



## On Repair of the Subject Condition Violations by Parasitic Gaps\*

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### ABSTRACT

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This paper discusses the claim that parasitic gaps can repair otherwise ungrammatical strings to make them better. Culicover and Winkler (2022) argue that the so-called repair by parasitic gaps (RPG) effect is nothing but a syntactic illusion; rather, it should be perceived as a mechanism aimed at diminishing the burden of more resource-intensive processing. They demonstrate that grammaticality is enhanced by replacing the real gap in the subject with a parasitic gap and placing the real gap in a position previously occupied by the "uninvited guest" in the matrix clause. This paper shows that their uninvited guest hypothesis has both over and undergeneration problems. To overcome the difficulties, this paper argues that syntactic analysis is more plausible from derivational perspectives. In particular, this paper proposes that the derivationally dynamic phasehood can provide a better solution to the effect that can further cover the examples with strong island constraints like the LBC and the Adjunct Condition. In the end, if the findings of this paper prove to be accurate, it contributes to the ongoing endeavor of integrating discourse-pragmatic factors into syntax. This integration leads to what can be seen as syntacticization, representing an advanced stage of autonomous syntax.

### KEYWORDS

repair by parasitic gaps, subject, processing cost, uninvited guest, dynamic phasehood, discourse-pragmatic factors, syntacticization

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## 1. Introduction

It is widely reported that the elements inside the subject cannot be extracted, known as the Subject Condition (Chomsky 1986). Keeping this on mind, examine the following examples (Culicover and Winkler 2022, C&W):

- (1) a. \*a person who<sub>i</sub> [talking to t<sub>i</sub>] about this would prove to the Mayor that there is a problem  
 b. a person who<sub>i</sub> [talking to e<sub>i</sub>] about this would prove to t<sub>i</sub> that there is a problem  
 (e = parasitic gap; t = real gap)

(1a) is ungrammatical since the relative pronoun *who* is extracted out of the subject island [*talking to t*] in violation of the Subject Condition. This violation looks remedied in (1b) by replacing the real gap in the subject with a parasitic gap and placing the real gap in a position in the matrix clause. This is illustratively compared below:

- (2) {*who, t, the Mayor*} vs. {*who, e, t*}

C&W call this "the parasitic gap effect" for the remedial effect by parasitic gaps. C&W discuss a wide range of data that shows a similar amelioration effect in terms of google data search, and explore the nature of the repair by parasitic gaps (RPG) effect. They argue that grammatical repair through parasitic gaps does not exist, but rather, any perceived instances of this phenomenon result from processing complexity arising from the presence of an R-expression, such as *the Mayor* in (1a). In accordance with C&W, the presence of an R-expression, also known as the "uninvited guest" is examined in their paper. The present study explores their assertions, identifies drawbacks, and analyzes the phenomena from a grammatical perspective.

## 2. Processing Complexity and the Parasitic Gap Effect

The major claims of C&W can be summarized as follows:

- (3) a. There is no specific parasitic gap mechanism that has the effect of making extraction from a subject island grammatical.  
 b. The connection between extraction from the subject position and the impact of a parasitic gap is related to processing complexity. The observed mitigation in the parasitic gap configuration results from differences in processing complexity.

They further elaborate that the extraction out of the subject is itself acceptable, marginally complex though. The introduction of a new discourse referent, however, "increases complexity and pushes the sentence over the threshold of unacceptability", eventually leading to the judgment of ungrammaticality. If stated from the opposite point of view, the absence of a referring expression (i.e. the uninvited guest) keeps the sentence closer to an acceptable status. All in all, after rejecting what they call "Syntactic Islands Hypothesis" and "The Gap Repair Hypothesis", they support "The Uninvited Guest Hypothesis" for the contrast given in (1). We are going to argue that their hypothesis is not entirely accurate.

## 2.1. A Thought on Culicover and Winkler (2022)

Let us first consider the typical examples exhibiting the Subject Condition. All the examples in (4) are ungrammatical because they involve subject extraction.

