

Out on Good Syntactic Behavior

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“It would be refining too much, perhaps, even considering his monomania, to hint that his vindictiveness towards the White Whale might have possibly extended itself in some degree to all Sperm Whales, and that **the more monsters he slew by so much the more he multiplied the chances that each subsequently encountered whale would prove to be the hated one he hunted.**”

Herman Melville, *Moby Dick* (ch. 46), 1851

0. Introduction

Some syntactic phenomena do not lend themselves to an obvious explanation. A case in point is the topic of this paper, comparative correlatives. A few typical examples from English of this expression are found in (1). Previously in the literature they have gone by a myriad of labels – *comparative conditionals*, *conditional comparatives*, “*the X-er, the Y-ers*”, *double comparatives*, and *the . . . the . . . comparative constructions*. The variety of labels for this phenomenon is somewhat of an indication of the sordid past the data has endured. Comparative correlatives (dubbed as such by Culicover & Jackendoff, 1999) have been analogized to conditionals, correlatives, and comparatives, and yet still the full range of their syntactic behaviors have not been accounted for in one proposal. As we will see, the behaviors of comparative correlatives (henceforth, **CCs**) do not lend themselves to a readily apparent syntactic account of their structure nor their derivation.

- (1) a. The longer the storm lasts, the worse the damage is
- b. The more you study, the better grade you’ll get
- c. The less time kids spend watching TV, the smarter they are

Discussion of comparative correlatives in the literature is surrounded by argumentation and rhetoric about the data’s relevance to the broad frameworks that currently exist in syntactic theory. Typically, those who propose an analysis of comparative correlatives begin with the two main assumptions. First, it is asserted that comparative correlatives do not fall within that which is canonical for a given language. The syntactic behaviors of the expression are exceptional. In the technical jargon of syntactic theory, comparative correlatives fall out of the “core” data in a grammar, and are considered “peripheral.” If

this premise is taken to be true, then the second idea is presented as a given – comparative correlatives serve as evidence against the theory of Principles & Parameters (Chomsky 1981) (henceforth, P&P). It is argued that for a child to learn the data and successfully incorporate them into her grammar, she would need to have primitives other than the components of the mental lexicon and the minimal rules and settings that P&P would provide. What those “other primitives” are proposed to be varies from theoretical framework to framework.

The success of other analyses with respect to empirical coverage and conceptual parsimony varies, and will be discussed in this paper. However, regardless of the viability of these other proposals, the conjecture remains that comparative correlatives stands as evidence against P&P, and more specifically, the minimalist program (Culicover & Jackendoff, 1999). Therefore, the burden of proof is on the theoretician who assumes P&P, and even more so on the minimalist theoretician, to provide an explanation of comparative correlatives. To the best of my knowledge, there has been no analysis of comparative correlatives proposed that assumes P&P and that also has adequate empirical coverage.¹

The primary goal of this paper is to propose a syntactic analysis of CCs that accounts for its full range of behaviors and that resists ad hoc conjectures and expression-specific stipulations. The more practical goal of this paper (and hopefully the one with the longer-lasting contribution) is that by demonstrating that CCs are syntactically well-behaved, it follows that CCs stand as empirical data to consider in the formulation of current theoretical issues. Two such issues are (a) what is the status of adjuncts with respect to islandhood, and (b) what are the syntactic and semantic properties of comparatives? I will not attempt to give a decisive answer to these questions within this paper, as they require a much richer data set than what I will present. An even more basic question that CCs touch upon is, where does one look to find universals in Human Language? Surprisingly, a seemingly quirky data point like CCs hold several commonalities crosslinguistically. I hope that the contribution of this paper is not simply the solving of a puzzle, but the sighting of a new species that could help further principal ideas already in the midst of being researched.

This paper is organized in the following way: in §1, I will present the empirical observations of CCs. Some of these are common in the literature, and a few are new here for the first time. In §2, I will review previous accounts of the syntax of CCs. These accounts fall into three main approaches. In §3, I present my analysis for CCs, formulated using minimalist methodology, and I provide the derivation for the data and a proposal for how CCs are learned by the child. In §4 I will address the issue of moving out of adjuncts, and how this can be accomplished in CCs by assuming sideward movement (Nunes 1995, 2004; Hornstein, 2001). In §5 I will address two issues that appear to be potential problems with the analysis given in §3, and give answers to them. Lastly in §6 I summarize and conclude.

¹ There is another proposal that is framed within P&P and minimalist assumptions by Den Dikken (2005). However, in §2.3 I will discuss the empirical coverage this proposal has, as well as the viability of that proposal within the assumptions of the minimalist program.

I. Empirical crosslinguistic data

1.1 CCs in the world’s languages

CCs are abundant in the world’s languages. The languages and language families for which data on CCs has been collected are listed in Table 1. More notable than the diversity of languages listed is this fact: in my research and data collection, I have not yet discovered a language that lacks an expression with the meaning of a CC and a syntactic structure strikingly similar to the one I propose in this paper for English. Similarly, there are no reports in the literature of a language lacking a CC.

Table 1: CCs in the world’s languages (thus far observed and collected)

Afro-Asiatic:		Maltese (Beck, 1997)
		Standard Arabic 🐼
		Berber (Den Dikken, 2005) 🐼
		Hebrew (Beck, 1997) 🐼
Altaic:		Turkish 🐼
		Khalkha Mongolian (Den Dikken, 2005)
Basque:		Basque 🐼
Dravidian:		Malayalam 🐼
Indo-European:	Romance:	Spanish 🐼
		Italian 🐼
		Portuguese (Brazilian and European) 🐼
		French (Den Dikken, 2005; Beck 1997) 🐼
		Latin (Michaelis, 1994; Den Dikken, 2005)
	Germanic:	English (almost all literature on CCs) 🐼
		German (references below) ² 🐼
		Dutch (Beck, 1997; Den Dikken, 2005) 🐼
		Danish (Beck, 1997)
		Swedish (Culicover & Jackendoff, 1999)
	Slavic:	Russian (Beck, 1997; Den Dikken, 2005) 🐼
		Polish (Borsley, 2003; Den Dikken, 2005)
		Bulgarian (Beck, 1997)
	Greek:	Greek 🐼
Indo-Aryan:		Hindi (Den Dikken, 2005) 🐼
Japanese:		Japanese (Den Dikken, 2005) 🐼
Korean:		Korean (Beck, 1997) 🐼
Sino-Tibetan:		Mandarin Chinese (McCawley, 1988) 🐼
Uralic:		Hungarian (Beck, 1997; Den Dikken, 2005)

🐼 - Languages for which I either retested the data in the literature or collected directly with native speakers.

² McCawley, 1988; Beck, 1997; Roehrs, Sprouse, & Wermter 2002; Den Dikken, 2005

1.2 Apparent Crosslinguistic Generalizations

There are two descriptive characteristics of CCs that appear to be present in all languages investigated thus far. First, CCs consist of two clauses, what I will call the *matrix clause* and the *adjunct clause*. These two clauses do not behave identically, as the labels I have given them suggest. Secondly, the adjunct clause appears first linearly and the matrix clause appears second. To illustrate these two generalizations, consider (2)-(7). (2) is a standard CC.³ Crosslinguistically (2) consists of two clauses. We see that neither one of the clauses can stand independent of the other (in (3)) and that the presence of more than two clauses in (4) results in unacceptability. The second generalization, that the second clause is the matrix clause and the first is the adjunct clause, can be seen by the tag question data in (5)-(7). Only the verb in the second clause can host a tag question. When the clauses are reversed as in (6), the meaning changes and is no longer synonymous with the meaning of (2). This suggests that the two clauses are not interchangeable. As a final test of which clause now contains the matrix VP, in (7) we can see that tag questions now form the new second clause, *the more money Saul spends*. Culicover & Jackendoff (1999) and Den Dikken (2005) present this same empirical evidence, but as we will see in §2, they arrive at different conclusions regarding the syntactic status of the clauses.

- (2) ✓ The more money Saul spends, the more frustrated Alice gets
- (3) a. * The more money Saul spends.
b. * The more frustrated Alice gets.
- (4) * The more money Saul spends, the more frustrated Alice gets, the more unhappy they both are
- (5) a. ✓ The more money Saul spends, the more frustrated Alice gets, doesn't she?
b. * The more money Saul spends, the more frustrated Alice gets, doesn't he?
- (6) ✓ The more frustrated Alice gets, the more money Saul spends.
- (7) a. ✓ The more frustrated Alice gets, the more money Saul spends, doesn't he?
b. * The more frustrated Alice gets, the more money Saul spends, doesn't she?

Another widespread observation of CCs is that the word order in each clause is non-canonical. To demonstrate this, let's dig a bit deeper into what CCs look like in English. Each clause in an English CC obligatorily begins the lexical item *the*, followed by a comparative morpheme and the constituent it modifies (what I will call the *comparative*

³ To familiarize any reader who may be unfamiliar with CCs, the best paraphrase of the meaning of (2) is something like, "there are events in which Saul spends money, and for each of these events, the level of frustration that Alice experiences is correlated positively with the amount of money Saul spends." The semantic interpretation of CCs provide one reason for why the data has been considered odd and worthy of investigation. From this paraphrase, it is difficult to determine what the status of each of the two clauses is and the relationship they bear to one another, semantically or syntactically. Most of the work of this paper will be dedicated to solving this problem. In §2.4 I will briefly review Beck's (1997) formulation for the semantic interpretation of CCs.

constituent)^{4,5}, and then an IP containing a gap follows. The comparative constituent can be an AdjP, AdvP, IP or NP, as in (8)-(11) respectively. The *a* examples in (8)-(11) indicate the canonical word order for each constituent, each of which has been displaced in the *b* and *c* examples. The interpretation of a CC construes the meaning of the comparative constituent in its canonical position.

- (8) a. The day is **hotter**
 b. The **hotter** the day is, the less time we want to spend outdoors
 c. The later the day is April is, the **hotter** the day is
- (9) a. The students finish the test **faster**
 b. The **faster** the students finish the test, the more fun we'll have tonight.
 c. The better prepared the students are, the **faster** they will finish the test.
- (10) a. Sue helps Mary **more**
 b. The **more** Sue helps Mary, the better Mary will do.
 c. The better grades Sue gets, the more she will help Mary.
- (11) a. Beverly bakes **more chocolate chip cookies**
 b. The **more chocolate chip cookies** Beverly bakes, the happier she is.
 c. The more her grandchildren come visit, the **more chocolate chip cookies** Beverly bakes.

Since the languages represented in Table 1 display a wide range of syntactic behavior with respect to overt and covert A'-movement, and scrambling, it is difficult to test if this non-canonical word order is a general feature of CCs. I will simply report that in the languages in which this kind of movement is clearer, it appears that the reordering of constituents internal to each clause is standard and typical.

1.3 Other syntactic behaviors

1.3.1 Movement out of each clause

Culicover & Jackendoff (1999) demonstrate that movement out of both of the clauses is acceptable, seen here in their data reproduced here as (12)-(15). (12) is the base sentence, and the examples in (13) show movement out of each clause in order to form a relative clause, those in (14) show movement for topicalization, and those in (15) show WH-movement.⁶

⁴ For ease of reference to word strings in English CCs, I will also use the term *compared constituent* to refer to the constituent which the comparative modifies. For instance, in the first clause (adjunct clause) of (8)b, the *comparative constituent* is "hotter", and the *compared constituent* is just "hot".

⁵ Michaelis (1994) gives the name *CompPhrase* to this word string, and refers to the two strings which occur in the same utterance as *the paired comparatives phrases*, or [*CompPhrases*].

⁶ Culicover & Jackendoff (1999) claim that movement of a WH-phrase out of either of the two clauses is disallowed, as evidenced by the unacceptability of their examples reproduced here in (i).

(i) a. * Which problem₁ does the sooner (that) you solve t₁, the more easily you'll satisfy the

- (12) The sooner you solve this problem, the more easily you'll satisfy the folks up at corporate headquarters.
- (13) a. ✓ This is the sort of problem which₁ the sooner you solve t₁, the more easily you'll satisfy the folks up at corporate headquarters.
 b. ✓ The folks up at corporate headquarters are the sort of people who₁ the sooner you solve this problem, the more easily you'll satisfy t₁.
- (14) a. ✓ This problem₁, the sooner you solve t₁, the more easily you'll satisfy the folks up at corporate headquarters.
 b. ✓ The folks up at corporate headquarters₁, the sooner you solve this problem, the more easily you'll satisfy t₁.
- (15) a. ✓ Which problem₁ do you think that the sooner Bill solves t₁, the more easily he'll satisfy the folks up at corporate headquarters
 b. ? Who₁ do you think that the sooner that Bill solves this problem, the more easily he'll satisfy t₁ ?

In Culicover & Jackendoff's original data demonstrating movement, the compared constituent is a sentential AdvP, such as *soon* and *easily* in the case of (12)-(15). If we probe deeper into this, we find that movement out of either clause is only possible if the compared constituent is a non-argument of the lower IP. If the constituent is an argument, no movement out of a clause is possible. In contrast to (13)-(15), consider (16)-(18).

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- folks up at corporate headquarters?
 b. * Which problem₁ the sooner (that) you solve t₁, will the more easily you satisfy the folks up at corporate headquarters?

The unacceptability of (i)a-b could be due to factors other than movement violation; (i)a could be out due to too many INFLs, and (i)a-b could be out due to SAI interference (Howard Lasnik, p.c.). Specifically, in (i)a, since the subject of the adjunct clause is 2nd person sing. *you*, the verb *solve* could be tensed, along with a second INFL associated with the auxiliary verb *does*. The same is true of (i)b with respect to the verb *satisfy* and the aux verb *will*. Also, in both examples, the non-embedded CC requires that SAI take place along with WH-movement. It is impossible to tell from these examples then, whether the unacceptability of (i)a and (i)b is due to the movement of the WH-phrase or to these other interfering factors. (ii)a-b eliminates these confounding factors and the acceptability of the examples dramatically improves.

- (ii) a. ? Mary wonders which problem₁ the sooner Bill solves t₁, the more easily he'll satisfy the folks up at corporate headquarters
 b. ?? Which problem₁ the sooner that Bill solves t₁, the more easily he'll satisfy the folks up at corporate headquarters?

Admittedly though, they are at best marginal despite this improvement over (i)a&b. The CCs in (15), are embedded under the stance predicate (Cattell, 1978), *think*. As will be discussed in §4.1, the contrast between (ii) and (15) and the relevance of an embedding stance predicate will be explained.

Despite this contrast, Norbert Hornstein (p.c.) points out to me that clefting without Stance predicate embedding is acceptable, as in (iii). The broader conclusion to be taken from the data in (ii), (iii), and (15) is that the unacceptability of Culicover & Jackendoff's data in (i) is not a result of some restriction on WH-movement from the clauses.

- (iii) ✓ Mary wonders which problem₁ it is that the sooner Bill solves t₁, the more easily he'll satisfy the folks up at corporate headquarters.

- (16) a. ✓ John gave a big rose to Mary happily
 b. ✓ Who₁ did John give a big rose to t₁ happily?
- (17) a. ✓ The more happily John gave a rose to Mary ...
 b. ✓ The bigger rose (that) John gave to Mary happily...
- (18) a. ✓ Who do you think that the more happily John gave a big rose to...
 b. * Who do you think that the bigger rose (that) John gave to happily...

In (16) we see that in a dative construction, movement of the IO *Mary* is permitted, and in (17), we see that either the DO or the sentential AdvP *happily* can be the constituent targeted for modification by the comparative at the front of clause of the CC. Yet, in (18), the IO can only move out of the clause if the sentential AdvP, a non-argument, is part of the comparative constituent. This pattern is what we would expect, based on movement out of an embedded clause, like that in (22). The movement of the argument NP *what* over the non-argument *how happily* is judged to be a lesser violation than the same movement over an argument, as in moving over *who* in (23)⁷.

- (19) ✓ John gave a rose to Mary very happily
 (20) ✓ Do you wonder [how happily]₁ John gave a rose to Mary t₁ ?
 (21) ✓ Do you wonder which flower₂ John gave t₂ to Mary happily?
 (22) ?? Which flower₂ do you wonder [how happily]₁ John gave t₂ to Mary t₁ ?
 (23) ** Which flower₂ do you wonder who₃ John gave t₂ to t₃ happily?

1.3.2 C-command between the two clauses

So far we have seen that the CCs consist of an adjunct clause and a matrix clause, and the adjunct clause always comes first linearly. What is the structural relationship between these two clauses? A place to begin would be to look at conditionals with a sentence-initial IF-clause. Using binding tests of Principle C, Iatridou (1991) demonstrates there is no c-command relationship between the subjects and objects in the IF-clause and the main clause of a conditional. Her tests are reproduced here in (24). Based on these tests, the data in (25) demonstrate this same lack of c-command between the two clauses in CCs. Iatridou concludes that sentence-initial IF-clauses must be adjoined at either IP or CP, rather than in a specifier position. We will make the same conclusion for CCs.

⁷ Examples like (23) were first presented and discussed in *Current Issues in Linguistic Theory* (Chomsky, 1964).

