, and Ute trusts, the old man.'

      b.   Johannes vertraut   und Ute kennt   den   alten Mann.

                Johannes trusts-Acc and Ute knows-Dat the.Acc old man

One final asymmetry comes from Brazilian Portuguese. In Brazilian Portuguese (Carolina Peterson p.c.), there exist certain verbs that require their complement clauses be in the subjunctive. If the complement clause is in the

---

[18] One might try to argue that these facts (and others in this section) arise due to notions like linear distance. That is, perhaps the subject in the first conjunct of (66) is too far away linearly to affect agreement on this verb. This seems unlikely as these effects are subject to structural, not linear, distance as shown below.

(i)   The people that James said Bill hated are/*is coming to dinner.

indicative, the sentence is unacceptable with a verb like *querer* which requires a subjunctive clause (72):

(72)   *Maria quer   que Ana vai   viajar

         Maria wants that Ana will.indic travel

        Maria wants that Ana will travel

If the relevant subjunctive-seeking verb is in the first conjunct of an RNR sentence, the shared complement clause can nevertheless be in the indicative:

(73)   Pedro quer, mas Maria lamenta que Ana vai   viajar

        Pedro wants but Maria regrets   that Ana will.indic travel

        'Pedro wants, but Maria regrets, that Ana will travel.

Further, if the shared complement clause in the subjunctive, the verb in the second conjunct must be of the sort that requires subjunctive. The verb in the first conjunct is irrelevant. In (74), the first verb selects exclusively indicative complements, yet the sentence is fine with subjunctive shared material. When the indicative-requiring verb is in the second conjunct, the sentence becomes unacceptable.

(74) a. Eu estou certo, mas Maria duvida que Pedro venha   para a festa

          I am   certain, but Maria doubts that Pedro come.subj to   the party

          'I am certain, but Maria doubts, that Pedro will come to the party.'

     b. *Eu duvido, mas Maria tem certeza que Pedro venha   para a

          I doubt but Maria is   certain that Pedro come.subj to   the

          festa.

          party

          'I doubt, but Maria is certain, that Pedro will come to the party.'

4.4 Summary

As we have seen, asymmetries seem to be the rule in RNR. Such asymmetries are

difficult to account for with Multidominance theories and even occasionally

unexplained by Deletion theories. The analysis proposed here predicts these

asymmetries and does so by having the non-final conjuncts of RNR sentences be

syntatically inchoate. This raises questions as to how the shared material is at all

interpreted in those non-final conjuncts. In the next section I show how this can be

done.

5 How to interpret the shared material

At first glance, it is not entirely apparent how the first conjunct is interpreted as

involving the shared material under this account. For the three other accounts, this

interpretation assignment works by transparent analogy to any otherwise normal, non-

coordinated sentence. The shared material is actually *in* the first conjunct at every

stage of the derivation. In this sparse account however, it is never there and it is unclear how any relation is established between, say, a verb in the initial conjunct and an object in the shared material like in (75). There is no c-command relation between the two, this rules out a syntactic account according to what I claim in chapter one. Further, it is not the case that the verb in (75) takes scope over the shared material or vice versa.

(75)   Becky bought and Bruce sold the old car

In this next section I will show how it might be possible to get the shared material interpreted into the first conjunct via pragmatic means. Here too I show that this is not a viable option.

5.1 How to capture a missing argument

A test case of a "missing argument" situation in can be found in Edo double verb constructions. The sentences, like that in (76) and analyzed by Baker (1989) as (77), involve null coordination and a null *pro*.

(76)   Ozo gha le   evbare re

         Ozo will cook food   eat

         Ozo will cook food and eat it

(77)   Ozo will cook food$_i$ and eat *pro*$_i$

The sentence above has some interesting and severe restrictions on its interpretation. For one, sentences of this type can only have the interpretation in which the cooking was done with an eye towards the eating. As Pietroski (2002) puts it, the sentence must describe a single event that begins with a cooking and ends with an eating. Second, the food that is to be cooked must be the self-same food that is eaten.

Pietroski develops an analysis of how this *pro* is interpreted given the fact that the sentence describes only one single event. In short, the *pro* needs to somehow be interpreted as necessarily co-indexed with food. But Pietroski wonders how this is to be done given that there is no c-command relation between the two. Even if there were c-command between the two, it is unclear how this would be guaranteed.

Pietroski suggests that we take it as a premise that an event can only have a single Theme. The sentence has one clear Theme: the complement of cook. That complement is then locked in as the Theme of the sentence and any other argument in a Theme position, say *pro*, must be interpreted as the same thing. And this is the reading we get. Thanks to the fact that there is only one event described in this sentence, the *pro* that is eaten must be the food that is cooked.

However, Baker notes that there is no independent evidence for *pro* in Edo. It's a relatively ad hoc entity to posit in this position. Suppose we were to eschew ad hoc entities. We might see what goes wrong by dropping *pro*, like in (78).

(78)   Ozo will cook food and eat

The same mechanism that gives *pro* its interpretation when we had it can save also potentially serve to supply the second verb with an internal argument via this non-semantic pragmatic means. That is, this sort of inferential mechanism presumably resides outside semantics proper. Its underlying logic will serve as a guide through the discussion of RNR in the next.

5.2 RNR

Much like in the Edo case, I argue that there is a missing argument in RNR. This time however there is nothing obvious to force the interpretation per se. Unlike the Edo case, the sentence in (79) need not necessarily begin with cooking and end in eating.

(79)   Ivan cooked, and Ivy ate, a lot of food.

It could be the case that Ivy ate a lot of food on Sunday and Ivan cooked a lot of food on Monday. It follows that the food need not be the self-same food as it was in the Edo case. Ivan could have cooked a lot of food completely unaware that Ivy was concurrently eating a lot of food across town. The interpretations of (86) are much freer than in Edo case.

Remember, that there was a mere single event in the Edo case allowed for syllogistic guidance in determining the missing argument's interpretation: There is one Theme per event, food is the Theme of this event, eat conceptually requires a Theme, food is that Theme. We no longer have that guidance in these cases. This suggests multiple events. In fact, Schein (2012) analyzes what I consider to be a RNR

sentence as involving two events. The sentence in (80) must involve two events because, as Schein argues, a clumsy event cannot also be a graceful one.

(80)   Jones gracefully, and Godfrey clumsily, buttered the pastries.

That there are multiple events correlates with freer interpretation, but it means that we are going to have to determine the missing RNR argument in a different fashion than in the Edo case. There is no longer the syllogistic guidance. In what follows, I propose a means to determine the missing argument in a way that closely mirrors the Edo way.[19]

6 Capturing the dependency?

In the above section, we were left with a puzzle. How is the shared material to be interpreted in the first conjunct. The novelty of this approach in general is that the first conjunct is not fully formed in the syntax. Something must be done outside of the syntax then. We are not allowed recourse to a syntactic dependency, again, because no c-command relation holds between the two relevant components at any stage in the derivation. The same holds for a non-syntactic semantic dependency. There is no way to relate the two via scope and for this reason. Something else must be done. In this section I explore a potential pragmatic means of deriving the dependency and

---

[19] An interesting sidenote, it seems that if the coordination in a potentially RNR sentence is low enough, its interpretation mirrors that of the Edo double verb construction, see (i):

(i)   Ivan cooked and ate a lot of food.

Though it could be argued that this is mere verb coordination and not an instance of RNR.

show that it cannot work. First I will explore what it can buy us. Thereafter I will show that it is infeasible.

Our normal RNR sentence is completely satisfactory as far as the syntax and semantics is concerned.[20] The only problem is that the verb in the first conjunct is missing an internal argument. This however, given the discussion above, is not a semantic problem, but rather a pragmatic sort of problem. The verb *bought* in (81) does not have an internal argument in the syntax or semantics. It is merely the fact that buyings normally involve things bought that needs to be accounted for.

(81)   Becky bought, and Bruce sold, the old car.

The grammar cannot refer to any syntactic or semantic notions to capture this and must find an internal argument for the verb through some other means. I posit that if there is a string in the second conjunct that could be used in the first conjunct as a plug of sorts, then it is so used. The logical form of the first conjunct fails to satisfy pragmatic notions of buying events, but in the second conjunct there is a sensible argument in *the old car*. That this argument is in a parallel position aids this interpretation. This is admittedly imprecise, but I contend that the actual grammatical re-use of the shared material is by its nature imprecise.

---

[20] Norbert Hornstein (p.c.) notes that this requires that there be no inverse case filter (a la Boškovic 1997) that would require the verb to assign abstract case.

6.1 Thematic roles

This type of analysis captures the fact that the shared material can bear an arbitrary amount of different thematic roles as seen in (82) and (83). The shared material can bear a specific role that is determined by the verb that it is syntactically related to (the second conjunct verb). Yet it is utterly syntactically divorced from verb in the first conjunct. As such, there will be no formal clash of thematic roles: only one is assigned.

(82)   Ivan saw, and Iris gave a flower to, the handsome police officer.

(83)   Iris expected, and soon enough there arrived, a tall dark stranger

That is, for the above sentences the shared material has but one thematic role in logical form but another role can be inferred pragmatically. In (83), there is a seeing that is missing a theme, but that missing theme can be supplied by the internal argument in the next conjunct via the pragmatics.

6.2 Backward RNR?

Although it will be shown that the current account runs into no problems in terms of linearization, the directionality of the inchoate conjunct is not obvious. The proposed account relies upon general syntactic mechanisms and presumably universally uniform semantic operations. It is thus mysterious why (84) is unacceptable.

(84)   *Ivan read the collection of short stories and Iris bought.

That is, why do we find the particular directionality in RNR sentences that we do? Again, in terms of explaining the prevalence of the construction, it is best not to rely on aspects of the grammar that are subject to variation.

Given the approach to syntactic dependencies proposed in chapter 1, this directionality difference in RNR is expected. Recall that the analysis of coordination that I assume forces the gap position in an RNR sentence to not be able to take part in a syntactic or semantic dependency. As such these types of dependency cannot neither succeed nor fail. However, when the gap is in the second conjunct, there *is* a licit syntactic dependency that is possible, that of ellipsis. If ellipsis is licit, something that looks like 'backward RNR' should also be licit. This is what we find in examples (85-87) below:

(85)   Becky knows who the man would sketch, and Bruce know what.

(86)   Becky must leave by 5 o'clock and Bruce should.

(87)   Becky like Jim's cat and Bruce liked Jill's

In short, gaps *can* arise in the second conjunct, but since they can be mediated syntactically, they must be. Since they *must* be mediated syntactically, the sentences will be grammatical or not based on whether the ellipsis succeeds or fails. Ellipsis fails in the example (84) because internal objects cannot otherwise elide in English. This is a derivational option, but one that fails. There is a possible derivation so it is attempted, yet it fails. We are not allowed the freedom to ignore the impossible syntactic relation like we are in true RNR.

More evidence of the importance of this ellipsis possibility comes from wh-'displacement' across RNR. We can see a good example of this in (88):

(88)   Becky wondered what, and Bruce wondered when, Lana ate.

Under an account in which RNR is derived via a syntactic dependency between the shared material and the gap in the first conjunct, the wh-word *what* got its thematic role assigned by the verb *ate* directly. That is, there is no need for anything to follow *ate* in (89), no need for a trace or ellipsis. Note however that when an obligatorily transitive verb is used the result is unacceptable:

(89)   *Becky wondered what, and Bruce wondered where, Jill fixed.

This is captured under my account because the gap following *fixed* is in a position where it could have been derived via ellipsis. DP ellipsis like that which would be required is however not available in English and the sentence is ruled out. That is, the structure underlying (91) is possible with respect to universal grammar, just not English in particular. It violates an English specific rule. Were English a language that allowed ellipsis following verbs like *fixed*, then this sentence would be predicted to be acceptable.

6.3 Why coordination?

Given the discussion above, there is no real reason why RNR should only hold in coordination constructions. As long as it is clear that there is a missing element that is not otherwise captured via movement or ellipsis or any other sort of syntactic dependency.

There are in fact instances of RNR without coordination that can be found in the literature Hudson (1976) offers the example in (90) and Wilder (1997) offers the example in (91).

(90)   Those who admire are outnumbered by those who despise, books
        about grammatical thoery

(91)   I talked to without actually meeting everyone in the committee.

These are less commonly cited as instances of RNR, but I suspect that this is due to there being multiple unresolved dependencies at the same time when reading these. With coordination, the two coordinands are otherwise independent and thus better test cases.

In the rest of this chapter, I discuss some differences between my approach to RNR and previous ones. This time I focus on the linearization side of the issue. This next section will surely be of more interest to RNR connoisseurs than those only interested in the bigger picture point of this dissertation.

6.4 Problems

The pragmatic means of capturing the RNR dependency is too powerful in a similar way to the pragmatic approach to CoWh. If it is possible to relate any noun to any verb so long as there is no scopal or c-command relation. We would predict that sentences like (92) are multiply ambiguous:

(92)   Becky bought the car and Bruce read the newspaper.

        The powerful semantic approach above rules in interpretive relations between *the newspaper* and *bought* as well as *the car* and *read*. There are clearly no readings of the sentence in (92) that allow any sort of interpretive relation between these elements. This is unexpected under the pragmatic account sketched above. The nouns are in the right form, they can bear multiple thematic relations and there is no possible syntactic or semantic link between them. Any approach the allows the a relation between *the car* and *read* in the above sentence in the same way that *the newspaper* and *read* share a relationship is much too powerful.

        Further, the motivation for the first conjunct's verb in RNR to seek an argument is not well founded. There is a clear problem with a sentence like that in (93) in that it is missing an argument.

(93)   *Joey bought.

There is no reason why missing the internal argument in this way causes any pragmatic or conceptual oddity. Structures that represent buyings do not necessarily need overt internal arguments. For instance, a nominalized form of the verb in (94) is perfectly legitimate and pragmatically sound without an internal argument:

(94)   The buyer was pleased.

Also there is a distinction between *eat* and *devour* in that only the latter requires an overt internal argument when used as a verb. Both eatings and dervourings conceptually require very similar internal arguments, but this requirement does not cause any uniform unacceptability when the verbs are used without overt internal arguments.

In short, the pragmatic approach to RNR runs into problems just as damning as the syntactic and semantic approaches do. Again, no interpretive level seems to be able to accurately capture the RNR dependency. This is a big problem and I do not have the answer to it. But it does require that we have a syntax like that I have proposed above. Below I explore one final extension of this syntactic analysis.

7 Linearization

The account proposed here does not require extra statements be added to the grammar in order to account for the linearization of the derived RNR representation. Recall that the first conjunct in this account functions just like a complex specifier and as such should be relatively simple to linearize (assuming the LCA of Kayne 1994). Each of

the other previous accounts require something else be said in order to get the basic

facts correct. In this section I discuss the externalization side of the Y-model.

7.1 Deletion

In Deletion accounts of RNR, it is generally stipulated that the relevant material in the

left conjunct is targeted for deletion. The more explicit way of implementing this

formally is found in Ha 2006. Ha proposes a coding of this stipulation via the ellipsis

feature he uses to account for the apparent elliptical properties of RNR. He posits a

feature, E_RNR, that determines what gets deleted (among other things). Under the

E_RNR account, the shared material in each conjunct is affixed with this feature, like

in (95). The C head then Agrees with the nearest E_RNR feature and this Agreement

causes the deletion of string dominated by the feature, like in (96).