- (4) a. \*a person who [(not) shaking hands with t] would really bother Sally  
 b. \*a person who [us shaking hands with t] would really bother Sally  
 c. \*a person who [Terry shaking hands with t] would really bother Sally

In every example of (4), *who* is extracted out of the subject and all the examples are judged ungrammatical whether the subject is covert (4a), pronominal (4b), or a proper noun (4c). In contrast, if the referring direct object in (4) is replaced by a true gap and the gap in the subject is replaced by a parasitic gap, grammaticality is dramatically improved as can be seen in (5).

- (5) a. a person who (not) shaking hands with e would bother t  
 b. a person who us shaking hands with e would bother t  
 c. a person who Terry shaking hands with e would bother t

In terms of the presence of a parasitic gap, we can observe a similar grammatical distinction between coordination and adjunction, akin to the distinction found in subject condition cases. The repair by parasitic gaps is possible in adjunction as shown in (6b') and but not in coordination (Chaves 2012, Overfelt 2015).

- (6) a. \*Sam interviewed  $t_i$  and showed  $t_i$  his secret laboratory, [the members of the incoming class of graduate students] $_i$ .  
 a'. \*Sam interviewed  $e_i$  and showed  $t_i$  his secret laboratory, [the members of the incoming class of graduate students] $_i$ .  
 b. \*Sam interviewed  $t_i$  before showing  $t_i$  his secret laboratory, [the members of the incoming class of graduate students] $_i$ .  
 b'. Sam interviewed  $t_i$  before showing  $e_i$  his secret laboratory, [the members of the incoming class of graduate students] $_i$ .  
 (7) a. \*Kim surprised  $t_i$  and offered  $t_i$  a raise, [everyone who showed up early] $_i$ .  
 b. Kim surprised  $t_i$  by offering  $e_i$  a raise, [everyone who showed up early] $_i$ .

(6-7a) examples are the resulting strings of ATB rightward movements out of conjuncts in coordination structures while (6b') and (7b) are the repair cases by parasitic gaps in adjunction structures. A natural question arises about the difference between two types of combining. Chaves (2012) of course resorts to other factors than syntax to understand the difference but he does not discuss much about what such factors are and how they interact with syntax. He simply mentions that coherence would matter the difference between the two ways of combining. He says that adjuncts are more likely to be coherent than conjuncts due to their cohesive function, and he also suggests that conjuncts may incur certain costs due to their neutrality in cohesion. This would cost more in processing, according to him.<sup>1</sup> In (6a'), an example of coordination, the sentence is rendered ungrammatical by

<sup>1</sup> See the Appendix for the summarized cohesion relations that Kehler (2001) proposes.

the overt presence of an uninvited guest, *his secret lab*. This stands in stark contrast to (6b'), an example of adjunction, which remains quite good despite featuring the same uninvited guest. This clear contrast lends support to Overfelt's speculation that adjunction exhibits greater coherence compared to coordination.

However, Overfelt's speculation is not always convincing, as there are evident instances of coordinated structures that exhibit greater coherence than mere adjunctions. Let's take a look at (8) where we can see that the coherence condition is truly required even in coordinated structures.

- (8) a. John bought a bottle of whiskey and drank half.  
b. \*John drank a half of a bottle of whiskey and bought it.

(8a) is good with respect to the time sequence between two conjuncts. In contrast, (8b) is bad since the time sequence between the two conjuncts are reversed and hence not coherent.

What is worthy of noticing is that although coherence is real, it needs further elaboration to be incorporated into the grammar. Consider (9) below from C&W:

- (9) a. I claimed [that I liked  $t_i$ ] in order to get you to rent  $e_i$ , [that movie with Fred Astaire and Audrey Hepburn]<sub>i</sub>.  
b. \*I claimed [that I liked  $t_i$ ] in order to get you to rent a VHS cassette, [that movie with Fred Astaire and Audrey Hepburn]<sub>i</sub>.