(24)

- a. ✓ If Mary₁ is hungry, (then) she₁ yells at Bill,
- b. ✓ If she₁ is hungry, (then) Mary₁ yells at Bill
- c. ✓ If Mary₁ is hungry, (then) Bill gives her₁ food
- d. ✓ If she₁ is hungry, (then) Bill gives Mary₁ food
- e. ✓ If Bill talks to Mary₁, (then) she₁ gets angry
- f. ✓ If Bill talks to her₁, (then) Mary₁ gets angry
- g. ✓ If Bill talks to Mary₁, (then) he calms her₁ down
- h. ✓ If Bill talks to her₁, (then) he calms Mary₁ down

(25)

- a. ✓ The hungrier Mary₁ is, the more she₁ yells at Bill,
- b. ✓ The hungrier she₁ is, the more Mary₁ yells at Bill
- c. ✓ The hungrier Mary₁ is, the more food Bill gives to her₁
- d. ✓ The hungrier she₁ is, the more food Bill gives to Mary₁
- e. ✓ The more Bill talks to Mary₁, the angrier she₁ gets
- f. ✓ The more Bill talks to her₁, the angrier Mary₁ gets
- g. ✓ The more Bill talks to Mary₁, the more he calms her₁ down
- h. ✓ The more Bill talks to her₁, the more he calms Mary₁ down

Related to this, donkey anaphora occurs in CCs similar to conditionals and relative clauses (Beck, 1997). Variable binding in donkey anaphora is not necessarily taken to be indicative of a c-command relationship between two clauses, yet it indicates that the behavior of the adjunct clause in relation to the matrix clause of CCs is similar to that of other subordinate clauses (i.e., IF-clauses and relative clauses). Beck notes this similarity and extends Heim's (1982) 'classic' analysis of donkey anaphora to capture the interpretation of CCs. In her analysis, she asserts that a universal operator can quantify over individuals, possible worlds, or times and licenses the indefinite arguments within each clause. We will review her explanation of this in §2.4.

(26)

- a. The more [a farmer]₁ loves [a pig]₂, the more he₁ feeds it₂
- b. If [a farmer]₁ loves [a pig]₂, he₁ feeds it₂
- c. A farmer that loves [a pig]₂ feeds it₂

1.3.3 Conditional markers

Crosslinguistically, overt conditional markers show up in CCs. In some dialects of English, *then* can appear clause initially in the matrix clause. This is not unique to English. In Basque (*ba-*), Japanese (*-ba*), and Turkish (*-yse*), a morpheme identified as a conditional marker can appear in the CC.

- English⁸
- (27) The hungrier Romeo gets, **then** the more pizza he eats
- Basque
- (28) Pellok gero eta azkarrago bere lana amaitzen **ba-** du,
P-ERG CC fast.more his work finish COND-aux-trans
 gero eta postre gehiago jasoko du
CC dessert more get.will aux-trans
 “The faster Bill finishes his work, the more dessert he will get”
- Japanese
- (29) Tabere-**ba** taberu- hodo onaka-ga heru.
Eat- COND eat- degree stomach decrease
 “The more I eat, the hungrier I feel.”
- Turkish
- (30) Joan-Ø ne kadar (çok) problem çöz -dü -**yse**,
Joan-NOM what much a-lot problem solve-PAST-COND
 o kadar (çok) puan al -dı -Ø
it much a-lot score take-PAST-3S
 “The more problems Joan solved, the better score she received”

II. Background Literature, other analyses

Given the empirical observations in the previous section, some parts of the syntax of CCs are clearer. In this section, I will review several analyses of CCs: Culicover & Jackendoff (1999), the construction grammar approaches (largely presented by Fillmore, 1987; McCawley, 1988; and Michaelis, 1994), and Den Dikken (2005). I will also give a brief review of Beck (1997) who gives a semantic account of CCs. This semantic account is relevant to the plausibility of acquisition of CCs, which I will present in §3.4. A syntactic analysis of CCs has also been proposed within the HPSG framework (Borsley 2003, 2004). Though this approach has promising parallels to my proposal in §3, I will not review it here as it does not bear on my central arguments.

CCs were first noted by Ross (1967) and the first syntactic analyses were proposed by Thiersch (1982) and Fillmore (1987). Since then, CCs have primarily been presented as data either for or against the theory of P&P. It has been argued that CCs are unusual, presenting an especially difficult challenge to an analysis that assumes Chomskyan methodology (i.e., minimalist program (Chomsky (1995) and P&P specifically) (McCawley, 1988; Culicover & Jackendoff, 1999; Culicover, 1999; Borsley, 2003, 2004; Goldberg & Jackendoff, 2004; Culicover & Jackendoff, 2005). The goals of the current paper are to re-examine CCs in a different way – explore their well-behaved syntactic side – and to dig into how their existence in a great number of the world’s languages provides previously unrealized, and potentially rich, empirical data.

⁸ See also Resnik et. al. (in press) for data harvested by the Linguistic Search Engine (LSE) that also demonstrate this phenomenon

2.1 Separate syntactic and semantic structure – Culicover & Jackendoff (1999)

Culicover & Jackendoff (1999) (henceforth **C&J**) make several empirical observations of CCs, and then consider the five logically possible structures these expressions might have. They eliminate all possibilities but two – a main clause with a lefthand subordinate clause, and two paratactic clauses. As we saw in §1.3.1, examples (5) and (7), they use tag question data to demonstrate that the second clause is the semantic main clause and the first is a subordinate clause. Despite this evidence, they propose instead that the structure of CCs is paratactic, i.e., the syntactic structure is two clauses conjoined with no coordinator. The reasoning to this conclusion is as follows. Extraction from each of the clauses is permissible. If the first clause is a subordinate clause, it is subject to the CED (Huang, 1982). As such, extraction from the first clause should clearly result in unacceptability; it cannot be the case that the structure is one of a main clause and a subordinate clause. This leaves a paratactic structure as the only logically possible one. As a coordinated structure, it is subject to the Coordinate Structure Constraint (CSC). This structure predicts that extraction from *either* clause should result in unacceptability. But, unlike the CED, there is a loophole in Culicover & Jackendoff’s theoretical machinery that applies to the CSC and not the CED.

Prior to their 1999 paper, Culicover & Jackendoff (1995, 1997, 1999; Jackendoff, 2002), propose that a sentence is analyzable (at least) as a syntactic structure and as a conceptual structure. Syntactic structure corresponds to an expression’s behavior with respect to lexical items and some syntactic constraints; conceptual structure deals with an expression’s semantic interpretation. The broader idea that C&J espouse is that a sentence’s apparent syntactic structure often times does not match up with its semantic interpretation. Simply put, an expression’s syntax and semantics should be represented in separate and distinct structures.

A relevant example to the CSC case at hand is that of ‘left-subordinating *and*’ (Culicover & Jackendoff 1997), seen in (31). At the surface, it appears that this expression consists of two coordinated CPs, as depicted in (32). But the semantic interpretation of (31) is not one of coordination, but closer to a conditional, as in (33). This is an example of a coordinate syntactic structure, but a subordinate conceptual structure. The structure in (32) is indeed its syntactic structure, but its semantic structure is a different object. The lexical item *and* is left-subordinating, meaning at semantic structure the left conjunct is interpreted as subordinate to the right, despite its coordinated syntactic structure. Why does all this matter for the CSC? Culicover & Jackendoff (1997) propose that the CSC applies to coordinated conceptual structures; the status of a syntactic structure as coordinated has no bearing on its behavior with respect to the CSC. In contrast, the CED applies to syntactic structures, and not to conceptual structures. The expression in (31) has a coordinated syntactic structure and subordinate conceptual structure, and thus is subject to neither the CSC nor the CED. As a result, extraction from both clauses should be permissible. (34)c demonstrates that movement of the object out of the first clause is possible for some speakers, even though all types of movement are not straightforwardly

acceptable (see (34)a-b). The behavior of (34)c, however, is what one would expect if Culicover & Jackendoff's proposal is correct.⁹

- (31) You drink another can of beer and I'm leaving
 (32) _{CP}[You drink another can of beer] and _{CP}[I'm leaving]
 (33) If you drink another can of beer, then I'm leaving
 (34) a. *? [One more can of beer]_i , you drink t_i and I'm leaving
 b. * Which beverage_i did you drink t_i and I'm leaving ?
 c. ✓ That's [the kind of poison]_i that you drink t_i and I'm leaving

Even though the first clause of a CC behaves like a subordinate clause to the second main clause according to some syntactic tests, C&J critically note that extraction from both clauses is acceptable. If movement out of the first clause is permissible, then it must not be subject to either the CSC or the CED; in other words, the structure of a CC must neither have the first clause subordinate in its syntactic structure, nor coordinated in its conceptual structure. Accordingly, C&J propose that this is exactly the case: a CC has a coordinated syntactic structure with no coordinator and that its conceptual structure is one of a main clause and a subordinate clause.

Another paradigmatic example of paratactic syntactic structure provided by C&J is that of "intonational" conditionals, as in (35). The interpretation of an intonational conditional is like a standard conditional as in (36). They contend that intonational conditionals, like CCs, also have a paratactic syntactic structure with no coordinator, and a conceptual structure that encodes the interpretation that the first clause is subordinate to the first. They note that if the order of the clauses is reversed, the meaning of the entire expression changes, just as is the case for CCs, supporting their similar analysis of the two types of expressions.

- (35) Mary listens to the Grateful Dead↑ , she gets depressed↓
 (36) If Mary listens to the Grateful Dead, then she gets depressed.

Given these assumptions, we predict that extraction out of either clause should be permissible, since we have already seen that this paratactic syntactic structure/left-subordinate conceptual structure does not run the risk of violating the CED or the CSC. The results demonstrate otherwise, however. (37)-(38) show that extraction from either clause of an intonational conditional is wildly unacceptable. This puts their proposal for the syntactic and conceptual structure of CCs on somewhat precarious ground, since the predictions it makes are not borne out in similar data of their choosing.¹⁰

⁹ It should be noted here that (34)c is not readily judged as acceptable by many speakers. This judgment, along with those of (34)a&b, casts serious doubt the validity of Culicover & Jackendoff's (1995) argument.

¹⁰ There are other possible explanations for the unacceptability of these examples that one could consider. One such explanation might be that the obligatory intonation at the end of each clause must necessarily be realized on the final constituent of that clause. If so, then these examples would be unacceptable because the final constituent is unrealized phonetically (i.e., it is a copy of the moved constituent). We can control from this confounding factor by inserting something phonologically overt after the moved constituent. For instance, instead of (35) and (38)a to be the base example of an intonational conditional, instead use (i)a&b:

- (37) a. * What₁ does Mary listen to t₁ ↑ , she gets depressed ↓ ?
 b. * I wonder what₁ Mary listens to t₁ ↑ , she gets depressed ↓
 c. * The Grateful Dead₁ , Mary listens to t₁ ↑ , she gets depressed ↓
 d. ?? This is the kind of music that Mary listens to t₁ ↑ , she gets depressed ↓
- (38) a. ✓ Mary listens to the Grateful Dead ↑ , she thinks of Jerry Gracia ↓
 b. * Who₁ does Mary listens to the Grateful Dead ↑ , she thinks of t₁ ↓ ?
 c. * I wonder who₁ Mary listens to the Grateful Dead ↑ , she thinks of t₁ ↓
 d. * Jerry Garcia₁ , Mary listens to the Grateful Dead ↑ , she thinks of t₁ ↓
 e. * Jerry Garcia is [the kind of musician]₁ that Mary listens to the Grateful Dead ↑ , she thinks of t₁ ↓

My objection here to C&J's proposal is made on the basis of empirical data. The CSC and CED have been explained in a way in Culicover & Jackendoff (1997) and (1999) that does not appear to have adequate empirical coverage, and consequently the analysis of CCs proposed in Culicover & Jackendoff (1999) cannot be the correct explanation of this data.

Beyond this empirical evidence against C&J's analysis of CCs, there are other problems with this proposal. As a coordinate structure, there is nothing preventing the unbounded number of conjuncts in a CC (Den Dikken, 2005). We should predict not just CCs with two clauses, but with three or four, or more. As we saw demonstrated by the expression in (4), this clearly is not the case. More conceptually disturbing, there appears to be no

-
- (i) a. ✓ Mary listens to the Grateful Dead with Sam ↑ , she gets depressed ↓
 b. ✓ Mary listens to the Grateful Dead ↑ , she thinks of Jerry Garcia the rest of the day ↓

If we use these new examples and repeat the tests that were used to create examples (37)-(38), the results are equally unacceptable, as shown in (ii) and (iii):

- (ii) a. * What₁ does Mary listen to t₁ with Sam ↑ , she gets depressed ↓ ?
 b. * I wonder what₁ Mary listens to t₁ with Sam ↑ , she gets depressed ↓
 c. * The Grateful Dead₁ , Mary listens to t₁ with Sam ↑ , she gets depressed ↓
 d. ?? This is the kind of music that Mary listens to t₁ with Sam ↑ , she gets depressed ↓
- (iii) a. * Who₁ does Mary listens to the Grateful Dead ↑ , she thinks of t₁ the rest of the day ↓ ?
 b. * I wonder who₁ Mary listens to the Grateful Dead ↑ , she thinks of t₁ the rest of the day ↓
 c. * Jerry Garcia₁ , Mary listens to the Grateful Dead ↑ , she thinks of t₁ the rest of the day ↓
 d. * Jerry Garcia is [the kind of musician]₁ that Mary listens to the Grateful Dead ↑ , she thinks of t₁ the rest of the day ↓

Another explanation for the unacceptability of (37)-(38) is to stipulate that there is no way to simultaneously satisfy the intonational requirements of both a question and an intonational conditional. Whereas this might explain (ii)a and (iii)a, it is not clear that this explanation could be extended to cover all the examples here.

To sum this footnote, there may be another natural class that all of the examples in (ii) and (iii) belong to other than that they all contain a moved constituent. If that natural class is identified and the data given here are explained, then the conclusions of Culicover & Jackendoff (1999) would need to be re-examined in light of this finding.

evidence in favor of analyzing CCs as coordinate structures. C&J arrive at this structure because all the other possibilities have been eliminated. The two clauses are not interpreted as coordinated (because they are not coordinated at conceptual structure), and the structure is not subject to the CSC (because the CSC does not apply to syntactic structures), and there is no coordinator, overt or covert. Effectively, having the status of a coordinate syntactic structure indicates nothing of significance. All things being equal, it would be surprising to discover that the syntactic structure of an expression is so benign that it cannot be detected by any method other than by process of elimination.

This subsection has demonstrated that movement out of the two clauses of a CC cannot be explained by the theoretical assumptions of Culicover & Jackendoff (1997, 1999). But by rejecting this proposal, we are right back where we started – with an enigmatic expression whose syntactic behavior appears unruly. If we assume that the right clause of a CC is the matrix clause and that the left clause is an adjunct or subordinate clause, movement out of the left clause should result in unacceptability due to the CED. We saw in (12)-(15) that movement out of the left clause is permitted, and in some cases (WH-movement), actually *better* than movement out of the right clause. If we want to capture the adjunct/subordinate-like behaviors of the left clause by assuming that indeed it is a structural adjunct/subordinate, a revision of the CED is required. This will be of primary concern in §4 of this paper, and a solution will be provided there utilizing sideward movement (Nunes 1995, 2004; Hornstein, 2001).

2.2 Construction grammar

Construction grammar approaches to CCs have analogized CCs to conditionals. This analogistic methodology exploits the similarities CCs and conditionals share in order to explain CCs' syntactic behaviors and semantic interpretation. Some proponents of construction grammar argue that the mere existence of CCs stands as evidence that a unit smaller than the construction cannot explain the properties of larger expressions (Fillmore, 1987; McCawley, 1988; Michaelis, 1994). More specifically, the claim is that the syntactic behavior of CCs demonstrates that the construction is *sui generis*, and could only be learned by the child as a type of another construction, and not as a sum of its parts.

The proposal I will give in §3 demonstrates that the syntactic behavior of CCs does indeed appear to be a sum of its parts, *contra* the *sui generis* claim. If my proposal is correct, this leads to a larger inquiry – what is the contrast between a grammar that relies upon constructions and one that relies upon smaller units (i.e., lexical and functional heads)? I will address this question in §2.2.2, after we are more familiar with the details of the construction grammar proposals for CCs.

2.2.1 CCs are a type of conditional

Beginning with Fillmore (1987), the approach of construction grammar has been used to explain the syntactic behavior of CCs, classifying them as a type of conditional. The bulk of the paper is devoted to defining what a “conditional-type” construction is, so as to

encompass standard conditionals and CCs. Fillmore labels CCs “BCHF constructions” (standing for “the **B**igger they **C**ome, the **H**arder they **F**all”) and analogizes the first clause to the antecedent and the second to the consequent of a standard conditional (a strategy which becomes par for the course under this approach). He goes on to say that in addition to CCs being conditional constructions, they are simultaneously comparative constructions. McCawley (1988) supports Fillmore’s analysis by presenting data on CCs from English, German, and Mandarin Chinese. He notes that in Mandarin (like we saw in English, Basque, Japanese, and Turkish in (27)-(30)), a conditional marker *jiù* which he glosses as *then*, appears in the CC. In light of this analysis, McCawley aptly renames the expressions *comparative conditionals*.¹¹ Michaelis (1994) also gives a construction grammar analysis of CCs based on Latin data. Michaelis’ proposal is the most detailed, presented again briefly in Michaelis & Lambrecht (1996). (See §3.1.1 for further discussion of Michaelis & Lambrecht, 1996). Michaelis asserts that the interpretation of Latin CCs is ambiguous, and that this ambiguity cannot be accounted for without the use of constructions that serve to bolster semantic interpretations.¹²

In support of McCawley (1988), Fillmore (1987), and Michaelis (1994), the data in §1 strongly suggest that CCs and conditionals hold a great deal of similarities. We saw that overt conditional markers appear crosslinguistically in CCs. Movement out of both a subordinate clause and a main clause is possible, just as in the case for conditionals (Etxepare, 1998; Hornstein, 2001; Taylor, 2006)¹³. Donkey anaphora occurs in CCs. And the adjunction site of the adjunct clause is the same as that of a sentence-initial IF-clause, based on the condition C data we saw in (24) and (25).

¹¹ In Beck’s (1997) semantic analysis of CCs summarized in §2.4, she also asserts that CCs are a type of conditional. She notes that this account of the expression’s interpretation is in line with what McCawley and Fillmore propose, though she does not comment on the syntactic derivation of CCs in a construction grammar framework.

¹² Michaelis’ data argues that the semantic interpretation of CCs may not be the sum of its parts. The only language she reports to have the properties she describes is Latin, a language for which the interpretations cannot be verified. Further, I have not found a speaker of another language that reports the ambiguity she reports for Latin. The critical data is below.