(95)   [C [Ivan bought [$_{E\_RNR}$ the paper] [$_{\&P}$ and [Ivy read [$_{E\_RNR}$ the paper]]]]

(96)   [C [Ivan bought [$_{E\_RNR}$ ~~the paper~~] [&P and [Ivy read [$_{E\_RNR}$ the paper]]]]
              |____Agree_____|

While I do not doubt that this works technically, given the cross-linguistic

ubiquity of the construction, featural peculiarities should be spurned when addressing

RNR. Why should this single-use feature be so commonly used in the languages of

the world? In fact, such concerns apply generally to deletion accounts. As we saw in

the first section, RNR is rather promiscuous in terms of which categories can serve as

the shared material. This is certainly not the case with ellipsis. For example, German

does not allow VP-ellipsis (97a), yet that same category can serve as the shared

material in a RNR sentence (97b). In short, things are required to be elided that cannot be elided generally.

(97)   a.   *Johannes muss das Buch lesen und Irene darf.

Johannes must the book read   and Irene may

'Johannes must read the book and Irene may'

b.   Johannes darf, und Irene muss, das Buch lesen.

Johannes may, and Irene must, the book read.

'Johannes may, and Irene must, read the book.'

It would be imprudent to chalk up the linearization of RNR sentences to something as category specific as ellipsis. Instead, something more general is to be preferred.
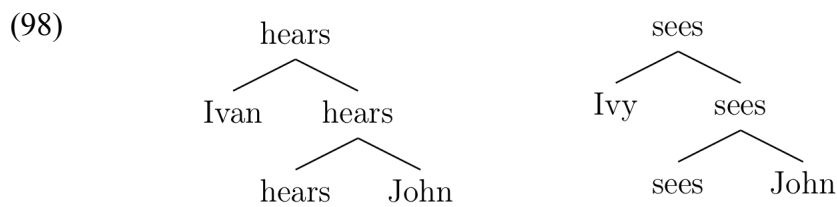
7.2 Movement

Most movement analyses of RNR pre-date the LCA (where c-command determines precedence) and as such they are free to posit movement to the periphery that translates to movement to the right for purposes of externalization (see (like Ross 1967 and Postal 1974). However, Sabbagh (2007) presents an elegant method of deriving the linear order of RNR sentences via movement that avoids this problem. Summed up: so long as the movement does not contradict the linear order as already spelled out (Fox and Pesetsky, 2005), the sentence should be fine in that regard. Additionally, for Sabbagh rightward movement is argued to be unbounded and

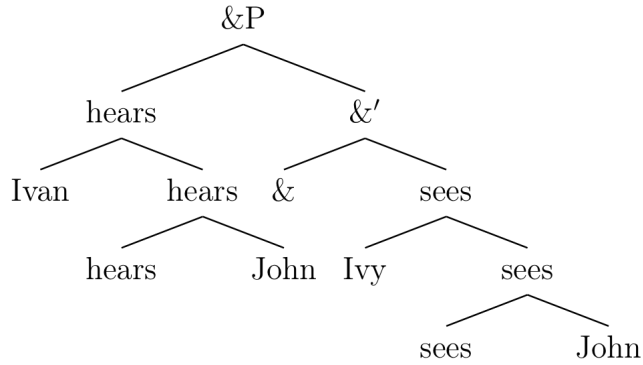apparently free (footnote, this freedom is curtailed only by right roof constraints that Sabbagh discusses).

Given two (simplified) sub-trees not yet coordinated, like in (98) below, the two instances of *John* are ordered like in Fox and Pesetsky (in a phase-based, multiple spell out system) as (99a) and (99b) respectively (where ">" denotes "precedes").

(98)

```
        hears                          sees
       /     \                        /    \
    Ivan    hears                  Ivy     sees
            /    \                         /    \
         hears   John                   sees    John
```

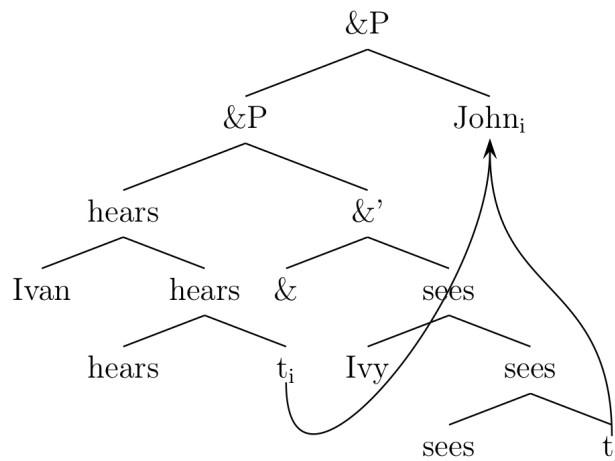(99) a.   Ivan > hears > John

      b.   Ivy > sees > John

Spellout having occurred, this ordering cannot be contradicted, and under Sabbagh's account, it won't. To continue on in our simplified manner, the two trees can be coordinated, resulting in (100a). The two instances of John are then free to move out of the CP to the right, adjoining to CP1 in an across-the-board fashion, like in (100b).

(100) a.

&P
- hears
  - Ivan
  - hears
    - hears
    - John
- &′
  - &
  - sees
    - Ivy
    - sees
      - sees
      - John

b.

&P
- &P
  - hears
    - Ivan
    - hears
      - hears
  - &′
    - &
    - sees
      - t_i
      - Ivy
      - sees
        - sees
        - t_i
- John$_i$

This movement is licit according to Sabbagh. The ordering when (100b) is spelled out does not contradict that in (98) and (99). The string *John* follows both *sees* and *hears* and Sabbagh asserts that it also follows the larger &P complex. Since the initial ordering is not contradicted, the final ordering is licit.

But there is no motivation, featural or otherwise, to prompt the movement in the first place. Why do we find no evidence of this free movement happening leftward? This does not seem to generally (or as generally as in RNR) be possible. That is, why is not licit to freely move a string freely to the left like the bracketed one in (101) as long as it is moving string-vacuously with respect to the first conjunct?

(101) a. *[The under-] __ generation of the data and __ estimation of the

problem led to disaster.

b. *[the tall] __ boys arrived and __ girls left.

Without any explicit motivation for this uni-directional movement we should

be suspicious of it. It is true that one could posit any number of features and filters to

motivate and constrain the movement, but these would amount to ad hoc entities. If

they can be avoided, they should be for the same reasons as in the ellipsis case.

7.3 Multidominance

Given the LCA, Multidominance accounts also have trouble when it comes to

linearization. Take an example like (102), The LCA would produce orderings like

those in (103a) and (103b).

(102)
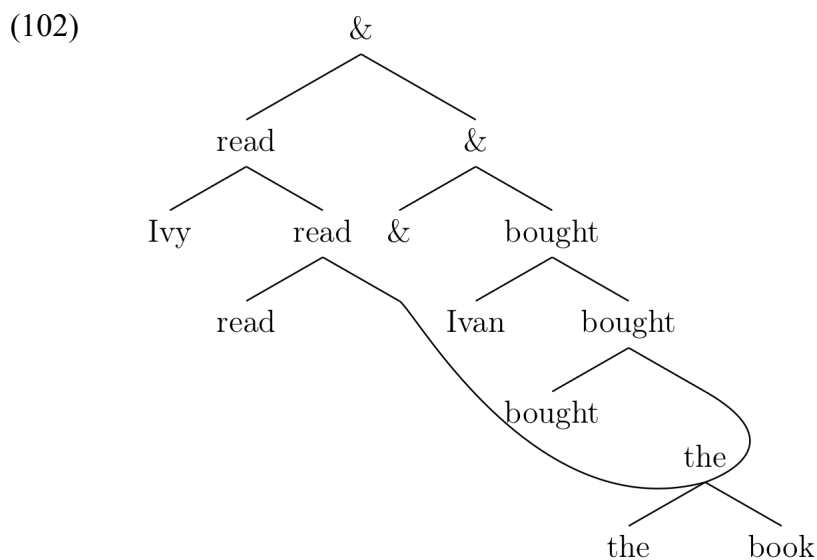
The right TP c-commands the left one and as such precedes it. This precedence relation extends to everything dominated by the respective TPs. This produces the following orderings (of many).

(103) a.   Ivy > bought

b.   book > book

The ordering in (103b) violates the LCA's reflexivity restriction (an element cannot precede itself) and Multidominance requires alterations to the LCA to avoid this.[21] We do not want to alter the LCA for a single construction. It is rather elegant as it stands and the following analysis of RNR allows it to remain that way. Multidomiance approaches otherwise make the correct predictions with respect to linear order and do so in a feature-independent way.

8 Conclusion

RNR poses a serious problem for our conception of interpretive representation. I hope to have convinced the reader of two things. One, the current ways of analyzing Right-node Raising are untenable. Two, there is no clear way out. The approach presented here accounts for a broader swath of facts than any of its competitors and but it does

---

[21] See Wilder (1999) for a reformulation of the LCA to allow for Multidominance as well as Bachrach and Katzir's Multidominance linearization scheme for another alternative. Though also see An (2007) and Ha (2006) for problems for each of these alternatives respectively.

without a mechanisms to capture the interpretive dependency. I show that there is no way to capture this dependency given the tools we have. Both syntactic and semantic approaches are too constrained and a pragmatic approach is too powerful and is otherwise unmotivated.

In the next chapter, I show a similar sort of problem with across-the-board constructions.

Chapter 4: Not-so-across-the-board movement

1 Introduction

In this chapter I discuss across-the-board movement constructions (ATB). The

structure is much like that of the previous chapters. I first outline the basics of the

construction and then discuss the previous approaches to it. Each of these previous

approaches fails in one way or another. In explicating how the previous approaches

fail, I explore further options and show that they too fail. I offer a syntactic analysis

absent a means to capture the interpretive dependency and show that his captures

some relevant generalizations.

1.1 What is Across-the-board movement?

Constructions with ATB properties are those in which a single displaced element is

construed in two different gap positions across coordination. An example of this can

be found with wh-displacement as seen in (1)

(1)   What did Becky buy and Tom sell?

The wh-word *what* has been displaced and is construed both in the first

conjunct as the object of *buy* and in the second conjunct as the object of *sell*. This

multiple construal across coordination can also hold across more than two

coordinated clauses:

(2)   What did Becky buy (and) Tom sell and Joey borrow?

In this chapter I will focus on instance of ATB movement where the displaced element is a wh-word, as seen in (1). This is not to say that ATB constructions hold *only* with wh-words. As seen in (3) and (4) ATB constructions can involve non-wh phrases as well:

(3)   It was a new car that Becky bought and Tom sold.

(4)   Can Becky sweep the floor and Tom mop the kitchen?

I focus mostly on wh-instances of ATB, but the analysis that I propose extends to other instances as well.

1.2 The Basic Claim

In this chapter I argue that ATB constructions do not actually involve movement from both conjucnts. Instead I posit that ATB constructions involve movement only from the first, or leftmost, conjunct. The moved element is construed in a gap in every subsequent conjunct via some unknown factor. In essence, for a sentence like in (1), I posit an analysis like that in (5). The relevant movement I am concerned with is that of the wh-word.[22] Here it has moved from the object position of the first conjunct. In the second conjunct, there is literally nothing in what would be the object position.

(5)   What$_i$ did Becky buy t$_i$ and Tom sell?

---

[22] It is also the case that the auxiliary *did* has moved solely from the first conjunct. But I ignore this for now.

This analysis will lead to new approaches constraints on extraction from coordinated sentences as well as parasitic gap constructions. The non-syntactic nature of the construal of the moved wh-element into the second conjunct will allow a bit of leeway such that exceptions to the coordinate structure constraint (CSC) like that in (6) (adopted from Lakoff 1986) will be predicted and explained.

(6)   What did Becky drink and live to be 100 years old?

The example in (6) contrasts with examples like that in (7) and (8) where construal into just one conjunct is ruled out:

(7)   *What did Becky buy and Tom sell Audis?
(8)   *How many years did Becky drink the potion and live to be?

Further, in virtue of the explanation of the examples in (6-8), I will be able to extend the analysis to Parasitic Gap constructions (PG) like that in (9) (adopted from Chomsky 1982) and explain why examples like that in (10) are not acceptable.

(9)   What did Becky buy before bothering to test?
(10)   *What did Becky buy a cheeseburger before bothering to test?

The details of these new analyses are forthcoming. First let's take a look at previous analyses of the construction.

2 Previous analyses

2.1 Types of analysis

Given the resemblance of ATB constructions to run-of-the-mill movement constructions, it should come as no surprise that the range of analyses for ATB is limited to variations on movement. For instance, there is no solely ellipsis-based analysis of the sentence below in (11a) wherein the wh-word is base-generated in some position and licensed the elision of parallel wh-words in thematic positions below (11b).

(11)   a.   What did Becky buy and Tom sell?

        b.   What did Becky buy ~~what~~ and Tom sell ~~what~~?

The reason why is quite clear. It is more parsimonious to assume that what is going on in (11a) has much in common with what is going on in (12a) where the wh-word has moved from its base-position and not (12b) where the left-peripheral wh-licenses the ellipsis of another, lower, base-generated one.

(12)   a.   What did Becky buy t?

        b.   What did Becky buy ~~what~~?

Instead, the previous analyses can be easily classed into groups based on *how many instances* of movement are involved in the derivation of ATB constructions. They fall into two main groups: the symmetrical accounts and the asymmetrical accounts. The symmetrical account involve at least two instances of movement (one from each conjunct) and the asymmetrical analyses posit only one instance of movement (only from either the first or the last conjunct). My analysis is no different in that it too can be classified as belonging to one of these types (the asymmetrical one). In this section I explore each analysis-type in turn, starting with the symmetrical accounts

2.2 Symmetrical accounts

2.2.1   Dual movements

One approach to ATB constructions holds that the element that is interpreted in both conjuncts was at one stage of the derivation, actually *in* both conjuncts. This is roughly sketched in (13) below. Our familiar sentence (13a) is analyzed as having had a representation like that of (13b) at and early representational stage. Subsequent to the stage in (13b) movement applied to both wh-words such that they appear as one in the left periphery of the coordinated sentence (13c).

(13)   a.   What did Becky buy and Tom sell?

       b.   did Becky buy what and Tom sell what?

       c.   What$_i$ did Becky buy t$_i$ and Tom sell t$_i$?

This analysis has been posited in various forms by (such as Williams 1978) and makes tight analogy to traditional movement analyses: the same type of movement that we normally find for wh-questions holds for both conjuncts. This captures rather straightforwardly the construal of the wh-word into both conjuncts (the bread and butter of wh-movement).

One problem with the approach sketched above is that is that it demands that some mysterious (or least proprietary) abilities be attributed to ATB constructions. First, it is not clear how the two distinct wh-elements in (13b) are able to 'become one' in the process of moving to the left-periphery. This sort of lexical malleability is not found elsewhere in the grammar and goes unexplained in this type of account.

