Syntax of *either* in *either…or…* sentences[*]

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1. Introduction

This paper proposes an analysis of the syntax of *either* in *either* … *or* … sentences. One example sentence to be analyzed is the following:

(1) John will eat either rice or beans.

An assumption commonly made in the literature about *either* is that it is an initial coordinator that immediately precedes a disjunction phrase (e.g., Quine 1967; p.44; Dougherty 1970; Stockwell et al. 1973; Neijt 1979; Sag et al. 1985). This is shown in the following example, where *either* is to the immediate left of *rice or beans*, assuming that *rice or beans* is a disjunction phrase (*DisjP*), and *rice* and *beans* are the *disjuncts*:

(2) John will eat either [$_{\text{DisjP}}$ rice or beans].

This view that *either* must be adjacent to DisjP is challenged by examples like the following:

(3) a. John will either eat rice or beans.
    b. John either will eat rice or beans.
    c. Either John will eat rice or beans.

(4) a. John will either eat rice or he will eat beans.
    b. John either will eat rice or he will eat beans.

In all the above examples, *either* does not immediately precede DisjP. In (3a-c), overt material appears between *either* and DisjP (assuming DisjP is still *rice or beans*). In (4a,b), *either* appears to be embedded in the first disjunct (*John will eat rice*), assuming that two TP clauses are disjoined (DisjP is *John will eat rice or he will eat beans*). These examples apparently violate the generalization that *either* must immediately precede a disjunction. Den Dikken (2006) has called examples like (3a-c) the *either-too-high* problem because *either* is apparently higher than the left edge of DisjP, and examples like (4a,b) the *either-too-low* problem because *either* is apparently lower than the left edge of DisjP.

Having seen how the *either*-too-high sentences and *either*-too-low sentences pose problems to the view that *either* is always adjacent to DisjP, I will now discuss five key empirical generalizations about *either*. These empirical generalizations are what a successful analysis should address. I preview them here, and will discuss each one of them in more detail in later sections.

[*] I am grateful to Itai Bassi, Keny Chatain, Danny Fox, Aron Hirsch, Michael Kenstowicz, David Pesetsky, Roger Schwarzschild and participants of Workshop and Syntax Square for helpful comments and feedback. All errors are my own.

(5) Empirical generalizations about *either*
   a. *Either* in *either*-too-high sentences may not occur above islands.
   b. *Either* in *either*-too-low sentences may not occur below islands.
   c. The scope of disjunction is fixed in *either*-too-high sentences, but not fixed when *either* appears adjacent to DisjP.
   d. *Either* always c-commands the leftmost contrast.
   e. There must be ellipsis in *either*-too-high sentences.

I will illustrate each generalization here without getting into detailed examples. (5a) is due to Larson's (1985) observation and describes the following situation: when *either* occurs higher than the apparent edge of DisjP, it may not be separated from the DisjP by an island:

(6) *Either* in *either*-too-high sentences may not occur above islands
   *… either … [$_{\text{island}}$ … [$_{\text{DisjP}}$ ... or …]]

(5b) is due to den Dikken's (2006) observation and describes the following situation: when *either* appears embedded in the DisjP, it may not be separated from the edge of DisjP by an island:

(7) *Either* in *either*-too-low sentences may not occur below islands
   *… [$_{\text{DisjP}}$ … [$_{\text{island}}$ … either … or …]]

In order to understand (5c), we need to understand what the scope of disjunction means. Take the following sentence as an example. Rooth and Partee (1982) have pointed out that a sentence like this one has three different meanings, among which two are relevant to the present discussion:

(8) Sherlock is looking for a burglar or a thief.
Reading 1: Sherlock is looking for someone who is either a burglar or a thief.
Reading 2: Either one of two things is happening: (1) Sherlock is looking for a burglar; or (2) Sherlock is looking for a thief.

In particular, they call reading 2 the wide scope reading of the disjunction phrase because the disjunction holds between phrases that are larger than what is apparently disjoined on the surface. Specifically, the actual disjunction holds between two TPs, whereas the apparent disjunction coordinates two DPs. The two readings of (8) then correspond to two different scopes of disjunction. In reading 1, the actual disjunction holds between two DPs, so its scope is below the intensional verb *looking for*. In reading 2, the actual disjunction holds between two TPs, so it takes scope above the intensional verb *looking for*.

Having defined the scope of disjunction, (5c) refers to an observation by Larson (1985) that the scope of disjunction is fixed in *either*-too-high sentences, specifically at the location of *either*.[1] The *either*-too-high configuration is illustrated below, with X and Y both being scope-

[1] I leave out the fact that the scope of disjunction is also fixed in *either*-too-low sentences because this fact is not immediately relevant to the discussion here. Specifically, the scope of disjunction coincides with the edge of the DisjP in *either*-too-low sentences. As I present my analysis later, an interested reader may verify that the analysis does explain this fact as well of frozen scope in *either*-too-low sentences.

bearing elements that may interact with the scope of disjunction. Disjunction can and only can take scope at the position of *either*, i.e. between X and Y, and cannot scope above X or below Y:

(9) Scope of disjunction in *either*-too-high sentences
… X … either … Y … [$_{DisjP}$ ... or …]
↑
scope

In contrast, when *either* surfaces adjacent to the DisjP, the scope of disjunction can not only be the position of *either*, but also anywhere above *either*.[2] In the following configuration, disjunction can not only take scope below the scope-bearing element X (at the position of *either*), but also above X:

(10) Scope of disjunction when *either* is adjacent to DisjP
… X … either [$_{DisjP}$ ... or …]
↑ ↑
scope scope

(5d) is observed by Hendriks (2001, 2003) and den Dikken (2006), and indicates that *either* always c-commands the leftmost contrasted element in a disjunction. I will define contrast shortly, but for now assume that there must be at least one contrast in each disjunct. A disjunction with two contrasts in each disjunct is schematized below:

(11) [$_{DisjP}$ [$_{A}$ … Contrast$_1$ … Contrast$_2$ …] or [$_{B}$ … Contrast$_3$ … Contrast$_4$ …]]]

Either can appear in any position that c-commands the leftmost contrast Contrast$_1$ (12a-c),[3] but not in any position that does not c-command Contrast$_1$ (12d-h):

(12) a. [$_{DisjP}$ [$_{A}$ … **either** … Contrast$_1$ … Contrast$_2$ …] or [$_{B}$ … Contrast$_3$ … Contrast$_4$ …]]]
b. **either** [$_{DisjP}$ [$_{A}$ … Contrast$_1$ … Contrast$_2$ …] or [$_{B}$ … Contrast$_3$ … Contrast$_4$ …]]]
c. … **either** … [$_{DisjP}$ [$_{A}$ … Contrast$_1$ … Contrast$_2$ …] or [$_{B}$ … Contrast$_3$ … Contrast$_4$ …]]]
d. *[$_{DisjP}$ [$_{A}$ … Contrast$_1$ … **either** … Contrast$_2$ …] or [$_{B}$ … Contrast$_3$ … Contrast$_4$ …]]]
e. *[$_{DisjP}$ [$_{A}$ … Contrast$_1$ … Contrast$_2$ … **either** …] or [$_{B}$ … Contrast$_3$ … Contrast$_4$ …]]]
f. *[$_{DisjP}$ [$_{A}$ … Contrast$_1$ … Contrast$_2$ …] or [$_{B}$ … **either** … Contrast$_3$ … Contrast$_4$ …]]]
g. *[$_{DisjP}$ [$_{A}$ … Contrast$_1$ … Contrast$_2$ …] or [$_{B}$ … Contrast$_3$ … **either** … Contrast$_4$ …]]]
h. *[$_{DisjP}$ [$_{A}$ … Contrast$_1$ … Contrast$_2$ …] or [$_{B}$ … Contrast$_3$ … Contrast$_4$ … **either** …]]]

Finally, (5e) refers to the empirical facts that suggest that *either*-too-high sentences must be derived from ellipsis of material on the left edge of the second disjunct. Some of these facts are due to Schwarz (1999) and Han and Romero (2004), and will be reviewed in section 5.

[2] Strictly speaking, the scope of disjunction cannot really be anywhere above the position of *either*. If an island is above *either*, the scope of disjunction may not be above that island. This fact will become clear and explainable as I present my analysis later.
[3] Again, this is true only if we take islands out of the picture for now.

(13) a. *Either*-too-high sentences on the surface
… either … X … [$_{DisjP}$ A or B]
b. *Either*-too-high sentences are actually derived from ellipsis
… either [$_{DisjP}$ … X … A or ~~… X …~~ B]

Having presented the core empirical generalizations that an analysis of *either* should address, I will now present my proposal. Specifically, I will argue that two copies of *either* coexist in a sentence. One is structurally higher than the other, and I call the high copy *high either*, and the low copy *low either*. Low *either* originates inside DisjP, where it may occupy any position that c-commands the leftmost contrasted element, shown as Contrast$_1$ below. I will define contrast shortly. High *either* is in the left periphery of DisjP (Spec, DisjP). The two copies are related by movement: low *either* moves overtly or covertly to the position of high *either*. In other words, either high *either* or low *either* may be pronounced.

(14) [$_{DisjP}$ Either$_i$ [$_{Disj'}$ [$_A$ … t$_i$ … Contrast$_1$ …] or [$_B$ … Contrast$_2$ …]]]

At the same time, there is an independent factor that may obscure the derivation: ellipsis. Ellipsis targets left-edge material in the noninitial disjunct that are identical to their counterpart in the first disjunct. The following derivation illustrates this point. Compared to the above derivation, it adds deletion of repeated material X in the second disjunct B. This ellipsis mechanism is optional, and when it takes place it gives rise to the illusion that high *either* is higher than the left periphery of *DisjP*:

(15) [$_{DisjP}$ Either$_i$ [$_{Disj'}$ [$_A$ t$_i$ X Contrast$_1$ …] or [$_B$ ~~X~~ Contrast$_2$ …]]]

Ellipsis can take place as long as its identity condition is satisfied. As I will argue later, contra Schwarz (1999) and Han and Romero (2004), it is not gapping, another ellipsis mechanism known to happen in coordinated structures.

Having presented a summary of my analysis for *either*, I need to define "contrast", the element that I claim low *either* must c-command. Contrast here is contrastive focus in the sense of Rochemont (1986). The intuition about contrast comes from the assumption that a nontautological disjunction phrase always presents disjuncts that differ partially, if not entirely, from each other. I assume that in each disjunct, the part that contrasts from its counterpart in the other disjuncts is contrastively focused, and those that don't contrast are not contrastively focused.

In (16), for example, *rice* in the first disjunct contrasts with *beans* in the second, so they are both contrasted (from now on, contrast is underlined). The data I will present later indicates that low *either* always c-commands the leftmost contrast *rice*.

(16) John will eat <u>rice</u> from France or he will eat <u>beans</u> from France.

Having clarified what I mean by contrast, I will now explain how this approach resolves the tension resulting from the *either*-too-high and *either*-too-low problems. Recall that they counter the intuition that *either* must immediately precede DisjP. In my analysis, high *either* is always in

the left periphery of DisjP, therefore it does immediately precede DisjP. Then why can it appear higher than Spec, DisjP, as in the *either*-too-high examples in (3)? Ellipsis is to blame for deleting repeated material in the noninitial disjuncts, creating the illusion that the disjuncts are smaller than they actually are. The following sentences correspond to (3a-c), with the elided parts being crossed out:

(17) a. John will either eat rice or ~~eat~~ beans.
b. John either will eat rice or ~~will eat~~ beans.
c. Either John will eat rice or ~~John will eat~~ beans.

In the *either*-too-low sentences, *either* appears to be embedded in the first disjunct. This is because these sentences realize low *either* overtly instead of high *either*. Recall that low *either* is base-generated inside DisjP, and either low *either* or high *either* can be pronounced in my proposal. The following sentences correspond to the *either*-too-low examples in (4a,b), with the added unpronounced high *either* that does immediately precede DisjP. Low *either* is pronounced and marked in bold:

(18) a. Either$_i$ John will **either$_i$** eat rice or he will eat beans.
b. Either$_i$ John **either$_i$** will eat rice or he will eat beans.

Before presenting evidence for this analysis, I want to show how it works by demonstrating how this approach would analyze actual examples. The following examples are replicated from before. The first sentence has *either* appearing in its normal position adjacent to DisjP. The second sentence is an *either*-too-high sentence, and the third is an *either*-too-low one.

(19) a. John will eat either rice or beans. (*Either* in normal position adjacent to DisjP)
b. John will either eat rice or beans. (*Either*-too-high)
c. John will either eat rice or he will eat beans. (*Either*-too-low)

Analysis of a sentence using my proposal involves the following three-step template:

(20) a. Identify the first contrasted element. *Either* must c-command it.
b. Identify DisjP.
c. Determine if *either* is a high copy or a low copy. If *either* is in Spec, DisjP, it is a high copy. Otherwise, it is a low copy.

Applying this template to (19a), first, the contrasts are *rice* and *beans*, underlined in (21a), and *either* does c-command the first contrast *rice*. Next, assuming there is no ellipsis for now, then what appears as DisjP is the actual DisjP (21b). Finally, high *either* would be the specifier of this DisjP. Low *either* is embedded in *DisjP* but c-commands *rice*. Because no overt material intervenes between high *either* and low *either* in this case, what surfaces in (19a) can either be a high copy or a low copy.

(21) a. John will eat either <u>rice</u> or <u>beans</u>. Step 1
b. John will eat either [$_{DisjP}$ [$_A$ <u>rice</u>] or [$_B$ <u>beans</u>]]. Step 2
c. John will eat [$_{DisjP}$ either$_i$ [$_{Disj'}$ [$_A$ either$_i$ <u>rice</u>] or [$_B$ <u>beans</u>]]]. Step 3

The *either*-too-high sentence in (19b) can be analyzed with this template as well, if we allow ellipsis to happen at the same time. First, the contrasts are again *rice* and *beans*, and *either* c-commands the first contrast (22a). The next step is to decide what DisjP really is. It can't be what it appears to be, i.e. a disjunction of two DPs. According to the proposal, *either* can only move to as high as Spec, DisjP (argument for this claim will be presented in section 2). If the disjoined constituents are really two DPs, *either* will be higher than it can be. But if we allow ellipsis to take place, then the coordinated elements may actually be two VPs, with the second main verb being deleted under identity with the first one (22b).[4] Then this *either* can be parsed as being adjacent to and the specifier of this DisjP (22c), so it is a high *either*. Another possible parse is that this *either* is embedded in the DisjP and specifier of the VP *eat rice*, in which case it would be a low *either*.