The CC in (i) is reportedly ambiguous. The most readily available interpretation is the one that is paraphrased roughly, “there are many times that the matter gets turned over, and each time the grief my soul is greater”). It also has a second different meaning, represented best by the example in (ii). (ii) is unambiguous, and only has the interpretation that one event of climbing, roughly, there was one climbing, and one falling, and the severity of the fall was directly correlated to the height of the climb.

(i) Quanto in pectore hanc rem meo magis voluto, tano mi aegritudo actor est in animo
“The more I turn this matter over in my mind, the greater the grief is in my soul.”

(ii) Sed non statuendo felicitati modum, quanto altius elatus
But not setting-ABL success-DAT limit-ACC how-much-ABL higher lifted-NOM
erat tanto foedius conruit.
was-3SG-imperf-Ind. that-much-ABL worse fell-3SG-Perf-Ind.

“But by not setting a limit to his success, to the extent that he had risen high, he fell badly.”

If indeed (i) is ambiguous in this way, Michaelis argues that this ambiguity cannot be accounted for because the comparative morpheme *more* in CCs, in Latin and in English, has nothing to do with a comparison. While this is may be true, the comparative morpheme *more* may have a semantic meaning in CCs that is different from its meaning in normal comparative constructions. Beck (1997) makes such a proposal, which will be presented in §2.4.

¹³ This data will be presented in §4.1

2.2.2 The appropriate size of a “construction”

It seems as though conceiving of CCs as a type of conditional is strongly supported by the data. Why not just stop here and say that the data are accounted for? The logic goes like this: CCs are peripheral data in that they are exceptional to that which is typically observed in a given language. We conclude that the rules of grammar that generate the “core” cannot generate the “peripheral”. But fortunately, we can account for the properties of this peripheral data by saying that a primitive of the grammar is a family of constructions, namely the conditional family.

The logic of the above argument is faulty due to the second premise, that the rules of grammar that generate the “core” cannot generate the “peripheral.” I contend that this premise is false. If I can substantiate this claim, we are left with an interesting theoretical inquiry about the appropriate size of a grammatical primitive. Within construction grammar, at least some of the primitives of the grammar apply to units as large as the sentence itself, as is the case for CCs. The construction grammar analyses of CCs take something that is a conditional construction to be a primitive of the grammar

Within a theoretical framework that adheres to minimalist tenets, constructions like the family of conditional constructions are not primitives. Since CCs and conditionals have similar behaviors, this is an indication that they share common lexical and functional heads that have projected. The heads interact in the derivation in a predictable way due to other rules of the grammar, and the resulting structures are similar. Therefore, if the derivations of two distinct expressions involve the same lexical or functional heads, it follows that the resulting structures of these derivations will share certain syntactic properties. The construction is a product of smaller primitives, the heads.

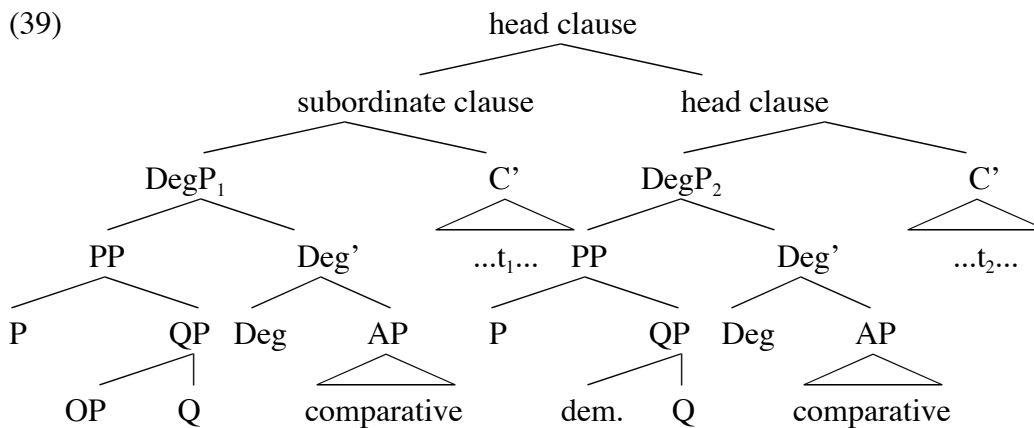
The heads that build structures are in a sense constructions, the smallest constructions possible. They necessitate the existence of a phrase that endocentrically shares the same label as its head. Two or more heads can interact, and reliably build the same structure every time they enter a derivation together. For instance, consider topicalization. We could say that an expression exemplifying topicalization is the result of a fixed construction framework that consists of an IP with a gap, and a filler marked with a special intonation that precedes the IP (a construction grammar approach). Another approach would be to say that we have a functional head, Topic, and that Topic⁰ c-commands an IP; a constituent within the IP can merge into the specifier position of Topic, and that constituent will get a special intonation in virtue of holding that position (a minimalist approach). The crucial contrast between the two explanations is the size of the element of the grammar that is responsible for the structure of the expression. The element could be the structure of the entire sentence or just a head. Either way, there is an element in the grammar that is taken to be a primitive, and this element (or several elements and their interaction) is responsible for the creation of an expression.

In the absence of data that are *sui generis*, it appears that the two approaches differ not in a qualitative, but rather in a quantitative way. What I would like to suggest is that the

construction grammar approach in its essence is not incorrect; minimalist analyses also include “constructions”. It is just that the “constructions” of minimalism are as small a unit of the structure as can be hypothesized – the heads themselves. What these smaller “constructions” are in the case of CCs will be of central focus in my proposal in §3.

2.3 CCs are like correlatives

Along this line of reasoning, Den Dikken (2005) proposes a non-construction grammar proposal that analogizes CCs to correlatives. He proposes that C&J’s new label for the expressions – comparative *correlative* – is appropriate, and that the necessary lexical ingredients of the expression lead to projection of a structure like (39) crosslinguistically. Den Dikken is explicit to say that his is not a construction-specific proposal – he is not saying that CCs *are* correlatives. The lexical and functional components of a CC are what create the structure, not a construction. It is the learning of the lexical ingredients that enables the child to include CCs into their grammar.



This structure resembles correlative constructions in that a) the subordinate clause is obligatorily to the left of the head clause, b) the subordinate clause includes an operator as the lefthand sister of Q, and c) the head clause contains a demonstrative as the lefthand sister of Q. It is not necessary for all lexical heads and functional heads to be filled overtly in a language. For instance, in English, the Deg⁰ is the lexical item *the* that obligatorily appears at the start of both clauses, and the AdjP includes what I have called the comparative constituent. All positions in the lefthand PP are null heads for English. In French, each clause begins with *plus* (“more”) and nothing can precede it. For French then, Den Dikken says that in both clauses the Deg⁰ and all positions in the PP are null. He fits several languages into the correlative template: French, Russian and Hungarian, and several Germanic languages (Modern English, Middle English, archaic English, Dutch, and German). Of these, Hungarian is the only language that has a recognized correlative construction.

Den Dikken argues that this structure and analysis explain two properties of CCs that are left unexplained by the previous approaches reviewed here. First, the correlative skeleton forces the adjunct clause to precede the matrix clause linearly. Secondly, the correlative skeleton explains why CCs consist of two clauses, no more and no less. There is no

explanation given to indicate which lexical and functional components are responsible for these properties of CCs or correlatives. Rather it is assumed that the relative clause of correlatives is obligatorily present and fronted, therefore the same properties hold for CCs.

Additionally, the structure in (39) provides an explanation for a curious property of the comparative morpheme in CCs – it cannot take measure phrase nor a *than*-complement (Beck, 1997 and references therein), demonstrated here in (41)-(44).

- (40) ✓ The taller John is, the more baskets he will score
- (41) * The taller than Bill John is, the more baskets he will score
- (42) * The taller John is, the more baskets *than Bill he will score
- (43) * The three inches taller John is, the more baskets he will score
- (44) * The taller John is, the four more baskets he will score

It is implied that the lexical and functional components of this structure build only this structure and no other. Thus, if the specifier of the degree head must be a PP, and that PP must only take a QP as its complement, then there is no position available for a measure phrase to occupy. Similarly, it can be reasoned that the position a *than*-clause would occupy is also not available in this structure.

Den Dikken is clear to point out that his paper is primarily an argument against C&J in support of minimalism. The crosslinguistic data he provides, along with a demonstration that crosslinguistically CCs share some characteristics indeed demonstrates that CCs are not “*sui generis*” as C&J claim. Yet, for his proposal to be support for the minimalist program, is it critical that he demonstrate how it is superior to those proposed within the construction grammar framework. To do this, he must demonstrate that CCs are derived from the heads and that the features of these heads alone build the CC in its entirety. If building CCs and accounting for their properties from the heads alone is not possible, then the construction grammar approach is superior *since the critical assertion that is made under that framework is that constructions comprise of more than the sum of their parts*. Den Dikken asserts that his proposal relies exclusively on the properties of the individual heads to explain the characteristics of the entire expression. As was stated just a few paragraphs ago though, he gives no explanation to indicate which lexical and functional components are responsible for the various properties of CCs or correlatives. Given this, it appears that this analysis is, for all intents and purposes, a construction grammar approach. Without a primitive that is a correlative construction, the derivation of CCs under this approach is not explained. Though Den Dikken does label the individual heads, their relationship to each other is ad hoc (such as a PP that obligatorily selects a quantifier phrase as its sister), and an explanation for how these heads’ features combine to create the entire expression is absent.

Another measure of the success of this analysis is the plausibility of the individual heads being learnable by the child. If the structure in (39) is the correct one that the English-

learning child must acquire, then she must learn that the null heads present in the PP (in SpecDegP) exist and are essential to this expression. Yet these heads have no semantic nor phonetic contribution to the resulting expression. If a child doesn't learn that these null heads exist and project their structure in the correct way, the result is that the child's grammar will allow the comparative morpheme in CCs to take a measure phrase, an undesired state in the learning process due to the data in (41)-(44). The problem does not exist only for English; French also requires the child to learn these null heads by negative evidence alone. The negative evidence available for learning these null heads may not be strong enough for the child to postulate their existence.

Beyond these conceptual questions, Den Dikken's proposal is ruled out on empirical grounds. If the proposed structure in (39) is the correct one, movement out of either clause should be impossible. Putting aside the issue of the adjunct clause versus the matrix clause, neither of these clauses provides a way for movement out to proceed successive cyclically. The SpecCP of both clauses is obligatorily occupied by a DegP. This should predict that in every language, both clauses are islands to movement. Yet we have seen that this prediction is not borne out.

2.4 A brief bit of semantics

I digress from reviewing previous syntactic analyses to briefly discuss the semantics of CCs. This subsection is included only to explain one fact of the CC - the unavailability of measure phrases and *than*-clauses associated with the comparative form in CCs. Beck (1997) proposes a semantic analysis of CCs for German and English that includes an explanation for this behavior. Given this, I will assume her analysis is correct and will not attempt to derive this property of the data from the syntax. I emphasize here that this paper is not designed to address the semantics of CCs in detail. The details of Beck's formulations of specific lexical items are provided here for the interested reader; the proposal I make in §3 is dependent only upon the larger argument structure she proposes for CCs. A more detailed explanation of each of the subparts of the analysis is in Beck's paper and references therein.

CCs lend themselves as a puzzle not only to syntax, but also to a formalization of the interpretation.¹⁴ As alluded to earlier in §2.1, Beck notes that CCs hold a great deal in common with conditionals, stating that CCs "are indeed a particular type of conditional" and that her "analysis captures parallels to ordinary conditionals sentences, simply because CCs *are* conditionals" (emphasis Beck's). Along these lines, she argues that the

¹⁴ It has been suggested to me (Jeff Lidz, p.c.) that the first clause, *the more money Saul spends*, could be analyzed as acting as a standard of comparison to the second clause, *the more frustrated Alice gets*, much in the same way the content of a *than*-clause does in comparatives like (i).

(i) Saul spends more money than Alice does.

Analyzing CCs in this way would not comport with Beck's analysis, since she argues that the standard of comparison is implicit to the comparative and that the only way the arguments of the two clauses intermingle in via a universal operator.

This being said, the suggestion is worth exploring. But, this investigation would rest solidly within the semantic realm and as such, outside the purvey of the current paper.

compositional semantic interpretation that CCs receive is primarily a result of two of its components – its *conditional* nature, and the presence of a *comparative* morpheme. She notes similarities between CCs and conditionals, leading her to propose an operator that universally quantifies over the two clauses. She also notes the presence of the comparative morpheme crosslinguistically (she cites German, English, Danish, French, Maltese, Mandarin, and Korean), leading her to deduce that it must also contribute to the compositional semantics of the expression’s interpretation.

As we saw in §1.3.2, donkey anaphora is licensed in CCs. The interpretation of CCs can be conceived of as universal quantification over pairs of individuals, possible worlds, or times, as in (45)a-c respectively. In light of these two pieces of data, Beck proposes a semantic analysis of the phenomenon that follows closely from Heim’s (1982) ‘classic’ analysis of donkey anaphora. In CCs, a universal operator quantifies over the two clauses (the adjunct clause is the first argument, the matrix clause is the second), allowing the variable binding necessary for the interpretation of the indefinite in donkey anaphora.

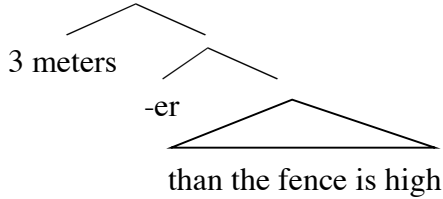
- (45) a. The slimier an attorney looks, the more successful he is
 b. The better prepared Otto is, the better his talk will be.
 c. The hotter it was, the more tired Uli was.

In formulating the interpretation of comparatives, Beck (following Stechow (1984, 1993) and Heim (1985, 1990)) proposes that the comparative takes two arguments, the values of the degrees being compared. The value of the first degree is greater than the second. Secondly, the comparative morpheme can take a measure phrase. If the measure phrase is absent, the degree difference must be existentially bound. Given these assumptions, the interpretation of the comparative morpheme given by Beck is in (46). Accordingly, an expression like *Luise is taller than Otto* has the interpretation given in (47).

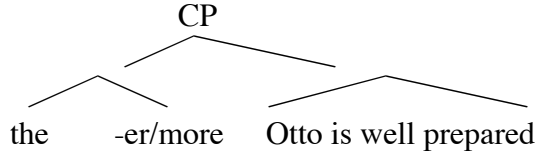
- (46) $[[\text{-er}]](D_1)(D_2) = 1$ iff $\exists d[d > 0 \ \& \ \text{the max } d_2 D_2(d_2) = d + \text{the max } d_1 D_1(d_1)]$
 (47) $\exists d[d > 0 \ \& \ \text{the max } d_1 [\text{tall}(d_1, \text{Luise})] = d + \text{the max } d_2 [\text{tall}(d_2, \text{Otto})]]$

However, CCs can take neither a measure phrase nor a *than*-clause, as was seen in (40)-(44). As she states it, the problem with the CC should now be obvious – if the comparative morpheme in CCs cannot take a complement (i.e., cannot take a *than*-clause), then the comparative is missing an argument needed for the derivation. The trees in (48) and (49) make this clearer. In (48), we can see that normally the comparative takes two arguments, the complement clause and the measure phrase, the first as its internal argument and the second as its external argument. In the CC, we have *the* (realized in German as *je/desto/umso* according to Beck), the comparative morpheme, and the rest of the clause. The argument structure of the comparative in a CC looks like the tree in (49).

(48) The tree is [3 meters higher than the fence]



(49) The more prepared Otto is...



For Beck, *the* is a Deg^0 , an operator that creates two degree descriptions, and these two degree descriptions provide the difference degree argument for the comparative. The logical question to ask is, what is the semantic interpretation of *the* that introduces two degree descriptions? Her formulation is in (50).

(50) $\text{the}'l(w_1, w_2) \text{ (l-er/more}'l) (D_{\langle s, \langle d, t \rangle \rangle}) \text{ iff } \exists d[d > 0 \ \& \ \text{l-er/more}'l (D(w_1))(d)(D(w_2))]$

It is now that the cleverness of Beck's proposal becomes apparent. CCs can evidence donkey anaphora just as conditionals can, so they necessarily require a universal quantifier that scopes over both clauses and binds the indefinites within. This same universal quantifier scopes over the *the* in each clause and binds the two degree descriptions in each clause to one another. Thus she derives two desired effects: a) the complement clause of the comparative is implicit to the interpretation of the Deg^0 in each clause, and no other internal argument is possible, and b) the interpretation of the degrees in each clause are semantically bound.

In a last note, there is one key difference between English and German CCs. A related construction that is temptingly similar to CCs – what has most recently been referred to as the Inverted Comparative Correlative (ICC) (Culicover & Jackendoff, 2005) – is given in (51).¹⁵ ICCs have a main clause first, followed by a subordinate clause. In English, the

¹⁵ Borsley (2004) notes that the relationship between CCs and ICCs is the same as that between sentence-initial and sentence-final IF-clauses in conditionals, and in *as/so* expressions with the *so*-clause sentence-initial or –final.

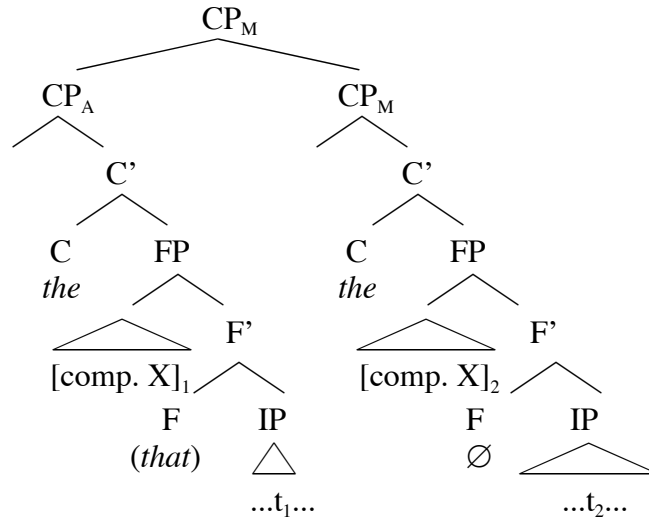
- (i) a. \checkmark If we bring drinks to the party, then the host will be grateful
b. (*Then) the host will be grateful if we bring drinks to the party
- (ii) a. \checkmark As I read more, so I understand more
b. (*So) I understand more as I understand more
- (iii) a. The more I drink, the more relaxed I become.
b. I become (*the) more relaxed, the more I drink

I believe this connection supports the argument in §2.2 that the smaller pieces of the grammar can account for the behaviors of entire expressions as well as a macro-construction grammar can. It is not that this behavior is explained only by the larger construction; it is the case that the smaller components that each of these constructions share create the identical effect seen in (i)-(iii).