This account leaves unexplained why it is the case that this lexical melding is not available outside of ATB constructions. That is, why is it not possible for a co-indexed subject and object to wh-move and collapse in to one like in (14)?

(14)   a.   Tim said who$_i$ saw who$_i$

        b.   Who$_i$ did Tim say t$_i$ saw t$_i$?

The sentence in (14b) is not acceptable, but it is not clear why it should be ruled out on the dual-movement type of approach.[23] It is well know that it is fine for co-indexed elements to serve as both the subject and object of a clause (15) so it is

---

[23] The fact that (14a) qua sentence does not allow this coindexation is not sufficient to rule out (14b). It is also the case for licit ATB wh-question that 'un-moved' version also do not allow co-indexation of the relevant wh-words:

(i)   *What proved that Jill hit who$_i$ and James kicked who$_i$?

unclear why they cannot both move in a fashion so as to fuse into one like (13c) suggests.

(15)   Becky$_i$ saw herself$_i$.

In short, it is not clear why this sort of special movement is available for constructions involving coordination constructions but not elsewhere. A similar problem arises for multiple-wh fronting languages like Polish. In this instance something that is possible in a non-coordinated sentence like that in is not possible in an ATB context.

Polish, for example, allows more than one wh-word to front within in a single clause (from Rudin 1988):

(16)   Kto co   robił?

who what did

'who did what?'

Since multiple overt wh-movements are possible, we might expect dual extraction in an across-the-board fashion to be possible. However, as Citko (2003) notes, this is not possible. In this language, where dual movement is independently possible, it is disallowed in ATB constructions. This suggests that ATB constructions do not involve two (plus) instances of movement from each conjunct.

(17) a. *Kogo$_i$ kogo$_j$ Jan lubi t$_i$ a Maria kocha t$_j$?

      whom whom Jan likes   and Maria loves

      'Whom does Jan like and Maria love?'

   b. *Kogo$_i$ komu$_j$ Jan lubi t$_i$ a Maria sie   przyglada t$_j$?

      whom-ACC whom-DAT Jan likes   and Maria REFL looks-at

      'Who does Jan like and Mary looks at?'

What we have seen in this subsection is the dual movement account falsely predicts that movement patterns that hold without coordination should also hold with coordination. Multiple movement of wh-words where the relevant words morph into one is not allowed in non-coordinated English questions, but must be allowed in ATB constructions. Mutliple movement of wh-words in Polish is allowed in non-coordinated questions, but must be specially disallowed in ATB constructions. These two facts suggest that this version of a symmetrical account is not the right approach. There is only one instance of movement happening in ATB constructions. What type of movement that is, remains to be seen.

2.2.2 A single, multidominated movement.

In response to the aforementioned shortcomings of dual movement symmetrical approaches, Citko (2003,2005) develops a novel analysis that avoids them. Citko's analysis involves movement from both conjuncts—in this way it is symmetrical—but there is only one movement. To accomplish this she posits that the shared wh-word is at some stage of the derivation simultaneously in both conjuncts. This is shown in the representation in (18).

(18)
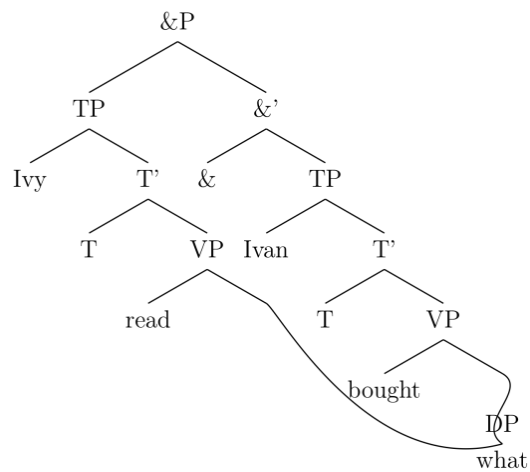
The wh-word *what* is introduced into the derivation as both the object of *read* and the object of *bought*. This is argued to be possible by proponents of multidominance analyses of phrase structure building (best and most recently by Citko 2011) wherein a single node can have two immediately dominating nodes. The above structure feeds wh-movement (or a single wh-word) that results in a structure like that in (20) which represents the sentence in (19):

(19)   What did Ivy read and Ivan buy?

(20)
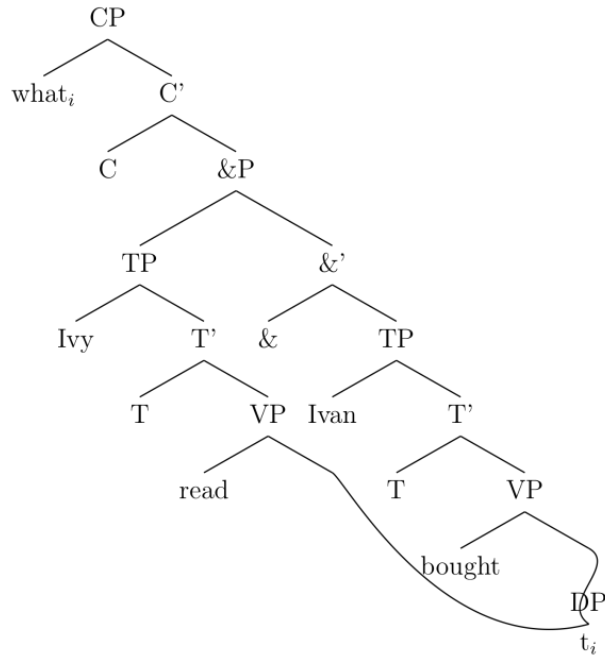
    This approach does not require a novel sort of lexical fusion, but rather relies

on a means of structure building (multidominance) that is claimed to be freely

available. Further, it avoids the problem exemplified by the Polish example. In order

for there to be two fronted wh-elements (that otherwise obey the coordinate structure

constraint), they must have arisen in both conjuncts. This does not hold for the

examples in (17) where the two wh-words cannot both be related to separate gaps in

the each conjunct. That is, the example (17a) cannot have had (21) as an earlier stage

in its derivation:

(21) *Jan lubi kogo$_i$ kogo$_j$ a Maria kocha kogo$_i$ kogo$_j$?

   Jan likes whom whom and Maria loves whom whom

   'Whom does Jan like and Maria love?'

There are nevertheless certain problems with this type of approach. Much like with the RNR examples in the previous chapter, there are numerous asymmetries that arise with ATB extraction. These asymmetries suggest that there is only really movement arising in the leftmost conjunct, not both. Below I explore a few of these asymmetries.

The first such asymmetry comes from morphological mismatches between the moved elements and the two conjuncts in question.[24] Salzmann 2012 notes that only the first conjunct crucially determines the form of some ATB-fronted verb phrases in German. This is shown in (22). Here, a verb-final VP is fronted in an across-the-board fashion. This verb in this phrase must be of a form that agrees with the first conjunct (the past participle form), and it may disagree with the form that the second conjunct selects for (the infinitival form).

(22)   Ein Buch {*wegwerfen/weggeworfen} hat Hans schon   oft   aber würde

        a   book   throw.away/thrown.away has Hans already often but would

        Maria nie

        Maria never

        'Throw away a book, Hans often has, but Maria never would.'

As seen in (23), this holds no matter the particular mismatch in the second conjunct:

---

[24] Citko (2003) notes that some languages (like Polish) show fidelity to both conjuncts in wh-case marking, but that others (like German) show asymmetries for the type discussed below.

(23) Ein Buch {wegwerfen/*weggeworfen} würde Maria nie   aber hat Hans

a   book   throw.away/thrown.away   would Maria never but   has Hans

schon   oft.

already often

'Throw away a book, Maria never would, but Hans often has.'

Another instance of this sort of asymmetry is found in the binding principles
and they apparent obviation vis a vis the second conjunct. Munn 1993 notes that
principle A only seems to hold in the first conjunct and not the second. When there is
an ATB-moved wh-phrase containing a reflexive like that in (24), it only seems to
reconstruct into the first conjunct and not the second:

(24)   a.   *Which picture of herself did James sell and Susan buy?

       b.   Which picture of himself did James sell and Susan buy?

Similar facts can be found with principle C. Citko (2005) shows this with the
examples below in (25). Only the first conjunct is necessary and sufficient to rule out
a sentence by principle C:

(25)   a.   *Which picture of John$_i$ did he$_i$ like and Mary dislike?

       b.   Which picture of John$_i$ did Mary like and he$_i$ dislike?

Further, Munn 1993 notes that weak crossover effects are also only felt in the first conjunct and not the second.

(26)   a.   *Who$_i$ should his$_i$ best friend invite and Ivy meet?

        b.   Who$_i$ should Ivy meet and his$_i$ best friend invite?

Additionally, there is evidence from Macedonian (Larson 2013) that suggests that there the conjuncts are not treated equally in ATB constructions. In Macedonian, indefinite wh-phrases do not allow the presence of second position clitics when moved to the left periphery. This can be seen in (27) below. The clitic *ja* is prohibited when 'which book' has moved:

(27)   Kakva kniga (*ja) pročita Petar?

        what   book   CL read   Petar

        'What book did Petar read?'

This constraint also holds for the first conjunct of an ATB question involving an indefinite wh-phrase, but the clitic becomes optional in the second conjunct:

(28) a. Kakva kniga (*ja) pročita Ana i (ja) kupi Ivan?

　　　　what book CL read Ana and CL bought Ivan

　　　　'What book did Ana read and Ivan buy?'

　　b. Što (*go) kupi Ana i (go) pročita Ivan

　　　　what CL bought Ana and CL read Ivan?

　　　　'What did Ana buy and Ivan read?'

While it is not clear *why* the clitic is optional in the second conjunct in the examples above (perhaps there are two possible derivations of the sentence), this is nevertheless further evidence of a sort of asymmetry between the relation between the fronted element and each conjunct respectively.

More evidence of ATB asymmetries from both Macedonian (Larson 2013) and English (Larson and Parker 2013) concerns *whether*-islands. In Macedonian, indefinite wh-phrases (though not definite ones) are subject to *whether*-islands like in (29a). This also holds for English as seen in (29b).

(29) a. *Kakvi studenti se misliš dali da isprašaš?

　　　　 what students refl think whether to examine

　　　　'What students are you wondering whether to examine?'

　　b. *What did Becky wonder whether Jill examined

These constraints hold again for the first conjunct of ATB sentences, but the same islands in the second conjunct are judged acceptable. The Macedonian

judgments come from a single native-speaker informant, but the English judgments come from a formal judgment experiment. Again, this sort of asymmetry goes unexplained in symmetrical accounts. [25]

(30) a. Kakvi studenti Ana poseti i se misliš dali da isprašaš?

what students Ana visited and refl. think whether to examine

'What students did Ana visit and are you wondering whether to examine?'

b. What did Becky say that Sam saw and Joe wonder whether Jill examined?

In short, each of these above distinctions suggests that there has only been true syntactic movement from the first conjunct in these ATB constructions and not symmetrically from both. In the next section I introduce approaches that run with this intuition and posit analyses with asymmetric movement from the first conjunct only.

---

[25] Island effects still seem to hold in the second conjunct with respect to adjunct islands however:

(i) Why did Becky say that Bill left and Bruce wonder whether Ivy stayed?

The above sentence can only have a reading where the speaker is curious about Bruce's wondering, not Ivy's staying. Note also that adjunct wh-words cannot be interpreted into clausal adjuncts either:

(ii) Why did Bruce leave before saying good-bye?

The above sentence cannot be interpreted as asking about why Bruce said good-bye.

2.3 Asymmetrical accounts

Because of the well known asymmetries presented above, other researches have proposed analyses of ATB constructions in which the two conjuncts are not equal. These proposals involve various means to skirt the problems raised above. Without traditional overt movement from the second conjunct, these asymmetrical accounts exploit three other means of deriving long-distance construal between the element in the left periphery and its locus of interpretation in the first conjunct. These three other means are: null elements, deletion, and sideward movement.

Munn 1993 proposes an analysis of ATB that is asymmetrical in that there are two different types of movement, one type per conjunct. In the first conjunct, there is overt movement of the, descriptively spearking, ATB-moved element. In the second conjunct there is parallel movement of a null operator to an analogous position. In tree form, this pair of movement is shown in (31).[26]

(31)

---
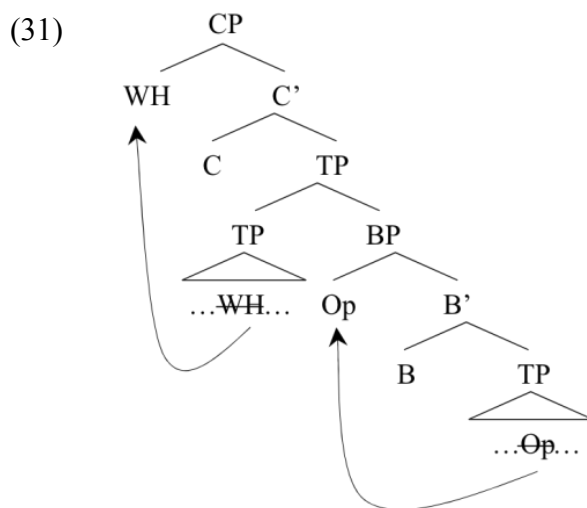
[26] Munn here uses BP (Boolean phrase) instead of the &P that I have been using. His null operator moves into the specifier of this position. These differences are not consequential.

In positing such an analysis, Munn avoids the problem of there being multiple movements of a single wh-word. Instead the wh-word in question only actually moves from this first conjunct. The operator movement in the second conjunct is effectively silent and the across-the-board nature of the construction only apparent.

The analysis thus avoids the problem faced by the dual movement symmetric analysis and may also capture a good deal of the asymmetry facts presented above. For example the principle A reconstruction facts above in (24) are what they are because the overt wh-phrase was never in the object position of the second clause. Thus the reflexive in the wh-phrase cannot reconstruct into that position in order to be licensed. This is seen in (32) below where there is a trace of the wh-phrase only in the first conjunct and the trace in the second conjunct is that of the moved operator.

(32)   *[Which picture of herself]$_i$ did James sell t$_i$ Op_j and Susan buy t$_j$?

This account cannot however handle the island facts very well. As we saw above, *whether*-islands are porous in the second conjunct of ATB wh-questions. This is not predicted under the Munn account. While there is no wh-movement in the second conjunct, there is movement nonetheless. The null operator moves from a thematic position into an A-bar one and it is known that null operator movement is still subject to island constraints (Chomsky 1977). This can be seen with the relative clause-internal island in (33). I assume that relative clauses are derived via A-bar extraction of a null operator and this movement is indeed subject to island constraints:

(33)   *I saw the man *Op*ᵢ that Joe wondered whether Jill hit tᵢ

So although the Munn account avoids many problems of the symmetrical accounts, it runs into problems with the lack island effects in the second conjunct of ATB constructions.

Another sort of asymmetrical around runs into the exact same problems. Fernández-Salgueiro 2008 (following Nunes 2004) posits that the displaced wh-word is base-generated solely in the second conjunct. It then moves in a sideward fashion (see Nunes 2004) to the object position of the first conjunct before thereafter moving to the left-periphery. This is sketched in the tree below in (35) for the sentence in (34).