(22) a. John will either eat rice or beans. Step 1
b. John will either [$_{DisjP}$ [$_{A}$ eat rice] or [$_{B}$ ~~eat~~ beans]]. Step 2
c. John will [$_{DisjP}$ either$_{i}$ [$_{Disj'}$ [$_{A}$ either$_{i}$ eat rice] or [$_{B}$ ~~eat~~ beans]]. Step 3

Applying the 3-step template to the *either*-too-low sentence in (19c), again the contrasts are *rice* and *beans*. *Either* does c-command the first contrasted element *rice* (23a). Next, the disjuncts here are two clauses, as (23b) illustrates. Finally, the surface position of *either* is clearly lower than Spec, DisjP, so it is a low copy. The high copy, which is not pronounced in this case, will be in Spec, DisjP according to the proposal (23c).

(23) a. John will either eat rice or he will eat beans. Step 1
b. [$_{DisjP}$ [$_{A}$ John will either eat rice] or [$_{B}$ he will eat beans]]. Step 2
c. [$_{DisjP}$ Either$_{i}$ [$_{Disj'}$ [$_{A}$ John will either$_{i}$ eat rice] or [$_{B}$ he will eat beans]]]. Step 3

Because either the high or low copy of *either* may be pronounced, pronouncing the high copy in (23c) would generate the following sentence, which is acceptable too:

(24) Either John will eat rice or he will eat beans.

Having presented the proposal and how it would analyze actual examples, I will provide evidence for this analysis in the next sections. My proposal about *either* involves four components: a) high *either* is in Spec, DisjP; b) low *either* is base-generated inside DisjP and must c-command the leftmost contrast; c) high *either* is created by (overt or covert) movement of

[4] One may wonder if coordinated elements can be larger than two VPs. For instance, can two TPs be coordinated, and ellipsis delete more material than in (22b)? This alternative analysis is schematized below, with the *either* that surfaces being a low *either*:

(i) a. John will either eat rice or beans. Step 1
b. [$_{DisjP}$ [$_{A}$ John will either eat rice] or [$_{B}$ ~~John will eat~~ beans]]. Step 2
c. [$_{DisjP}$ Either$_{i}$ John will [$_{Disj'}$ [$_{A}$ either$_{i}$ eat rice] or [$_{B}$ ~~John will eat~~ beans]]. Step 3

Nothing said so far rules out this analysis, but I will argue against it in section 2 as I lay out what ellipsis can and cannot do.

low *either*; and d) ellipsis may apply in the second disjunct, obscuring the derivation. The next four sections will provide arguments for each one of these claims.

The arguments supporting these claims are essentially the key empirical generalizations in (5a-e). Specifically, section 2 will discuss the scope contrast in (5c), which follows straightforwardly if we accept the assumption that high *either* is in Spec, DisjP and some assumptions about the ellipsis mechanism. Section 3 will pinpoint the origination site of *either* based on (5d). Section 4 will show that the island facts in (5a,b) can only be explained with derivation of high *either* by movement of low *either*, and section 5 will provide two arguments for ellipsis (5e).

In my proposal the syntactic position of *either* is sensitive to the position of focus: it must have focus in its scope. This is a property that other focus-sensitive operators have as well, such as *only*, *even*, *also* and the question-particle.

In section 6 I will compare the syntactic properties of *either* with those of *only* and the question-particle, and argue that they have very similar derivational histories in syntax, what I call *bipartite syntax*, adapting Hirsch's (2017) terminology:

(25) Bipartite syntax of focus-sensitive operators
- a. There are two instances of the operator in a sentence, one structurally higher than the other.
- b. The lower copy of the operator is semantically inert, and must be local enough to and c-command the focused element.
- c. The higher copy of the operator agrees with a probe and/or marks the semantic scope.

For instance, Cable (2007) has proposed the following structure for the question-particle in questions: the question-particle is base-generated in a position that c-commands the focused *wh*-phrase before it moves to the CP domain in response to a probe on the interrogative C^0:

(26) $[_{CP}\ Q_i \ldots [t_i \ldots \text{Focus} \ldots]]$

If we think of the trace of the question-particle as its lower copy, the syntactic structure of the question-particle follows the bipartite structure described in (25).

Drawing from the striking similarities among *either*, *only* and the question-particle, I will speculate that not only do these three elements have bipartite syntax, but all focus-sensitive operators do. Focus-sensitive operators are then unified and defined by their common bipartite syntax in (25).

However, *either*, *only* and the question-particle do not have identical syntactic properties. I will also discuss their differences in section 6.

It is worth mentioning that section 6 speculates and extends the syntactic proposal for *either* to other focus-sensitive operators. However, this extension of the proposal is separate from the

proposal itself about *either*. The validity of the analysis of *either* does not hinge on the whether it can be successfully applied to other focus-sensitive operators.

The last section concludes and raises further questions, one of which concerns why there is this need for two separate copies of the same element in a sentence. I suggest the answer to be that a single copy cannot satisfy all the different roles at the same time.

I must emphasize that this proposal is inspired deeply by its predecessors in the literature, including Larson (1985), Schwarz (1999), Han and Romero (2004), den Dikken (2006), Hofmeister (2010), Kaplan (2008), a.o.. In fact, some parts of my proposal will look like a combination of some of these predecessors, while other parts are completely novel. For the purpose of organization of this paper, I have decided to present and motivate my own analysis first, note the contributions of previous proposals in the relevant parts of my discussion, and save a comparison with the alternatives and predecessors in the appendix.

2. High *either* marks scope, and low *either* is semantically vacuous

In this section I will discuss a property that distinguishes between high *either* and low *either*: high *either* marks the scope of disjunction, whereas low *either* does not. As I define what the scope of disjunction means shortly, it will turn out that this fact can be explained if we assume that high *either* is in Spec, DisjP, and low *either* is embedded in DisjP.

I will now present the relevant examples to illustrate this point. First, the following sentence has the three readings below it, as Larson (1985) has observed:

(27) Sherlock pretended to be looking for **either** a burglar or a thief. (3 readings)
Reading 1: Sherlock pretended to be looking for someone who is either a burglar or a thief.
Reading 2: Sherlock pretended to do one of two things: to either be looking for a burglar or looking for a thief.
Reading 3: One of two things happened: Sherlock pretended to be looking for a burglar, or he pretended to be looking for a thief.

In contrast, among these readings (28) only has reading 2, and (29) only has reading 3:

(28) Sherlock pretended to **either** be looking for a burglar or a thief. (reading 2 only)
(29) Sherlock **either** pretended to be looking for a burglar or a thief. (reading 3 only)

Recalling the discussion about the scope of disjunction in the last section, in reading 1 the scope of disjunction is below the verb *be looking for*. In reading 2 the scope of disjunction is between the two verbs *pretended* and *be looking for*. And in reading 3, the scope of disjunction is higher than the verb *pretended*.

The puzzle is that in (28) and (29), the disjunction takes scope at *either*'s surface position, whereas (27) has all three readings.

My proposal provides an answer to this puzzle. The *either*s in (28) and (29) are high *either*s, which means that they are in Spec, DisjP, and there is ellipsis in the second disjunct. Once ellipsis is undone, (28) and (29) correctly give rise to the readings below that they correspond to:

(30) Sherlock pretended to **either** be looking for a burglar or ~~be looking for~~ a thief.
(31) Sherlock **either** pretended to be looking for a burglar or ~~pretended to be looking for~~ a thief.

Compared to (28) and (29), *either* in (27) is different in that it can be parsed as a low *either*, with the high copy in different positions. The first sentence below corresponds to reading 2, and the second sentence corresponds to reading 3:

(32) Sherlock pretended to **either**$_i$ [DisjP be looking for **either**$_i$ a burglar or ~~be looking for~~ a thief].
(33) Sherlock **either**$_i$ [DisjP pretended to be looking for **either**$_i$ a burglar or ~~pretended to be looking for~~ a thief].

Because in my proposal high *either* is in Spec, DisjP and marks the beginning of a disjunction phrase, high *either*'s position coincides with the scope of disjunction. Any example that can only be parsed as having a high *either* shows frozen scope. Ambiguity only results when low *either* surfaces because we don't know where it moves to later, i.e. where high *either* is.

One may wonder why *either* in (28) and (29) can't be parsed as low *either*. In particular, why can't following be a parse of (28), which would incorrectly predict it to have reading 1:

(34) Sherlock pretended to **either** be looking for a burglar or ~~he pretended to be looking for~~ a thief.

I argue that a restriction on ellipsis rules out the above parse for (28). Section 5 will provide support for the argument that there *is* ellipsis in the second disjunct. Suppose for now that there *is* ellipsis, and that this ellipsis is similar to pseudogapping in that it targets phrasal constituents, and remnants survive this ellipsis by moving out of the ellipsis site. Let us see how the restriction on this ellipsis prohibits *either* in (28) from being a low *either*, but allows *either* in (27) to be a low *either*.

This restriction results from an identity condition on the elided phrase and its antecedent. This identity condition interacts with a peculiar property of the *either…or…* structure, i.e. low *either* is only present in the first disjunct c-commanding the leftmost contrast, but not present in the second disjunct (arguments for this will be provided in section 3). This peculiar property will matter for ellipsis. Because the elided phrase in the second disjunct does not include *either*, in order to be identical to the elided phrase, the antecedent phrase in the first disjunct also cannot include *either*. This leads to the generalization that when there is an *either* in the antecedent phrase, ellipsis cannot happen, and we cannot get ambiguous readings. And I will show that *either* in (28) is indeed trapped in the antecedent phrase, hence the failure of ellipsis to occur. There is one exception to this generalization, that is if *either* can somehow "escape" from the antecedent phrase, then the identity condition is obeyed, and ellipsis can happen, and we can get ambiguous readings. I will show that this is exactly what happens in (27).

I will now show how this works. First consider the legal ellipsis sentence (30), repeated below:

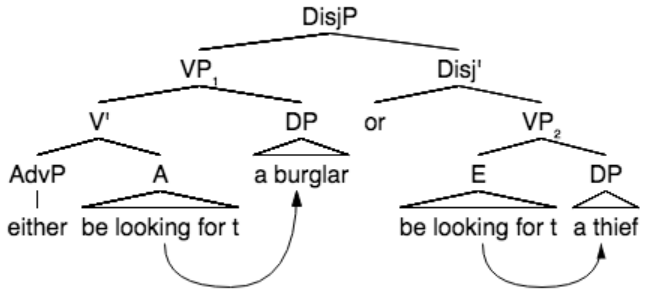
(35) Sherlock pretended to **either** [$_{DisjP}$ be looking for a burglar or ~~be looking for~~ a thief].

Following Messick and Thoms (2016), I assume that in order to license ellipsis, there must be an antecedent phrase A that is identical to the elided phrase E.[5] Suppose that in order to elide *be looking for*, the minimal elided phrase is *be looking for a thief*. This phrase can't be identical to anything in the first disjunct unless *a thief* moves out. Then the corresponding DP (*a burgler*) moves out of the antecedent phrase A as well, so that A and E are parallel.

(36) Sherlock pretended to **either** [$_{A}$ be looking for t_i] [a burglar]$_i$ or [$_{E}$ ~~be looking for~~ ~~t_j~~] [a thief]$_j$.

To maintain the correct word order, I assume that *a burglar* moves to somewhere above A, and adjoins to the right of its sister. Likewise, *a thief* moves in parallel to somewhere above E, and adjoins to the right too. Following is a tree diagram of the above derivation:

(37)



Notice that there is only one *either* in the above sentence, and crucially the second disjunct has no *either*. While this does not affect the above sentence, it will make a difference once *either* is inside the antecedent phrase A: because A has this additional *either* that E does not have, A and E cannot be identical, and ellipsis cannot be licensed.

This is exactly what happens in the illegal ellipsis sentence (34). After *a burglar* and *a thief* move out, E and A are not parallel because A contains *either* and E doesn't, so ellipsis is not licensed.

(38) *[$_{A}$ Sherlock pretended to **either** be looking for t_i] [a burglar]$_i$ or [$_{E}$ ~~he pretended to be looking for~~ ~~t_j~~] [a thief]$_j$.

[5] Although Messick and Thoms (2016) argue that identity must hold between the syntactic representations of constituents rather than their semantic representations, either a syntactic notion of identity or a semantic notion can work here. What matters is that the presence of *either* in the antecedent makes the antecedent nonidentical to the elided phrase that does not contain *either*.

Either in the above illicit structure is embedded in DisjP, so it is a low *either.* Though low *either* will move to Spec, DisjP subsequently, leaving a trace in the base position, this still does not satisfy the identity condition because A has an additional trace of *either* that E does not have.

(39) *Either$_k$ [$_A$ Sherlock pretended to **t$_k$** be looking for t$_i$] [a burglar]$_i$ or [$_E$ ~~he pretended to be looking for t$_j$~~] [a thief]$_j$.

Thus, because *either* only appears in the first disjunct, but not the other disjuncts, to license ellipsis and maintain parallelism between the antecedent and the elided phrase, *either* cannot be included in the antecedent phrase.

There is one exception, however. If *either* can somehow escape the antecedent phrase, the remaining antecedent phrase will be identical to the elided phrase, and ellipsis will be possible. I argue that *either* can escape the antecedent by "piggy-backing" on movement of the adjacent DP.

This "piggy-backing" movement is illustrated below for (27), which does allow ellipsis and has ambiguous readings. In the following structure, *either* can "piggy-back" on the movement of the DP *a burglar* and escape the antecedent A. Now A and E are parallel:

(40) [$_A$ Sherlock pretended to be looking for t$_i$] [$_{DP}$ **either** a burglar]$_i$ or [$_E$ ~~he pretended to be looking for t$_j$~~] [$_{DP}$ a thief]$_j$.

In order to allow *either* to "piggy-back" and escape A, *either* has to be adjacent to the constituent that needs to move out of A. In example (40), that constituent is the object DP *a burglar* that also happens to be the contrasted element. This is not a necessary condition for *either*'s "piggy-backing". In the following sentence, *either* is adjacent to the VP *be looking for a burglar*, and it has both readings 2 and 3, an indication that this is a low *either*:

(41) Sherlock pretended to **either** be looking for a burglar or be looking for a thief.

Reading 3 corresponds to the following elided sentence:

(42) Sherlock pretended to **either** be looking for a burglar or ~~he pretended to~~ be looking for a thief.

Ellipsis is possible here because the phrase that survives ellipsis is the VP *be looking for a thief*. Therefore, to maintain identity, the corresponding VP *be looking for a burglar* has to move out of the antecedent phrase as well. *Either* is adjacent to this VP and successfully "piggy-backs" on its movement and escapes A:

(43) [$_A$ Sherlock pretended to t$_i$] [$_{VP}$ **either** be looking for a burglar]$_i$ or [$_E$ ~~he pretended to~~ t$_j$] [$_{VP}$ be looking for a thief]$_j$.