The goal of this paper is not to argue over theoretical approaches to grammar. It is not the case that a conceptually sound analysis of this data with empirical coverage within a specific theoretical framework renders void the viability of other frameworks. Rather, I have considered the empirical evidence that stand in favor of or against certain syntactic analyses of CCs. My own analysis that I will present in the next section is formulated under minimalist assumptions, and as a result of the findings of that analysis, I contend that the data do not serve as evidence against P&P nor the minimalist program. Yet, I make no claim about the status of entire theoretical frameworks based on this data. It may be that, if refined, analyses outside the minimalist assumptions that I have reviewed here can account for the data as well as (or better than) my proposal does. However, since I do not consider this option in this paper, I will not make any claims about its viability.

III. Proposed Analysis

(56)



I propose (56) as the structure of CCs. In this section, I will explain each of its components, and give evidence to support my claims. In the order I will present them, the structure consists of the following 1) each clause is a CP, and 2) *the* that obligatorily introduces each clause is a C^0 ; 3) immediately dominated by the CP is a functional projection, labeled here as FP, that takes optional *that* as its head and the comparative constituent as its specifier; 4) the comparative constituent A' -moves from its canonical position inside the IP to SpecFP; 5) the adjunct clause is base-generated and adjoined high in the structure as an adjunct to the matrix CP; and 6) the SpecCPs of both clauses are available for movement out of this clause to occur successive cyclically. The structure in (56) is the result of the derivation, which is built according to the satisfaction of the features of the lexical and functional heads, and adherence to the constraints of the grammar.

3.1 Microsyntax – intraclausal structure

3.1.1 The complementizer *the*

The *the* that obligatorily appears before the comparative constituent is a complementizer in each clause. It follows, then, that each clause is a CP. Since this C^0 is phonologically overt, it should have the same effect as an overt complementizer...and it does – it induces *that*-trace effect. (57)b-c are unacceptable. If we hypothesize that this unacceptability is also due to a *that*-trace effect induced by the C^0 *the*, then the presence of a heavy AdvP between the comparative string and the WH-trace should improve the expression. Indeed this is exactly what happens, as can be seen in (57)d-e.

- (57) a. I said that the more Bill eats vegetables, the less Mary wants sweets
 b. ✓ What_{t₁} did I say that the more Bill eats t₁, the less Mary wants sweets
 c. * Who_{t₁} did I say that the more t₁ eats vegetables, the less Mary wants sweets?
 d. * Who_{t₁} did I say that the more Bill eats vegetables, the less t₁ wants sweets?
 e. ✓ Who_{t₁} did I say that the more for all intents and purposes t₁ eats vegetables, the less Mary wants sweets?
 f. ?? Who_{t₁} did I say that the more Bill eats vegetables, the less for all intents and purposes t₁ wants sweets?

The logical objection to this proposal is that *the* as a C^0 is a lexical item that only appears in CCs. Two pieces of evidence defend against this objection. First, English is not the only language that uses a unique lexical item to create the clauses of CCs; second, other English data deemed “peripheral” appear to include this same lexical item, *the*.

Mandarin Chinese, Hindi and Basque all have lexical items that appear only in CCs. McCawley (1988), citing Chao (1947) notes that Mandarin uses the item *yuè*, which he glosses simply as “CC” to identify the comparative correlative as distinct from the conditional (his example and gloss are in (58) below). This morpheme does not appear in other contexts in the language. Hindi uses the morpheme *jitn-* (realized as *jitnii*, *jitnaa*, or *jitne*) at the start of the adjunct clause, as in (59); it is used in no other context except to begin the adjunct clause of a CC, as seen in (60). Basque combines two lexical items, *gero eta*, to introduce both clauses of the CCs, as in (61). *Gero eta* is unique to CCs. *Gero eta* is glossed here as “CC” in the same way McCawley glossed *yuè* in Mandarin. Elsewhere in Basque, *gero* and *eta* appear independent of one another -- *gero* is an adverb meaning “after” and *eta* is a conjunction meaning “and”. Within CCs, the two words must both be present and they must be adjacent; to restate, nothing can intervene between the two in a CC, and neither *gero* nor *eta* can occur alone in the CC. Yet, there is nothing compositional about the lexical items that would render a meaning in the CC equivalent to that of “the more” in English. This suggests that Basque speakers treat the *gero eta* in CCs as a single lexical item, and one that exists only in CCs.

- (64) a. It's amazing [_{CP}that [we survived]
 b. It's perfect [_{CP}that [the weather cooperated]
 c. It was sickening [_{CP}that [the waste was so excessive]

The conjecture I make here and leave for future investigation is this – the apparent relative clause beginning with *the* is not a nominal, just as neither clause of the CC is a nominal. The *the* is a C⁰, and these clauses are CP complements of the predicates. It is not that the predicates *amazing*, *perfect*, and *sickening* in NEs have taken a complement other than CP, or that a relative clause has been right dislocated; rather, the predicates in NEs have taken a CP complement just as they do in expressions like (63). Further evidence that the word strings beginning with *the* in (62)a-c are CPs comes from NEs that take other kinds of CPs, such as (65), and Michaelis & Lambrecht's virtually synonymous examples (5)a&b, reproduced here as (66)a and (66)b¹⁸,

- (65) It was sickening [how much waste there was]
 (66) a. It's amazing [what things children say]
 b. It's amazing [the things children say]

Crosslinguistically we see languages many languages (Dutch, Spanish, Brazilian Portuguese, Latin as reported by Den Dikken (2005) for example) use a morpheme meaning “how much/how more” to introduce the adjunct clause of a CC. Russian and Turkish introduce the first clause with a similar type of string -- a WH-item corresponding to *what* + much is used (see (71)-(72)).

- (67) Dutch
Hoe meer je leest, **hoe meer** je begrijpt
How more you read *how more* you understand
 “The more you read, the more you understand”
- (68) Spanish
Cuanto mas problemas resolvió Joan, mejor puntuación recibió
How-much more problems solved Joan better score she-received
 “The more problems Joan solved, the better score she received”
- (69) Brazilian Portuguese
Quanto mais problemas a Joana resolve, melhores notas ela recebe
How-much more problems the Joana solves better scores she receives
 “The more problems Joan solved the better score she received”

¹⁸ Michaelis & Lambrecht provide these examples to contrast NEs with Right Dislocation, such as (i)a&b.

- (i) a. ✓ They're amazing, the things children say.
 b. * They're amazing, what things children say.

Despite the presence of the examples in (66)a&b in their paper, they do not consider the possibility that *the* is a complementizer, rather than a determiner.

- (70) Latin¹⁹
Quanto in pectore hanc rem meo magis voluto,
How-much-ABL in heart this matter my more ponder
 tanto mi aegritudo auctior est in animo
that-much-ABL me grief greater is in spirit
 “The more I turn this matter over in my mind, the greater grief is in my soul”
- (71) Russian
Chem bol’she vina, tem veseleye
What-INST more wine-GEN that-INST merrier
 “The more wine, the merrier”
- (72) Turkish
Ne kadar rahatla-r- sa- k, o kadar vakit kaybed- er- iz
what much relax aorist COND. 1P it much time lose- aorist 1P
 “The more we relax, the more we waste time”

Further, C&J report that some dialects of English, CCs may begin with *how much* in lieu of *the more* to form a question, as seen in their example (17) reproduced here in (73).

- (73) a. The harder it has rained, how much faster a flow appears in the river?
 b. The harder it rains, how much faster do you run?
 c. The harder it rains, how much faster a flow do you see in the river?
 d. When/As it rains harder, how much faster a flow appears in the river?

3.1.2 A functional projection and optional *that*

Immediately dominated by CP is a functional projection of which the head is optionally phonologically realized as *that* in English, as in (74). The comparative constituent is in SpecFP of this projection.

- (74) The more time (**that**) we spend on this, the harder it is to finish.

We’ll call this optional-*that* insertion, and examine its properties. It has been suggested that optional-*that* can occur in both the adjunct clause and the matrix clause, giving the full range of logical possibilities in (75) (Culicover & Jackendoff, 1999). I intentionally do not provide judgments for this data in this example here. This phenomenon is unattested in all the languages that I have collected data for on this particular point.²⁰

¹⁹ This example is originally given by Michaelis (1994) and is repeated as example (10) by Den Dikken (2005)

²⁰ When asking informants for data in Spanish, Brazilian Portuguese, Turkish, Basque, Greek, Hebrew, Russian, Malayalam, and Hindi, the final question asked was:

“I am interested in whether anything can appear immediately after the comparative. For instance, in English it is claimed that (i) is ok:

(i) The more problems *that* Joan solved, the better score *that* she received.

- (75) a. The more you eat, the less you want
 b. The more **that** you eat, the less you want
 c. The more you eat, the less **that** you want
 d. The more **that** you eat, the less **that** you want.

When I initially sought judgments of this data by native speakers, I found mixed results regarding optional *that*. Naïve informants tended to give an initial judgment, and then second-guess that judgment only two or three sentences later. They were quick to realize what the contrast between minimal pairs was, and started providing explanations for why *that* should or should not occur in this position. Using this methodology, the results were not clear at all, and I pursued collecting judgments on this data in a more controlled method.

I devised a questionnaire that seven monolingual English-speaking adults completed in order to discover what the properties of optional-*that* insertion were. In this questionnaire I investigated the factors in (76) that could account for whether speakers allow optional-*that* insertion:

- (76) a. individual speaker variation
 b. type of phrase being modified by the comparative
 c. which clause the *that* was inserted into
 d. parallelism of the two clauses

The full details of this data collection and the results are in Appendix A. The general finding of the research is that the factor in (76)c, which clause the *that* was inserted into, is the only one that appears to have any bearing on optional-*that* insertion. Optional-*that* insertion is readily permitted in the adjunct clause, but dispreferred in the matrix clause, as seen in the summarized data for all test items for all speakers are summarized in Table 2 below. When *that* is inserted into the first clause, there are no judgments of unacceptable, contrasting with *that*-insertion into the main clause in which ~33% of items are judged unacceptable. Even more convincing, when *that*-insertion is in the first clause alone, 84% of responses indicate that this change is the same or better than the original sentence. This finding suggests that the features of this functional head may be different in each clause.

“For (ii)-(v), can anything like this show up in either clause? Is there any contrast between the two clauses? If an item can appear in this position, what is the item? What other types of environments does it show up in? Is it unique to this construction?

- (ii) The happier Mary is, the calmer Ann is.
 (iii) The more quickly we finished grading, the more quickly we will leave.
 (iv) The more apples John picked, the more pies his mother baked.
 (v) The less John talks to Mary, the more he enjoys the workplace.”

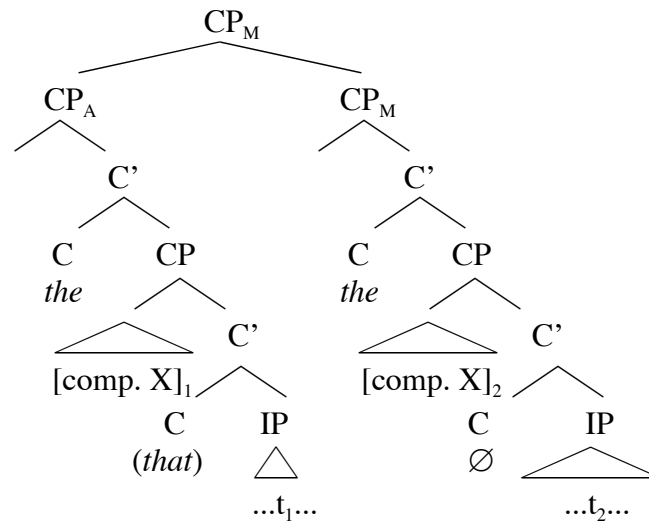
The answers I received were clear and sometimes vehement, such as “No!”, “Nothing like this happens in my language!”, and “This can never happen.” I followed up with every informant and asked if they were sure that nothing could show up in this position optionally, and each reaffirmed their original answer.

Table 2 – average of all speakers²¹

	Unacceptable	Acceptable
<i>That</i> in both clauses	34.00% (17/50)	42.00% (21/50)
<i>That</i> in adjunct clause alone	0% (0/50)	84.00% (42/50)
<i>That</i> in main clause alone	32.00% (16/50)	40.00% (20/50)

Why not classify optional-*that* in CCs as a C^0 ? We have just seen evidence that *the* is a C^0 . If optional-*that* is a C^0 as well, this would imply that the structure of each clause of a CC would constitute CP recursion, as in (77). If CP recursion is to be rejected, we could instead reject the proposal that *the* is a C^0 . However, recall that one of the first pieces of evidence we saw for the justification of this categorization was complementizer-trace effects. If we reject the idea that *the* is a C^0 and instead categorize optional-*that* as a C^0 , we cannot explain these effects. The complementizer-trace effect could not be a result of the optional-*that*, because the effect is seen when *that* is not phonologically present (see (57)).

(77)



There is some justification for the occurrence of CP recursion, as proposed by Watanabe (1992) and Browning (1996). Watanabe analogizes CP recursion to Larsonian V-shells (Larson, 1988) in order to explain topicalization, among other phenomena. Now topicalization is explained via a functional projection instead – TopP. Given this, it seems as if the appearance of CP recursion is a reasonable candidate for re-labeling one of the CPs as a functional head.

²¹ The rows in this table do not add to 100% as a result of experimental design. I designed the questionnaire to make it difficult to score an item “unacceptable.” For an item to be scored as “acceptable”, it had to be judged the same or better than all items compared against it; for an item to be scored as “unacceptable”, it had to be judged not only as worse than another item, but also noted by the speaker as something they would never expect a native speaker of English to say. As a result, many items were scored as neither acceptable or unacceptable. See Appendix A for full details.

Is there evidence that this position is functional? Does it actually serve a functional purpose? It may be that this functional head is realized in other languages as a way for the comparative to modify a constituent of various categories. As we have seen in numerous English examples already, the compared constituent can be AdjP, AdvP, NP or IP, as in (78)a-d respectively.

- (78) a. The happier Mary is, the calmer Ann is. AdjP
 b. The more quickly we finished grading, the more quickly we will leave. AdvP
 c. The more apples John picked, the more pies his mother baked. NP
 d. The less John talks to Mary, the more he enjoys the workplace IP

Crosslinguistically, however, there are limitations on the categories that can be modified by the comparative in CCs. In German, the comparative constituent can only include an AdjP or AdvP (Roehrs, Sprouse & Wermter, 2002). In Turkish, an interesting thing happens. If the compared item is an NP or IP, a null sentential adverb can appear which the comparative morpheme modifies, as in (79) and (80).

- (79) ne kadar (çok) elma yer -se -n, o kadar saglikli
What much a lot apple eat -AOR -2s it much healthy
 ol -ur -sun
become -AOR -2s
 ‘The more apples you eat, the healthier you are’

- (80) elma-dan ne kadar (çok) yer-se -n, o kadar siman-la-r-sin
apple-ABL what much a lot eat-AOR -2s it much
 ~“The more of apples you eat, the healthier you get”

Given this crosslinguistic strategy that Turkish can use, the presence of a functional head so close to the comparative constituent is motivated.

3.1.3 The comparative constituent

One thing that is apparent about CCs is the unusual word order of each clause. In §1.2, among the crosslinguistic generalizations for CCs, we saw that the word order internal to each clause is non-canonical ((8)-(10)). For non-canonical word orders to surface, we expect that movement must be occurring. This is not a new idea, since in cases of normal comparatives that take a *than*-complement, Chomsky (1977) argues that A'-movement occurs.

Consider the single word *taller* in (81). *Taller* is segmented into three parts, the comparative form *-er*, the adjective *tall*, and a measure of degree that is not realized phonologically. The last two parts are logically understood in the object position of *Mary is*, as illustrated in (82). If this gap is the result of movement, we should see evidence for it. This evidence is given by Chomsky (1977) using data like that in (83)-(86). In (83), we see that the movement of the comparative can occur when embedded under bridge verbs

since the meaning of the comparative *taller* can still be construed within the lowest VP. However, as we would expect from A'-movement, this movement cannot violate factive islands, as demonstrated in (84). Lastly, in (85) and (86) we see that the movement cannot violate the CNPC nor the WH-island constraint.

- (81) ✓ John is taller than Mary is
 (82) John is [-er [*deg* tall]] than Mary is [*deg* tall]
 (83) ✓ John is taller than Sue said Mary is
 (84) * John is taller than Sue regrets Mary is
 (85) * John is taller than the rumor that Mary is
 (86) * John is taller than Sue wonders whether Mary is

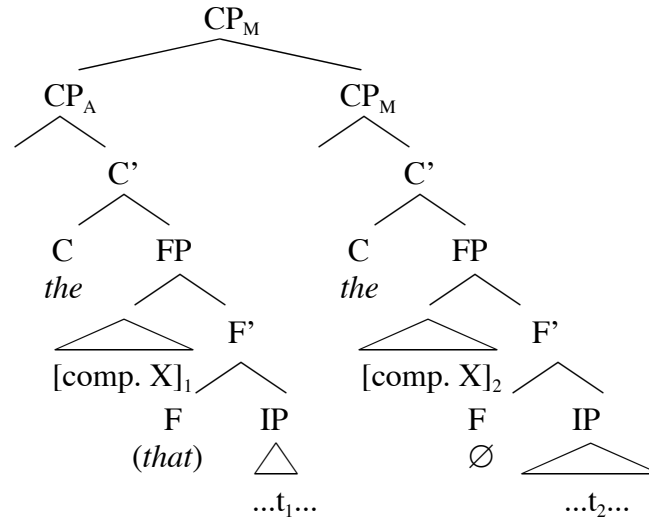
These same tests can be used to demonstrate that in CCs the comparative constituent has moved to its position immediately following the C^0 *the*. Under bridge verbs, the comparative string can be construed inside the main VP (88), the movement cannot violate factive islands (89), and the movement obeys the CNPC (90) and WH-island constraints (91).