(34)   What did Ivy read and Ivan buy?

(35)
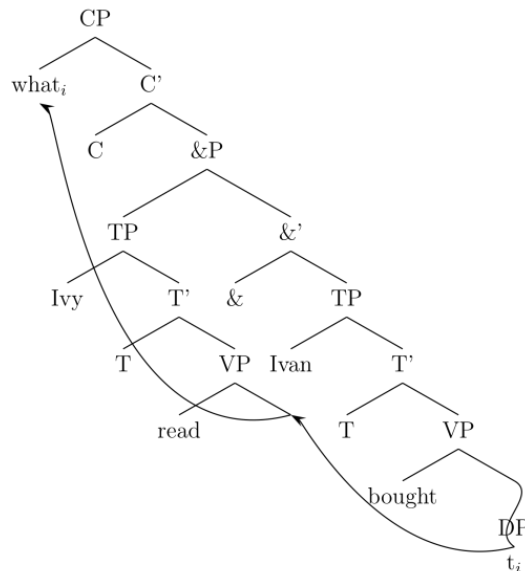
This approach still runs into the second-conjunct island problem. Sideward movement of the type proposed in by Fernández-Salgueiro has been known since Nunes 2004 to be subject to islands if the base-position of the moving element is island internal before the sideward movement takes place. Given this, the island facts discussed above are not predicted.[27]

So the two asymmetric approaches discussed here run into problems. In part to avoid these problems, researchers have resorted to eschewing movement altogether in the second clause. Instead of either sideward or null operator movement, they have posited in-situ null elements of various types.

Zhang (2009) riffs on Munn's approach by maintaining the null element, but discarding the movement. That is, she posits an analysis like that in (37) for the sentence in (36).

(36)   What did Becky buy and Tom sell?

(37)   What$_i$ did Becky buy t$_i$ and Tom sell *pro*$_i$?

Instead of the trace of an A-bar moved null operator Zhang employs an in-situ null *pro* that is co-indexed with the moved wh-word in the first conjunct. This approach seems to be the skirt every problem encountered so far. There is no mystical

---

[27] Also, as posited elsewhere in this thesis, I claim that sideward movement is not a derivational option for grammars. Movement that does not immediately result in a new c-command relation is ruled out. The 'sideward' move of sideward movement results in a new position of the displaced element that does not c-command the position from which it had moved. This is not possible in the system that I promoting. Since this system can handle ATB, right node raising and coordinated-wh questions in a more or less uniform fashion, it is advantageous hew to its principles and disavow sideward movement.

lexical fusion that must take place and movement effects such as reconstruction and island sensitivity are predicted only in the first conjunct.

The main problem however is that languages like English do not seem to allow object *pro* generally. Its use here is unique for the language and is not otherwise justified. Further, were *pro* as available in English as it is here, we should expect the possibility of any wh-construction to lack movement effects. Any sentence like (38) could be analyzed like (39) and not involve movement. This is clearly a path to avoid given that we do in fact discern island effects.

(38)   What did Jill say?

(39)   What$_i$ did Jill say *pro*$_i$?

Also, it is not just nominal elements that can appear displaced in ATB constructions. In (40) it is clear that verbal heads and prepositional phrases can move in the across-the-board as well:

(40)   a.   Can Becky sweep the floor and Tom mop the kitchen?

        b.   With which student did Becky dance and Tom sing?

Yet there are no hypothesized null *pro* analogues to verbal heads or PPs that could arise in the second conjuncts above. In this sense, the Zhang approach would require a variety of special null elements to work for a language like English. For

these reasons I conclude that the null *pro* approach is not the right one for ATB constructions.

One final sort of 'null element' approach is that of Salzmann 2012. He, much like Zhang before him, posits that there is only movement from the first conjunct. The moved element in its derived position acts as the antecedent to an in-situ expression in the second conjunct which undergoes deletion under identity. This is sketched in (42) for the example in (41).[28]

(41)   What did Becky buy and Tom sell?

(42)   What$_i$ did Becky buy t$_i$ and Tom sell ~~what$_i$~~?

This approach succeeds where Zhang's approach fails. Salzmann does not rely on ATB-moved elements to be specially elidable here. The deletion of the second conjunct wh-word in (42) is not predicated on the same sort of constraints as, say, IP or VP deletion. Instead, the second conjunct wh-phrase is deleted because there is a c-commanding, co-indexed wh-word above it. For the same reason that 'non-top' copies are elided in regular wh-extraction cases, so too is this 'non-top' copy elided. Throughout this thesis I have been using traces (*t*) in lieu of full-fledged copies for physical ease, but I do consider these traces to be unpronounced copies of the moved element. So for a sentence like that in (43), I also maintain that there is an unpronounced copy in the object position (44). This lower copy is deleted in favor of the higher one (see Nunes 2004 for details)

---

[28] Salzmann posits additional movement within the second conjunct (within the verb phrase). I abstract away from this here.

(43)   What did you eat?

(44)   What did you eat ~~what~~?

In this sense, Salzmann's deletion is nothing strange. Moveable things generally force their lower copies not to be pronounced. Positing a non-moving copy in the second conjunct not only captures the asymmetry facts, but it also predicts that it will not be pronounced.

Despite the obvious promise of Salzmann's account, I think there is a serious problem with it. If it is possible for wh-elements to condition the ellipsis of lower copies independent of movement, then we expect this to be a possibility generally. An analysis like that in (45) where there has been no movement from the second conjunct opens up a can of worms.

(45)   What$_i$ did Becky buy t$_i$ and Tom sell ~~what~~$_i$?

it should be possible for this to work independently of ATB constructions as long as the un-moved wh-word is anteceded by another wh-word. Take (46) for example. Here there has been movement from the embedded subject position (this is shown with a trace) and there is an elided, co-indexed wh-element in the embedded object position.

(46)   Who$_i$ did Joe say t$_i$ hit ~~who~~$_i$?

155

The sentence above should be able to mean something like: Who was such that Joe say that he hit himself? But this meaning is not possible for the sentence in (47).[29]

(47)   Who did Joe say hit?

Further, it should be possible to always evade island constrictions if this sort of deletion is possible. Suppose a wh-word was generated within an island and a co-indexed wh-word were merged in a spec,CP position outside of the island. This is sketched in (48) below. This would lead us to falsely predict that islands are in all cases avoidable and as such their effects should never be felt. Sentences like (49) should be grammatical, contrary to the facts.

(48)   What$_i$ … [island …~~what$_i$~~ …]
(49)   *What did Joe wonder if Becky saw?

It short, it should not be possible for an antecedent and co-indexed (but otherwise unrelated) wh-element to condition the deletion of another. This is exactly what Salzmann relies on and despite the advantages of this proposal it should not be adopted for these reasons.

---

[29] Though if the spell-out of locally A-bound traces is necessarily that of a reflexive and not a gap (as in Drummond, Kush, and Hornstein 2011), then this argument does not go through.

2.4 Summary

In this section we saw that there are two main approaches to ATB constructions. There are symmetrical ones that run into problems of empirical asymmetries in the construction. Then there are asymmetrical theories that exploit various ways of deriving movement-like relations without actual movement. There are various ways to get the effects of movement without normal movement: Null elements, deletion, and sideward movement. But this range of syntactic non-movement approaches to the second conjunct of ATB constructions runs into problems for each type respectively. Though the syntactic options are exhausted, there is still the option of a non-syntactic approach to the second conjunct. This is the approach I will posit and pursue in this next section.

3 A non-syntactic approach to the second conjunct.

The facts are essentially these: there does not seem to be any movement out of the second conjunct in ATB constructions. Further, syntactic means of construal into that second conjunct do not seem to work either. For these practical reasons it is justifiable to explore non-syntactic means to that second conjunct. But in addition to this practical motivation, there is theoretical motivation to go this route as well. This is what I pursue in this chapter.

The basic approach to ATB constructions that I posit here is shown in (50). Here there is movement from the first conjunct that leaves behind a trace. In the

second conjunct there is simply nothing in the location that corresponds to the moved element in to the first conjunct.

(50)   What$_i$ did Becky buy t$_i$ and Tom sell?

This approach captures the asymmetries noted above without resorting to syntactic relations between *what* and the second conjunct verb *sell*. In this next sub-section I explore how.

3.1 Why there can be a true gap in the second conjunct.

In the representation I presented above the verb in the second conjunct does not have an internal argument. It is nevertheless interpreted as having one, namely the wh-word from the first conjunct. I contend that this is a non-syntactic relation.

In the scheme presented in the introduction of this thesis, I outlined what it means to be a syntactic relation. In order to be in a syntactically-mediated relation with something, there must be a c-command relation between the two elements. If this were the only hurdle, it seems that a syntactic relation would hold between the wh-word and the gap in the second conjunct. This, given the relatively anodyne tree structure for the ATB sentence in (50) above shown below:

(51)   [$_{CP}$ What [$_{C'}$ did [$_{TP}$ [$_{TP}$ Becky buy] [$_{\&P}$ and [$_{TP}$ Tom sell]]]]]

In (51) the second conjunct TP is in the c-command domain of the wh-word in the spec,CP position. However, I contend that there is no syntactic relation between these. I assume a syntax in which movement is effected by a syntactic element being copied and re-merged into a structurally higher position (following Chomsky 1995 and the formulation found in Nunes 2004). That is, an element X like in (52a) can be copied and re-merged into a higher position like in (52b). This results in a c-command relation and is in turn a syntactic relation (I show this relation by bolding the Xs). If there is to be an additional position of X in the structure (like in (52c)), then it is the highest copy of X that is copied and re-merged (following Rizzi 1990). Here however, the syntactic relation that is created is only between the highest X and position it was copied from. I show this relation with underlining in (52c).

(52) a. [A X]

      b. [**X** [B [A **X**]]]

      c. [X [C [**X** [B [A **X**]]]]]

That is, a syntactic relation is only possible between the highest position of a given element and its most recent position derivationally. In other words, if an element is in a syntactically-derived relation with something it c-commands, it can have no other such relations. This prompts a stricture like the one below:

(53) An element can only have one immediately prior derivational position.

This, like c-command, is another definitional component of what it means to be a syntactic relation. This precludes the traditional Williams 1978-style of ATB movement where two elements become one via parallel transformation. This follows if every link in a movement chain c-commands it is preceding link and only that link.

In the ATB constructions that we are looking at, the moved element in question can only bear one syntactically-mediated relation: the relation between it and its most recent derivational position.[30] Here in particular I claim that it is with the trace in the first conjunct. In virtue of this relation, it is definitionally not possible for there to be another such relation between it and the anything in the second conjunct. Given that this is an impossibility syntactically, the relation must be coded by some other, non-syntactic means.

So if there is no possibility for a syntactic relation, the next option is a semantic one. It is certainly the case that the wh-word in example (51) takes scope over the second conjunct as it indeed c-commands it. However, there is nothing within that second conjunct to be bound by the wh-word. And just because an element can potentially take scope over a range of structure does mean that it must enter into a semantic relation with something in the structure lest it run afoul of some sort of vacuous quantification-type problem. Here the wh-word already takes scope over and semantically binds a variable in the first conjunct and as far as semantic

---

[30] This is not to say that the effect of multiple syntactic relations can arise. A given moving element will be in a syntactic relation with a trace in its previous derivational location. This trace will in turn have a relation with its previous location if one exists. Transitivity gives us the effect of a one-to-many syntactic relation where in reality there is only a chain of one-to-one relations.

relations are concerned, there is nothing lacking in the semantic structure in (54) below.

(54)   For what x, Becky bought x and Tom sold

It would further be ad hoc and unexplanatory for there to be a freely available null variable that could be bound by the moved wh-word. English does not seem to have such freely available null object *pro*s that would fir this bill.

So neither a syntactic nor semantic relation is viable between the ATB-moved element and its interpreted position in the second conjunct. Given the point pushed by this thesis, the next thing is to attempt a pragmatic-level dependency. In an upcoming subsection, I will go into exactly how this might possible works and how it, in the end, does not. First I'll address the question of why it is the second conjunct that takes part in this non-syntactic, non-semantic dependency. Why is not the case that the wh-word could have moved from the second conjunct and the pragmatic dependency hold between it and the verb in the first conjunct?

3.2 From which conjunct?

The facts noted in the previous section concerning ATB show that there is generally an asymmetry in the effects that arise due to movement. The effects of movement are more often found only with respect to the first conjunct and not with any subsequent conjuncts. Why should this be the case? There is nothing a priori that would lead us to suspect that the directionality should work this way. That is, it could have been the

case that either (55a) or (55b) could be legitimate representations of ATB movement

and that we would be able to find evidence of asymmetries going in both directions.

(55) a. What$_i$ did Becky buy t$_i$ and Tom sell?

    b. What$_i$ did Becky buy and Tom sell t$_i$?

I follow Munn 1993 in taking the second conjunct (and all subsequent ones) to

be adjuncts to the matrix clause (the TP to be specific in this case). As laid out above,

this gives us a structure like that in (56)

(56) [$_{CP}$ What [$_{C'}$ did [$_{TP}$ [$_{TP}$ Becky buy] [$_{\&P}$ and [$_{TP}$ Tom sell]]]]]

Seen above, the &P attaches to the TP, but another TP projects, a traditional

representation of adjunction. It is also well know that extraction out of clausal

adjuncts is not grammatical:[31]

(57) *What did Becky buy a record after talking about?

Note that this sort of constraint on movement is of a different sort than the

definitional one involving c-command. Here, movement is a structural possibility,

just one that happens to be illicit. Though it is not exactly clear why this constraint on

extraction from clausal accounts should hold, if we take it to be a roughly correct

---

[31] Parasitic gap constructions seems to be an exception to this notion, but later in this chapter I argue that these maybe only be superficial exceptions.

empirical generalization we should predict that extraction from the second conjunct of an ATB sentence will be ungrammatical.[32] As such, only movement from the first conjunct will be discerned. That is, there are two possible conjuncts from which movement could stem, but only one of those movements does not necessarily result in an ungrammatical sentence. Movement from within the second conjunct qua clausal adjunct is rule out. In short, much like the cases of CoWh and RNR, there are independent factors that force there to be certain directionality restrictions that need not hold in an a priori sense.

This approach to ATB and the constraints on movement from the second conjunct makes a prediction concerning the headedness of coordination. English is a largely head initial language and as such the &P adjunct must be attaching to the right of the matrix clause. In head final languages, it must be the case that &P clausal adjuncts are adjoining to the left of the matrix clause as shown in (58) below in a hypothetical head-final language:

(58)   What did [TP [&P [TP Becky buy] and] [TP Tom sell]]]]

Here it is the *first* conjunct that should be the island for movement and the *second* clause should show the effects of movement. This prediction actually seems to be borne out in the work of Lee 2012 for Korean.

---

[32] It is not clear why extraction from adjuncts that are clausal is illicit while extraction from smaller adjunctions is often quite acceptable:

(i)   Who did you sit near?

3.3 The interpretation of the moved element in the second conjunct

It must be the case that the relation between the moved element in ATB constructions and its locus of interpretation in the second clause is not mediated by syntax or semantics. Perhaps it is a pragmatic relation. I have also shown why it is the second conjunct that bears this sort of relation and not the first. In this section I will explicate how this relation might achieved via pragmatics.