As we have seen, due to the asymmetric nature of *either…or…* structures, the elided phrase E does not contain *either*, and under the identity condition, the antecedent phrase A may not contain it either. So if *either* is trapped in A, ellipsis is not possible. In other words, *either*'s

position in the antecedent phrase sets the upper bound of how large E can be: E cannot be so large that its corresponding A contains *either*.

The size of E is directly correlated with the scopal readings we get. If *either* is trapped in A, this *either* can only be parsed as high *either*. And its sister would be the DisjP in the corresponding reading.

The following example characterizes this generalization abstractly, where the constituent that survives ellipsis is Z_2 in the second disjunct, and its correspondent in the first disjunct is Z_1. Notice that there is overt material Y separating *either* from Z_1, preventing *either* from being adjacent to Z_1, and trapping *either* in that position. Therefore, the antecedent phrase can be as large as the phrase immediately dominating Y (44b), but crucially cannot be so large that it includes *either* (44c).

(44) a. … X either Y Z_1 or Z_2,
where Z_2 is the constituent that survives ellipsis, and Z_1 is Z_2's corresponding constituent in the first disjunct.

b. … X either [$_A$ Y] Z_1or [$_E$ ~~Y~~] Z_2
c. *… [$_A$ X either Y] Z_1 or [$_E$ ~~X Y~~] Z_2

The above configuration can only be parsed to contain this DisjP: *Y Z_1 or Y Z_2*. There is no ambiguity, and *either* in this configuration must be a high *either*.

Notice also that this configuration instantiates the *either*-too-high configuration, where *either* appears higher than the apparent edge of disjunction. We conclude that *either* in *either*-too-high sentences is always high *either*.

To avoid being trapped in A, *either* can escape A if it is adjacent to a phrase that moves out and tags along with it. Then the size of the elided phrase E is not restricted, and we can get ambiguous scope readings. So the only situation where we can get multiple scope readings for the disjunction is the following, where everything remains the same as the above configuration, except that there is no other material separating *either* from Z_1:

(45) a. … X either Z_1 or Z_2,
where Z_2 is the constituent that survives ellipsis, and Z_1 is Z_2's corresponding constituent in the first disjunct.
b. … X either Z_1 or Z_2
c. … [$_A$ X] either Z_1 or [$_E$ ~~X~~] Z_2
d. [$_A$ … X] either Z_1 or [$_E$ ~~… X~~] Z_2

This configuration creates ambiguity. Under the first reading (45b), there is no ellipsis at all, and the disjuncts are just Z_1 and Z_2. Under the readings with ellipsis (45c,d), *either* escapes A by "piggy-backing" on Z_1's movement, and now A can include material before *either*. Then the disjunction can be *X either Z_1 or X Z_2* (45c), or even larger (45d). In these two configurations

either is a low *either*. Notice that in (45) *either* immediately precedes the apparent disjunction phrase. This is the only configuration that creates ambiguity.

In conclusion, the scope of disjunction is always marked by high *either*'s position. But when we see *either* on the surface, it may be high *either*, in which case scope is frozen at its position, or it may be low *either*, in which case ambiguity arises. In *either*-too-high sentences, what we see is always high *either*, so there is no ambiguity.

Ambiguity only arises when *either* immediately precedes the apparent disjunction phrase. In such a configuration, *either* is adjacent to the constituent that moves out of the antecedent phrase, and can "piggy-back" on its movement and escape the antecedent phrase, licensing ellipsis of bigger constituents whose corresponding antecedent phrase would otherwise contain *either*.

3. Low *either* can be a local adjunct to contrast

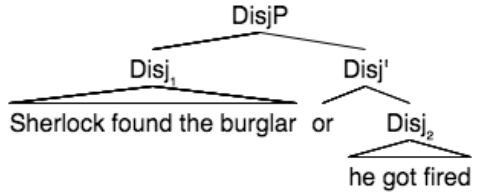
Having seen that high *either* but not low *either* determines the scope of disjunction, in this section I want to focus on the properties of low *either*. I will show that low *either* only needs to c-command the leftmost contrast within DisjP, as opposed to c-commanding other contrasts.

First, the following examples show that low *either* must c-command the first contrast, as has been observed and pointed out by Hendriks (2001, 2003) and den Dikken (2006):

(46) a. Sherlock either found the burglar or he got fired.
b. *Sherlock found either the burglar or he got fired.
c. *Sherlock found the either burglar or he got fired.
d. *Sherlock found the burglar either or he got fired.
e. *Sherlock found the burglar or either he got fired.

Notice that the requirement concerns the linearly first contrast. Because the first contrast is embedded in the first disjunct, it is not hierarchically higher than the second contrast, as the following tree illustrates. *Either* here does not and is not required to c-command the contrast in the second disjunct.

(47)



In the last section I will discuss my speculation about why low *either* is sensitive to linearly the first contrast.

In this section I will show that low *either* only needs to c-command the leftmost contrast. In other words, when there is more than one contrast in each disjunct, *either* only needs to c-

command the leftmost contrast, Contrast_1 below. It does not have to c-command Contrast_2, Contrast_3 or Contrast_4:

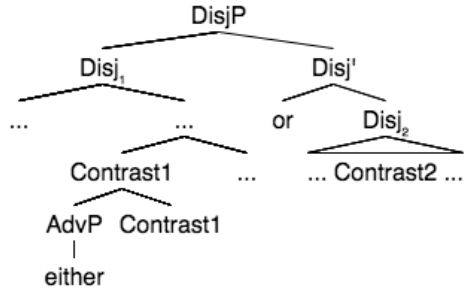
(48) [$_{\text{DisjP}}$ [$_{\text{A}}$ … either … Contrast_1 … Contrast_2 …] or [$_{\text{B}}$ … Contrast_3 … Contrast_4 …]]]

Furthermore, I will show that *either* can originate anywhere in DisjP as long as it c-commands Contrast_1, so there can be islands between low *either* and Contrast_1, suggesting that low *either*'s position is base-generated rather than derived by movement from the contrast with which it is associated:

(49) [$_{\text{DisjP}}$ [$_{\text{A}}$ … either … [$_{\text{island}}$ … Contrast_1 … Contrast_2 …]] or [$_{\text{B}}$ … Contrast_3 … Contrast_4 …]]]

To begin, I will show that low *either* only needs to c-command the leftmost contrast. If this is the case, and following Hendriks (2003; pg. 39-46) and den Dikken (2006) that *either* is a phrase, then the lowest position *either* can be is an adjunct to the leftmost contrast:

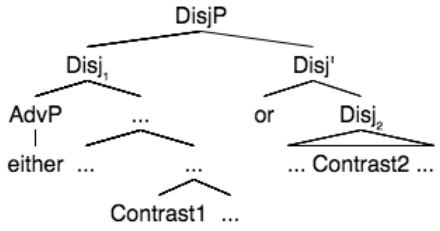
(50)



In the above structure *either* c-commands the first contrasted phrase by being its sister. Following Erlewine's (2017) terminology I call this a *local (adjunct) position*, and this *either local either*.

This position contrasts with other possible positions for *either*, which does not necessarily have to be so close to the first contrast as to be its sister, such as in the following tree. I call these other positions *non-local (adjunct) positions*.

(51)



To illustrate this with examples, in both sentences below *either* precedes the first main verb, but the placement of contrast is different. *Either* can only be a local *either* in the first sentence

because there it is adjacent to and a sister of the contrasted verb *eat*. In the second sentence the first contrast is *rice*, and *either* is not the sister of *rice*, so it cannot be a local *either*.

(52) a. John will [$_{DisjP}$ [$_{V}$ either eat] rice or cook rice]. Local *either*
b. John will [$_{DisjP}$ either eat rice or eat beans]. Non-local *either*

In the following subsections I will show that local *either* exists as a local adjunct to the contrasted element. This claim is particularly surprising if we assume the view mentioned at the beginning of this paper that *either* always marks the left edge of disjunction.

If this local position for *either* exists, it suggests that this view is incorrect, and in addition to high *either*, which always marks the left edge of disjunction, it is necessary to posit a position for low *either* as well. And this low *either* can not only be embedded in disjunction, but it can be very local to the contrast.

3.1. Low *either*'s intervention between verb and its direct object

In this subsection I will first discuss a generalization in English, i.e. an adjunct may not intervene between a verb and its direct object. Then I will mention an exception to this generalization: an adjunct may modify the direct object locally, and does not count as an intervener. After that, I will show that *either* is subject to this generalization and exception, indicating not only that *either* is an adjunct, but also that *either* can be a local adjunct to the contrasted direct object. This argument is deeply inspired by den Dikken (2006), who gave three other scenarios of this kind. After presenting the argument in this subsection, I will discuss den Dikken's analysis in the next subsection.

English does not allow adjuncts to overtly intervene between the verb and the object (perhaps due to Case Theory).[6] (53a-b) are acceptable because the adjunct *often* is not between the main verb and the gerund object. The last example is ungrammatical because *often* does intervene between the main verb and its direct object.

(53) a. John often likes working on focus.
b. Often John likes working on focus.
c. *John likes often working on focus.

Notice that the last sentence above is only bad under the reading that *often* modifies the main verb phrase *likes working on focus* (it is repeated below in (54a)). When it modifies the gerund instead (54b), the sentence is grammatical. The crucial difference between (54a) and (54b) is that in (54a) *often* modifies and attaches to the main verb phrase, so it cannot be a sister of the gerund object *working on focus*, whereas in (54b) *often* is a sister of the gerund object, so it is a local adjunct.

(54) a. *John likes often [working on focus]. Non-local adjunct
b. John likes [often working on focus]. Local adjunct

[6] See Richards (2016) for an alternative analysis for this requirement.

Thus, we have seen a generalization that in English adjuncts may not intervene between a verb and its direct object. One exception is when the adjunct is a local adjunct to the direct object, in which case it does not count as an intervener.

Now we will see that this generalization applies to *either* as well. The following sentence is ungrammatical. Low *either* in the first disjunct intervenes between the main verb *ate* and its direct object *rice*:

(55) *John ate either rice with chopsticks or he ate rice with a fork.

If *either*'s intervention between the verb and its object is the reason for the badness of the above sentence, it suggests that *either* is an adjunct and subject to the generalization stated above.

Now I will show that just like other adjuncts, when *either* is a local adjunct to the direct object, it is exempt from this generalization. This exception to the generalization is shown in the following sentence, which differs minimally from the above in that *rice* and *beans* are also contrasted, and the sentence is grammatical. I call the following sentence having *pair contrast*, meaning that two separate elements in a disjunct (*rice* and *chopsticks*) are contrasted.

(56) John ate either rice with chopsticks or he ate beans with a fork.

If this sentence is grammatical because it is an exception to the generalization, then it should be parsed in the following way, in which *either* is a local adjunct to the direct object *rice*, so it does not count as an intervener between the verb and the object:

(57) John ate [$_{DP}$ either rice] with chopsticks or he ate beans with a fork.

The fact that *either* can be a local adjunct to the contrasted object challenges the view that *either* is always at the left edge of disjunction. In the above sentence, not only is *either* embedded inside the disjunction phrase, but it is so embedded that it forms a constituent with the object.

Another significant point worth mentioning is that despite the presence of a pair of contrasts in the first disjunct (*rice* and *chopsticks*), *either* only needs to c-command the leftmost contrast *rice*. This then illustrates a point made earlier by the abstract structure in (49) that no matter how many contrasts there are in the disjunction phrase, *either* only has to c-command the first one.

Similarly, we can embed the first contrast *rice* in a possessed DP, so that *rice* does not c-command the second contrast *chopsticks* any more. Yet *either* is still required to c-command *rice*, not *chopsticks*, indicating its sensitivity to linearly the first contrast:

(58) a. John ate either Mary's rice with chopsticks or he ate Mary's beans with a fork.
b. *John ate Mary's rice either with chopsticks or he ate Mary's beans with a fork.

In fact, the presence of non-leftmost contrast does not even matter to *either*. Even if the instrumental phrase is not contrasted any more (59a) or is deleted altogether (59b), the sentence is still grammatical. It only matters that low *either* can be a local adjunct to the contrasted direct

object, and not count as an intervener. This suggests that low *either* is only sensitive to the position of the first contrast, but not to other contrasts.

(59) a. John ate [$_{DP}$ either rice] with chopsticks or he ate beans with chopsticks.
b. John ate [$_{DP}$ either rice] or he ate beans.

This subsection has shown the generalization that all adjuncts, including *either*, may not intervene between a verb and its direct object. It has also shown an exception to this generalization, i.e. when *either* is a local adjunct to the contrasted direct object, it does not count as an intervener.

This argument is deeply inspired by den Dikken (2006), who gave three other scenarios of this kind. In these three scenarios, a generalization bans the occurrence of an adjunct due to its intervention effect, unless that adjunct is a local adjunct to the adjacent phrase. While these observations can be found in den Dikken's work, I consider it necessary to introduce them here, as they also serve as support for my analysis. For this reason I will replicate one of the arguments from den Dikken's paper, but only one for the sake of space, and briefly summarize the other two. An interested reader may refer to section 4 of his paper for detailed arguments.

3.2. Low *either*'s intervention between matrix C and the subject

This subsection will follow the logic of argumentation very similar to that of the previous subsection. I will first discuss the generalization that an adjunct may not intervene between matrix C and the subject. Then I will bring up an exception to this generalization: an adjunct may modify the subject locally, and does not count as an intervener. As den Dikken shows, low *either* also follows this generalization, again indicating that it can be a local adjunct to the contrasted element.

First, to illustrate the generalization about all adjuncts, consider the following sentences involving the adjunct *possibly*. Depending on where the focus falls (underlined), a sentence may have different readings:

(60) a. Possibly Mary saw John.
As an answer to the question 'Who did Mary see?'
b. Possibly Mary saw John.
As an answer to the question 'Who saw John?'

Turning (60a) into a matrix polarity question is not possible:

(61) *Did possibly Mary see John?
Intended Reading: Is it true that the person that Mary saw was possibly John?

This is due to the generalization that an adjunct may not intervene between matrix C and the subject (cf. (Kayne 1984; Chapter 10) and Richards (2016)):

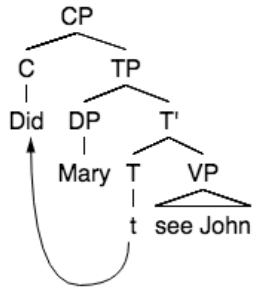
(62) *Did [$_{TP}$ possibly Mary see John]?