- (87) **The more pizza** Bill eats, **the fatter** he gets
- (88) a. ✓ The more pizza Bill eats, **the fatter** Mary believes/says/hears/assumes he gets.
 b. ✓ **The more pizza** Mary believes/says/hears/assumes Bill eats, the fatter he gets.
- (89) a. * The more pizza Bill eats, **the fatter** Mary regrets/forgets/resents he gets.
 b. * **The more pizza** Mary regrets/forgets/resents Bill eats, the fatter he gets.
- (90) a. * The more pizza Bill eats, **the fatter** Mary heard the rumour that he gets
 b. * **The more pizza** Mary heard the rumour that Bill eats, the fatter he gets
- (91) a. * The more pizza he eats, **the fatter** Mary wonders who he gets
 b. * **The more pizza** Mary wonders who ate, the fatter he gets

3.1.4 SpecCP

In the structure in (56) (repeated here as (92)), no constituent occupies Spec CP of the adjunct clause. This contrasts with the structure that Den Dikken proposes in (39). This contrast allows for movement out of the adjunct clause that is successive cyclic. We will address how this successive cyclic movement takes place out of an adjunct in §4.

(92)



3.2 Macro-syntax

In §1.3.2 we saw in (25) that there is no c-command relationship between the subject and object of each clause into the other clause. This leads us to the conclusion that the position of the adjunct clause must be one of two places, adjoined to the matrix IP or CP. In the previous subsection, we concluded that *the* in both the adjunct and the matrix clause is a C^0 . If the adjunct clause were adjoined at IP, the CC in (93) would end up with the word order in (94). The structure would be as that in (95). Obviously this is not the desired result. The adjunct clause must be adjoined at the matrix CP. It is base-generated in this position.

(93) The longer the storm lasts, the worse the damage is

(94) * The worse the longer the storm lasts the damage is

(95) [[_{C'} the [_{FP} worse [_{IP} [_{CP_{adjunct}} the longer the storm lasts] [_{IP} the damage is]]]]]

The consequence of this adjunction is that because SpecCP of the matrix clause is available for successive cyclic movement, movement out of this clause should be acceptable. C&J report, based on examples like (15) (reproduced here as (96)), that some speakers judge movement out of the matrix clause to be marginal in contrast to good movement out of the adjunct clause.²²

- (96) a. ✓ Which problem₁ do you think that the sooner Bill solves t₁, the more easily he'll satisfy the folks up at corporate headquarters
 b. ? Who₁ do you think that the sooner that Bill solves this problem, the more easily he'll satisfy t₁ ?

Since the syntactic structure in (56) allows for movement out of the matrix CP, the explanation for the contrast between (96)a and (96)b must lie outside of the syntax.

²² The reader might be thinking at this point, "if movement out of the adjunct clause of a CC is good, why isn't movement out of an adjunct *always* good?" This question will be discussed in §4.

Perhaps the answer to this contrast lies in the processing of a filler-gap configuration in which the ultimate gap is far separated from the raised constituent. As we have seen in this section, obligatory movement of the comparative constituents leaves gaps throughout the structure. One can imagine a processing analysis in which a speaker encounters a moved constituent at the start of a sentence and, by attempting to find and fill gaps so often, eventually experiences a degradation of the entire expression before reaching the correct gap.

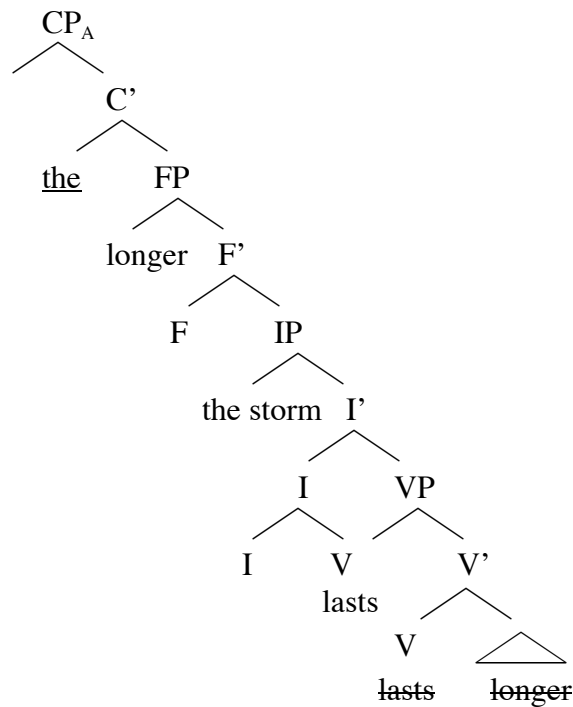
3.3 A full derivation

- (97) The longer the storm lasts, the worse the damage is
 (98) a. subn α = { the, F, long, -er, the, storm, lasts } adjunct CP
 b. subn β = { bad, -er, is, ν } ν P
 c. subn γ = { the, F, the, damage } matrix CP

Taking (97) as a paradigmatic example of standard CCs, (that is, one in which no movement from either clause has occurred), the complete derivation proceeds as follows. The subnumerations for the derivation are α , β , and γ as in (98), and correspond to the adjunct CP, ν P, and the matrix CP respectively. Note that subnumerations α and γ both contain the functional head F as described in §3.1.2, and the complementizer *the* is underlined in order to distinguish it from the definite determiner. Starting with subnumeration α , the adjunct clause is built step by step as in (99). The resulting structure in (99)g is shown in tree format in (100).

- (99) a. [-er long]
 b. [longer]
 c. [_{VP} [lasts [longer]]]
 d. [_{IP} [the storm] [I [_{VP} [lasts [longer]]]]]
 e. [F [_{IP} [the storm] [I + lasts [_{VP} [lasts [longer]]]]]]
 f. [_{FP} [longer] [_F F [_{IP} [the storm] [I + lasts [_{VP} [lasts [longer]]]]]]]
 g. [_{C_{PA}} [C' the [_{FP} [longer] [F [_{IP} [the storm] [I + lasts [_{VP} [lasts [longer]]]]]]]]]

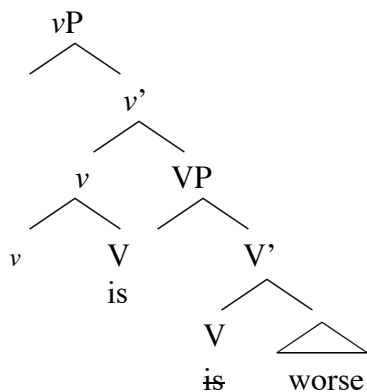
(100)



Next subnumeration β is accessed and the vP is built, as in (101) and (102). Remember that the adjunct clause is still in the derivational workspace unadjoined, though not shown in (102).

- (101) a. [bad -er]
 b. [worse]
 c. [_{VP} [is [worse]]]
 d. [_{vP} v + is [_{VP} [~~is~~ [worse]]]]

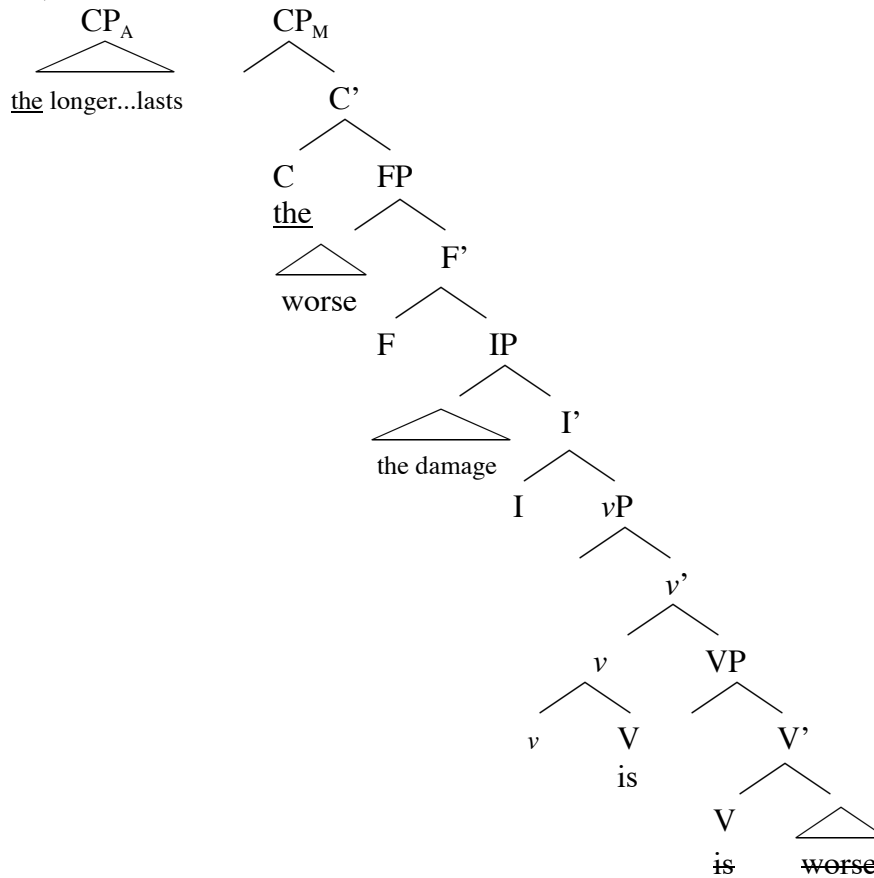
(102)



The rest of the matrix clause is built from subnumeration γ , as seen in (103) and (104).

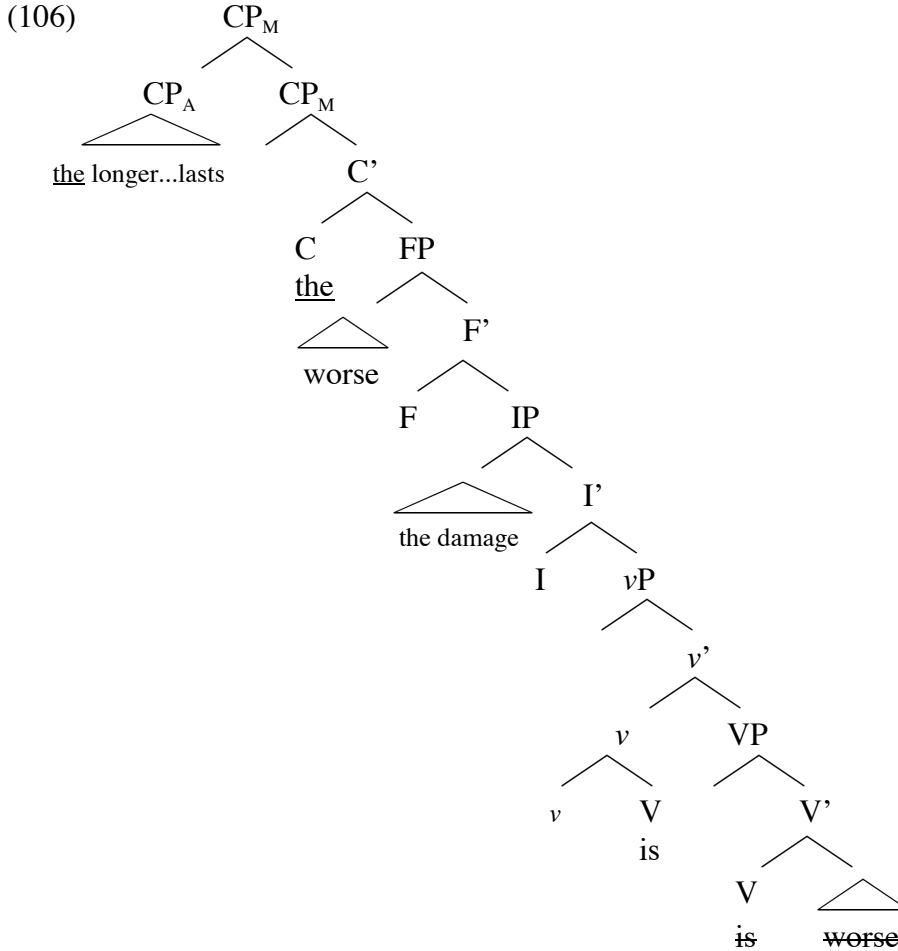
- (103) a. $[_{IP} \text{ the damage } [_{I} [_{vP} v + \text{is } [_{VP} [\text{is } [\text{worse}]]]]]]]$
 b. $[_{FP} F [_{IP} \text{ the damage } [_{I} [_{vP} v + \text{is } [_{VP} [\text{is } [\text{worse}]]]]]]]]]$
 c. $[_{FP} \text{ worse} [_{F} [_{IP} \text{ the damage } [_{I} [_{vP} v + \text{is } [_{VP} [\text{is } [\text{worse}]]]]]]]]]]]$
 d. $[_{CPM} [\underline{\text{the}} [_{FP} \text{ worse} [_{F} [_{IP} \text{ the damage } [_{I} [_{vP} v + \text{is } [_{VP} [\text{is } [\text{worse}]]]]]]]]]]]]]]]$

(104)



Lastly, the adjunct clause left adjoins to the matrix CP, resulting in the structure in (105) and (106).

- (105) $[_{CPM} [_{CPA} [_{C'} \underline{\text{the}} [_{FP} [\text{longer}]] [_{F} [_{IP} [\text{the storm}]] [_{I} + \text{lasts } [_{vP} [\text{lasts } [\text{longer}]]]]]]]]]] [_{CPM} [\underline{\text{the}} [_{FP} \text{ worse} [_{F} [_{IP} \text{ the damage } [_{I} [_{vP} v + \text{is } [_{VP} [\text{is } [\text{worse}]]]]]]]]]]]]]]]$



3.4 In support of P&P

A central claim in the literature about CCs (Fillmore, 1987; McCawley, 1988; Michaelis, 1994; Culicover & Jackendoff, 1999; Borsley, 2003; Borsley, 2004; Culicover & Jackendoff, 2005) is that they cannot be learned if a theory of P&P is assumed. If CCs (or any part of the grammar for that matter) are exceptional to the universal principals of grammar proposed in P&P that a learner presumably comes to the task of language learning with, and the child learns CCs despite this, this data would stand as reasonable evidence against a theory of P&P. As the bulk of this paper has demonstrated however, the syntactic derivation and structure of CCs does not appear to provide such evidence.

By stating that data is peripheral, one is making a claim about its status in the theory. CCs are classified as data in the “periphery” of syntax, and as such, presumed to not be of central concern to building a theory of what is in UG. It is important to remember that this label refers to a construction’s resemblance to the most typical expressions in a language. However, there is an easy misconception that could follow from this label, which is that so-called peripheral data does not occur frequently enough in the PLD to be learned adequately by the child. This conclusion does not follow from the premise of the label, nor is this conclusion valid with respect to CCs.

We saw that CCs are readily available in the world's languages. We would expect that if the syntactic derivation and structure of CCs is in accordance to universal principles, a child should be able to learn the expression, after mastering more central parts of the grammar. Admittedly, CCs are not simple sentences to learn how to parse. To begin the task, a child must already have learned about complementizers, null functional heads, A'-movement, and comparative morphological forms and their semantic argument structure in her language. Given this, we would predict that the comprehension and production of CCs occurs late in acquisition relative to other types of constructions. The following is a brief account of how a child could approach the learning task and successfully recognize the subcomponents of a CC – the C⁰ *the*, the functional head optional-*that*, the comparative constituent, and how to distinguish the matrix and adjunct clauses.

First, let's consider the complementizer *the*. This portion of the learning task reduces to learning a unique lexical item in the language and understanding that its feature composition is largely responsible for the derivation of the entire expression. This is not unusual in language – conditional markers function in this way, as do conjunctions, responsible for and building only conditionals and coordinated phrases respectively. We saw in §3.1.1 that the evidence for *the* as a C⁰ is available in English (Nominalized Extraposition expressions), and the child has access to this same evidence in order to learn the properties of this lexical item.

Optional-*that* in CCs presents itself as a ready stumbling block to learning, looking very much like a complementizer. Two parts of the PLD indicate to the child that this is not the case and that optional-*that* is indeed a functional head. First, if the child hypothesizes that *that* is a complementizer, they will be faced with positing multiple specifiers of CP. One specifier is needed for the comparative constituent, another is needed for *the*, and a possible third must be available for movement out of a clause. Given other locality facts about English that would need to be learned prior to attempting to parse CCs, this should be a hypothesis that this child never considers. By observing movement out of the clauses, she could deduce that *that* is not a complementizer, but *the* is, and its specifier is an open position available for successive cyclic movement. Secondly, I suggested in §3.1.2 that the functional use of the projection is to allow the comparative to modify an NP or VP. This functional head, like all functional heads, is part of UG, and thus the learning task facing the child is to determine that the functional head is in this position and that it is optionally realized phonetically.

The comparative constituent displaces the compared constituent out of its canonical word order. Once a child has set the word order parameter for her language, she can use the non-canonical word order in each clause as a signal that movement has occurred and to find the gap from which this constituent moved. More difficult in this task would be for the child to learn that the comparative in CCs does not take a measure phrase nor a *than*-clause complement. The reason for this limitation follows from the semantics according to Beck's (1997) analysis. The child would need to understand the interpretation of the CC and that the two comparatives in each clause are dependent upon one another for their fully saturated interpretation.