As seen in the previous chapters concerning CoWh and RNR, if certain components of a sentence have not achieved relevant and necessary licensing for the interfaces from the syntactic or semantic components, the pragmatic component could logically step in to provide these elements with the necessary information. Pragmatic intervention of this sort happens only when it is apparent that these elements lack something (like instructions for their overt case morphology). This too could be the case of ATB construction: only those elements that are 'missing' something should prompt rescue by extra-syntactical and extra-semantic means.

One candidate for this help is the moved element (the wh-word in the cases used here). In the CoWh chapter it was this element that required instruction as to the overt case marking it was to be assigned as well as its thematic interpretation. The wh-words in ATB cases are not so bad off. They have all necessary information provided for the in virtue of being derived via syntactic movement from the first conjunct. This ensures the wh-word's thematic interpretation and morphological marking are taken care of.

Further, it cannot be the case that the internal object-less verb in the second conjunct drives the pragmatic relation. As argued in the RNR chapter, verbs are

perfectly satisfied on their own formally without internal arguments as long as they can achieve the effects of internal arguments via some other means. If it were simply a matter of being the verb in question having an internal argument, then it ought to be grammatical when it has an overt object in situ like in example (59)

(59)   *What did Becky buy and Tom sell books?

In the sentence above, the wh-word is satisfied as is the second conjunct's verb. The sentence is nevertheless bad and is an example of a violation of the coordinate structure constraint (Ross 1967).

Further, when an optionally transitive verb is used in the second conjunct, it should be the case that it is satisfied without an internal argument and not 'go seeking' an internal argument to fill that role. Yet the sentence in (60) shows that this search is necessary.

(60)   What did Becky buy and Tom eat?

The sentence above is unambiguous. It can only be a question about the thing such that Becky bought it and Tom ate it. It cannot be a question about the thing such that Becky bought it while Tom was eating something. So whether or not the second conjunct verb is satisfied or not does not seem to be what is forcing the relation between the wh-word and the second conjunct's verb. Something must be said about this. For now let's entertain the possibility that that what actually forces the relation

between the wh-word and the second conjunct verb is the eventive nature of the conjoined TPs and see what sort of purchase that idea has.

I stated above that the relation in question is not mediated via scope in part because there is nothing relevant in the second conjunct that could be bound. However scope will play a role here. The representation that I am pushing for ATB constructions is repeated in (61). It is clear that wh the-word is in a position to take scope over both conjunct as it c-command them.

(61) $[_{CP}$ What$_i$ $[_{C'}$ did $[_{TP}$ $[_{TP}$ Becky buy t$_i$] $[_{\&P}$ and $[_{TP}$ Tom sell]]]]]

The two TP conjuncts are interpreted as two separate events in the above sentence. The buying and the selling can be utterly unrelated and the entities bought and sold can have zero overlap. It has been argued before that the TP-level is that which corresponds to the eventive level semantically (most recently by Svenonius and Ramchand 2013).

There are two events here, both under the scope of a wh-operator. Suppose that there must be scopal relations into each event. When there are distributive events, scope-taking elements must take scope into each. Stating this will allow us to provide a simple description of the facts as well as make a few predictions. It does not however stand as an explanation.

It is this requirement that raises problems with ATB constructions. For the sentence in (61) above, the wh-word must enter into a relation with the second

conjunct: it scopes over it and that conjunct is an independent event. There is however nothing in it to relate to.

So a relation is necessary, but a semantic one is impossible. For this reason the pragmatics steps in to create a relation. Given world knowledge about this meaning of *sell* and the fact that in this sentence it is missing an internal argument, the pragmatics recruits the wh-word as the internal argument. In other words, a relationship must be forged and nothing since the relevant verb is missing an internal argument, the wh-word is interpreted as such.

The wh-word could not be taken as an indirect object of the verb as it is incorrectly marked as such by its syntactic history in the first conjunct and the verb in question can normally do without an indirect object. That is, the sentence in (61) has *sell* as the relevant verb and the wh-word cannot be interpreted as its indirect object because the wh-word is not specially marked as an indirect object (it is not preceded by a preposition) and the verb needs an indirect object less that it does a direct one:

(62)   a.   Tom sold a car

       b.   #Tom sold to Harriet

Were this clash not to arise, construal of the wh-word as the indirect argument would be possible. In (63), the wh-phrase is marked as an indirect object. In (64) the verb in the second conjunct is fine without an direct object (in this case, a subject or lesson)

(63)   To whom did Becky give a car and Tom speak?

(64)   Who did Becky select and Tom teach (algebra)?

In short, the fact that we are often dealing with two events in ATB-like constructions forces a relation that can potentially be mediated extra-syntactically. Again, this is not so much an explanation of these facts as it is a new depiction of the generalization. In the next section however, we will see that there are problems with this sort of approach.

3.4 Problems

This pragmatic approach runs into deep problems similar to those for RNR. Again, it is not the case that the internal argument-less verb in the second conjunct is pragmatically odd without that internal argument. It is simply the case that certain verbs in that sort of structure require them. This is not an issue of pragmatics.

Also, if the relation between shared elements and the second conjunct is solely pragmatic (it cannot be syntactic or semantic) then it is very unclear why semantically vacuous function words like *did* determine the acceptability of an ATB sentence. That is, it is not clear why the sentence in (65) should be unacceptable. If there is only a pragmatic relation, why is it not possible to add another semantically vacuous entity? It cannot be the case that T-to-C movement like that of *did* relies on a wh-word having moved over it. Yes-No questions show idea this to be wrong. Absent some ad hoc pragmatic restriction or condition on *did* in (65), there is no clear way for the pragmatic approach to rule it out.

(65)   *What did Joey buy and did Mary sell?

In short, we are forced to disavow syntactic and semantic relations in ATB constructions. But this leaves us with only pragmatic relations left as a logically possible means to derive the meaning. Given the issues above this seems to be the wrong level of analysis as well. Once again we have a deep conundrum with respect to dependencies across coordination. In the next section some extension of the movement-less approach to ATB. That is, the syntactic analysis forced upon us.

4 ATB Extensions

4.1 The coordinate structure constraint

If it is the case that ATB constructions actually only involve extraction from the first conjunct, something must be said about the coordinate structure constraint (CSC) (Ross 1967). In part, this constraint refers to the unacceptability of sentences like (66).

(66)   *What did Becky study and Tom teach physics to Jane?

This constraint bears its teeth when it is transparent that movement has taken place from just one conjunct. All else being equal, it could be said that the asymmetrical approach to ATB constructions suggested here predicts that there should be no CSC effects or that ATB constructions should be just as ungrammatical

as CSC violations. Neither of these holds. In this section I explore the type of thing that might be said to address this issue. This is not to say that I proposing an real explanation of CSC phenomena. Instead I intend to maintain the non-syntactic account of ATB from above while nodding to a potentially (and partially) non-syntactic account of the CSC.

If there is no syntactic relation between the wh-word and its locus of interpretation in the second conjunct, then the sentence in (66) must only be unacceptable because there is something non-syntactic going wrong with the relation between the wh-word and the second conjunct. In (66) there is no thematic interpretation available to the wh-word in that conjunct that is not already taken. Under the non-syntactic approach, were there to be a possible thematic role for the wh-word that its morphology did not clash with, then there would be no problem. This is seen in the example below. As long as the wh-word is interpreted as an indirect object in the second conjunct, the sentence is fine despite its ostensible CSC violating status:

(67)   Who did Becky praise and Jim teach physics?

This also explains why optionally transitive verbs must be interpreted as using the wh-word as their internal argument despite their optional transitivity. In (68) below, if the second conjunct verb is interpreted as having a null indefinite internal object, a CSC–type violation arises. If not, the sentence will be acceptable with the wh-word serving as the internal argument:

170

(68)　a.　What did Becky buy and Tom eat?

　　　b.　*What did Becky buy and Tom eat *null indefinite*

The version of (68) that is not acceptable is akin the sentence in (68) where there is not relevant thematic role for the wh-word in the second conjunct:

(69)　*What did Becky buy and Tom arrive?

If there is a non-syntactic dependency in the second conjunct that goes awry and causes the unacceptability of (68b), then the unacceptability of (70) arise from radically different sources. The sentence in (68b) is bad because we are forced to make a thematic relation where one is not possible given the lexical items at hand. In (70) the sentence is bad because there has been movement a clausal adjunct which runs afoul of syntactic strictures.

(70)　*What did Tom eat *null indefinite* and Becky buy?

Also, this forced relation could rely on the apparent dual-eventhood of the coordinated TPs that was introduced in the previous section. Suppose the coordination were lower than TP such that we were no longer dealing with two separate events, but rather one event (perhaps rather long in duration). Then this

theory would predict that there would be no forced relation between the wh-word and the second conjunct verb.

The next step down from coordinating TPs is to coordinate everything below the derived subject position. We can tell if we are coordinating at this level if the subject in spec,TP is shared between both conjuncts, but nothing lower than that. As seen in (71) we do not run into CSC-type violations when extraction occurs alongside this lower coordination:

(71)   What did Tom drink and live to be 100?

The above sentence is a class counter-example to the CSC noted by Lakoff (1986) and we are now able to handle it with the theory presented here. The chain of reasoning goes: less whole TPs are coordinated, thus there is only event in question (albeit a multi-part one), thus there need not be a scopally-mediated relation between the wh-word and the second conjunct. As a result, the second need not be missing an argument.

When we use a very similar sentence, but ensure full TP coordination by means of two subjects, the sentence is no longer acceptable in as seen in (72a) and the more plausible (72b) (compare this with the acceptable (72c)).

(72)   a.   *What did Tom drink and Becky live to be 100?

        b.   *What did Becky do and Tom get upset?

        c.   What did Becky do and get upset?

Also, it is not the case that the lack of a multi-eventive reading precludes the pragmatic dependency from being formed. This can be seen in example (73) where we have coordination below the derived subject position. Here, the gap in the second conjunct is no different from the ones we have been investigating. It too cannot have gotten its interpretation via syntactic or semantic means. It nevertheless gets its interpretation from the fronted wh-word:

(73)   What did Becky buy and decide to eat?

This sentence is ambiguous between the interpretation of *eat* where it has a null indefinite internal argument and the interpretation where its internal argument is the wh-word. Given the scope taking ability of the wh-word and a potential gap in the second conjunct, it should be possible for a pragmatic relation to be built between the two. Consequences of this will be explored in the next subsection.

In short, this approach to ATB construction allows for a straightforward explanation for CSC effects. However, one result of these advantages is a perhaps counter-intuitive repercussion. The approach offers a means to capture ungrammatical sentences like those in (74), but is mute with respect to the ungrammatical sentences in (75).

(74)   a.   *What did Becky buy and Tom sell books to Jane?

         b.   *What did Becky sell books to Jane and Tom sell?

(75)   a.   *What did Becky buy books and?

       b.   *What did Becky buy and books?

Whether or not this is a welcome result is not readily apparent. But is does seem to be an unavoidable result of the theory sketched here. Again, this is by no means a complete discussion of the CSC. Instead it is a survey of the sort of thing that must be said about the CSC given the asymmetrical syntactic representation of ATB construction pushed here.

4.2 Parasitic gaps

The similarities between ATB constructions and parasitic gaps (PG) like those in (76) have been noted before (Hornstein and Nunes 2002) and the correct analysis of one has long been suspected to potentially relate to the correct analysis of the other.

(76)   a.   What did Becky buy without having read about first?

       b.   Which bill did even supporters of eventually vote against?

The approaches to PG constructions are varied and have involved null pronominal elements (Chomsky 1982) and sideward movement (Nunes 2004). Given the approach to ATB constructions above, I posit that PG constructions involve a true literal gap within the island in each conjunct. That is, I analyze the sentences in (76) as shown in (77). There has been movement to the spec,CP position only from

position in the tree. Gaps within adjunct or subject islands are true gaps and in the cases below, the relevant prepositions have not objects.

(77)   a.   What$_i$ did Becky buy t$_i$ without having read about __ first?

       b.   [Which bill]$_i$ did even supporters of __ eventually vote against t$_i$?

Movement from these islands is not possible and for the same reasons as above, no syntactic or semantic relation can hold between the moved wh-element and that gap position. A pragmatic relation can save the day here again. But since the phrases containing the parasitics gaps do not constitute independent events, such pragmatic relations are not necessary. If those gaps are filled, the result is still not a bad sentence:

(78)   a.   What$_i$ did Becky buy t$_i$ without having read about cats first?

       b.   [Which bill]$_i$ did even supporters of prohibition vote against t$_i$?

That is, the acceptable sentences above are analogous to the single-event coordination examples from the previous subsection. The non-syntactic relation is possible, but not necessary.

(79)   What did Becky drink and live to be 100?

Why might we think this is the right approach to PG constructions? First, there are similar asymmetries with PG constructions to what we saw above with ATB construction. There is not much evidence of syntactic reconstruction of the displaced wh-phrase into the parasitic gap position. Kearney 1983 shows this with Principle A effects that I repeat here in (80).

(80)   a.   Which picture of himself did John file before Mary read?

        b.   *Which picture of herself did John file before Mary read?

Further, given the definitional constraint on syntactic relations that I am working with here, sideward movement of the wh-element from the parasitic gap position into to spine of the tree (a la Nunes 2004) is not a possible derivational option here.

I do not intend this to be a full-throated endorsement of the syntax-less approach to PG constructions and a condemnation of the previous ones. Instead I intend to show that certain properties of PG constructions fall out rather naturally from this approach as an extension of the analysis of ATB constructions.

4.3 Why not free gaps everywhere?

Given the theory presented above, so long as an element has moved so as to be able to take scope over a true literal gap, then it should be possible for there to be a pragmatic dependency between the moved element and that gap position. This holds for the gap positions in both ATB constructions (81a) and PG ones (81b).

(81)   a.   What did Becky buy t and Tom sell __?

          b.   What did Becky buy t without reading about __?

          This is a vast amount of freedom and power for the grammar to have. It seems

that we predict all sorts of pragmatic dependencies to be possible when they clearly

are not. For example, it should be possible to front a subject wh-word and have this

be interpreted within a clausal adjunct like in (82). This example though is obviously

bad.

(82)   *Who ate before Jim talked to __?

          It is exactly this sort of fact that prompts Nunes (2004) to provide the

derivational view of sideward movement and adjunct-islandhood. He takes clausal

adjuncts to attach to VPs. In virtue of attaching to these VPs, the clausal adjuncts

become island. If the moving wh-element is able to escape the clausal adjunct by

moving sideways before the adjunct attaches (and becomes an island), the movement

should be licit. This means in effect that sideward moved elements must correspond

to VP-internal positions in the matrix clause. This is not the case in (82) where the

sideward moved element must move to the external argument position above the VP.

The clausal adjunct must have already attached by this point and movement from

within what is now a clausal adjunct island is blocked.

In the analysis we are not immediately afforded this internal logic to preclude sentences like (82) from being ruled in. But if we remember our hierarchy of dependencies and their licensing conditions, a simple account arises.