But the following sentence is an exception to this generalization. It is the polar-question counterpart of (60b):

(63) Did possibly Mary see John?
Reading: Is it true that it was possibly Mary who saw John?

Then the exception to this generalization can be phrased as the following: an adjunct can only intervene between matrix C and the subject when it is a local adjunct to the subject and forms a constituent with the subject itself. In other words, no element may intervene between C and the DP that is Spec, TP in the following tree:

(64)



By modifying the DP subject, *possibly* avoids intervening between C and the DP:

(65) Did [$_{DP}$ possibly Mary] see John?

Either is subject to this generalization as well. Consider the following disjunction with contrasted objects:

(66) Either Mary saw John or she saw Bill.

It is impossible to turn this disjunction into a matrix polar question:

(67) *Did either Mary see John or she see Bill?

If this polar question is ungrammatical because the adjunct intervenes between matrix C and the subject, then its structure should be the following:

(68) *Did [$_{TP}$ either Mary see John or she see Bill]?
Now I will show that the exception to this generalization applies to *either* as well. Consider a sentence that differs minimally from (66) in that the subjects are contrasted instead of the object:

(69) Either Mary saw John or Sue saw him.

Turning this sentence into a matrix polar question is possible:

(70) Did either Mary see John or Sue see him?

This polar question is grammatical because *either* is a local adjunct to the subject *Mary*, and does not intervene between C and the subject structurally:

(71) Did [$_{DP}$ either Mary] see John or Sue see him?

When both the subject and object are contrasted (pair contrast), *either* can also intervene between C and the subject:

(72) Did either Mary see John or Sue see Bill?

The above sentence is grammatical because *either* modifies the subject DP, and does not intervene structurally between C and the subject:

(73) Did [$_{DP}$ either Mary] see John or Sue see Bill?

In this subsection we have seen the generalization that an adjunct may not intervene between matrix C and the subject, with the exception of a local adjunct to the subject. The fact that *either* is subject to this generalization and the exception again suggests that low *either* not only is embedded in DisjP, but can be so embedded as to be a sister to the contrasted element.

As I mentioned before, in addition to intervention between matrix C and the subject, den Dikken (2006) has provided two other scenarios that demonstrate the same point. I will omit the details of these arguments for the sake of space, and simply summarize them here.

First, an adjunct may not intervene between a verb and the embedded subject of its ECM clause or small clause, unless this adjunct is a local adjunct to the embedded subject. Den Dikken has shown that this is true for *either* as well. Contrast the ban on nonlocal *either* in (74) with the tolerance of local *either* in (75) in this position:

(74) a. *John considers either the president a fool or he considers the president a genius.
b. *John put either the book on the shelf or he put the book on the table.
c. *John gave either the book to Mary or he gave the book to Sue.
d. *I saw either John kiss Mary or I saw John kiss Sue.

(75) a. John considers either the president a fool or he considers his wife one.
b. John put either the book on the shelf or he put the record on it.
c. John gave either a book to Mary or he gave a record to her.
d. I saw either John kiss Mary or I saw Bill kiss her.

(Based on den Dikken 2006; (48)-(53))

Second, *wh*-movement of non-nominal elements (such as *whether* and *how quickly*) may not cross *either* (76), unless *either* is a local adjunct to the embedded subject (77):

(76) a. *I wonder whether either Mary went swimming or she went dancing or not.
b. *I wonder how quickly either Mary ran a mile or she ran a kilometer.

(77) a. I wonder whether either Mary went swimming or Sue did.
b. I wonder how quickly either Mary ran a mile or Sue did.
(Based on den Dikken 2006; (64))

All these scenarios illustrate one point: low *either* can be so embedded as to be a local adjunct to the contrast.

3.3. Low *either* is created by base-generation, not movement

We have seen that low *either* can not only surface as a local adjunct to the leftmost contrasted element, but it can also be far away from it:

(78) a. John will either eat rice or he will eat beans.
b. John either will eat rice or he will eat beans.

How are these nonlocal positions of low *either* created? One possibility is that they are created by movement from the local adjunct position:

(79) a. John will either$_i$ eat t_i rice or he will eat beans.
b. John either$_i$ will eat t_i rice or he will eat beans.

The other possibility is that they are base-generated there. In other words, *either* can originate anywhere in DisjP, as long as it c-commands the leftmost contrast. I will now show that this is correct.

Examples like (80a-c) indicate that low *either* can be separated from the leftmost contrast by a complex NP island, an inner island and an adjunct island:

(80) a. John either made [$_{island}$ the claim that he will eat rice], or he made the claim that he will eat beans.
b. John either [$_{island}$ won't eat rice] or he won't eat beans.
c. John is either happy [$_{island}$ because he will eat rice], or he is happy because he will eat beans.

Assuming that hypothetical movement of *either* is subject to these islands, this means that *either* must not have moved across the islands, so it must be base-generated in its surface position. This supports the proposal that low *either* is base-generated anywhere in DisjP, as long as it c-commands the leftmost contrast.

4. High *either* is created by movement of low *either*

The previous two sections have shown that there exist two copies of *either* in a sentence. In this section I want to argue that the high copy is created by movement from the low position.

The distribution of high *either* and low *either* is sensitive to islands. High *either* cannot be separated from the apparent edge of disjunction by negation, a complex NP boundary or an

adjunct clausal boundary, as (81), (82) and (83) show respectively.[7] The negation and complex NP boundary facts were first observed by Larson (1985) and followed up by many others, including Schwarz (1999), Han and Romero (2004), den Dikken (2006) and Hofmeister (2010).

(81) High *either* can't be above negation:
a. ??**Either** John [$_{NegP}$ didn't try to eat rice] or beans.
b. ??John **either** [$_{NegP}$ didn't try to eat rice] or beans.
c. John [$_{NegP}$ didn't try to **either** eat rice] or beans.

(82) High *either* can't be above a complex NP boundary:
a. ***Either** John revised [$_{NP}$ his decision to eat rice] or beans.
b. *John **either** revised [$_{NP}$ his decision to eat rice] or beans.
c. *John revised **either** [$_{NP}$ his decision to eat rice] or beans.
d. John revised [$_{NP}$ his decision to **either** eat rice] or beans.

(83) High *either* can't be above an adjunct clausal boundary:
a. ***Either** John went home [$_{AdjP}$ after eating rice] or beans.
b. *John **either** went home [$_{AdjP}$ after eating rice] or beans.
d. John went home [$_{AdjP}$ after **either** eating rice] or beans.

Assuming *either* is not nominal, if it moves, negation, complex NP and adjunct clause would be islands to its movement. Then (81), (82) and (83) suggest that high *either* may have moved from a position embedded in the island to its surface position.

Interestingly, low *either* has just the opposite distribution to high *either*: it may not occur below negation, a complex NP boundary and an adjunct clausal boundary:[8]

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[7] It has been noted in the literature (e.g. Larson 1985 and den Dikken 2006) that high *either* can't be separated from the disjunction by a clause boundary (*either* occurs in one of the bracketed positions):
(i) <??Either> he <??either> said <%either> that <either> he <either> would <either> eat <either> rice or beans.

However, an acceptability judgment survey conducted by Hofmeister (2010) indicates no significant difference between the judgment of the high positions of H-*either* above C and the lower positions below C. These positions are considered to be equally good, which suggests that the restriction on the clause-boundedness of high *either* may not be correct. Therefore, I do not list it as a restriction here.

[8] Den Dikken (2006) has also pointed out that low *either* cannot occur below P:

(i) *John was reading from **either** a book or from a magazine.
(ii) *John was reading from **either** a book or reading from a magazine.
(iii) *John was reading from **either** a book or he was reading from a magazine. (den Dikken 2006; (73))

I think this fact should be considered together with other focus-sensitive operators, as *only* and *even* cannot attach below P either. Focus movement of a PP containing *only* and *even* is particularly bad:

(iv) *To only Bill have they spoken the truth.
(v) *To even Bill they wouldn't tell the truth. (den Dikken 2006; (20a'))

If *either* is really a focus-sensitive operator, as I try to argue in this paper, then its inability to attach below P may just be a result of a generalization about a group of focus-sensitive operators including *either*, *only* and *even*. While this fact deserves further study, I assume it is different in nature from the island facts presented in this section.

(84) Low *either* can't be below negation:
a. *John [$_{NegP}$ wasn't eating **either** rice] or he wasn't eating beans.
a. *John [$_{NegP}$ wasn't **either** eating rice] or he wasn't eating beans.
b. John **either** [$_{NegP}$ wasn't eating rice] or he wasn't eating beans.

(85) Low *either* can't be below a complex NP boundary:
a. *John revised [$_{NP}$ his decision to **either** eat rice] or he revised his decision to eat beans.
b. *John revised [$_{NP}$ his decision **either** to eat rice] or he revised his decision to eat beans.
d. John **either** revised [$_{NP}$ his decision to either eat rice] or he revised his decision to eat beans.

(86) Low *either* can't be below an adjunct clausal boundary:
a. *John went home [$_{AdjP}$ after **either** eating rice] or he went home after eating beans.
b. John **either** went home [$_{AdjP}$ after eating rice] or he went home after eating beans.

Since islands are known to block movement across them, the above sentences suggest that low *either* needs to move across these island boundaries at some point in the derivation, but this movement is blocked by islands.

The restriction on low *either* (84)-(86) can then be understood together with the restriction on high *either* (81)-(83) if we assume that high *either* is created by movement of low *either*. In other words, high *either* and low *either* are copies of the same element, whose movement chain may not cross an island:

(87) *… either$_H$ … [$_{island}$ … either$_L$]

If high and low *either* are copies of the same element, from the data so far it seems that either copy may be pronounced. In other words, when low *either* surfaces, it undergoes covert movement. I refer to them as copies using terminology of the copy-based analysis of covert movement here, but the proposal is in fact compatible with other formulations of covert movement.

If *either* moves to Spec, DisjP, the next question is why it needs to move there. I speculate that this movement is triggered by agreement with the disjunction head. In response to the probing disjunction head, *either* moves to Spec, DisjP and agrees with it.

There is morphological evidence for this agreement relation. In the negative version, *neither…nor…* construction, spreading of the negative feature to both disjunction coordinators *neither* and *nor* suggests that they do share features. I remain agnostic about whether *or* itself is the disjunction head, or there is another covert disjunction head that agrees with both *either* and *or*. What is important is that *either* and *or* can share negative morphological features, and presumably this sharing of the negative morphology is a byproduct of agreement with the disjunction head.

One may wonder if *either*'s movement violates the coordinate structure constraint (CSC). CSC is a ban on movement from one of the coordinates to outside the coordinated structure (a).

Here in (b), low *either* has not moved outside DisjP, but to Spec, DisjP, so it does not violate CSC.

(88) a. *XP_i ... [$_{DisjP}$ [$_A$ … t_i ...] or [$_B$ …]]
b. ... [$_{DisjP}$ either$_i$ [$_{Disj'}$ [$_A$ … t_i ...] or [$_B$ …]]]

Note also that the island facts only suggest that some element has moved from low *either*'s position to high *either*'s position. They do not indicate that *either* alone moves. It is possible that low *either* moves along with its sister, but its sister somehow must be pronounced in the base position. In section 6 I will provide an argument that *either* moves alone based on Cable's (2007) analysis and typology of 'pied-piping'.

One might also wonder whether the island facts of high *either* in (81)-(83) may be explained under a different account. As I will argue later, high *either*'s occurrence is accompanied by ellipsis in the second disjunct. Perhaps this ellipsis cannot delete island boundaries (gapping, for example, cannot delete island boundaries). If this is true, high *either* need not be generated by movement, as ellipsis alone is sufficient to rule out the ill-formed sentences with high *either* above. This ellipsis-based account, however, is inadequate in explaining the island facts of low *either* (84)-(86) because nothing can be elided in those examples.

5. There is ellipsis in noninitial disjuncts

Having seen the different properties of high *either* and low *either*, this section will focus on the possibility discussed in the introductory section that ellipsis may occur independently in noninitial disjuncts and obscures the derivations.

In this section I will provide two arguments for the existence of ellipsis in noninitial disjuncts. From the first argument I will argue that ellipsis is necessary to explain some empirical data. The second argument is replicated partly from Schwarz (1999) and partly from Han and Romero (2004), and also argues that ellipsis is necessary to explain the observed facts. After arguing for the existence of ellipsis, I will investigate what kind of ellipsis it is. Crucially, I will argue that contra Schwarz (1999) and Han and Romero (2004), this is not gapping because it has different distributions from gapping. I will sketch out some properties of this ellipsis.

5.1. Argument for ellipsis: Disjunction of "non-constituents"

The first argument for ellipsis relies on a simple assumption: only constituents can be disjoined. This is schematized below:

(89) [$_{DisjP}$ A or B] only if A is a constituent and B is also a constituent

Suppose this is true for all disjunctions. Then, if we see a grammatical disjunction in which the apparent second disjunct is not a constituent, there must be ellipsis in the second disjunct, so that before ellipsis it is a constituent. This is schematized below. C is what surfaces in the second disjunct. While C may not be a constituent on its own, when ellipsis of X is undone, X and C together must be a constituent.

(90) [$_{DisjP}$ A or [$_{B}$ ~~X~~ C]] only if A is a constituent and B is also a constituent

To illustrate this with examples, first consider the following sentence:

(91) John ate either rice from Shanghai or beans from Paris.
The two disjuncts in this sentence are *rice from Shanghai* and *beans from Paris*. Both are constituents and DPs. It satisfies the requirement that disjuncts must be constituents.

Now consider the following grammatical sentence. It is a minimal pair with the above sentence, differing only in the PP. Here the PPs *with chopsticks* and *with a fork* are instrumental phrases that modify the verb, so they do not form a constituent with the preceding nouns. In other words, the apparent second disjunct *beans with a fork* is not a constituent.

(92) John ate either rice with chopsticks or beans with a fork.

This apparently violates the generalization that disjuncts must be constituents. But we can in fact maintain this generalization if we posit ellipsis in the second disjunct. We have not yet discussed restrictions on this kind of ellipsis, so both sentences below should be possible:

(93) a. John ate either rice with chopsticks or ~~ate~~ beans with a fork.
b. John ate either rice with chopsticks or ~~he ate~~ beans with a fork.

Once ellipsis is undone, now the second disjunct does form a constituent: *ate beans with a fork*, or *he ate beans with a fork*.

Therefore, ellipsis is necessary if we want to maintain the plausible generalization that only constituents can be disjoined.