How does the learner come to understand that the first clause is the adjunct clause and the second is the matrix clause? As we have seen in languages other than English, the two clauses of CCs often display contrasting morphological forms. For instance, in Turkish, the adjunct clause begins with *ne kadar*, “what much”, and the matrix clause begins with *o kadar*, “that much”. In a language like this, the PLD provides the child with immediately detectable evidence that the two clauses are not the identical. Like other data in the language that consist of a main clause and a subordinate clause (relative clauses, conditionals, sentential adjuncts), the child would be faced with deciding whether the clauses are coordinated or subordinated, and if subordination is present, decide which clause is subordinate to which. English (and other languages as well, like French and Basque) do not have contrastive morphological forms in the two clauses of CCs. Yet, the task facing the child is still the same: learn whether the clauses are coordinated or subordinated, and if subordination is present, decide which clause is subordinate to which. How does the child learning any language discover that this first clause is the adjunct clause? She would presumably have to approach this task as she would other data with subordinate clauses.

This point takes us back to the crosslinguistic generalizations that can be made about CCs. It is a surprising cross-linguistic characteristic of CCs that the adjunct clause must always occur first linearly. Similar data like conditionals and expressions with sentential adjuncts allow an adjunct to occur sentence-initial or -final. All things being equal, we would expect to see that the adjunct clause of CCs in some languages can occur in sentence-final position. But this is not the case. Given this, it may be that the linear order of the clauses of CCs follow from a more basic universal of UG, and does not need to be learned at all.

IV. Movement out of the adjunct clause

The derivational details and the syntactic structure that I have proposed in §3 still leave one critical question unanswered – how is movement out of the adjunct clause possible? It should be an island to movement under the CED (Huang, 1982).

4.1 Sideward Movement

The CED (Huang, 1982) renders adjuncts islands, prohibiting movement out of all adjunct. The CED correctly rules out examples like (107). Assuming the CED, all movement out of the adjunct clause of a CC should likewise be prohibited. Yet there exists empirical data that give reason to argue that the CED is too strong. Historically, parasitic gaps stood as such data (Chomsky, 1982; Engdahl, 1983). In (108), the parasitic gap in the adjunct (marked as ‘pg’) is dependent upon the presence of the gap in the main clause (marked as ‘t’).

- (107) * Who₁ will Michelle go home because Rich saw t₁ ?
 (108) ✓ [Which book]₁ did you review t₁ without reading pg₁ ?

An answer to the question why a dependency exists between the parasitic gap and the “real” gap was complicated by a more serious question – how is a gap in an adjunct explained in a theory that independently requires the CED? Nunes (1995, 2004) and Hornstein (2001) explored the phenomenon of parasitic gaps and proposed as a solution that adjuncts are islands to movement only after they are adjoined. If movement happens *between* trees (sideward movement) rather than within trees (internal merge), movement out of an adjunct is made possible under certain conditions. The proposal was that while an eventual adjunct is unadjoined, movement of a constituent from this tree to another is possible via sideward movement. Sideward movement does not throw out the CED; it clarifies what domains should be islands to movement according to the CED. The CED disallows extraction from adjuncts, and within the theory of sideward movement an adjunct is defined as that which is adjoined to another tree.

The operation takes place thusly: In (109)a, L is an eventual adjunct, M is the main clause, and N is a single item from the numeration. The item *z* can trigger the movement of *y*. Since L is not yet attached to another tree, this movement is licit and does not violate the CED. The result of the movement of *y* to *z* is in (109)b. Next the adjunct L adjoins to the main clause M (109)c, and lastly the newly created constituent N merges with the main clause M in (109)d.

Another instantiation of sideward movement is in (110). In this case, we have only L, an eventual adjunct, and M, the main clause. The item *x* in L is sideward moved out and merged to M in (110)b. In (110)c, the adjunct L can now be adjoined to the main clause M without any violation of the CED ensuing.

(109)

- a. L: [...y...]
M: [...x...]
N: [z]
- b. L: [...(y)...]
M: [...x...]
N: [y [z]]
- c. M: [[...(y)...] [...x...]]
N: [y [z]]
- d. M: [[y [z]] [[...(y)...] [...x...]]]

(110)

- a. L: [...x...]
M: [...y...]
- b. L: [...(x)...]
M: [x [...y...]]
- c. M: [[x[...y...]] [...(x)...]]

Sideward movement solves the problem of how movement out of an adjunct can be possible. But the operation of sideward movement as just defined encounters a new problem – overgeneration. If there is no sideward movement, movement is constrained by c-command relationships. By introducing an operation like sideward movement, c-command becomes irrelevant. As I have presented the operation of sideward movement

so far, any constituent can move anywhere so long as that movement extends a tree. This freedom is undesirable because left unlimited in this way, sideward movement could render all islands violable. It is then essential to the theory of sideward movement that appropriate and principled limitations are in place in order to restrict its power. Four such limitations are proposed by Nunes (2004) and Hornstein (2001) and enumerated in (111).

(111)

- a. A derivation may access only one subnumeration (Chomsky 2001) at any given point in the derivation. Only when the items of a subnumeration are exhausted can items from another subnumeration enter into the derivational workspace.
- b. Only one tree may be extended during any given point in a derivation. If tree X exists in a derivation, and tree Y is created, tree Y must be built in its entirety before any other tree can be extended, and tree X may only be extended again if tree Y is adjoined to it.
- c. Like traditional intra-arboreal movement, sideward movement may only target items positioned on the edge of a tree.
- d. A sidewardly-moved constituent must always be copied and immediately merged with another constituent. Copied constituents may not exist in the derivational workspace unused.

At this point, I have only presented a single data point, parasitic gaps, to support the existence of the operation of sideward movement. If this is the only data that motivate sideward movement as an option, the proposal runs a high risk of simply being ad hoc. Fortunately there is more data to consider. Hornstein (2001) used and expanded the proposal of sideward movement to explain adjunct control via the elimination of OC PRO. And there is data that we have seen is very relevant to the topic of CCs – conditionals.

Etxepare (2002) observes that in Spanish, extraction from IF-clauses is permitted under certain circumstances. As seen in the example in (112), WH-movement out of the IF-clause is acceptable if a conditional is embedded under what Cattell (1978) calls Stance predicate. (Uriagereka (1995) uses the term *attitudinals* to refer to these predicates). Stance predicates are limited to those that include a speech act, and the speech act must contain an assertion that the speaker takes to not be part of the common ground of the discourse. Examples are *think, believe, know, claim, and say*. To distinguish Stance predicates from other speech act predicates, some examples of non-Stance predicates are *mention, comment, point out, omit, speculate, interpret, and understand*. This contrasts strongly with movement out of a non-embedded conditional (113), a conditional embedded under a non-stance predicate (114), and a conditional embedded under a stance predicate with the IF-clause in sentence-final position (115). The phenomenon is not unique to Spanish; English also allows extraction from out of an IF-clause if it is embedded under a Stance predicate and in sentence initial position, as seen in (116).

- (112) ?/√ Qué libro₁ crees que si Ricardo lee t₁ alguna vez abandonará
which book believe you that if R.. reads some time give up
 la Lingüística de inmediato?
the Linguistics immediately
 ‘Which book do you believe that if Ricardo ever reads he will give up
 linguistics immediately?’
- (113) * Qué libro si Ricardo lee alguna vez se deprimirá?
Which book if R. reads t some time he get-depressed-FUT
 ‘Which book, if Ricardo reads, will he get depressed?’
- (114) * Qué libro contaste que si Ricardo lee alguna vez se
Which book tell-you that if R. reads t some time he
 deprimirá?
get-depressed-FUT
 ‘Which book did you tell (me) that if Ricardo reads he will get depressed?’
- (115) * Qué libro crees que Ricardo abandonará la Lingüística
which book believed you that R. give up the Linguistics
 de inmediato si lee t alguna vez
immediately if he reads some time
 ‘Which book did you believe that Ricardo will give up linguistics
 immediately if he ever reads?’
- (116)
- a. √ [Which book]₁ do you believe that if John reads t₁ he will give up
 linguistics immediately?
 - b. *? [Which book]₁ if John reads t₁ he will give up linguistics
 immediately?²³
 - c. ?? [Which book]₁ do you understand that if John reads t₁ he will give up
 linguistics immediately?
 - d. *? [Which book]₁ do you believe that John will give up linguistics
 immediately if he reads t₁ ?

We saw in §1.3.1 (in fn. 6) that WH-movement out of either clause of a CC is constrained. The best examples of WH-movement out of a CCs clause were expressions

²³ Howard Lasnik points out to me that (116)b is out for independent reasons, because of necessary SAI in WH-question formation in English. Even movement out to the main clause of a conditional over the IF-clause is degraded if SAI has occurred, as seen in (i) and (ii).

(i) ?? What grade, if John reads a book, will he get t ?

(ii) √ If John reads a book, what grade will he get t ?

To control for this, we could embed (116)b under the verb *wonder*, and the results are still bad, as in (iii).

(iii) ?? I wonder [which book]₁ if John reads t₁ he will give up linguistics immediately

Unfortunately, this shows us no more than (116)d does, though, which is that movement out of the IF-clause when embedded under a non-Stance predicate (i.e., *wonder*) is worse than when embedded under a Stance predicate as in (116)a. The constraints of English syntax in that SAI is necessary in WH-question formation limit the exact testing of examples like (113) in English.

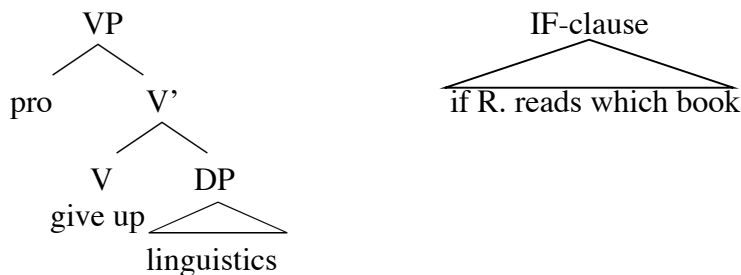
in which the CC was embedded under a Stance predicate, like the conditional in (116)a is. Given this similarity in the movement facts for conditionals and CCs, it seems prudent to review Etxepare’s proposal for movement out of IF-clauses since it not only provides evidence for the operation sideward movement, it may well directly bear on our CC data.

Etxepare’s (2002) proposal uses an instantiation of Uriagereka’s functional projection F (1995)²⁴, which he takes to be present in virtue of the Stance predicate, since Stance predicates involve an assertion on the part of the speaker and Uriagereka’s F “hosts all those elements which in order to be interpreted require a ‘responsible judge.’” I assume this is correct. Why does Uriagereka’s F matter for movement out of the IF-clause? Because the limitations given in (111) prohibit sideward movement out of IF-clauses otherwise.

Given the limitations on sideward movement, and given that IF-clauses are base-generated within VP and A’-move to sentence-initial position, we would predict that movement out sentence-initial IF-clauses should never be permitted to occur. Specifically, movement out of an IF-clause which is adjoined to VP must occur prior to this adjunction to avoid a violation of the CED. If sideward movement of a constituent within the IF-clause happens at this point in the derivation, there must be an immediately available position for it to merge into (limitation (111)d). But at this point in the derivation no such position exists that leads to a convergent derivation. The subnumeration (in (117)) can provide only *v*, which cannot select the WH-phrase *which book*, and the trees already in the derivational workspace (in (118)) provide no other position. It appears that movement out of the IF-clause will violate the CED or the limitations on sideward movement.

(117) subnumeration = { ~~give up~~, ~~linguistics~~, *v* }

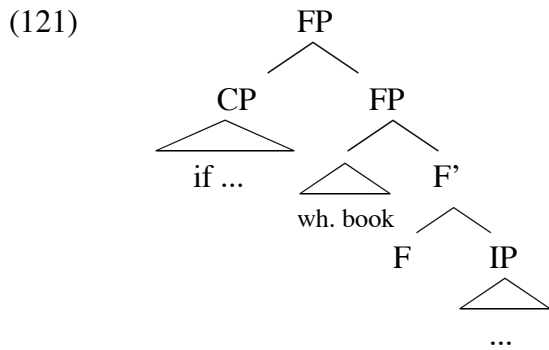
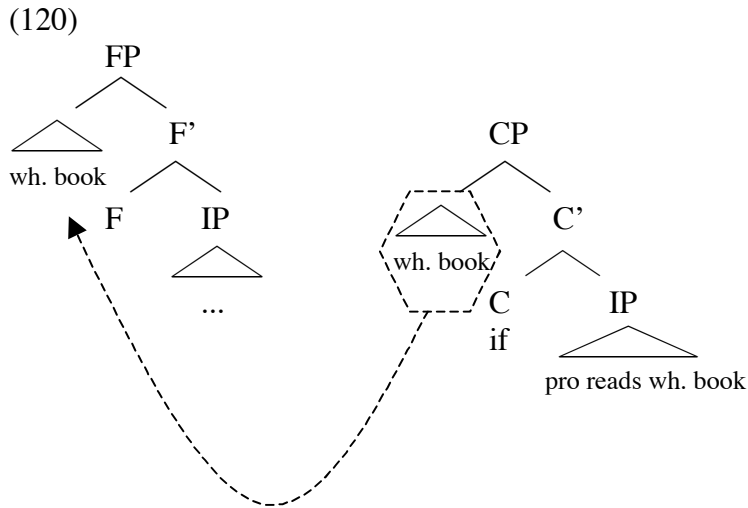
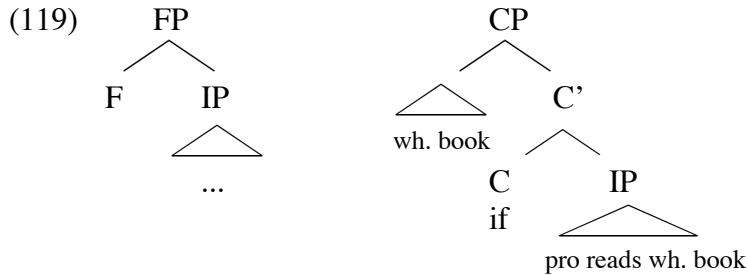
(118)



Etxepare’s proposal addresses this problem. First, unlike what we saw in §3, Etxepare does not assume that sentence-initial IF-clauses are base-generated within the matrix VP. In his proposed derivation for conditionals like (112), the IF-clause is built and adjoined with the maximal projection FP of Uriagereka’s F. Before this adjunction, the IF-clause

²⁴ Crucially, Uriagereka’s functional projection F should not be confused with the functional head that was proposed in §1.3.1, which was also labeled as “F”. I will refer to “Uriagereka’s F” as such, and in tree notation in this paper I will differentiate this functional projection from “Taylor’s F” by using the label “Stance” for Uriagereka’s F, and simply “F” for the newly proposed head that we saw earlier.

CP and the matrix clause (now an FP) are distinct (see (119)). The WH-phrase *which book*, which has moved to the edge of the IF-clause CP, can sidewardly move and merge into SpecFP as in (120). The IF-clause can then adjoin to FP, as in (121). From the position the WH-phrase now occupies, it is able to move to the matrix SpecCP successively cyclically in the same way as in any ordinary WH-question. By adjoining the IF-clause late in the derivation within the matrix CP subnumeration, sideward movement out of the IF-clause can take place without violating the CED (the IF-clause is unadjoined when movement takes place) and without gratuitous copying that violates limitation (111)d (Uriagereka's F is immediately available in this subnumeration in order to provide a position for the sidewardly moved WH-phrase).



The phenomenon of moving out of adjuncts is not restricted to a single data point nor to a single language or language family. Whereas parasitic gap data were curious and might

have caused us hesitation at jumping to the conclusion that movement out of an adjunct had occurred, IF-clauses are uncontroversially classified as adjuncts, and movement from out of these adjuncts is permitted. Movement out of IF-clauses is possible via sideward movement (Extepare, 1998; Hornstein, 2001; Taylor, 2006). The reconceptualization of the CED by formulating sideward movement by Nunes (1995, 2004) and the extension of this formulation by Hornstein (2001) to explain control as movement – and especially important to this data, *adjunct* control as movement – is therefore empirically motivated beyond the existence of CCs.

4.2 Sideward movement out of the adjunct clause

Using the operation of sideward movement, we are now able to formulate a way by which movement out of the adjunct clause of a CC can occur. As was discussed with respect to conditionals in the previous subsection, one consequence of the limitations to sideward movement given in (111) is that movement from the adjunct clause should result in unacceptability if it is base-generated low in the structure and A'-moves to adjoin to the matrix CP. I proposed in §3.2 that the adjunct clause is base-generated in sentence-initial position and adjoined to the matrix CP. If this adjunction site is assumed to be the base-generated position of the adjunct clause, then the functional head that a moved constituent could merge with (like Top^0 or $Stance^0$) is present in the subnumeration at the point in the derivation that the adjunct clause is built and unadjoined.

4.3 A full derivation when sideward movement occurs

The CC in (122) is embedded under a Stance predicate and the WH-phrase has moved out of the adjunct clause to the highest Spec,CP position. This expression is derived from the subnumerations α , β , γ , and δ given in (123) corresponding to the adjunct CP, matrix CP, vP, and the highest CP²⁵ respectively. First, subnumeration α is accessed and all its items build the adjunct clause. The last step in building the adjunct clause is that the WH-phrase *who* moves to the edge of this tree in order to later in the derivation move out of the clause successive cyclically. These steps are in (124) and the final structure in (124)j is given in tree format in (125).