Recall that syntactic dependencies are the privileged relation. If a syntactic relation is possible, then a syntactic relation is assumed. Once this is a possibility, then running into any other problem (like movement out of an island) will not be rescuable by looser semantic or pragmatic dependency formation, but rather leads to ungrammaticality. In the example above in (82), a syntactic dependency *is* possible for the adjunct clause-internal gap. This is shown in (83). The trace of the moved wh-element c-commands the gap within the island and because of this, a syntactic relation *must* be assumed. Since this syntactic relation holds across an island boundary, the sentence is ungrammatical.

(83)   Who$_i$ … [$_{vP}$ t$_i$ [ate [before Jim talked to __]]]?

This means that pragmatic dependencies are never going to be possible where the gap position is c-command by lowest of the moving element's traces. Such ATB-style pragmatic dependencies are only going to be possible where the lowest trace of the moved element does not c-command the gap. This statement allows us to unify a broad range of constructions as a type and predict that they will be acceptable. ATB-style pragmatic dependencies will be possible in ATB and traditional PG constructions like in (84) and (85) (here the lowest trace and is shown) and extends to subject-internal PG constructions like in (86)

(83)   What did Becky buy t and Tom sell __?

(84)   What did Becky buy t without reading about __?

(85)   What did each proponent of __ vote against t?

In each of the above cases, extraction is only independently licit from one position.[33] But even when extraction is possible from more than one position, and these positions bear no c-command relation with one another, PG-type constructions can arise. Take sentences like those in (87). It is possible to licitly extract from different positions.

(87)   a.   Who did you give a picture of t to Mary?

        b.   Who did you give a picture of John to t?

Neither of these two base-positions bears a c-command relation to the other. As such, there can be no syntactic relation between them. Further, the moved-wh can only bear a syntactic relation with one of them. As such, we expect a PG-like construction to be possible here. And this is the case:

(88)   Who did you give a picture of __ to __

---

[33] Kayne 1983 notes that islands within these clausal adjuncts of PG still lead to unacceptable sentences. Under this account of PG, this fact is mysterious.

Given the theory, it is equally possible that the non-syntactic dependency is

holds for the first or the second gap. Nothing in the theory predicts one over the other

as syntactic movement is licit out of each conjunct. When there is a c-command

relation between the two, the dual gaps are not possible:

(89)   a.   *Who __ gave a picture of __ to Mary?

         b.   *Who __ stole a picture of John for __?

         c.   *Who did you compare __ to a drawing of __?

Given the strictures on what must be construed as a syntactic relation, the

freedom possible with non-syntactic dependencies is curtailed in such way as not to

overgenerate.

4.4 Experimental evidence

Another type of support for the claim that the second conjunct dependency of ATB

constructions is of a different type than that of the first conjunct comes from online

processing data from Parker and Larson 2013.

In a self-paced reading paradigm, subjects were presented with, among other

things, sentences that had a *whether*-island in the first conjunct of an ATB extraction

or a *whether*-island in the second conjunct. These in turn were compared with

sentences with no islands in either conjunct. Example items are seen in (90). The

example in (90a) has no island in either conjunct, (90b) has a first conjunct island,

and example (90c) has a second conjunct island. Here *whether*-islands were used for

their similarity to embedded clauses headed by *that*. This way it was possible to compare embedded clauses that differed *only* in the complementizer and whether that complementizer induced islandhood or not.

(90) a. [The book that] Alex said that Frank purchased __ and Tracy doubted that Mandy read __ was a bestseller.

  b. [The book that] Alex said whether Frank purchased __ and Tracy doubted that Mandy read __ was a bestseller.

  c. [The book that] Alex said whether Frank purchased __ and Tracy doubted whether Mandy read __ was a bestseller.

As seen in the graphs below, there is significant slowdown in the reading times directly at the point where it is clear that there will be an island-crossing dependency in the first conjunct (figure 2). However, no such slow down is felt in the second conjunct. This is explained if the slowdown is the result of acknowledging that the syntactic dependency that is assuming is not going to work. When the island is in the second conjunct (figure 3), it is already the case that no syntactic dependency is assumed and as such the island-marking complementizer *whether* causes no slowdown.[34] If we take island-induced slowdown to be indicative of an active,

---

[34] There is slight, very short-lived slowdown at *whether* in the second conjunct. Also, the first conjunct slowdown in the island condition begins immediately at the word *whether*. Both of these facts are not immediately explained by the approach to ATB here. First, no slowdown should be seen whatsoever in the second conjunct. Second, the slowdown in the first should appear slightly after the island-triggering word. I suspect that these oddities are both due to the fact that for verbs that can take both

181

syntactically-informed, gap-filling mechanism (a la Wagers and Phillips 2009), we should find a slowdown only in the first conjunct island condition and not in the second.
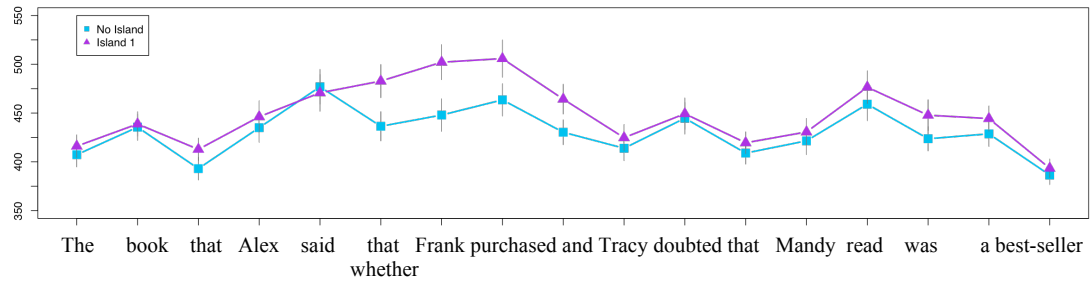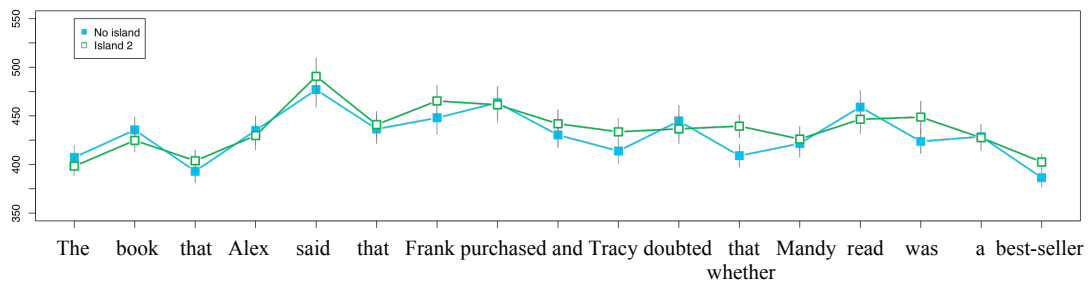
figure 2

figure 3

The above experiment was carried-out using a relatively weak island as the relevant island. It remains to be seen whether similar effects (online and off) will be found using strong islands.

5 Conclusion

In this chapter I have presented problems with previous accounts of ATB constructions and shown that there is hardly an alternative approach that works either.

---

that and *whether* as complementizers, *whether* is far less common as a cursory internet search will attest. In short, these are frequency effects.

Again our grammatical theory is not in a position to account for an interpretive dependency, this time between a wh-word and a verb across coordination.

In the next section I take stock of what I have argued in the previous chapters and discuss what options lie in front of us.

Chapter 5: Conclusion

1 Looking Back

In this section I go back over the main points of the dissertation above discuss them in a more unified way. I then discuss future avenues of research that this work suggests. The reader has been in the inferno for a while now and it would be helpful to turn around and survey the landscape behind them.

1.1 A big problem for interpretive representations

The results of the investigation above lead us to one overarching generalization. When there is a one-to-many interpretive dependency (exemplified by but not limited to CoWh, RNR, and ATB constructions), only the closest of those dependencies is a fully-fledged syntactic relation. That is, only that relation both abides by the strictures of syntactic relations and also empirically shows the characteristics of syntactic relations. This generalization is repeated in (1) below:

(1)   **The closest dependency condition:** In any one-to-many interpretive relation, only the dependency that holds between the two closest elements shows all the characteristics of a syntactic relation. All other dependencies are not mediated by syntax and behave differently.

It is not clear why the above holds, but it does in fact seem to. This generalization leads to a deep and difficult problem as discussed below.

1.2 What to do about the big problem

The fact that the closest dependency condition holds creates a big problem. We have a dependency that does not show the effects of being a syntactically-mediated one, so it must be mediated by some other means. However, we have seen that semantic means of mediating the dependency do not work. Further, pragmatic means are much too powerful and do not explain the shape of the data. Something radical must be done.

We have a few options. First we could add another representational level of interpretation that is freer than our conceptions of semantic constraints but less powerful than all of pragmatic's representational abilities. This seems to me like a very unenlightening option, but it is a logical possibility. The other levels of representation are all necessary, but this additional level would only even be discernable in the tightly conscribed circumstances we see here. Further, the current levels each correspond with an independent component of the grammar that plays a specific role. Syntax represents structure independent of meaning, semantics represents structured meaning independent of context, and pragmatics represents contextualized meaning. This fourth level would not clearly correspond to any independent notion of meaning.

Further, this level would have to factor in proximity as well so as to capture the closest dependency condition facts. Such an introduction of linear proximity into

a level of grammar concerned with meaning is not possibly consistent with the Y-model of syntax adopted here (as in Chomsky 1995) wherein interpretive levels concerned with meaning are only linked with interpretive levels concerning with externalization via syntax. Further, it cannot be the case that this level is solely one concerned with externalization and not meaning. The entire problem rests with capturing a meaning dependency. For these reasons, positing a novel level is not a helpful way around the problems that these constructions pose.

It is also not very helpful to tweak the individual levels so as to rule in the dependencies. Adding to c-command the ability for syntactic relations to hold specially across coordination is ad hoc and also at odds with a pressing theoretical urge to keep syntax as free of proprietary features as possible (Chomsky 2005). Altering the nature of semantic dependencies such that two elements could be related to one another without a scopal relation would be adding too much power. The conditions on co-indexed interpretations in CoWh, RNR, and ATB constructions are very constrained and additional ad hoc strictures would be needed to maintain that. Finally, taking some powerful from pragmatics is clearly not feasible as pragmatics in its very nature powerful and immune to the sort of structural constraints that would be need to capture these relations and rule out unacceptable sentences.

Instead, I posit that many of the effects that we find in CoWh, RNR, and ATB constructions and the closest dependency constraint in general are due to factors of language use and to be explained as psycholinguistic phenomena. The effects that arise due to proximity ought to be subtracted from the computational-level account of the constructions. This still leaves the question of how to describe the relation at the

computational level because language use is not capable of *adding* dependencies. Nevertheless, teasing apart the effects of parsing and production from the underlying computational properties is the only potentially fruitful way of dealing with the problems that these constructions hold. In a later subsection I discuss what such an approach might look like.

1.3 The primacy of syntax

The main goal in this dissertation was to promote the idea of syntax as a sort of "first resort" for interpretive dependencies in human language. Only when this sort of dependency is not possible in principle are other types of dependency considered. This is the case for a few reasons. First I take the syntax to be the sole generative component of the grammar and other systems work in a downstream interpretive fashion. For this reason it is simply the case that syntactic dependencies are the first type that could possibly hold.

Second, because syntactic relations are the subject to more restrictions that the other systems there are empirical reasons to suspect that they enjoy some primacy. There do not seem to be any sort of pragmatic islands in the same way that there are syntactic islands. In this way is the syntax subject to more restrictions. Were it the case that these more restrictive relations were not primary, we would never be able to discern their presence empirically in the form of syntactically ungrammatical dependencies. The looser dependencies would be able to swoop in and hold in place of the broken syntactic ones.

This dissertation set out to explore instances where the primacy of the syntax is moot and thereby limn its boundary conditions. In the subsection below, I recapitulate those conditions and related strictures.

1.4 Constraints on dependencies

In this subsection a make clear all together, the constraints the allow us to capture the constructions discussed above in a unfied way.

The near ubiquity of human language's use of syntactic mechanisms to capture long-distance dependencies leaves untouched only a few exceptions. And I have explored them here. These exceptions arise primarily from an absence of c-command. When there is no c-command between two elements, there can be no possible syntactic relation between them. This stricture holds over long distance filler-gap dependencies of the type I have focused on here, and it also holds for sisterhood relations between nodes where c-command exists in its symmetrical form. This requirement is state as a rule in (1) below:

(2)   <u>The c-command requirement on syntactic relations:</u> For any dependency between two grammatical elements to be a syntactic one, it must be the case that one element c-commands the other. If not, then the dependency is necessarily either a semantic or pragmatic one.

This requirement is not a intended to be a primitive of the theory, but rather a descriptive generalization. Following Epstein (1999) I take the c-command requirement to arise due to Merge and the extension condition.

Another important requirement of syntactic relations that I propose here concerns how many syntactic relations a given element can play a role in. I assume a syntax in which a single element may be copied and re-merged into a structurally higher (c-commanding) position (a la Chomsky 1995 and Nunes 2004). This approach to movement has been further explored in Larson and Hornstein 2012. That is, an element X like in (3a) can be copied and re-merged into a higher position like in (3b). per (1) above, this is a syntactic relation.

(3)   a.   [B X]

        b.   [X [A [B X]]]

As a structure is built, it may be the case that the element is required (or itself 'wants' to be) in another position. The principle of Relativized Minimality (Rizzi 1990) requires that only the highest copy of X be considered for copying and re-merge into this new position. That is, a syntactic relation is only possible between the highest position of a given element and its most recent position derivationally. It is not possible for there to be a direct syntactic dependency between the X in the highest position and the X in the lowest position if there are intermediary Xs. This corollary of the constraint in (2), the copy theory of movement, and Relativized Minimality is stated in (4) below:

(4)   An element can at most be involved in two long-distance grammatical

        dependencies: one with immediately prior derivational position and/or one

        with its immediately subsequent derivational position.

        Dependencies that do not involve c-command are not syntactic and thus

invisible to syntactic concerns. There is however a syntactic concern that can affect

dependencies that are not solely syntactic. Whether or not a given constituent is

elidable in a given language is determined by some sort of syntactically mediated

rule. It cannot be an issue of semantics that lies behind the fact that English cannot

elide the relevant noun in (5a) yet German in (5b) can as there is nothing semantic to

distinguish the two sentences below:

(5)   a.   *I'd like to buy the red ~~car~~

        b.   Ich hätte   gern   das rote ~~Auto~~ kaufen

                I   have.subj gladly the red car   buy

                'I'd like to buy the red car'

        It is simply the case that English does not allow noun phrases to be elided in

this environment. This rule is stated over the grammatical category 'noun phrase' and

as such should be considered a syntactic rule. This is relevant because there is another

dependency that is important to this dissertation, but that is only partially influenced

190

by the syntax. This is the antecedent-ellipsis relation like that between the verb phrase *sees Becky* and its elided version in (6) below:

(6)   Jim sees Becky and Jill does ~~see Becky~~ too

In order for this relation to be licit, it must be the case that verb phrases are elideable in English. That is the syntactic component of the rule. Yet independent of whether the elided element is grammatical qua elided element, there is a more definitional constraint on this dependency. If there is an elided element and an overt counterpart, an ellipsis relation must be attempted if it follows certain constraints. A similar constraint to the c-command one above is given below in (7). The constraint piggy-backs on the Backwards Anaphora Constraint (BAC) and states that if the BAC is violated, then ellipsis is not possible as a dependency.