5.2. Argument for ellipsis: Verb particle constructions

This section summarizes the arguments from Schwarz (1999) and Han and Romero (2004). In particular, in trying to tease apart two competing analyses for the *either*-too-high problem, they argue for the necessity of ellipsis. Below is an *either*-too-high example:

(94) John will either eat rice or beans.

One analysis of the above sentence is proposed by Schwarz and Han and Romero, who argue that *either* is always in Spec, DisjP, but ellipsis may take place in the second disjunct, so that DisjP is bigger than it appears (95a). The other analysis is advocated by Larson (1985), who argues that there is no ellipsis at all; *either* moves from Spec, DisjP to its surface position, and DisjP is what we see (95b).

(95) a. John will either [$_{DisjP}$ eat rice or ~~eat~~ beans].
b. John will either$_i$ eat t_i [$_{DisjP}$ rice or beans].

Evidence from verb particle constructions suggests that ellipsis is the right story. Consider the puzzle below: when *either* precedes the TP, the sentence is degraded compared to preverbal *either*.

(96) a. ??Either this pissed Bill or Sue off.
b. This either pissed Bill or Sue off.

Note that both these sentences are *either*-too-high sentences, and Schwarz and Han and Romero would analyze them as containing ellipsis in the second disjunct.

A unique and important fact about these examples is that they involve verb particle constructions, and the particle only appears in the second disjunct. Schwarz (1998) argues that the particle *off* is Right Node Raised (*RNRed*) out of each disjunct:

(97) This either [$_{VP}$ pissed Bill t_i] or [$_{VP}$ ~~pissed~~ Sue t_j] $off_{i,j}$.

Then (96a) is degraded because RNRing the particle is degraded there:

(98) ??Either [$_{TP}$ this pissed Bill t_i] or [$_{TP}$ ~~this pissed~~ Sue t_j] $off_{i,j}$.

The observation can then be phrased as the following: RNRing the particle is good when *either* is pre-verbal, but degraded when *either* is pre-TP.

Suppose there is ellipsis in the second disjunct in these two sentences, following Schwarz and Han and Romero. Interestingly, the non-elliptical versions have the same level of goodness/ degradation as their elided counterparts:

(96a') ??Either this pissed Bill or it pissed Sue off.
(96b') This either pissed Bill or pissed Sue off.

Schwarz's conclusion is that RNRing a bare particle to a position above TP is more degraded than RNRing the particle just out of VP. This can account for the puzzle in (96) if we assume *either* is in Spec, DisjP, and ellipsis can happen in the second disjunct. Because *either* is always in Spec, DisjP and never moves from Spec, DisjP, its position marks the size of the disjuncts. If it is adjacent to TP, the disjuncts are TP. If it is adjacent to VP, the disjuncts are VP.

Thus, the puzzle in (96) results from an interaction between RNRing a bare particle and the size of the constituent that this bare particle moves across. The constituent that the particle moves past is a disjunct, so the size of this disjunct determines whether RNRing the particle across the disjunct is possible. If this disjunct is a TP, RNRing the particle across it is degraded. If this disjunct is a VP, RNRing the particle across it is fine.

Imagine that instead of staying in Spec, DisjP, there is a variant of *either* that moves away from Spec, DisjP. If this is the case, the surface position of *either* is no longer an indicator of the size of the disjuncts.

Either's *wh*-counterpart *whether* is precisely such an element that can move away from Spec, DisjP. It is generally assumed in the literature (e.g. Larson 1985, Han and Romero 2004, den Dikken 2006) that *whether* is *either* with an additional *wh*-feature. Then *whether* and *either* should have almost the identical derivational history in syntax (originating in Spec, DisjP), except that *whether* has an extra movement step to the CP domain.

Because *whether* always moves from Spec, DisjP overtly to Spec, CP, just from its surface position in Spec, CP, we do not know where it moves from or what the actual disjuncts are. If the actual disjuncts are smaller than TP, then RNRing above them will be fine.

This prediction is borne out, as Schwarz and Han and Romero have observed that replacing *either* with its *wh*-counterpart *whether* improves the sentence:

(99) I wonder whether this pissed Bill or Sue off.

As Han and Romero have pointed out, the reason for the acceptability of (99) is that it can have the following parse. In this parse, what are actually disjoined are two VPs, with the repeated main verb being deleted in the second disjunct. *Whether* moves from the specifier of this DisjP to Spec, CP. Because what are disjoined are two VPs, it is fine to RNR the particle *off* across the second disjoined VP.

(100) I wonder whether$_i$ this t_i [$_{DisjP}$ [$_{VP}$ pissed Bill t_j] or [$_{VP}$ ~~pissed~~ Sue t_k]] off$_{j,k}$.

Having shown how the ellipsis story successfully accounts for the puzzle, I will briefly discuss the inadequacy of the movement story. Recall that according to this story, there is no ellipsis, so the DisjP is what we see. Then the reason why *either* can appear higher than Spec, DisjP is because it moves from Spec, DisjP to its surface position.

This analysis would attribute the contrast between (96a,b) to the following: when a particle is RNRed, somehow *either* cannot move to as high as the TP domain, but it can still move to VP:

(101) a. ??[$_{TP}$ Either$_i$ this pissed t_i [$_{DisjP}$ Bill t_j or Sue t_k] off$_{j,k}$].

b. This [$_{VP}$ either$_i$ pissed t_i [$_{DisjP}$ Bill t_j or Sue t_k] off$_{j,k}$].

However, this analysis has two weaknesses. First, it cannot explain why (96a') is just as degraded as (96a). In (96a') *either* has not moved because it is already in Spec, DisjP.

Second, this movement analysis cannot account for the *whether* example in (99) because there is no flexibility in the starting position of *whether*. It has to start from Spec, DisjP, immediately before *Bill*. This would be the same as *either*'s starting position in the sentences above. If somehow the degradation of (101a) is because *either* can't move so high as to the TP domain, it is puzzling why *whether* can move even higher to the CP domain.

(102) I wonder [$_{CP}$ whether$_i$ this pissed t_i [$_{DisjP}$ Bill t_j or Sue t_k] off$_{j,k}$].

5.3. The ellipsis is not gapping

In the previous two subsections I have argued for the necessity of ellipsis in order to account for certain facts. The next question is what kind of ellipsis it is. Contra Schwarz (1999) and Han and Romero (2004), I claim that this is not gapping because it is less restricted than gapping. Rather, it is similar to pseudogapping in that it is phrasal ellipsis following movement of constituents that survive ellipsis (*remnants*) out of the ellipsis site.

I will first argue that this ellipsis is not gapping by showing this ellipsis can do what gapping cannot do, so it is less restrictive than gapping. Then I will study the properties of this ellipsis, and compare it with pseudogapping.

Gapping is known to only take place in coordinated constructions, and must eliminate at least the finite verb in noninitial coordinates:

(103) a. Charley wrote several books on syntax and Jill ~~wrote~~ several books on semantics.
b. *Charley wrote several books on syntax and Jill wrote ~~several books on semantics~~.
(Based on Schwarz 1999; pg. 353)

Gapping cannot delete part of a preposition phrase and leave the rest, as Hankamer (1979) has observed:

(104) a. Charley wrote with a pencil and Jill ~~wrote~~ with a pen.
b. *Charley wrote with a pencil and Jill ~~wrote with~~ a pen.
c. *Charley wrote with a pencil and Jill ~~wrote with a~~ pen.
(Based on Hankamer 1979; pg. 18)

Similarly, gapping cannot elide a portion of an object DP:

(105) a. *Charley wrote several books on syntax and Jill ~~wrote several~~ books on semantics.
b. *Charley wrote several books on syntax and Jill ~~wrote several books on~~ semantics.
(Johnson 2014; pg. 13)

Gapping also cannot elide a portion of a predicate or an object PP:

(106) a. *Some appeared almost happy and others ~~appeared almost~~ rich.
b. *Some talked only to Smith and others ~~talked only~~ to Jones.
(Johnson 2014; pg. 15)

In addition, Kuno (1976) has argued that gapping remnants must introduce new information.

(107) *John$_i$ eats peas and John/he$_i$ ~~eats~~ rice. (Kuno 1976; pg. 309)

I will now show that the ellipsis seen in the noninitial disjuncts in *either…or…* sentences can do all of these things. First, it doesn't have to delete the finite verb:

(108) a. I saw John either at Harvard or ~~at~~ MIT.
b. Either John cooked rice or ~~John~~ baked beans.

Second, it can delete part of a preposition phrase:

(109) Charley either wrote with a pencil or ~~wrote with~~ a pen.

It can elide a portion of an object DP:

(110) a. Charley either wrote several books on syntax or ~~wrote~~ several papers on semantics.
b. Charley either wrote several books on syntax or ~~wrote several~~ papers on semantics.
b. Charley either wrote several books on syntax or ~~wrote several books on~~ semantics.

And this ellipsis can delete a portion of a predicate or an object PP as well:

(111) a. John either appeared almost happy or ~~appeared almost~~ rich.
b. John either talked only to Smith and ~~talked only~~ to Jones.

Finally, the remnants that are left over from this ellipsis can repeat old information:

(112) a. Either John considers the president a fool or ~~he considers~~ the president a genius.
b. Either John put the book on the shelf or ~~he put~~ the book on the table.
c. Either John gave the book to Mary or ~~he gave~~ the book to Sue.
d. Either I saw John kiss Mary or ~~I saw~~ John kiss Sue.

Because this ellipsis is less restrictive than gapping, I assume it is not gapping, but some other deletion process. Now I will investigate and sketch out the properties of this ellipsis. As it will turn out, the ellipsis I will investigate has the following form: it deletes material on the left edge of noninitial coordinates, specifically X in B below. Because it targets the left edge of a disjunct, I call it *left edge deletion* (*LED*).

(113) [$_{\text{DisjP}}$ Either [$_{\text{Disj'}}$ [$_{\text{A}}$ X … Contrast$_1$ …] or [$_{\text{B}}$ ~~X~~ … Contrast$_2$ …]]]

Before examining the properties of LED, it is worth clarifying that LED does not have to be a completely new deletion mechanism that has not been discovered before. As I have assumed in section 2, and will become apparent after I show the properties of LED shortly, all the properties of LED can be derived by familiar full phrasal ellipsis fed by rightward movement of remnants:

(114) [$_{\text{DisjP}}$ Either [$_{\text{Disj'}}$ [$_{\text{A}}$ X t$_i$] [$_{\text{Correspondent}}$… Contrast$_1$ …]$_i$ or [$_{\text{E}}$ ~~X t$_j$~~] [$_{\text{Remnant}}$… Contrast$_1$ …]$_j$]]

Let us now study the properties of LED. As we have just seen, LED applies quite freely. It may not delete all the old information (b-f), and may delete a part of a TP (b-g), VP (d-g), DP (e-g) and PP (g):

(115) a. Either Charley has written several books on syntax or he has written several books on semantics.

b. Either Charley has written several books on syntax or ~~he~~ has written several books on semantics.
c. Either Charley has written several books on syntax or ~~he has~~ written several books on semantics.
d. Either Charley has written several books on syntax or ~~he has written~~ several books on semantics.
e. Either Charley has written several books on syntax or ~~he has written several~~ books on semantics.
f. Either Charley has written several books on syntax or ~~he has written several books~~ on semantics.
g. Either Charley has written several books on syntax or ~~he has written several books on~~ semantics.

LED can even delete a part of an AdvP (a) or an AdjP (b):

(116) a. Either Charley left very quickly or ~~he left very~~ sneakily.
b. Either Charley is very rich or ~~he is very~~ wasteful.

Like other types of ellipsis, LED is subject to the identity condition. The deleted material must be identical to its counterpart in the first disjunct. The following sentence is bad under the reading that the elided subject in the second disjunct differs from the subject in the first disjunct:

(117) *Either Charley wrote several books on syntax or ~~Mary~~ wrote several books on semantics.

The remnants left by LED cannot begin with an uncontrasted pronoun. In the following examples, the remnant may begin with the repeated R-expression, but cannot begin with a pronoun coreferent with the corresponding subject in the first disjunct:

(118) a. Either John considers the president$_i$ a fool or ~~he considers~~ the president / *him$_i$ a genius.
b. Either John put the book$_i$ on the shelf or ~~he put~~ the book / *it$_i$ on the table.
c. Either John gave the book$_i$ to Mary or ~~he gave~~ the book / *it$_i$ to Sue.
d. Either I saw John$_i$ kiss Mary or ~~I saw~~ John / *him$_i$ kiss Sue.

This does not mean that the remnant cannot begin with a pronoun at all. A contrasted pronoun can appear initially in the remnant:

(119) a. Either John considers him a fool or ~~he considers~~ her a fool.
b. Either John put this on the shelf or ~~he put~~ that on the shelf.
c. Either John gave these to Mary or ~~he gave~~ those to Mary.
d. Either I saw him kiss Mary or ~~I saw~~ her kiss Mary.

Deletion from the left edge of the noninitial disjunct is a defining property of this type of ellipsis. If we do not delete from the left edge, but leave out material on the left edge and delete from the middle of the disjunct instead, then we will get a very different ellipsis from LED. For instance, if we do not delete from the left edge, it is not possible for some of the remnants to repeat old

information any more. The following sentence is bad because the left-over subject *him* is old information:

(120) *Either Charley$_i$ wrote several books on syntax or Charley ~~wrote~~ several books on semantics.

If we delete from the middle instead of the left edge, what we get looks a lot like gapping, which is much more restrictive than LED. In all of the following examples, I leave out some material on the left edge of the second disjunct. To control for the ungrammaticality of the sort in the above example, these left-over material on the left edge are made sure to contain new information, and yet ungrammaticality still arises because of leaving out the main verb (121a), deleting a part of a DP (121b,c), or deleting part of a PP (121d). Recall that these are exactly the constraints on gapping, suggesting that if we delete not from the left edge of a disjunct, we get gapping instead of LED.

(121) a. *Either Charley wrote several books on syntax or Mary wrote ~~several books on~~ semantics.
b. *Either Charley wrote several books on syntax or Mary ~~wrote several~~ books on semantics.
c. *Either Charley wrote several books on syntax or Mary ~~wrote several books~~ on semantics.
d. *Either Charley wrote several books on syntax or Mary ~~wrote several books on~~ semantics.

Not only is LED a different ellipsis mechanism from gapping, but LED can in fact coexist with gapping in the same disjunct, with LED retaining its own properties and gapping retaining its own. Among the following examples, (122a) is the baseline and only involves LED; (122b) involves both LED and gapping, and the sentence is grammatical because it obeys both the conditions on LED and on gapping; (122c) involves both LED and gapping again, and the sentence is bad because gapping cannot delete the infinitival T and leave the bare VP (cf. Sag 1980; pg. 273).