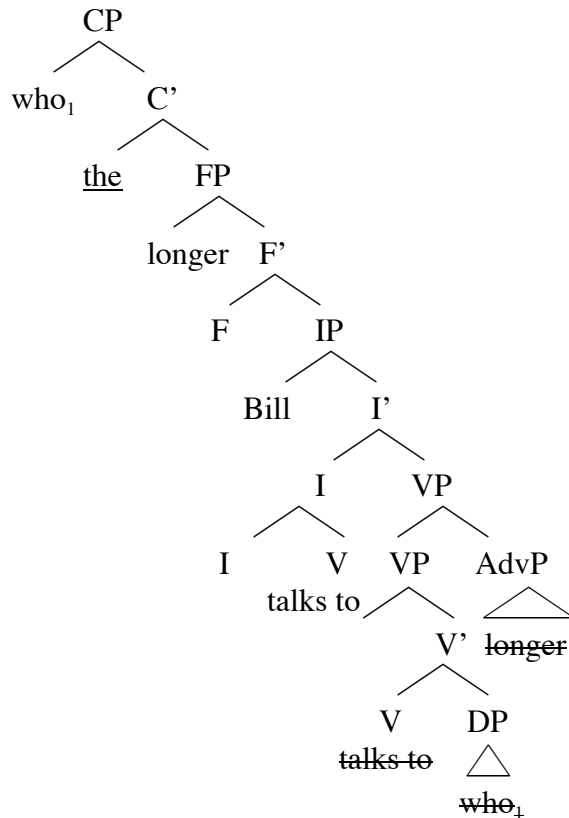
(122) Who do you believe the longer Bill talks to t, the less work he accomplishes?

- | | |
|---|------------|
| (123) a. subn α = { <u>the</u> , F, long, -er, Bill, talks to, who } | adjunct CP |
| b. subn β = { <u>the</u> , F, he, accomplishes, less, work } | matrix CP |
| c. subn γ = { <i>Stance</i> , v, believe } | vP |
| d. subn δ = { Q, you, do } | highest CP |

²⁵ Note that in this derivation the matrix clause of the CC does not contain the matrix VP of the entire expression – the matrix verb is *believe*. This is just a symptom of terminology. The “matrix clause” of the CC is not the “matrix clause” of the entire expression if the CC is embedded.

- (124) a. [talks to [who]]
 b. [_{IP} Bill [I [talks to [who]]]
 c. [_{IP} Bill [I + talks to [talks to [who]]]
 d. [_{IP} Bill [I + talks to [talks to [who]]] [-er long]
 e. [_{IP} Bill [I + talks to [talks to [who]]] [longer]
 f. [_{IP} [_{IP} Bill [I + talks to [talks to [who]]] [longer]]
 g. [F [_{IP} [_{IP} Bill [I + talks to [talks to [who]]] [longer]]]
 h. [_{FP} [longer] [_F F [_{IP} [_{IP} Bill [I + talks to [talks to [who]]] [longer]]]]
 i. [_{C_{PA}} [the [_{FP} [longer] [_F F [_{IP} [_{IP} Bill [I + talks to [talks to [who]]] [longer]]]]]]
 j. [_{C_{PA}} who [the [_{FP} [longer] [_F F [_{IP} [_{IP} Bill [I + talks to [talks to [who]]] [longer]]]]]]

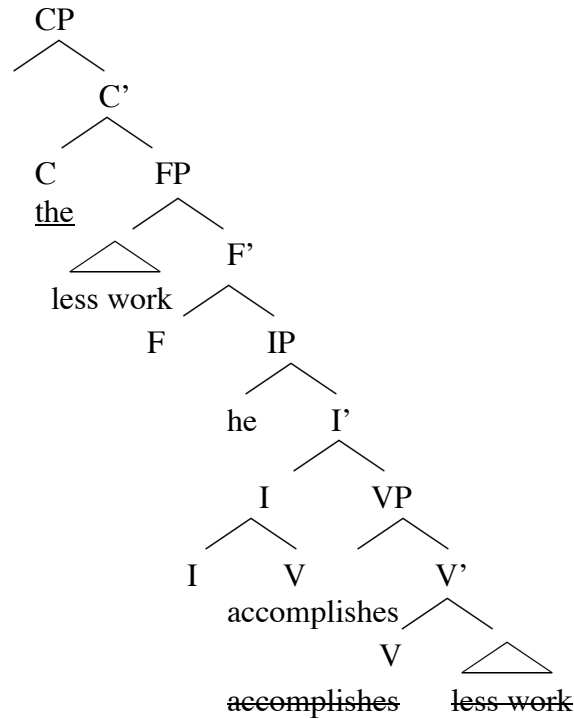
(125)



Next, subnumeration β is accessed and the matrix CP is built as in (126), and final structure of this tree is given in (127). At this point in the derivation two distinct trees exist in the derivational workspace, the adjunct clause and the matrix clause in (125) and (127) respectively.

- (126) a. [less [work]]
 b. [accomplishes [less [work]]]
 c. [_{IP} he [I [_{VP} accomplishes [less [work]]]]]
 d. [F [_{IP} he [I + accomplishes [_{VP} ~~accomplishes~~ [less [work]]]]]]]
 e. [_{FP} [less [work]] [_{F'} F [_{IP} he [I + accomplishes [_{VP} ~~accomplishes~~ [less [work]]]]]]]
 f. [_{CP} [the [_{FP} [less [work]]] [_{F'} F [_{IP} he [I + accomplishes [_{VP} ~~accomplishes~~ [less [work]]]]]]]]]

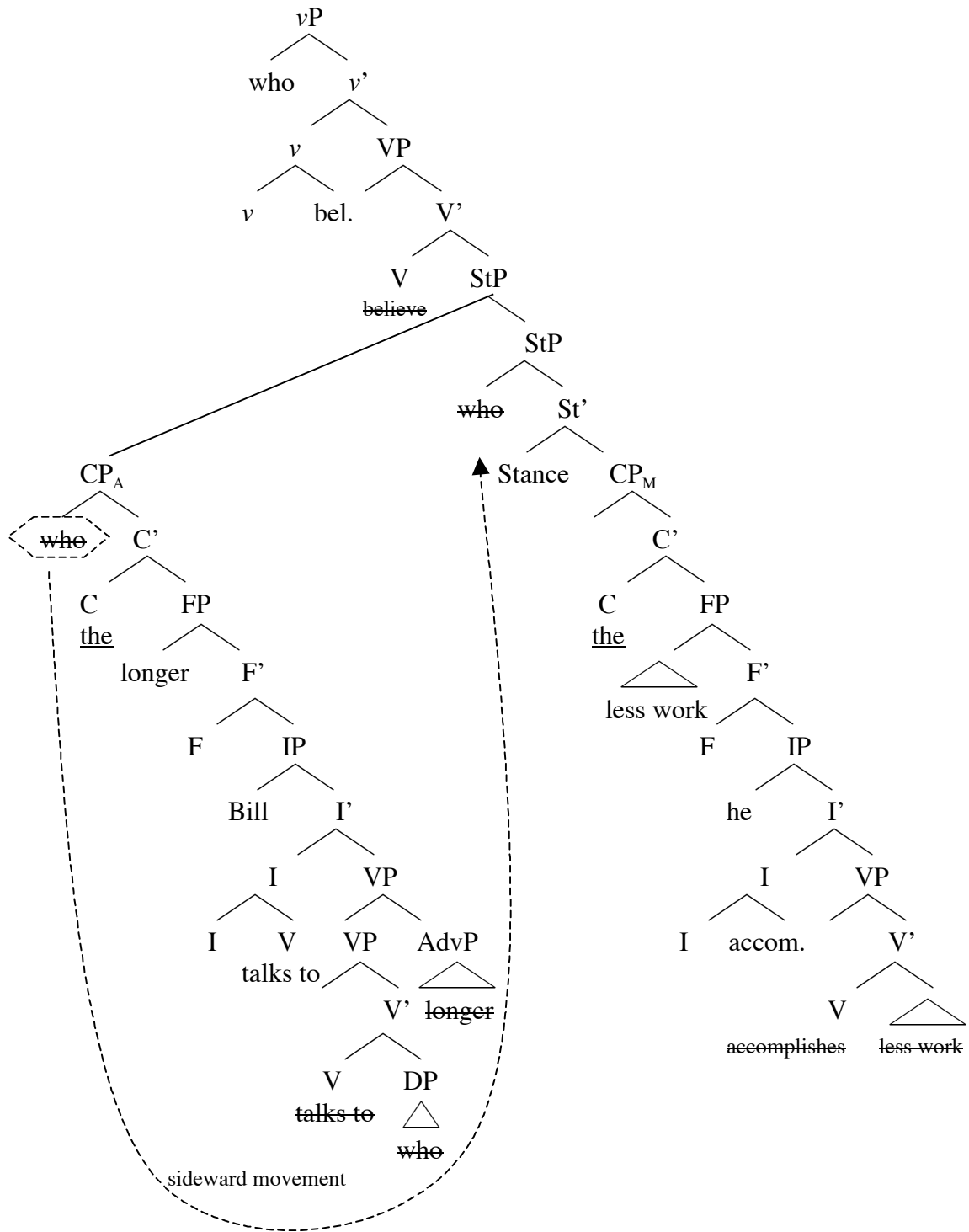
(127)



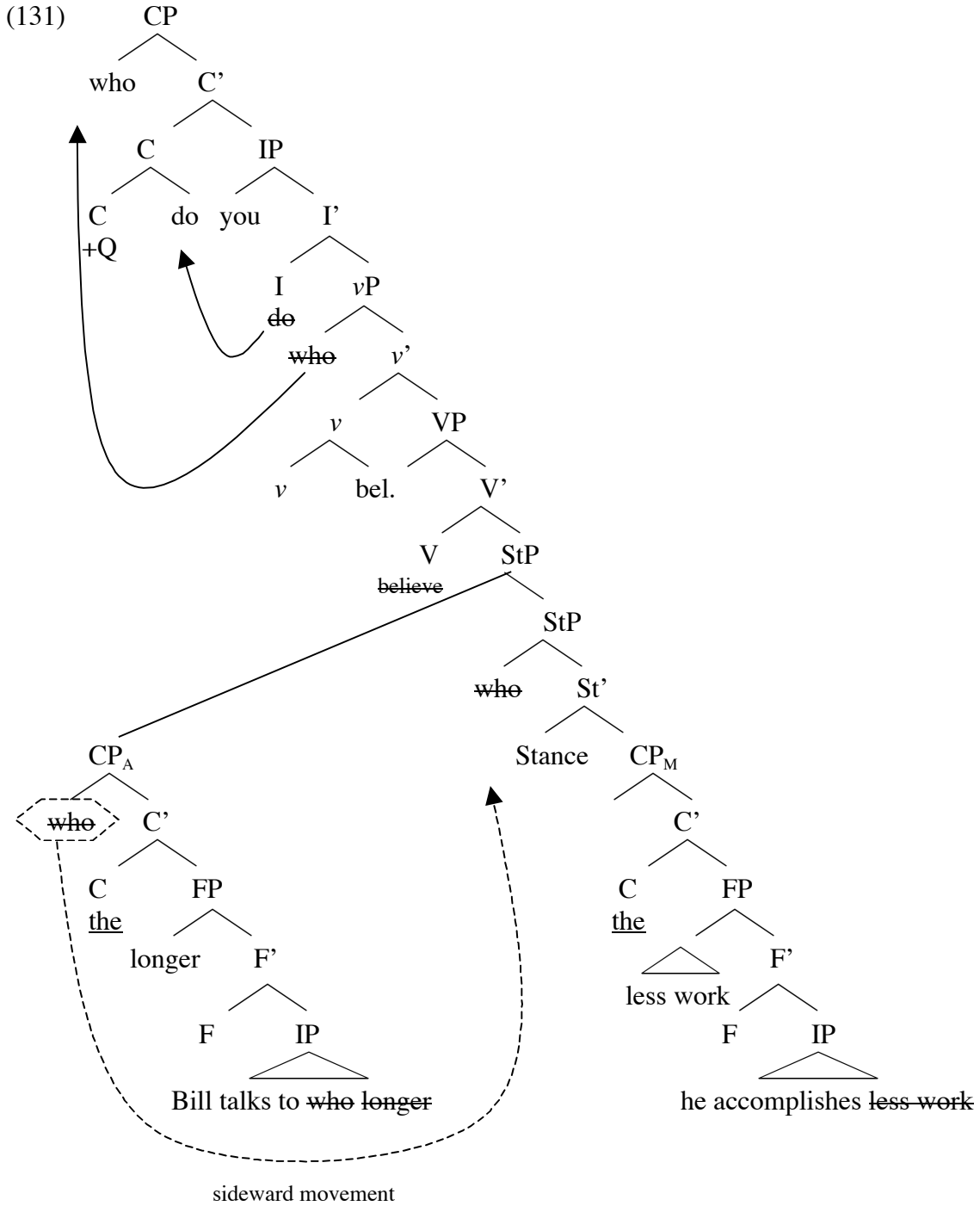
Since the verb *believe* is a Stance predicate, the functional head *Stance* is present in subnumeration γ . *Stance* merges with the matrix CP in (128)a. This creates a position for the WH-phrase *who* to move into. Since the adjunct clause is unadjoined to another tree, and since the WH-phrase is sitting at the edge of this tree, sideward movement of this WH-phrase is permitted. *Who* moves into Spec,StanceP, followed by the adjunction of the adjunct clause to StanceP in steps (128)b-c. The rest of the items in the subnumeration build the vP in a regular fashion, and the last step of this portion of the derivation is for *who* to move into Spec,vP.

In the interest of facilitating visual ease in comprehension of the bracketing notation, I have not included the adjunct clause in the bracketing notation until after it adjoins to StanceP. The tree structure in (129) does show the entire derivational workspace during the steps given in (128).

(129)



The last steps of the derivation are the building of the highest CP and the final movement of the WH-phrase to Spec,CP, seen in the steps in (130). The final tree is in (131).



The empirical evidence we have throughout this paper demonstrates that the first clause is subordinate to the second with one exception – movement out of the first clause is permissible. But as we have seen in this section, there are many instances of movement out of traditional adjunct islands. The question of how to move out of an adjunct is a current issue in minimalist syntax. Movement of a constituent out of a clause can no longer be taken to be solid conceptual evidence that the specific clause is not an adjunct. There are other current proposals that may also explain this phenomenon, such as Parallel

Merge (Citko, 2005) and multidominance (Wilder, 1998). These operations were conceived primarily to explain ATB and other movement out of coordinate structures. How well these theoretical proposals work for CCs remains to be tested.

V. Some last lingering issues

In this last section I address two last sticky issues that deserve an explanation. First, the C^0 *the* and the comparative constituent can be coordinated as in (132), suggesting that this string of words is a constituent. Given the structure proposed in §3, it is not readily apparent how this constituency should be explained.

- (132) a. The more apples and the less candy that you eat, the healthier you will become.
 b. The more apples you eat, the healthier and the happier you will become

Secondly, Den Dikken (2005) provides data from 18th and 19th century Modern English in which a PP precedes that complementizer *the*. The quote from Herman Melville's *Moby Dick* at the start of this paper is an example of this, as is the quote by Jonathan Edwards in (133). The only available position for the PP is SpecCP, making certain predictions for the behavior of this type of data.

- (133) “**By how much the more** wickedness there is in a man's heart, **by so much** is his inclination to evil the stronger, and **by so much the more**, therefore, has he of moral Inability to the good required.”
 -Jonathan Edwards, 1754, Colonial American theologian

5.1 coordination of *the* and the comparative constituent

- (134) ✓ The more apples and the less candy Bill eats, the healthier he is.
 (135) ✓ The more apples Bill eats, the healthier he is.

Examples like (132), repeated here as (134), seem to demonstrate that *the more apples* in (135) is a constituent. But in the structure I have proposed for CCs this word string is not a constituent. How are these data to be explained?

- (136) Mary bought and Jim broke an expensive Chinese vase. RNR

The CC in (134) looks like a case of Right Node Raising (RNR), (136) being a standard example²⁶. RNR is a descriptive label, referring to data in which part of the leftmost conjunct in a coordinated structure has deleted. The example in (134) fits the descriptive definition of RNR as (137) more explicitly demonstrates.

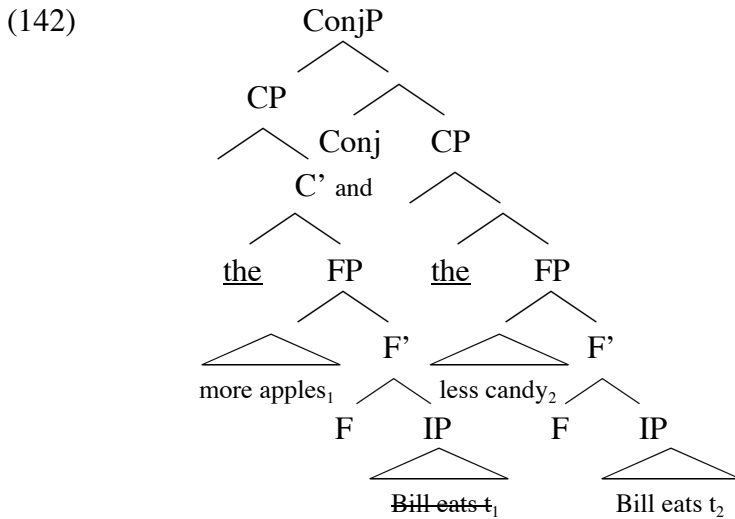
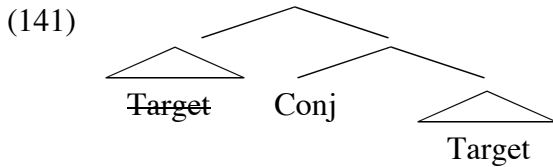
- (137) The more apples [~~Bill eats~~] and the less candy [Bill eats], the healthier he is.

²⁶ This example is borrowed from Abels (2004), who explores whether RNR is VP ellipsis, this being very pertinent to the present discussion.