(7)   <u>The precedence constraint on deletion relations:</u> For any dependency between
        an elided element and its antecedent to be licit, it must be the case
        that the antecedent precede (but not c-command) the element to be elided in
        time or that the elided element has moved in front of its antecedent over the
        course of a derivation.

In sum, there are two basic types of constraint in human language. First there is the type like in (2) and (7). These are definitional constraints on whether a dependency can even be considered at a certain level. If there is no c-command

between two elements, it is not the case that there is a failed syntactic relation between them. Instead it is the case syntactic relations are irrelevant to them. Similarly, if there is not the correct sort of precedence relation between an antecedent and its elided counterpart, then it is not the case that something goes awry with the relation. Instead the dependency is not considered to begin with.

These contrast with actual syntactic failures. For example, when c-command holds and there is necessarily a syntactic relation between two elements, the relation can fail on its own terms by holding across an island boundary for instance. A Similar case holds for ellipsis. If ellipsis is possible in the sense that it obeys (7) the relation can still fail on its own terms by holding of an element that is the wrong type to be elided (like for example VPs in German).

These constraints in (2), (4), and (7) work together to capture the constructions in this dissertation and effectively provide the limits for filler-gap dependencies. When enforced they preclude all but pragmatic dependencies, though these too have been shown not to be viable options. I will rehearse these in the next subsection.

1.5 When dependencies fail and when they don't

In this section I will go through each major construction and give a quick run-through as to what type of dependency holds and why. I will do this based on the constraints in the previous subsection. If the reader has perused the dissertation with due diligence, this subsection should be redundant, but redundant in the most concise way possible. Even if one has read the above chapters carefully, this section way well serve as a handy reference.

1.5.1 Coordinated-wh questions and their ilk

For an example like that in (8), I proposed that there is no syntactic dependency between the leftward wh-word *what* and the verb *eat*.

(8)   What and when did Becky eat?

This is the case because of the c-command stricture on syntactic relations. The wh-word in question does not c-command the verb as shown in (9). To back up this claim, I offered evidence suggesting that there had been no movement of the wh-word.

(9)   [[What C] [and [when did Becky eat]]]

It is also the case for (8) that an antecedent-ellipsis relationship is possible between the wh-word and the gap site after the verb as shown in (10) with *what* serving as the antecedent to the elided lower version. This would create an ungrammatical sentence however as objects cannot elide in English. Yet since *eat* does not require an internal argument, this ungrammatical derivation can be avoided. The leftward wh-word still requires a thematic role and instructions for its phonological exponence. This spurs a dependency between it and the verb post-syntactically and post-semantically.

(10)   [[What C] [and [when did Becky eat ~~what~~]]]

When the conjuncts are swapped a different dependency holds. The example in (11a) is in a suitable configuration for there to be an antecedent-ellipsis relation and as since IPs are licitly elided, (11b) must be the analysis of the sentence.

(11)   a.   When did Becky eat and what?

        b.   When did Becky eat and what ~~did Becky eat~~?

Also, when a different verb is used a different result arises. In (12) we see that *fix* is not acceptable in CoWh sentences. This is because the *fix*'s requirement for an internal argument can be supplied via an ellipsis relation with the overt wh-word. Since this is possible, it is attempted. But since objects cannot elide in English, the sentence is ruled out. This contrasts with *eat* type verbs which are not strictly speaking "missing" any internal arguments at all when they do not arise overtly.

(12)   *What and when did Becky fix.

1.5.2 Right node raising

For an example like that in (13), I proposed that there is no syntactically mediated relation between the underlined element in the second conjunct and the underlined gap in the first conjunct.

(13)   Bruce bought __ and Tom sold <u>the box of books</u>

There is no possible syntactic relation between the two because the two positions are not in a c-command relation. Also, an ellipsis relation also cannot possibly hold between the two because the gap site precedes the overt correlate. Given this and the fact that the first conjunct's verb needs an internal argument based because of its lexical meaning, something needs to be done. This forces the two to be related post-syntactically and post-semantically.

1.5.3   Across-the-board constructions

For an example like that in (14), I propose that there is only movement from the first conjunct and that the relation between the moved wh-word and the gap in the second conjunct is mediated via some other means.

(14)   What did Bruce sing t and Becky record __?

The movement stems from the first conjunct because had it moved from the second conjunct, it would have run afoul of an island constraint (I take the second conjunct to be a clausal adjunct and these are islands for movement). Thus the only licit movement is from the first conjunct. It is still the case that the moved element is also interpreted in the second conjunct. This cannot be because of a syntactic relation because one already holds of the moved element and the stricture in (3) above

precludes another. Also, the configuration is not set up correctly for an ellipsis relation.

Given the event structure of the conjoined elements, the wh-word must bear a relation to the second conjunct. There is nothing for it to bind there, so something else must hold.

When the event structure of the conjoined elements does not force the moved element to be interpreted in both conjuncts, it is admissible to lack a gap in the second conjunct that relates to the moved element. The sentence in (15) is an example of this.

(15)   What did Becky drink and live to be 100?

These strictures allow me to say essentially the same thing about parasitic gap constructions like in (16). Movement is not possible from the clausal adjunct, nor is an ellipsis relation.

(16)   What did Becky read t before talking about __?

1.5.4 In sum

There is essentially one abstract configuration that I argue must involve some sort of non-syntactic mediation. This shown below in (17). There is no c-command relation between X and Y and as such they cannot be related syntactically.

(17)   [[… X …] [… [… Y …]]]

This abstract configuration crops up again and again this the constructions in this dissertation. In (18a) it is found with the leftward wh-word and the gap following the verb as seen in (18b).

(18)   a.   What and when did Becky eat?

   b.   [[what …] [… [… eat __ …]]]

With right node raising we see it with the gap preceding the correlate:

(19)   a.   Bruce bought and Jill sold the old books

   b.   [[… bought __] [… [… the old books]]]

With ATB constructions we see it with the two gap positions, one gap being a trace, the other a true absence of syntactic material:

(20)   a.   What did Jill sing and Becky record?

   b.   [[… t] [… [… record __]]]

Each time this configuration precludes a syntactic relation. In (18) and (19) the relation is blocked by lack of c-command. In (20) it is blocked by an alternative, licit syntactic relation.

It is not a coincidence that this configuration is similar to dependency created via sideward movement. If my analysis is correct, there is nothing unique that sideward movement can accomplish. Further, each construction that I have investigated has a competing multidominance-style analysis. I think that this too is not coincidental. Both sideward movement and multidominance can be seen as exploiting potential new syntactic relations. They can also be seen as last resort options when our traditional means of capturing syntactic dependencies do not work. I have taken a different route in saying that for these constructions our syntactic tools do not work for a deep reason. They are being applying incorrectly to non-syntactic things.

2 Looking Forward

In this section I note a few future directions and potential repercussions of the work in this dissertation. They range from relatively mundane avenues such as other constructions that could serve as fodder for the non-syntactic analyses promoted here to new cross-disciplinary research avenues. This subject is not meant to exhaustively expound on these ties, but rather to indicate what I think to be potentially fruitful new routes.

2.1 Online processing differences

In this dissertation I have pointed to various instances where online sentence processing results have comported well with the syntactic analyses that I have proposed. With the CoWh construction, colleagues and I have shown that one

diagnostic of active gap filling (filled-gap effects) do not arise where I have argued for a non-syntactic dependency. Further, with ATB constructions, a colleague and I have shown that there is no discernment of a syntactic island marker when dealing with what I deem to be a non-syntactic dependency.

I think this sort of work will be that will sensibly explain these constructions. Phillips 1996 et seq. compares and distinguishes the effects of language use from the effects of the computational component and the line of work proposed here falls into this vein. I suspect that a lot of the effects of these constructions are due to the left-to-right language use aspect of them, but it remains to be seen exactly to what degree they are responsible for those effects. It is undeniably the case that the incremental nature of online language use affects the acceptability of sentences. But it is not clear the degree to which these effects are encoded in the grammar. Assuming that we have the correct, syntax-less account of these constructions, we have the chance to potentially determine which effects are due to some syntactic undergirding and which ones are not.

These are odd relations and they have the potential to tell us much about the processing of dependencies. We might be able tease apart various online dependency formation effects using these constructions and thereby learn more about them. We have seen that they do not obey arguably syntax-mediated constraints like those banning filled gaps and extraction out of island, but it may not be the case that semantics-mediated constraints such as those concerning plausibility might still hold. In this subsection I explore a few future options.

I have yet to run similar sort of experiments on RNR sentences and this is on the docket for future research. It should be possible to attempt the same sort of filled-gap paradigm with RNR sentences like that in (21).

(21)   Jim knew what, and Jill knew when, Roger would eat (something)

The relation between the first conjunct's wh-word and the verb that it is associated with as an internal argument is not a syntactic one. As such, the presence of a filled gap ought not to be noticed behaviorly.

Again, these correlations rely on there being a good deal of transparency between the abstract syntax (or lack thereof) and the mechanisms of the parser. But the initial results reported here are promising in this regard.

Another related and exciting new way to use the theory that I have proposed concerns different types of active gap-filling effects. For the CoWh cases we showed that a non-syntactic dependency fails to show the effects of filled-gaps. This suggests that filled-gap effects are more precisely effects of syntactic relations gone awry. There are other sorts of active gap-filling effects that may arise due to non-syntactic relations gone awry. It would be interesting to be able to show that while filled gap effects do not arise in CoWh constructions, other effects do. This distinction would suggest a typology of active gap filling effects: some for syntactic dependencies, some for semantic dependencies, others for pragmatic dependencies.

One candidate for a non-syntactic active gap-filling effect are plausibility effects. There has been shown to be reading-time slow downs when the filler of a gap

clashes with it in terms of plausibility. These effects have been shown be various

researchers (Tanenhaus et al. 1989, Traxler & Pickering 1996, Phillips et al. 2006),

and they arise in circumstances like (22).

(22)   Who did you eat !lunch! with?

When hitting upon *who* the parser will attempt to interpret it in every possible

gap position. The slot following *eat* is such a position, but this gives rise to a

plausibility effect because interlocutors like *you* do not normally eat people. This

causes a slowdown in online reading times.

This sort of test is well suited for the CoWh paradigm. Most optionally

transitive verbs like those that are licit in this construction have a bias for the internal

argument to be inanimate. Using animate wh-words like in (23) would be an ideal

way to test for the presence of plausibility effects.

(23)   Who and when did Jim eat?

2.2 Other constructions

The constraints on syntactic dependencies that I have proposed raise a few questions

about other well-studied constructions. I have focused on what might be deemed

'fringe' constructions. I have done so not because they need to be analyzed for their

own sake, bur rather because they tell us interesting things about the grammar. What I have taken from this study may bear on other, less apparently 'fringe' constructions.

The first such construction that comes to mind are the exceptions to the Backward Anaphora Constraint that plays a important role here. Again, this constraint essentially states that anaphora must follow their antecedents and this generalization seems to hold true generally. The exception lies in that when the anaphor in question undergoes movement to a position that antecedes the antecedent, the result is acceptable. Compare (24a) and (24b).

(24)　　a.　　[Though Bruce does too]$_i$, Jim thinks he won t_i

　　　　b.　　*Jim does too, though Bruce thinks he won.

In (24a) the sentence is acceptable despite the anaphor (in this case in the form VP ellipsis) precedes its antecedent. It is not clear why this should be the case, but there may be some way to parlay the primacy of the syntactic relation to bleed the BAC violation. It may be the case that since the ellipsis relation is not solely mediated by syntax (it requires at least some sort of semantic parallelism) it can be ruled in in a decomposed, piecemeal manner. For both sentences in (24), the syntactic constraints on ellipsis hold because in English VPs can elide. Further, also in the syntax, the moved element in (24a) containing the ellipsis site is related to a co-indexed position to the right of the ellipsis site antecedent. That this lower site exists might be sufficient to rule in the ellipsis at other levels of representation. In a sense, (24b) would be ruled out for non-syntactic strictures on ellipsis.

Another thing to investigate is the difference in the relation between the quantifier and the pronoun in examples (25a) and (25b).

(25)   a.   Everyone thinks he's smart.

        b.   Everyone's mother thinks he's smart.

Under the analysis proposed here, there is a syntactic relation between the quantifier and the pronoun in (25a) but not (25b). The quantifier in (25a) c-commands the pronoun and since the two are related, this forces a syntactic dependency to be at the root of that relation. This contrasts with (25b). There is no c-command here and as such the relation cannot be syntactic. Instead, there is a syntactic relation between the quantifier's overt position and its covert LF position: the covert position c-commands it trace:

(26)   Everyone [[t's mother] thinks he's smart.

The relation between the moved element and the pronoun is then necessarily semantic in nature as it takes scope over the pronoun in logical form. This being the case, there should be some differences in the sensitivity to syntactic strictures between the two sentences in (25). The non-syntactic dependency should be freer and not show the effects of syntactic constraints.

Another construction that, though already mentioned in above, should be explored with this theory in mind is the parasitic gap construction. The approach here

can capture a good number of its properties, but it leaves as problematic the fact that parasitic gaps within islands lead to unacceptability. Sentences like that in (27) are unacceptable as first noted by Kayne 1983.

(27)   *What did Tom eat before meeting the man who owned?

My approach seems to predict that this island should not be felt. There is no syntactic relation between the wh-word and the gap inside the island, not a syntactic one. Perhaps the accepted judgment is spurious (though it certainly sounds unacceptable to me). It may also be the case that the analysis presented here for ATB constructions for whatever reason does *not* apply to PG and that a Nunes 2004-style approach is best for the construction.

One final construction that may stand to be profitably analyzed with the theory proposed here are amalgam constructions like that in (28).

(28)   Irma drank I don't know how many beers

These constructions (first noted by Lakoff 1974) have been discussed recently by Kluck 2011. It is not clear how the verb *drank* in (25) relates to its interpreted argument *how many beers*. It might be the case that there is reason to suspect that the relation between the two is not mediated by the syntax, but this is mere speculation now.

Bibliography

Abels, K. 2004. Right Node Raising: Ellipsis or across the board movement. In K.

    Moulton and M. Wolf (eds.), *Proceedings of NELS 34*, Amherst: GLSA, pp.

    45-59.

Agüero-Bautista, C. 2001. Cyclicity and the scope of wh phrases. PhD dissertation,

    MIT.

An, D. 2007. Syntax at the PF interface: Prosodic mapping, linear order, and deletion.

    Ph.D. dissertation. University of Connecticut, Storrs.

Asarina, A. 2011. Case in Uyghur and Beyond. Ph.D. disseration. MIT.

Bachrach, A. and R. Katzir. 2009. Right Node Raising and Delayed Spellout. In

    Interphases: Phase-Theoretic Investigations of Linguistic Interfaces, ed. by

    Grohmann, Kleanthes K. Oxford: Oxford University Press.