(122) a. Either John told some to be prepared to talk about politics, or [$_{\text{LED}}$ ~~he told~~] others to be prepared to debate about philosophy.
b. Either John told some to be prepared to talk about politics, or [$_{\text{LED}}$ ~~he told~~] [$_{\text{Gapping}}$ others ~~to be prepared~~ to talk about philosophy].
c. *Either John told some to be prepared to talk about politics, or [$_{\text{LED}}$ ~~he told~~] [$_{\text{Gapping}}$ others ~~to be prepared to~~ talk about philosophy].

In sum, LED is an ellipsis operation with the following distinct properties: it deletes material on the left edge of a noninitial disjunct under identity with corresponding material in the first disjunct, and does so freely, with the possibility to leave out some old information, and delete a part of or the entirety of any maximal projection. And the remnant may not begin with an uncontrasted pronoun.

In section 2 when I discussed the interaction between ellipsis and the position of *either* in the antecedent phrase, I assumed that LED is phrasal ellipsis fed by rightward movement of the remnant and its corresponding antecedent. This two-step procedure is the following:

(123) a. Step 1: Move the remnant and its corresponding antecedent (*CA*) out of each disjunct:
… [$_{DisjP}$ either [$_{Disj'}$ [$_{A}$ X t_i] [$_{CA}$… Contrast$_1$ …]$_i$ or [$_{E}$ X t_j] [$_{Remnant}$… Contrast$_1$ …]$_j$]]
b. Step 2: Elide the elided phrase E under identity with the antecedent phrase A:
… [$_{DisjP}$ either [$_{Disj'}$ [$_{A}$ X t_i] [$_{CA}$… Contrast$_1$ …]$_i$ or [~~$_{E}$ X t_j~~] [$_{Remnant}$… Contrast$_1$ …]$_j$]]

These two steps create the effect of left edge deletion that on the surface looks like the following:

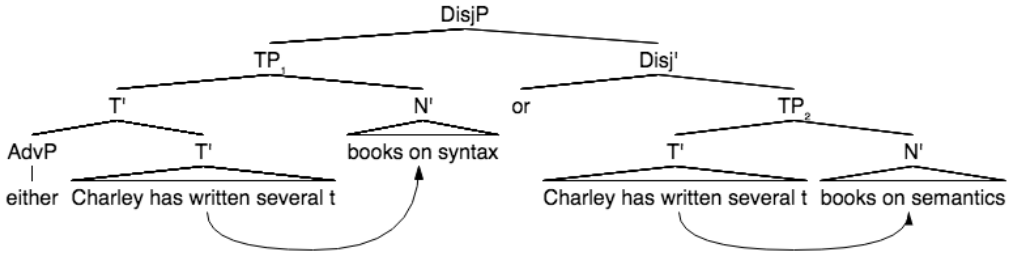
(124) … [$_{DisjP}$ either [$_{Disj'}$ [$_{A}$ X … Contrast$_1$ …] or [$_{B}$ ~~X~~ … Contrast$_2$ …]]]
X may be a part of or the entirety of any XP

Apply this two-step procedure to the following sentence as an example:

(125) Either Charley has written several books on syntax or ~~he has written several~~ books on semantics.

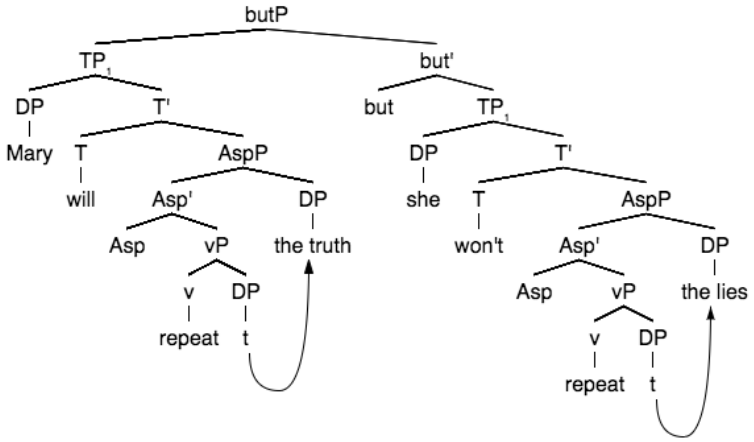
This is the derivation of LED for this sentence in a tree diagram, with ellipsis of T' in the second disjunct:

(126)



A familiar ellipsis mechanism has the same profile of movement out of the ellipsis site followed by phrasal ellipsis: pseudogapping. In particular, it has been analyzed by Jayaseelan (1990) as movement of remnants out of the ellipsis site followed by VP-ellipsis:

(127) a. Mary will repeat the truth but she won't ~~repeat~~ the lies.
b.



Because pseudogapping is VP-ellipsis in disguise, one of its properties that sets it apart from gapping is that the auxiliary remains before the ellipsis site:

(128) a. John ate the beans and Mary ~~ate~~ the rice. Gapping
b. John ate the beans and Mary did ~~eat~~ the rice. Pseudogapping

If pseudogapping and LED share the syntactic derivation of movement followed by phrasal ellipsis, one may think they should have the same properties as well: LED can do what pseudogapping can do, and LED cannot do what pseudogapping cannot do. This is not the case at first sight.

Now I will show what pseudogapping cannot do, and then show that LED can do it. Stump (1977) suggests that clausal complements cannot be remnants of pseudogapping:

(129) a. *Alan claimed that he was cheated, and Sandy did ~~claim~~ that she was the one who cheated him.
b. *Alan prefers for Tom to do it, and Sandy does ~~prefer~~ for Alan to do it.
c. *John wants to go to Europe, and Mary does ~~want~~ to go with him.

Johnson (2014) further argues that the predicate part of a small clause or exceptional Case-marked infinitive cannot be remnants for pseudogapping either:

(130) a. *Some believe him handsome and others do ~~believe him~~ brave.
b. *Some believe him to be handsome and others do ~~believe him~~ to be brave.
(Johnson 2014; pg. 41)

LED, however, can leave remnants that are clausal complements or the predicate part of a small clause or exceptional Case-marked clause:

(131) a. Alan either claimed that he was cheated or ~~claimed~~ that he was the one who cheated.
b. Alan either prefers for Tom to do it or ~~prefers~~ for Mary to do it.
c. John either wants to go to Europe or ~~wants~~ to stay in Arizona.

d. Mary either believes him handsome or ~~believes him~~ brave.
e. Mary either believes him to be handsome or ~~believes him~~ to be brave.

While one may conclude from this difference that LED is not identical to pseudogapping, I want to mention that the illegal pseudogapping sentences observed by Stump and Johnson improve when they occur in a comparative construction:

(132) a. Alan claimed that he was cheated more often than Sandy did ~~claim~~ that she was the one who cheated him.
b. Alan prefers for Tom to do it more strongly than Sandy does ~~prefer~~ for Alan to do it.
c. John wants to go to Europe more than Mary does ~~want~~ to go to Australia.
d. Some believe him more handsome than others do ~~believe him~~ brave.
e. Some believe him to be more handsome than others do ~~believe him~~ to be brave.

Thus, we have seen that pseudogapping is restricted in particular ways: it is better in a comparative construction than in a conjunction. I suggest that this restriction on pseudogapping results from its unique property that it always leaves an auxiliary before the ellipsis site.

LED, on the other hand, never leaves an auxiliary before the ellipsis site, so it is not subject to such restrictions. Then the fact that LED is less restricted than pseudogapping in coordinated structures does not indicate that LED is a completely different ellipsis operation from pseudogapping. Rather, they may well be the same type of ellipsis that is derived from movement out of the ellipsis site before phrasal ellipsis. And the apparent difference between LED and pseudogapping is due to whether or not an auxiliary is left behind before the ellipsis site.

To summarize, in this subsection I have argued that LED is not gapping, but similar to pseudogapping in that remnants move out of the ellipsis site before phrasal ellipsis happens.

6. Comparing *either* with focus-sensitive operators

Focus-sensitive operators have been argued to share these properties: syntactically they must c-command focus, and semantically they interact with and contribute to the meaning of focus. Common focus-sensitive operators include *only*, *even*, the question-particle, *also*, *too*, and so on. In this section I will focus on the syntax of two of them, *only* and the Q(uestion)-particle, and note some striking syntactic similarities between *either* and these operators.

What they have in common is what I call bipartite syntax:

(133) Bipartite syntax of focus-sensitive operators
a. There are two instances of the operator in a sentence, one structurally higher than the other.
b. The lower copy of the operator is semantically inert, and must be local to and c-command the focused element.
c. The higher copy of the operator has some syntactic / semantic function, such as agrees with a probe, or marks the semantic scope.

Additionally, in all the languages I investigate, *only* and the Q-particle have another similarity to *either*: the higher copy of *only* or Q is created by movement. I want to emphasize that this property is not a necessary consequence of the bipartite structure in (133). While I will point out that the higher copy of *only*, Q and *either* is created by movement in the languages discussed in this paper, I do not exclude the possibility that it may be base-generated in other languages.

In this section I will first discuss the bipartite syntax of *only* and Q respectively. The syntactic structures of these elements are not identical, and I will also discuss two points of variation among them.

6.1. Bipartite syntax of *only* and the Q-particle

Hirsch has proposed the following syntax of *only*, which he calls the bipartite syntax of *only*:

(134) Bipartite syntax of *only*
a. There are always two *only*s in a sentence, one structurally higher than the other.
b. The lower *only* (*low only*) is semantically inert, and must be local to and c-command the focused element.
c. The higher *only* (*high only*) is the locus for semantic interpretation.
d. Either high *only* or low *only* is pronounced overtly.

A key property of Hirsch's analysis is the presence of two *only*s in a structure.[9] If this is true, it is strikingly similar to the bipartite structure I posit for *either*. I will now briefly review an argument for Hirsch's analysis, and interested readers may refer to his dissertation for more arguments.

An important piece of evidence for the bipartite structure of *only* comes from the following sentence based on Taglicht (1984). Focus is underlined:

(135) John is required to learn only <u>one language</u>. (Hirsch 2017 (18))
Possible reading: the only requirement of John is that he learn any one language.
(*only* > *required* > *one language*)

This sentence has what Hirsch calls the split scope reading of *only* and its sister *one language*, where *only* scopes above *required*, while *one language* scopes below *required*. The fact that *only* and *one language* take scope at different locations suggests that they occupy different syntactic positions.

Alternatively, it is also possible that *only* and *one language* quantifier raise (QR) together at LF. If we lift the type of the quantifier *one language*, and have the QR movement stop at the edge of the matrix verb *be required*, *one language* can be syntactically above *required*, but semantically interpreted below *required*.

[9] Hirsch actually claims that high *only* is a different element from low *only*, and it is a coincidence that they are homophonous in English. I will argue later that high *only* may be created by movement of low *only*.

This alternative analysis overgenerates, so it cannot be an available mechanism. Fox (1999) has shown with the following sentence that the DP sister of *only* cannot be syntactically high in its surface position, but interpreted in its base position below *needed* at the same time:

(136) *Only one new theory by Quine$_1$ seems to him$_1$ to be needed. (Fox 1999)

Ignoring for now the scope of *only*, the only sensible reading of this sentence has the quantifier *one new theory* interpreted below *needed*. If *one new theory* is interpreted below *needed* through syntactic reconstruction, it will violate Condition C. If the alternative analysis proposed for (135) is available here, we should be able to have *one new theory* syntactically high but interpreted below *needed* via type-lifting. This would avoid a violation of Condition C because there is no syntactic reconstruction of *one new theory* to the base position. Because this sentence is ungrammatical, it shows that the type-lifting mechanism provided by the alternative analysis is not available.

Thus, the split scope facts suggest that *only* and its sister DP occupy different syntactic positions, and are interpreted at different positions as well.

Hirsch's bipartite syntactic structure for *only* captures this. Following is Hirsch's analysis of (135). The *only* that surfaces in (135) is low *only* and semantically inert. High *only* that is the locus of semantic interpretation is above *required* but not pronounced. The pronounced *only* is in bold below. If the quantifier QRs to a position below *required*, we get the split scope reading.

(137) John is only required to learn **only** <u>one language</u>.

Because either high *only* or low *only* may be pronounced, when we pronounce high *only* instead of low *only*, we should get the exact same reading of split scope. This prediction is borne out:

(138) John is **only** required to learn only <u>one language</u>.
Possible reading: the only requirement of John is that he learn any one language.
(*only* > *required* > *one language*)

Although Hirsch assumes that high *only* is base-generated and is a different element from low *only*, there is evidence that suggests high *only* is created by movement of low *only*. Low *only* loses its scope ambiguity once embedded in an island. The following sentence embeds low *only* in a complex NP island, and it has reading 1, but not reading 2, where *only* takes scope outside the island.

(139) They were required to learn the language that only <u>John</u> speaks.
Reading 1: They were required to learn the language that no other person speaks.
Reading 2 (unavailable): They were not required to learn the language that any other person speaks.

Taking seriously Hirsch's (2017) view that high *only* is responsible for semantic interpretation, the missing reading 2 would correspond to the following structure, with the pronounced low *only* in bold and the unpronounced high *only* not in bold:

(140) *They were only required to learn the language that **only** John speaks.

The illegality of the above sentence can be understood if we consider low *only* to move to high *only*'s position, recalling similar movement of low *either*. Movement of low *only* across the complex NP island is prohibited:

(141) *They were only$_i$ required to learn the language that t_i John speaks.

The following example makes the same point but with an adjunct island. The following sentence has reading 1, but not reading 2 presumably because the movement of *only* cannot cross an adjunct island either:

(142) They were required to learn Spanish when only John told them to.
Reading 1: They were required to learn Spanish when no other person told them to.
Reading 2 (unavailable): They were not required to Spanish when any other person told them to.

Having seen the facts that suggest that the position of *only* is sensitive to islands in English, I will now present similar facts in Vietnamese and show that the position of *only* in Vietnamese is island-sensitive as well, so high *only* is created by movement in Vietnamese too. Vietnamese is an interesting case because not only are its two *only*s realized as different lexical items, but they can cooccur: high *only* is *chỉ*, and low *only* is *mỗi* (Erlewine 2017). Despite their different phonologies, the two *only*s are still subject to the island effects seen in English.

When the focus is embedded in a relative clause or falls on the NP modified by the relative clause, *chỉ* and *mỗi* can both occur outside the DP. Specifically, *mỗi* is adjacent to the DP containing the relative clause, and *chỉ* attaches higher on the clausal spine (Erlewine p.c.):

(143) Minh	chỉ	thử	mỗi	món	mì	mà	Tuệ	làm.
Minh	CHỈ	try	MỖI	CL	noodle	that	Tue	make

Reading 1: 'Minh only tried the noodles that Tue made.'
Reading 2: 'Minh only tried the noodles that Tue made.'