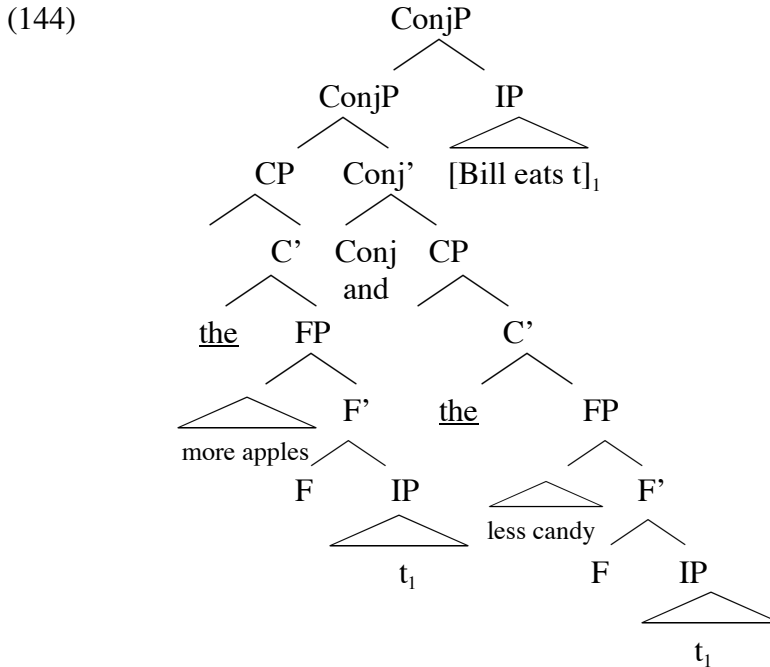
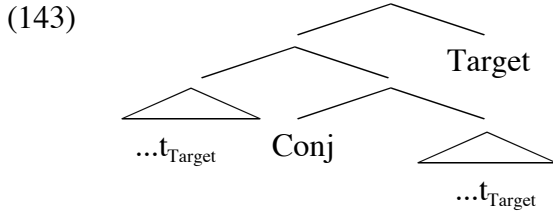
Whether RNR should be treated as ellipsis or as a kind of ATB movement is an empirical question of central concern to our question at hand.

- (138) Holly takes care of her dogs, and Regina does too. VP-ellipsis
 (139) If Wendy does, then I will go to Scotland this year too.
 (140) If Wendy does [go to Scotland this year], then I will [go to Scotland this year] too.

Ellipsis normally targets the rightmost conjunct for deletion, as seen in (138). If RNR is a case of ellipsis, it would be an exception, a kind of backward ellipsis in which the leftmost conjunct is deleted. There is other evidence that this kind of backwards ellipsis exists, though; the conditionals in (139)-(140) appear to be an instance of the same kind of backwards ellipsis. Given this, we can consider ellipsis as an explanation for RNR that has precedence. Wexler & Culicover (1980) propose that RNR is best explained by the “in-situ” structure, an approach revived by Kayne (1994). The abstract structure for this approach is in (141). Under this approach, the word order in RNR examples is explained by the righthand conjunct being overt and in its base-generated position, and the lefthand conjunct in the specifier position being deleted. If we take this structure to be how a clause of the CC in (134) is built, the structure would look something like that in (142).



The contrasting proposal for RNR is ATB movement. The phonologically realized copy of the deleted constituent has moved out of the ConjP and adjoined to the entire phrase, as shown abstractly in (143). If this is the correct structure for a clause of the CC, the tree would look like that in (144). We’ll label this proposal for RNR the “ex-situ” option, and the one corresponding to backwards ellipsis in (141)-(142) the “in-situ” option.



How can we decide between these two structures? For standard cases of RNR, Boskovic (2004) argues in favor of the in-situ account. As empirical evidence for this argument, he demonstrates (along with Abels (2004)) that RNR cannot escape VP ellipsis. (145) is a standard case of RNR, and (146) is VP-ellipsis. The unacceptability of (147) cannot be explained by a factor other than the constituent which is the target of RNR must not be sitting outside of VP. This demonstrates that RNR cannot be an instance of ATB movement.²⁷

²⁷ Abels (2004) ultimately rejects the ellipsis analysis of RNR, and instead proposes non-syntactic rebracketing under the assumptions of multidominance. His argument rests on the observation that distributives like *different*, *equal*, *similar*, *together*, and *respectively* are interpreted via a distributive operator that must scope over a plural predicate. Howard Lasnik (p.c., from his p.c. with Klaus Abels ca. 2001) points out that if distributives can exist in the lower conjunct and still be interpreted as scoping over both conjuncts, then this evidence would stand in favor of the ellipsis account of RNR. Examples like (i)-(ii) would test this, since in (i) the NPI *any* must be within VP to be licensed, but the distributive predicate *same subject* is proposed to have to be outside VP in order to scope over a plural predicate. (ii) is the baseline sentence to compare the judgment of (i) against.

(i) John and Mary didn't buy any books about the same subject.

(ii) Mary bought, but John didn't buy any books about linguistics.

The acceptability judgments of examples like (i)-(ii) are not robust to me and I have not yet collected judgments from naïve speakers.

- (145) ✓ Jane talked about and/but Frank didn't talk about the achievements of the syntax students.
 (146) ✓ Jane talked about the achievements of the syntax students and Frank didn't
 (147) * Jane talked about and/but Frank didn't the achievements of the syntax students.

If we take the CC in (134) to be a case of RNR, and follow Boskovic (2004) in explaining RNR as backward ellipsis, then the structure in (142) is the one that will best explain cases like this. The left CP conjunct is phonologically realized as *the more apples* because the IP in the left conjunct has been deleted. In the right CP conjunct, the IP is not deleted, so the entire conjunct is phonologically realized as *the less candy Bill eats*. The conjunction *and* is overt, and the resulting word string of the adjunct clause in (134) is *the more apples and the less candy Bill eats*.

There are other cases of coordination in CCs that are of interest, such as those in (148) and (149). In both of these cases, coordination is occurring within the VP before the comparative constituent moves into SpecFP.

- (148) The more apples and less candy you eat...
 (149) The more apple and oranges that you eat...

5.2 PPs in 18th and 19th century English

Den Dikken (2005) presents data from Early Modern English in which a PP can precede the complementizer *the*, as in his examples (14)a and (14)c, reproduced here as (150) and (151).

- (150) **By how much** the lesse he looked for this discourse, **by so much** the more he lyked it. (Lyly, *Euphues*, 16th c.)
 (151) **By how much** the better man you are yourself, **by so much** the more will you be inclined to believe me. (Fielding, *Tom Jones*; 18th c.)

From his syntactic tree which was given in (39), we can see exactly where this PP is located structurally – SpecDegP. He draws a parallel between these English examples and other languages by treating instrumental or genitive case as this phrase's P⁰. If my proposal for CCs in English is correct, the data in (150) and (151) would need to fit into the structure I proposed in §3. There is only one logical position open for this PP – SpecCP. This has one obvious consequence – movement out of either clause should be strictly disallowed.

I know of no English speaker today who uses this type of CC productively. Consequently, testing for judgments on movement out of the clauses has proven difficult. The next closest thing would be to find another language that appears similar to these earlier Modern English examples and find out if this prediction is borne out.

There is one other explanation of the data. Den Dikken (2005) assumes that the *the* plus the comparative constituent in this early version of Modern English is identical to what it is today. Based on other corpus data, it is not clear that this is the case.

- (152) “The frequency of your kind remembrance of me, and the endearing expressions of attachment, are **by so much the more** satisfactory, as I recognise them to be a counterpart of my own feelings for you.”
(George Washington, in a letter to Marquis de LaFayette, April 28, 1788)²⁸

The quote in (152) is from George Washington, undeniably a native speaker of 18th century American English. The expression is not a CC; it is just a simple usage of the comparative. He uses the string of words *by so much the more* in a position that is no longer productive in American English. If this string of words in the quote were minimally changed to reflect what is grammatical in present day American English, the result would be something like (153)a, and not (153)b. From this, I conclude that the *the* that precedes the comparative in *more* in (152) may not be the same *the* that we see in CCs today.

- (153) a. ✓ The frequency of your kind remembrance of me, and the endearing expressions of attachment, are **more** satisfactory as I recognise them to be a counterpart of my own feelings for you
b. * The frequency of your kind remembrance of me, and the endearing expressions of attachment, are **the more** satisfactory as I recognise them to be a counterpart of my own feelings for you

VI. Conclusion

This paper has had two goals that have been explored in depth. First, I set as a goal to demonstrate that CCs were well-behaved data, and as such they should be used in current theoretical inquiries. Two such inquiries that CCs bear on seem immediately evident.

Overwhelmingly evident in the world’s languages, comparative correlatives contain degree morphology. Yet their syntactic and semantic characteristics are not straightforwardly typical (Beck, 1997). Within the broader investigation of degree phrases crosslinguistically, comparative correlatives should be included in the data set under consideration.

Next, the status of the CED and how it should be formulated to account for the full range of data has become an area of important research. As we saw in §4, there is a wide range of adjunct data that demonstrate that not all adjuncts are islands to movement. Further, the conceptualization of construal as movement by Hornstein (2001) explains adjunct control in a way that has broad empirical coverage crosslinguistically. To adopt this approach though, the way movement out of adjuncts is made possible is of critical importance. The porosity of the adjunct clause that we observed in comparative

²⁸ This citation can be found at: <http://teachingamericanhistory.org/library/index.asp?document=379>

correlatives and the way this characteristic is explained bears directly on this larger research area.

The unusual appearance of CCs is largely derived from two heads – the C^0 *the* and the functional head F that corresponds to optional-*that* in English. I have given empirical and conceptual evidence for the existence of both these items crosslinguistically. Thus, the paper also stands as a starting point for inquiry into these heads.

The second goal of this paper was to address the issue of the charge that comparative correlatives stand as “silver bullet” evidence against the minimalist program and the principles and parameters framework. It has been demonstrated here that the challenges to the viability of the minimalist program and the theory of P&P with respect to this data are not supported by the empirical evidence. The proposal I have made here explains the behavior of the comparative correlatives in a principled way. Further, as I stated in the summary of §2, a conceptually sound analysis of any linguistic phenomenon with empirical coverage within a specific theoretical framework does not render void the viability of other frameworks. While prior analyses have been proposed in various other frameworks have explained certain parts of the expression’s behaviors, it is not the case that any of these analyses have demonstrated a flaw in the minimalist program or the theory of P&P.

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All blame for the contents of this paper should be directed my way and no one else's.

VIII. Appendix A

Explanation of questionnaire referenced in §3.1.2

The questionnaire consisted of 2 sections. Informants were asked to read the instructions on the questionnaire and complete the questionnaire given these instructions. First, 12 baseline sentences were presented and the informant was asked to indicate if a "sentence is a 'bad' English sentence (it sounds like something a non-native English speaker would say)." They were also given the option to mark a sentence with a question mark if they were unsure whether they thought it was good or bad. The directions on this first section were:

"I am interested in how you as an individual judge these sentences as acceptable or not in English. For all of these sentences, report your judgment based on how you speak, not on how someone else might tell you they think you should speak.

"For (1)-(12), all you have to do is indicate whether the sentence is a "bad" English sentence (it sounds like something a non-native English

speaker would say). If it is bad, note that with a star, “*”. If you are not sure whether you think a sentence is good or bad, just put a question mark (?) next to it.”

These baseline sentences were simple CCs with no *that* in either clause, such as (1). The baseline sentences varied in what kinds of phrases were being modified by the comparative: VP, NP, ADJP, and ADVP.

(1) The more apples John picked, the more pies his mother baked

This first section served two purposes – 1) to ensure that the test items based on these sentences that appear later in the questionnaire were contrasting an acceptable sentence to another, and 2) to ensure that informants considered CCs generally acceptable in their own grammar.

In the second portion, the informant was presented with 61 pairs of sentences and asked to judge whether the second was worse, better or the same as the first. Again, the directions that were written were:

“For each of the sentences below, two tasks need to be completed:

1. For each pair of sentences, indicate whether the B sentence is worse, better or the same as the A sentence by **bolding** or circling the appropriate answer, “worse than”, “better than” or “ about the same as”. **Remember, you are judging how B compares to A. An answer of “worse than” means “B is worse than A”.**
2. For each sentence, if you feel it is a “bad” English sentence (it sounds like something a non-native speaker would say), note that with a star, “*”. If you are not sure whether you think a sentence is good or bad, just put a question mark (?) next to it. **You do not have to put a mark next to every sentence; you only need to mark a sentence if you think it is bad or if you are unsure about whether it is good or bad. Sentences that you find normal (i.e., you could use them in your own speech) do not need to be marked in any way.”**

The 61 pairs consisted of 33 test items randomly mixed with 28 fillers. The 33 test items were based on the first 11 baseline sentences. From each of the 11 baseline sentences, three test sentences were constructed – one with *that* in the first clause, one with *that* in the second clause, and one with *that* in both clauses. One example is below in (2).

- (2) a. The more apples John picked, the more pies his mother baked.
b. The more apples John picked, the more pies that his mother baked.

B is worse than
better than A
about the same as

(2)a was presented to the speaker in the first section as another item number. Speakers were asked to indicate for any sentence in the second section whether they considered it something a non-native speaker would say, or if they were unsure whether it was something they would say. If no notation was made, this meant that speakers considered the sentence something that they would say. To ensure that speakers were not just skipping this step, unacceptable fillers were randomly distributed throughout the questionnaire. All speakers marked these control fillers as “*”.

Therefore, in this questionnaire, informants were forced to judge all sentences in one of three ways:

1. acceptable (a sentence they would say)
2. unacceptable (a sentence they would not say and that sounded non-native)
3. unsure (they could not decide whether they would say it, or whether it sounded like something a non-native speaker would say)

Informants

A total of 7 speakers completed the questionnaire. All consider themselves to be native monolingual speakers of American English. None of the seven speakers had previously been questioned about the data.

Of these 7, the data from one speaker was dropped because he judged 7 of 11 control sentences as non-native or possibly non-native. This was taken to indicate that this speaker did not use regularly CCs in his own speech, or generally to consider them acceptable in English.

In post-questionnaire interviews, speakers reported that they did not detect what the test items were designed to discover.

Test items:

The data for the test items is based on judgments from the remaining 6 speakers. Of the 11 baseline sentences the test items were based upon, 6 were judged as acceptable by all 6 speakers.

Of the remaining 5 baseline sentences, 2 were judged unacceptable by S6, 1 was judged unacceptable by S7, and 2 were judged as unacceptable by 2 speakers each. The two baseline sentences rejected by 2 speakers each are given as (3) and (4) below. Due to their relatively high rejection rate, all test items based on the baseline sentences for all speakers was dropped from the data.

(3) The more quickly we finish grading, the more quickly we will leave.

(4) The more you eat pizza, the less you want dessert.

For the items judged unacceptable exclusively by S6 and S7, test items from these individual items were dropped from the data for these individual speakers.

Summary of results.

Individual speaker variation:

As we would expect, there is individual speaker variation. However, it appears that this variation is not significantly different from speaker to speaker. The pattern from individual speaker to speaker most closely resembles the pattern seen when all speakers are averaged together and the relevant feature isolated is adjunct clause versus matrix clause.

Type of phrase modified by the comparative:

The type of phrase being modified by the comparative also seems not to affect whether *that* can be inserted into a clause. The data is in Table A1 below.

Table A1

	Less acceptable (total “worse” responses)	Unacceptable (“worse” with a *)	Acceptable (total “same” and “better” responses)
IP	39.29% (11/28)	14.29% (4/28)	60.71% (17/28)
IP/IP	45.45% (5/11)	36.36% (4/11)	54.54% (6/11)
NP	41.46% (17/41)	19.51% (8/41)	58.54% (24/41)
NP/NP	61.11% (11/18)	22.22% (4/18)	38.89% (7/18)
ADJP	34.62% 9/26	15.38% 4/26	65.38% 17/26
ADJP/ADJP	70.00% 7/10	50.00% 5/10	30.00% 3/10
ADVP	40.00% 2/5	0.00% 0/5	60.00% 3/5
ADVP/ADVP*	N/A	N/A	N/A
Average of all types of phrases	44.60% 62/139	20.86% 29/139	55.40% 77/139

* the one baseline item that contained an ADVP modified in both clauses was judged as non-native by 3/7 speakers, and possibly non-native by an additional 1 speaker. Thus, there is no data available for this measure.

Which clause the optional-*that* insertion occurs in:

Which clause the *that* is inserted into appears to be the relevant factor in whether the insertion is considered acceptable. The results for all test items for all speakers are summarized in the table below. When *that* is inserted into the first clause, there are no judgments of unacceptable, contrasting with *that*-insertion into the main clause in which

~33% of items are judged unacceptable. Even more convincing, when *that*-insertion is in the first clause, 84% of responses indicate that this change is the same or better than the original sentence.

This same table shows that the parallelism factor is not relevant. When *that* is inserted into both clauses, speakers reject these items at exactly the same rate they reject those items with *that* inserted into only the main clause (second clause). It is not that speakers want the two clauses to be parallel; they want the second clause to not include *that*.

Table A2 – average of all speakers

	Less acceptable (total “worse” responses)	Unacceptable (“worse” with a *)	Acceptable (total “same” and “better” responses)
<i>That</i> in both clauses	58.00% (29/50)	34.00% (17/50)	42.00% (21/50)
<i>That</i> in adjunct clause alone	18.00% (9/50)	0% (0/50)	84.00% (42/50)
<i>That</i> in main clause alone	60.00% (30/50)	32.00% (16/50)	40.00% (20/50)

Specific speaker information:

Informants varied with respect to age, gender, location of childhood, and linguistic environment. All characterize themselves as monolingual American English speakers. Additional information is below:

Table A3

	S1	S2	S3	S4	S5	S6	S7
Age	63	57	33	34	41	32	32
Gender	F	F	F	M	F	F	F
Childhood home locale	Rural Ohio	Rural Ohio	Rural Georgia	Urban Georgia (Atlanta)	Urban Maryland (DC)	Urban Florida (Ft. Lauderdale)	Urban California (San Diego)
Ling environment?	Only English	Only English	Only English	Only English	M – native Telagu, fluent English F- native Tamil, fluent English	M- Only English, F- native Mandarin, fluent English	Only English

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