Baker, M. 1989. Object sharing and projection in serial verb constructions. *Linguistic*

    Inquiry 20:513-553.

Bánréti. 1992. A mellérendelés. Strukturális magyar nyelvtan, I. Mondattan; F. Kiefer

    ed., 715-796. Budapest: Akadémiai Kiadó.

Barros, M., and L. Vicente. 2009. Backward... ellipsis?. Ms. Rutgers

    University and Universität Potsdam.

Barros, M., and L. Vicente. 2010. Right Node Raising requires both ellipsis and

    multidomination. Presented atThe 34th Penn Linguistics Colloquium. March

    19-21.

Bobaljik, Jonathan David. 2005. Where's phi? *Leiden papers in linguistics*.

Bošković, Ž. 1997. *The syntax of nonfinite complementation: An economy approach*. Cambridge, Mass: MIT Press

Bošković, Ž., and S. Franks. 2000. Across-the-board movement and LF. *Syntax* 3.2:107-128.

Bresnan, J. 1978. A realistic transformational grammar. In *Linguistic Theory and Psychological Reality*, ed. J. Bresnan M. Halle, and G. Miller, 1-59. Cambridge, Mass.: MIT Press.

Browne, W. 1972. Conjoined Question Words and the Limitation on English Surface Structure. Linguistic Inquiry 3:223-226.

Cho, S. and X. Zhou. 1999. The Interpretation of Wh-Elements in Conjoined Wh-Questions. Ms. State University of New York, Stony Brook.

Chomsky, N. 1957. *Syntactic structures*. Walter de Gruyter.

Chomsky, N. 1977. On WH Movement. In *Formal Syntax*. Akmajian et al. (eds) Academic Press, New York.

Chomsky, N. 1982. *Some Concepts and Consequences of the Theory of Government and Binding*, MIT Press, Cambridge, Massachusetts.

Chomsky, N. *Barriers*. MIT Press, 1986.

Chomsky, N. 1995. *The Minimalist Program*. MIT Press.

Chomsky, N. 2005. Three factors in language design. *Linguistic inquiry* 36.1:1-22.

Chomsky, N. 2004. Beyond explanatory adequacy. In *Structures and Beyond. The cartography of syntactic structures, Volume 3*, edited by Adriana Belletti, 104-131.

Citko, B. 2003 ATB wh-movement and the nature of Merge. *Proceedings of NELS 33*. Vol. 33.

Citko, B. 2005. On the Nature of Merge: External Merge, Internal Merge, and Parallel Merge. Linguistic Inquiry 36: 475-496.

Citko, B. 2011 *Symmetry in syntax: Merge, move and labels*. Cambridge University Press.

Citko, B., and M. Gračanin-Yuksek. 2012. Towards a new typology of coordinated wh-questions. *Journal of Linguistics* 1.1: 1-32.

Culicover, P. W., and R. Jackendoff. *Simpler syntax*. Oxford: Oxford University Press, 2005.

Drummond, A. 2009. The Unity of Extraposition and the A/A' Distinction. Presented at CLS 45.

Drummond, A., D. Kush, and N. Hornstein. 2011. Minimalist construal: Two approaches to A and B. 396-426.

Epstein, S. D. 1999. Un-Principled Syntax: The Derivation of Syntactic Relations. In *Working Minimalism* S. D. Epstein and N. Hornstein, eds., Cambridge, MA: MIT Press, pp. 317–345

Everett, D. 2005. Cultural constraints on grammar and cognition in Pirahã. *Current Anthropology* 46.4: 621-646.

Fernández-Salgueiro, G. 2008. Deriving the CSC and Unifying ATB and PG Constructions through Sideward Movement. In *Proceedings of the 26th WCCFL*.

Fiengo, R. and R. May. 1994. *Indices and Identity*, MIT Press, Cambridge, Mass.

Fox, D., and D. Pesetsky. 2005. Cyclic linearization of syntactic structure. *Theoretical Linguistics* 31: 1-46.

Gazdar, G. 1981. Unbounded Dependencies and Coordinate Structure. *Linguistic Inquiry* 12:155-184.

Giannakidou, A, and J. Merchant. 1998. Reverse sluicing in English and Greek. *Linguistic Review* 15, 233–256.

Gracanin-Yuksek, M. 2007. On sharing. Doctoral Dissertation, MIT.

Gribanova, V. 2009. Structural adjacency and the typology of interrogative interpretations. *Linguistic Inquiry* 40:133–154

Grodzinsky, Y., and T. Reinhart. 2003 The innateness of binding and coference. *Linguistic Inquiry* 24.1: 69-101.

Grosz, P. 2009. Movement and agreement in Right Node Raising constructions. Ms., MIT.

Ha, S. 2006. Multiple dominance CAN'T, but PF-deletion CAN account for Right Node Raising. Paper presented at the 42nd Annual Meeting of the CLS.

Hartmann, K. 2000. *Right node raising and gapping: Interface conditions on prosodic deletion*. Amsterdam: John Benjamins.

Hornstein, Norbert. 1995. *Logical form: From GB to minimalism*. Oxford: Blackwell,

Hornstein, Norbert. 1999 Movement and control. *Linguistic inquiry* 30.1: 69-96.

Hornstein, Norbert, and Jairo Nunes. 2002 On Asymmetries Between Parasitic Gap and Across-the-board Constructions. *Syntax* 5.1: 26-54.

Hudson, R. 1976. Conjunction reduction, gapping, and right node raising. *Language* 52:535-562.

Ince, A. 2009. Dimensions of Ellipsis: Investigations in Turkish. Ph.D. dissertation. University of Maryland, College Park.

Johnson, K. 2001. Sluicing and Constraints on Quantifier Scope. *GLOT International* 5:217-221.

Johnson, K. 2007. LCA+Alignment=RNR, talk presented at the Workshop on Coordination, Subordination and Ellipsis, Tubingen, June 2007.

Kayne, R. S. 1983 Connectedness. *Linguistic Inquiry* 14.2: 223-249.

Kayne, R. S. 1994. *The antisymmetry of syntax*. Cambridge, Massachusetts: MIT Press.

Kayne, R. S. 2002 Pronouns and their antecedents. In *Derivation and explanation in the minimalist program*: 133-166.

Kluck, M. 2011. Sentence Amalgamation. PhD dissertation, University of Groningen. LOT Dissertation Series 285.

Kratzer, A. 1999. Beyond Ouch and Oops. How descriptive and expressive meanings interact, handout for Cornell Conference on Context Dependency, March 26, 1999.

Kazenin, K. 2000. On Coordination of Wh-Phrases in Russian. Ms. Tubingen University.

Kiparsky, P. 2001. Structural case in Finnish. *Lingua* 111.4: 315-376.

Lakoff, G. 1974. Syntactic amalgams. In: *Papers from the Tenth Regional Meeting of the Chicago Linguistic Society. Chicago: CLS*Michael W. La Galy et al. (eds.), 321-344.

Lakoff, G. 1986. Frame Semantic Control of the Coordinate Structure Constraint. In

Papers form the Chicago Linguistic Society 22. Anne M. Farley, Peter T. Farley, and Karl-Erik McCullough, (eds.),152−167.

Langacker, R. 1969. On pronominalization and the chain of command. In *Modern studies in English*, ed. Schane and Reibel, 160–186. Englewood Cliffs, NJ: Prentice-Hall.

Larson, B. 2009. Ellipsis Does, But Right-node Raising Doesn't, Involve Deletion. Paper presented at GLOW 32. Nantes, France.

Larson, B. 2011. Problems with a Movement Analysis of Right-node Raising in Tagalog. *Linguistic Inquiry*.

Larson, B. 2012. A Dilemma with Accounts of Right-node raising. *Linguistic Inquiry*.

Larson, B. 2012. Wh-dependencies without movement in Germanic. Paper presented at the Comparative Germanic Syntax Workshop (CGSW) 27. Yale University, New Haven, CT.

Larson, B. 2013. Not-so-across-the-board movement in Macedonian. In *Proceedings of Formal Approaches to Slavic Linguistics (FASL) 21*. Indiana University, Bloomington, IN.

Larson, B. and N. Hornstein. 2012. Copies and Occurances. Ms. University of Maryland, College Park, MD.

Larson, B. and D. Parker. 2013. Across the board movement is actually asymmetrical. Poster presented at the 87th Annual Meeting of the LSA. Boston, MA.

Lasnik, H., and Tim S. 1991. Weakest crossover. *Linguistic Inquiry* 22.4: 687-720.

Lee, J. 2013. The temporal interpretation of the -ko construction in Korean:

Toward an adjunction analysis of clausal "coordination" Paper presented at the Penn Linguistic Colloquoum.

Lewis, S., B. Larson, and D. Kush. 2012. What and when can you fill a gap with something. Paper presented at the CUNY sentence processing conference.

Lidz, J., and W. Idsardi. 1998. Chains and phono-logical form. In *U. Penn Working Papers in Linguistics* 5: 109-125.

May, R. 1977. The Grammar of Quantification, Doctoral dissertation, MIT.

McCawley, J. 1982. Parentheticals and Discontinuous Constituent Structure. *Linguistic Inquiry* 13: 91-106.

McCloskey, J. 1986. Right node raising and preposition stranding. *Linguistic Inquiry* 17:183–186.

Merchant, J. 2002. Swiping in Germanic. In *Studies in Comparative Germanic Syntax*, ed. C. Jan Wouter Zwart and Werner Abraham, 295-321. Amsterdam: John Benjamins.

Munn, A. 1993. Topics in the syntax and semantics of coordinate structures. Ph.D. Dissertation The University of Maryland, College Park, MD.

Nunes, J. 2004. *Linearization of Chains and Sideward Movement.* Cambridge, MA: MIT Press.

Parker, D. and B. Larson. 2013. Two flavors of long distance dependency discerned through island effects. Paper presented at the 26th Annual Meeting of the CUNY Conference on Human Sentence Processing. University of South Carolina, Columbia, SC.

Phillips, C. 1996. Order and Structure. Ph.D. dissertation. MIT.

Phillips, Colin. 2006. The real-time status of Island phenomena. *Language 82* 795-
    823

Pietroski, P. 2002. Function and concatenation. In *Logical Form and Language*.
    Gerhard Preyer and Georg Peter, eds., 91-117. Oxford: Clarendon Press.

Postal, P. 1974. *On Raising*, MIT Press, Cambridge, Massachusetts.

Reinhart, T. 1983. *Anaphora and Semantic Interpretation*. Croom Helm, London.

Reinhart, T. 2000. The Theta System: Syntactic realization of verbal concepts, In
    OTS Working papers.

Reinhart, Tanya. 2006. *Interface strategies*. Cambridge, MA: MIT Press,

Reuland, E. 2011. *Anaphora and language design*. Cambridge, MA: MIT Press.

Rizzi, L. 1990. *Relativized minimality*. The MIT Press.

Ross, J. 1967. Constraints on variables in syntax. Doctoral Dissertation, MIT.

Ross, John Robert. 1969. Guess Who? In *Papers from the Fifth Regional Meeting
    of the Chicago Linguistic Society*, ed. R. I. Binnick, A. Davison, G. M. Green,
    and J. L. Morgan, 252-286. Chicago: Chicago Linguistic Society.

Rudin, C. 1988. On multiple wuestions and multiple WH fronting. *Natural
    Language and Linguistic Theory* 6: 445–501.

Sabbagh, J. 2007. Ordering and linearizing rightward movement. *Natural Language
    and Linguistic Theory* 25: 349-401.

Sabbagh, J. 2008. Right Node Raising and extraction in Tagalog. *Linguistic Inquiry*
    39: 501-511.

Saito, M., 1987. Three Notes on Syntactic Movement in Japanese. In Issues in
    Japanese. *Linguistics* 29: 301-350.

Salzmann, M. 2012. Deriving reconstruction asymmetries in Across The Board movement by means of asymmetric extraction+ ellipsis. In *Comparative Germanic Syntax: The State of the Art*.

Schein, B. 1993. *Plurals and Events.* Current Studies in Linguistics No. 23. Cambridge, Massachusetts: The MIT Press.

Schein, B. 2006. Plurals. In *The Oxford Handbook of Philosophy of Language.* Ernest Lepore & Barry C. Smith, ed. Oxford: Oxford University Press. pp. 716-767.

Schwarzschild, R. 1996. *Pluralities*. Dordrect: Kluwer.

Schein, B. 2012 Event semantics. in *The Routledge Companion to Philosophy of Language.* D. Graff Fara & G. Russell, eds., Oxford:Routledge.

Skrabalova, H. 2006. Parataxe apparente and coordination des interrogatifs en tcheque. In *Faitsde langue 28: Coordinationet subordination.Diversitgdes langues et moddlisations*., ed.M.-A. Morel et al.

Stowe, L. A. 1986. Parsing W H-constructions: evidence for on-line gap location. *Language and Cognitive Processes* 1: 227-245.

Svenonius, P. and G. Ramchand. 2013. Deriving the Functional Hierarchy. Paper presented at GLOW , Lund.

Tanenhaus, M. K., et al. 1989. Lexical structure in parsing long-distance dependencies. *Journal of Psycholinguistic Research*. Vol. 18 no. 1.

Travis, L. 1984. Parameters and Effects in Word Order Variation. Cambridge: MIT dissertation.

Traxler, M. and M. Pickering. 1996. Plausibility and the processing of unbounded dependencies: An eye-tracking study. *Journal of Memory and Language* 35.3;

454-475.

de Vos, M. and L. Vicente. 2005. Coordination under Right Node Raising. In *Proceedings of WCCFL 24*, ed. Alderete et al, 97-104. Somerville: Cascadilla Press.

Wexler, K. and P. Culicover. 1980. *Formal Principles of Language Acquisition*, MIT Press, Cambridge, Massachusetts.

Whitman, N. 2002. Category neutrality: a type-logical investigation. Ph.D. dissertation, Ohio State University.

Wilder, C. 1997. Some Properties of Ellipsis in Coordination. In *Studies on Universal Grammar and Typological Variation*, ed. A. Alexiadou and T. A. Hall, 59-107. Amsterdam: John Benjamins.

Wilder, C. 1999. Right Node Raising and the LCA. In *Proceedings of WCCFL 18*, ed. Bird et al, 586-598. Somerville: Cascadilla Press.

Williams, A. 2012. Null Complement Anaphors as definite descriptions. In *Proceedings of SALT*. Vol. 22.

Williams, E. 1978. Across-the-board rule application. *Linguistic Inquiry* 9:31 43.

Williams, E. 1981. Transformationless Grammar. *Linguistic Inquiry* 12: 645-654.

Wu, J. 1999. Syntax and Semantics of Quantification in Chinese. Ph.D. dissertation. University of Maryland, College Park, MD.

Zhang, N. 2009. The syntax of same and ATB constructions. *The Canadian Journal of Linguistics* 54.2: 367-399.

Zoerner, C. E. 1995. Coordination: The Syntax of &P. Ph.D. Dissertation. University of California, Irvine.

Zwart, J.-W. 2002. Issues relating to a derivational theory of binding. In

Derivation and explanation in the minimalist program: 269-304.