When the focus is embedded in the relative clause, both *chỉ* and *mỗi* can be embedded in the relative clause as well:

(144) Minh	đã	thử	món	mì	mà	chỉ	mỗi	Tuệ	làm
Minh	PAST	try	CL	noodle	that	CHỈ	MỖI	Tue	make

'Minh tried the noodles that only Tue made.'

It is not possible to separate *chỉ* and *mỗi* with the relative clause boundary, with *mỗi* embedded in the relative clause, but *chỉ* outside the relative clause:

(145) *Minh	chỉ	ăn	món	mì	mà	mỗi	Tuệ	làm
Minh	CHỈ	eat	CL	noodle	that	MỖI	Tue	make

Intended reading: 'Minh tried the noodles that only Tue made.'

These facts can be understood if we posit movement of *only* in Vietnamese as well: *chỉ* is created by movement of *mỗi*, and this movement cannot cross a relative clause island. And depending on where this morpheme is syntactically, it is spelled out differently. When it is in the base position, it is pronounced as *mỗi*, and when it attaches high to the clausal spine, it is realized as *chỉ*.

Thus, we have seen English *only* and Vietnamese *only* possess the bipartite syntactic structure. In addition, they are similar to *either* in that their positions are island-sensitive: high *only* can't be separated from low *only* by an island.

Turning now to the Q-particle in questions, Cable (2007), based on Hagstrom (1998) and Kishimoto (2005) a.o., has proposed the bipartite syntax for the Q-particle:

(146) Bipartite syntax of the Q-particle
a. There are two positions for the Q-particle in a sentence, one structurally higher than the other.
b. The lower position (*low Q*) must be local to and c-command the focused *wh*-element.
c. The higher position (*high Q*) is created by movement to Spec, CP and triggered by agreement with the probe on C^0.
d. Either high Q or low Q is pronounced overtly.

Languages differ in whether to pronounce high Q or low Q. For instance, Japanese always pronounces high Q, while Sinhala always pronounces low Q. In other words, Q movement is overt in Japanese, but covert in Sinhala.

In Japanese, the Q-particle *ka* must move to the CP domain, and appear clause-finally, whereas in Sinhala, the Q-particle *da* moves covertly, and appears in-situ next to the focused *wh*-phrase:

(147) Japanese *ka* must appear clause-finally
John-ga nani-o kaimasita ka?
John-nom what-acc bought.polite Q
'What did John buy?' (Cable 2007; p. 168)

(148) Sinhala *da* cannot appear clause-finally
Chitra monawa da gate
Chitra what Q buy
'What did Chitra buy?' (Kishimoto 2005; p.3, 4)

Sinhala pronounces Q in its base position, so we can observe the properties of low Q in Sinhala. Kishimoto shows that Sinhala Q is attached to the phrase containing the *wh*-element. In particular, Q can be inserted as a local adjunct to the focused *wh*-word, recalling the similar property of low *either*.

Furthermore, high Q is generated by movement. Evidence for this is very similar to the evidence we have seen for *either* and *only*. For instance, in Sinhala if the focused *wh*-phrase is inside an island, the Q-particle that c-commands it must attach outside the island. According to

Kishimoto (2005), this is because Q needs to move to Spec, CP without violating the island constraint. Since DPs and PPs constitute islands in Sinhala, the *wh*-phrase and the Q-particle *da* cannot both be embedded in the island:

(149) a. Chitra [$_{island}$ kaa-ge amma] da daekke?
Chitra who-gen mother Q saw
'Whose mother did Chitra see?' (Kishimoto 2005; p. 13)

b. *Chitra [$_{island}$ kaa-ge da amma] daekke?
Chitra who-gen Q mother saw

6.2. Points of variation

Having discussed the similarities shared by *either*, *only* and Q, I will discuss how they differ in this subsection. Specifically, they may differ in the following two aspects. First, they differ in the ability to 'pied-pipe' adjacent material in their movement to create the high copy. Second, they differ in terms of how local the low copy must be to the focused element. Variation occurs on two dimensions: one element may behave differently from another element, and an element in one language may behave differently from the same element in another language.

6.2.1. 'Pied-piping'

Cross-linguistically, a focus-sensitive operator may or may not 'pied-pipe' adjacent material when it moves up. And there is variation across languages for the same operator as well. In this subsection I will show that manifestation of overt 'pied-piping' indicates that the operator is able to 'pied-pipe', but lack of 'pied-piping' does not mean that the operator is not able to 'pied-pipe'. It may be possible that the sister of the operator is still 'pied-piped', but somehow must be pronounced in its base position.

The operators discussed in this subsection include English Q, Tlingit Q, Hungarian *only*, English *only* and English *either*, among which Tlingit Q, English Q and Hungarian *only* display overt 'pied-piping', whereas English *only* and English *either* do not. It is difficult to tell whether English *only* and English *either* can really 'pied-pipe' or not for the above reason, but in the next subsection I will use another diagnostic to show that English *only* does 'pied-pipe', while English *either* does not.

First, take the Q-particle as an example. Languages differ in whether Q moves alone, or the focused *wh*-word moves as well. According to Cable (2007), Japanese shows the first pattern, as its Q-particle *ka* moves overtly, and appears clause-finally, with the *wh*-phrase staying in-situ.

Other languages have the *wh*-phrase move overtly with Q, such as Tlingit and English. Take Tlingit as an example. Both its Q-particle *sá* and the *wh*-word must both front to the left periphery. Fronting of only the *wh*-phrase or only the Q-particle is ill-formed:

(150) a. [Goodéi sá]$_1$ has uwajée t_1 woogootx i shagóonich?
where.to Q they.think he.went your parents.erg
'Where do your parents think he went?' (Cable 2007; pg. 87-88)

b. *Goodéi$_1$ has uwajée t_1 sá woogootx i shagóonich?
where.to they.think Q he.went your parents.erg

(151) a. [Goodéi] sá yeegoot?
Where.to Q you.went
'Where did you go?'

b. *Sá goodéi y eegoot?
Q where.to you.went

Cable (2007) captures this cross-linguistic variation by arguing that Japanese Q does not project, but is an adjunct to its sister. So when C probes for the Q feature, it finds the Q-particle itself and moves it. On the other hand, Tlingit Q and English Q project, and take their sister as a complement rather than a modifiee. This QP inherits the Q feature of its head. So when C probes for the Q feature, it finds the entire QP and moves QP to its specifier.

Not only can Q pied-pipe its sister, but *only* can as well. Hungarian *only*, for instance, moves along with its sister in focus movement. According to É Kiss (2002), Hungarian *csak* 'only' forms a constituent with the focused phrase. It immediately precedes the focus associate, and undergoes focus movement together with it:

(152) János [csak Marinak] mutatta be Pétert.
John only Mary-to introduced VM Peter-ACC
'It was only to Mary that John introduced Peter.' (É Kiss 2002)

English *only* has a less obvious analysis. Although we never see the focused phrase move along with *only*, Drubig (1994) and Chomsky (1976) have argued that the focus associate actually covertly moves to become either the specifier of *only* or the complement of *only*. There is a third possibility: the focused phrase is 'pied-piped' by *only* but somehow must be pronounced low. English *only* would then pattern with Hungarian *csak* in being able to 'pied-pipe'. I will argue in the following subsection that this is indeed the correct analysis for English *only*.

(153) They were [only]$_i$ required to learn [Spanish]$_i$.

Either is like English *only* in never 'pied-piping' its sister on the surface. (a) below, for example, is ungrammatical, with (b) illustrating the analysis of (a) that involves *either*'s illegal "pied-piping" of the focused phrase *rice*:

(154) a. *Either rice John will eat or he will eat beans.
b. *[Either rice]$_i$ John will eat [either rice]$_i$ or he will eat beans.

In the next subsection, I will show that *either* is unlike *only*, and does not project or 'pied-pipe'.

6.2.2. Locality of the base position to focus

Another aspect subject to variation is how local the base position of the element should be to focus. I will discuss two aspects of variation in this subsection: (a) an element may or may not be base-generated outside an island containing focus, and (b) an element may or may not be merged between a functional head and its complement containing focus. Again, I will discuss the behavior of Q, *only* and *either* in each aspect.

(155) a. Op … [$_{island}$ … Focus …]
b. H$_{Functional}$ [$_{XP}$ Op … Focus …]

Let us examine the first aspect of variation and how it plays out in the Q-particles. Cable (2007) has shown that Tlingit Q can be separated from the focused *wh*-word by an island, while in English, crucially low Q cannot be separated from the *wh*-word by an island. If it can be, Cable argues that we would see fronting of the entire island in English, which is not the case:

(156) [[Wáa kligéiyi $_{CP}$] xáat $_{island}$] sá i tuwáa sigóo
how it.is.big.REL fish Q your spirit it.is.happy
How big a fish do you want? (A fish that is how big do you want?) (Cable 2007; pg. 91)

(157) * [$_{QP}$ Q [$_{island}$ A fish that is how big]] do you want?

English *only* patterns with Tlingit Q in this respect. It can be merged adjacent to the island containing focus. Consider the following sentence that embeds the focused DP *John* in an adjunct island. It gives rise to two different readings, which is an indication that what surfaces is a low *only*, and the unpronounced high *only* can be in two different positions. When high *only* is below *required*, we get reading 1. When it is above *required*, we get reading 2.

(158) They were required to listen only when <u>John</u> speaks.
Reading 1: They were required not to listen when anyone else speaks.
Reading 2: They were not required to listen when anyone else speaks.

Either is similar to Tlingit Q and *only* in that it can originate outside the island containing focus. Repeating the examples from before:

(159) Sherlock either made [$_{island}$ the claim that he found <u>a burglar</u>], or he made the claim that he found <u>a thief</u>.
(160) Sherlock is either happy [$_{island}$ because he found <u>a burglar</u>], or he is happy because he found <u>a thief</u>.

According to Cable, whether Q can be merged outside the island containing focus depends on whether or not Q agrees with the focused *wh*-word. If it agrees with the *wh*-word, this agreement relation cannot cross a syntactic island. Therefore, Tlingit Q-particle *sá* does not agree with the *wh*-word, whereas English Q does.

Applying this analysis to *only* and *either*, this suggests that *only* and *either* do not agree with the focused element either, so that they may be merged outside the island containing the focus.

Having discussed the first aspect of variation in locality to focus, I will now examine the second aspect, i.e. whether the element can be merged between a functional head and its complement containing focus. Again, I will first look at the behavior of Q in this aspect, and then compare it with *only* and *either*.

If we adopt Cable's analysis of why Q may or may not intervene between a functional head and its selected complement, and apply this analysis to *only*, it will constitute an argument that English *only* 'pied-pipes' its sister, though on the surface we only see *only* appear higher, and its sister pronounced in-situ. In other words, the following analysis is correct for *They were only required to learn Spanish* (replicated from earlier):

(161) They were [only]$_i$ required to learn [Spanish]$_i$.

Tlingit Q cannot be merged arbitrarily far away from focus. If there is a functional head somewhere above focus, *sá* cannot intervene between that functional head and the phrase selected by it. For example, when the *wh*-word itself is a functional head D, Q may not intervene between D and its NP complement. And when the object DP is focused, Q cannot occur between T and VP containing the object.

(162) No Q between a D and its NP complement
a. [$_{DP}$ Daakw [$_{NP}$ keitl]] sá ashaa?
which dog Q it.barks
'Which dog is barking?' (Cable 2007; pg. 96)

b. *[$_{DP}$ Daakw sá [$_{NP}$ keitl]] ashaa?
which Q dog it.barks

(163) No Q between a T and its VP complement
a. Daa sá iyatéen?
what Q you.can.see.it
'What can you see?' (Cable 2007; pg. 81)

b. *Daa iyatéen sá?
what you.can.see.it Q

Sinhala Q behaves the same as Tlingit Q in that it may not intervene between a functional head and its selected complement. What is different about Sinhala Q is, recalling from section 6.2, that Sinhala Q moves covertly:

(164) No Q between a D and its NP complement
a. Chitra [$_{DP}$ mona [$_{NP}$ pota]] da gatte?
Chitra what book Q bought
'What book did Chitra buy?' (Kishimoto 2005; pg. 13)

b. * Chitra	[$_{DP}$ mona	da	[$_{NP}$ pota]]	gatte?
Chitra	what	Q	book	bought

According to Cable, the reason why Q may not intervene between a functional head and its complement in Tlingit and Sinhala is due to a requirement (what Cable called *QP-Intervention Condition*) that prohibits a QP from intervening between a functional head and a phrase selected by that functional head.

Crucially, this condition only applies to the maximal projection of Q. If Q does not project and is merely an adjunct to its sister, this condition will not apply, and the non-projecting Q is free to be merged anywhere.

From the last subsection, Q's ability to project is directly correlated with its ability to 'pied-pipe' adjacent material. Tlingit Q and Sinhala Q project, indicated by their ability to 'pied-pipe'. At the same time, their projected QP is subject to QP-Intervention Condition, and may not stand between a functional head and its selected complement.

I will now observe and compare the base position of English *only* to Q. *Only* also cannot intervene between the functional head and its selected complement. When the object DP is focused, for example, *only* has to originate immediately before the focus (165). If *only* appears between the functional head T and its complement VP (166) and (167), it loses the ambiguity, indicating that this is not the base position, but rather high *only*'s position:

(165) They were required to learn only Spanish. (Rooth 1985, pg. 90)
Reading 1: They were required not to learn any other language.
Reading 2: They were not required to learn any other language.

(166) They were required to only learn Spanish.
Reading 1 only

(167) They were only required to learn Spanish.
Reading 2 only

Taking these examples as evidence that *only* may not originate in a position that intervenes between a functional head (T) and its complement,[10] this suggests that *only* projects itself, and onlyP is subject to Cable's Intervention Condition.

And because the ability to project correlates with the ability to 'pied-pipe', this indicates that English *only* can pied-pipe its sister in its movement, though we always see its sister be pronounced in-situ.

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[10] *Only* is different from Tlingit Q in that *only* can apparently intervene between a P and its complement DP:
(i) I talked to only Sue.

However, as mentioned in footnote 8, focus movement of a PP containing *only* is bad, suggesting that *only* may not attach below P either:

(ii) *To only Bill have they spoken the truth. (den Dikken 2006; (20a'))

Let us now apply the same kind of analysis to English *either*. *Either* can be inserted anywhere in DisjP as long as it c-commands focus, including the position intervening between the functional head T and its VP complement, which entails that *either* does not project and is not subject to the Intervention Condition:

(130) Sherlock pretended to **either** be looking for a burglar or he pretended to be looking for a thief.
(131) Sherlock **either** pretended to be looking for a burglar or he pretended to be looking for a thief.

Because *either* does not project, it also does not 'pied-pipe', unlike *only*.

The following table summarizes the paradigm of focus-sensitive operators we have seen so far in terms of whether they can 'pied-pipe', be base-generated outside an island containing focus, and intervene between a functional head and its complement. The second column 'pied-pipes' correlates with the last column directly under Cable's analysis – being able to 'pied-pipe' entails that the operator projects, and so its projected maximal projection cannot intervene between a functional head and its complement.

(132)

	'Pied-pipes?'	Can be base-generated outside an island containing focus?	Can intervene between a functional head and its complement?
English Q	✓	*	*
Tlingit Q	✓	✓	*
Sinhala Q	✓	✓	Predicted: *
Japanese Q	*	?[11]	Predicted: ✓
English *only*	✓	✓	*
English *either*	*	✓	✓

7. Conclusion

In this paper, I have made an analysis of the syntax of *either* in *either* … *or* … sentences, which looks strikingly similar to the bipartite syntax of *only* and the question-particle. This suggests that more broadly, all focus-sensitive operators possibly have this bipartite syntactic structure, i.e. two copies of the operator exist in a sentence.

A question remains of why there is a need for two copies of a focus-sensitive operator, assuming that a single operator can satisfy all the roles and is simpler to learn. For instance, why must there exist a low *either*, if its sole function is to c-command the leftmost contrast? It will eventually move to Spec, DisjP, a position that c-commands the focus anyway.

[11] It is impossible to tell whether Japanese Q can be base-generated outside an island containing focus because Japanese Q always moves overtly on its own to Spec, CP. So we cannot tell where it originates.

One speculation is that low *either* serves some other purpose by being proximate to the contrasted element, and this purpose cannot be satisfied by high *either* in Spec, DisjP.

Another curious property of low *either* is that it is only concerned with c-commanding the leftmost contrastive focus, but not the other foci. And interestingly, the other focus-sensitive operators I have examined in this paper, the Q-particle and *only*, behave differently in this respect. The Q-particle can only c-command the first focus, whereas I have not found an instance of *only* that can only c-command the first focus.

First, the Q-particle in at least some languages is only required to c-command the leftmost focused *wh*-phrase as well. For instance, in a multiple question in Bùlì, only the first *wh*-phrase bears the *ká* morpheme, which is analyzed as the Q-particle by Sulemana 2018. And *ká* may move overtly together with the first *wh*-phrase. The other *wh*-phrases cannot bear the *ká* morpheme, must remain in-situ and undergo no movement, whether overt or covert. This indicates that *ká*, the Q-particle in Bùlì, only attaches to the first *wh*-phrase.

Only, however, is required to c-command all the foci in English. For instance, in the following matrix question, pre-subject *only* must be a local adjunct to the subject *Mary*, so it cannot have both foci *Mary* and *John* in its scope. Consequently, we cannot get the reading where *only* associates with both *Mary* and *John*:

(168) Did only Mary see John?
Unavailable reading: Are Mary and John the only two-person pair such that the first person in the pair saw the second person?

Suppose that this difference between *either* and *only* stems from a difference in how they associate with focus. And suppose that in order for a focus-sensitive operator to associate with a focused element, it must always have this focused element in its scope.[12] Then this means that semantically, *either* only associates with the leftmost focus.

This result contradicts the only proposal in the literature about *either*'s association with focus that I know of (Hendriks 2003). This proposal argues that *either* contributes the exhaustivity over the possibilities mentioned in a disjunction. For instance, the meaning of the following sentence is "if John has a property of the form 'introduced x to Sue', then it is the property 'introduced Bill to Sue' or the property 'introduced Mary to Sue'":

(169) John introduced either Bill to Sue or Mary to Sue.
Semantic Interpretation: $\forall P [[P\{j\} \ \& \ \exists y[P= \hat{}introduce'(y,s)]] \rightarrow [P = \hat{}introduce'(b,s) \vee P = \hat{}introduce'(m,s)]]$

[12] Although I have argued that low *either* (and possibly low *only*) is semantically inert, let us suppose that in order for a focus-sensitive operator to associate with a focus, the focus-sensitive operator must c-command this focus from its origination position. Then even though high *either* is the locus of semantic interpretation, because it is created by movement of low *either*, low *either* must c-command the focus.

The presence of *either* then requires exhaustification over both foci *Bill* and *Mary*. However, for reasons discussed in section 3, *either* in this sentence must be parsed as low *either* and a local adjunct to *Bill*, in which case it does not c-command *Mary*:

(170) John introduced [$_{DP}$ either Bill] to Sue or Mary to Sue.

Thus, we run into a contradiction if we adopt both the assumption that an operator may only c-command the foci in its scope, and Hendriks' proposal about *either*'s contribution to exhaustification over all foci including those it does not c-command. This contradiction suggests a revision to either the assumption or Hendriks' proposal. Either a focus-sensitive operator may associate with focus not in its c-command domain, or *either* only associates with the leftmost focus, and *either* does not contribute exhaustivity over all foci. Which one is the correct way to go worth future research.

Appendix: Alternative analyses for *either*

As I have mentioned, my analysis of *either* is inspired deeply by previous analyses in the literature. In this appendix I will compare my analysis with other analyses that have been previously proposed. They include Larson (1985), Schwarz (1999) and Han and Romero (2004), and den Dikken (2006). I will first recap my analysis briefly before providing a critical review of each one of these proposals.

My analysis of the syntax of *either* has the following components: (Low) *either* originates anywhere in DisjP, c-commanding the leftmost contrast. It moves to Spec, DisjP overtly or covertly to create high *either*. Additionally, ellipsis may take place in the noninitial disjuncts, obscuring the derivation and creating the illusion that high *either* is higher than Spec, DisjP:

(171) [$_{DisjP}$ Either$_i$ [$_{Disj'}$ [$_A$ … t$_i$ X Contrast$_1$ …] or [$_B$ ~~X~~ Contrast$_2$ …]]]

This analysis accounts for the following facts successfully, each of which was discussed in a previous section:

(172) a. *Either*-too-high and *either*-too-low problems (section 1): *either* can appear higher or lower than apparent Spec, DisjP
b. Scope (section 2): when high *either* surfaces, the scope of disjunction is frozen; when low *either* surfaces, there can be multiple scopes of disjunction
c. Local low *either* (section 3): low *either* can be a local adjunct to contrast
d. Island effects (section 4): high *either* may not appear above islands, and low *either* may not appear below islands
e. Ellipsis (section 5): material at the left edge of a noninitial disjunct can be deleted freely as long as they are identical to corresponding material in the first disjunct

Let us compare the current proposal with previous ones in the literature, starting with Larson's (1985), what I call the *movement-only account*. Under this account, *either* always originates in Spec, DisjP. When it appears higher than Spec, DisjP, it moves from Spec, DisjP to that surface position.

(173) Either$_i$ John will eat [$_{DisjP}$ t_i rice or beans].

As I have discussed in section 5.2, Schwarz (1999) and Han and Romero (2004) have shown that the movement-only approach makes wrong predictions about verb particle constructions. I will not repeat the argument here.

The movement-only approach makes interesting suggestions about how *either* can end up lower than Spec, DisjP (*either*-too-low sentences). In fact, several possible theories were suggested by Larson. The first possibility is that *either* lowers from Spec, DisjP to inside DisjP:

(174) [$_{DisjP}$ t_i John will either$_i$ eat rice or he will eat beans].

As we have seen in section 3, *either* can be a local adjunct to the contrasted phrase. I repeat example (57) below. As has been shown, *either* must be part of the object DP so as not to intervene between the verb and the object:

(175) John ate [$_{DP}$ either rice] with chopsticks or he ate beans with a fork.

It is not clear from Larson's suggestion how lowering works, or what kind of positions it can lower to. But the local adjunct position is so embedded that it is very difficult to lower into this position.

Another possibility that Larson brings up is that instead of lowering, VP and TP are asymmetrically disjoined to create the impression that *either* is lower than Spec, DisjP:

(176) John will **either** [$_{DisjP}$ [$_{VP}$ eat rice] or [$_{TP}$ he will eat beans]].
This idea still fails to account for local *either* in (175). In that example, *rice with chopsticks* is not a constituent and therefore cannot be disjoined. Even if it can be, *either* is clearly a local adjunct to *rice*, and cannot be in Spec, DisjP.

The second proposal I will review was made by Schwarz (1999) and Han and Romero (2004), which I refer to as the *ellipsis-only account*.

According to this account, *either* is always in Spec, DisjP. When *either* appears higher than Spec, DisjP, there is gapping in the second disjunct.

(177) a. John will either eat rice or ~~eat~~ beans.
b. Either John will eat rice or ~~he will~~ eat beans.
c. Either John will bake a cake or ~~he will~~ boil water.

While it successfully accounts for the *either*-too-high problem, it fails to account for the *either*-too-low problem, repeated below, with *either* appearing below Spec, DisjP. There is nothing to elide in the following sentences:

(178) a. John will either eat rice or he will eat beans.
b. John either will eat rice or he will eat beans.

It also fails to account for the scope observations discussed above, in particular why low *either* can give rise to ambiguous scope readings. The sentences discussed in section 2 are repeated below. In (179a-b), the scope of disjunction is fixed and identical to the surface position of *either*, but in (179c), the scope of disjunction can be below *looking for*, between *pretended* and *looking for*, or above *pretended*.

(179) a. Sherlock pretended to **either** be looking for a burglar or a thief.
b. Sherlock **either** pretended to be looking for a burglar or a thief.
c. Sherlock pretended to be looking for **either** a burglar or a thief.

The ellipsis-only account gets the scope of disjunction by undoing ellipsis in the second disjunct. This successfully accounts for (179a-b):

(180) a. Sherlock pretended to **either** be looking for a burglar or ~~be looking for~~ a thief.
b. Sherlock **either** pretended to be looking for a burglar or ~~pretended to be looking for~~ a thief.

It fails to account for the ambiguity of (179c), however. According to this account, *either* is always in Spec, DisjP. And there can only be ellipsis when *either* does not appear in Spec, DisjP. Then there is nothing to elide in (179c) because *either* is already adjacent to DisjP. So the proposal wrongly predicts only one reading for the third sentence.

This ellipsis-only analysis may be saved if we consider quantifier raising of the quantificational DP adjacent to *either*, and allow *either* to "tag along" of this movement. If *either* marks the semantic scope, then by tagging along the QR of the quantifier DP, it is able to give rise to multiple scopes, depending on where the quantificational DP QRs to. I call this amendment to the ellipsis-only analysis the *QR-based amendment*.

This QR-based amendment runs into trouble with the following sentence, in which *either* is adjacent to a disjoined VP, and this sentence has ambiguous readings. In particular, the scope of disjunction can be between *pretended* and *looking for*, or above *pretended*.

(179a') Sherlock pretended to **either** be looking for a burglar or be looking for a thief.

To allow for the disjunction to scope above *pretended*, we would need to posit QR of the VP disjunction in (179a').

But notice that (179a') differs from (179a) minimally in whether *be looking for* is elided in the second disjunct or not. But (179a) has only one scope reading, while (179a') is ambiguous. The QR-based amendment would then require the disjoined VP to QR in (179a'), but the disjoined VP with elided material to not QR in (179a). It is not clear why the ability of a constituent to QR would be correlated to whether some material in this constituent is elided or not.

The last proposal I will review is den Dikken's (2006), what I call the *base-generation account*. According to this proposal, *either* is always base-generated in its surface position and

must c-command the leftmost contrast. And there is a restriction on where *either* can originate: it cannot be separated from the contrasted phrase by negation or a complex NP boundary. This restriction results from the notion that the leftmost contrasted phrase projects a path of θ-role assignment, and *either* must be located on this path. Negation and complex NP boundary break off this path.

According to this approach, *either*-too-high and *either*-too-low sentences are just a result of base-generating *either* at different locations. In *either*-too-high sentences, *either* has been merged higher than Spec, DisjP. In *either*-too-low sentences, *either* has been merged inside DisjP (what I call low *either*). It breaks the intuition that *either* must be at the left edge of DisjP.

This approach can explain only some of the island effects discussed in section 4. The island phenomena we have seen in section 4 are represented abstractly below.

(181) a. *Either … [$_{\text{DisjP}}$ … [$_{\text{A}}$ … [$_{\text{Neg/Complex NP}}$ … Contrast$_1$ …]] or [$_{\text{B}}$ …]]
b. *[$_{\text{DisjP}}$ … [$_{\text{A}}$ … [$_{\text{Neg/Complex NP}}$ … either … Contrast$_1$ …]] or [$_{\text{B}}$ …]]

This approach can only explain (181a). In (181a) the contrasted element is separated from *either* by negation or a complex NP boundary. Because negation and a complex NP boundary breaks the θ-path projected by the contrast, *either* fails to be on the θ-path. In (181b) *either* is located on the θ-path projected by the contrast, and yet the sentence is bad. So the base-generation account cannot explain (181b).

To save the base-generation account, we would then need to divide the restriction on base-generation of *either* into two sub-restrictions. The first sub-restriction applies when *either* is merged outside DisjP: *either* cannot be separated from the contrast by negation or a complex NP in this case. The second sub-restriction applies when *either* is merged inside DisjP: *either* and the contrast must be separated by negation or a complex NP boundary if there is negation or a complex NP boundary; if there is no negation or a complex NP boundary, *either* does not need to be separated from the contrast by them.

While the first sub-restriction may be made sense of under the θ-path theory, or any theory that requires the relation between *either* and the contrast not to be interrupted by negation or a complex NP boundary, I cannot think of any basis for the second restriction, i.e. the need for *either* and the contrast to be separated by negation or a complex NP boundary if there is one.

Besides these proposals that have been raised before in the literature, another alternative worth considering is what I call the *non-ATB (non-across-the-board movement) account*: *either* is always in Spec, DisjP. When it appears apparently embedded in DisjP, the subject, and possibly other material such as the auxiliary have non-ATB moved out of the first disjunct. And somehow negation and complex NP boundary cannot non-ATB move:

(182) John$_i$ will$_j$ either [$_{\text{DisjP}}$ t_i t_j eat rice or he will eat beans].

This approach falls short in many ways. Most importantly, *either* isn't always in Spec, DisjP. Again in (175) *either* is a local adjunct to the contrasted phrase. Also, while subject's non-ATB

movement has been previously proposed in the literature, non-ATB moving the auxiliary and the main verb is far less common.

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