To demonstrate that rightward movements are not clause-bounded, C&W contrast the above examples, saying that (9b) is ungrammatical because it contains an uninvited guest, *a VHS cassette*. (10) also demonstrates a similar contrast:

- (10) a. Sam thinks [that you like  $t_i$ ] because he saw you give  $e_i$  a present, [one of the coworkers in your department]<sub>i</sub>.  
b. \*Sam thinks [that you like  $t_i$ ] because he saw you give someone a present, [one of the coworkers in your department]<sub>i</sub>.

(10b) is ungrammatical because it contains an uninvited guest. *Someone* in the adjunct clause is an uninvited guest to them. However, (10b) seems to be out of the mark since *someone* cannot be understood as an uninvited guest if we strictly follow C&W's understanding about uninvited guests. They must be a referring expression. An indefinite pronoun like *someone* is evidently not a referring expression, and therefore it cannot be regarded as an uninvited guest.<sup>2</sup>

Let us concentrate our discussion on the matter of the Subject Condition, considering one more licit example of extraction out of the subject in violation of the Subject Condition.

- (11) a. The Joker is a fascinating character who [spending time with  $t$ ] is a treat.  
b. What did [the attempt to find  $t$ ] end in failure?

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<sup>2</sup> *Someone* can function as a referring expression based on how it is used and understood in a particular conversation or text. Pragmatic factors such as shared knowledge, conversational implicatures, and the speaker's intentions play a role in determining the referential function of *someone*.

In their discussion, C&W argue that extraction out of a subject is not the cause. They cite Chaves and Dery (2018) who found that the apparent violations of the Subject Condition in (11) are judged to be acceptable if they occur frequently enough. In this context, it should be noted that the concept of frequent encounters is somewhat ambiguous and difficult to define objectively. The notion of frequency is relative, and its precise boundaries require a more articulated elaboration. Understanding the conditions under which these violations are deemed acceptable demands a deeper exploration of the underlying factors influencing this “frequency effect”.

As has been repeatedly mentioned, C&W hypothesize that the unacceptability of extraction out of a subject brings about processing complexity and, therefore, it is not solely a matter of grammar *per se*. In other words, C&W argue that when there is a referring argument in the predicate that is distinct from an argument in an A-bar position, it adds to the complexity of processing" (p.9). However, the concepts mentioned thus far, such as uninvited guests, coherence, frequency, and others, tend to be somewhat ambiguous. Consequently, this naturally raises questions about the nature of these non-syntactic factors and their influence on syntax.

## 2.2. Uninvited Guests

Even with a transitive predicate, if the NP in the predicate is not a novel discourse referent (uninvited guest) and is highly accessible in the discourse, the extraction out of subjects may be acceptable. Look at the following from C&W:

- (12) a. ... spirit fond of encountering difficulties, which [to avoid t] would incur no censure, but which to meet would be impertinent and hazardous.  
b. By this she meant, if someone is making me feel bad about myself or is causing me pain and upset, they should be in my life, and that I should value those who [spending time with t] always feels like a positive experience.

Although the underlined parts contain an object, an apparent uninvited guest, it can be easily deducted or already backgrounded in the previous mention. Therefore, the sentences are reported felicitous according to C&W. In other words, the uninvited guests of the underlined parts can be readily interpreted from the previous context.

Below is an example in the context of common attributes:

- (13) Do you have vendors you work with that you truly enjoy? People who work hard for you, do a great job, and who [spending time with t] make the day go by happily and productively?

This demonstrates that common attributes, such as *the day*, cannot be considered as uninvited guests in discourse contexts. C&W make a strong argument that the co-occurrence of subject extraction with transitive predicates leads to the conclusion that any attempt to explain the Subject Condition based solely on syntax would be misguided.

## 2.3. Challenges to the Uninvited Guest Hypothesis

Although C&W's data is interesting and their explanation in terms of processing looks reasonable, they still face challenges. First such examples come from the cases where the uninvited guests do not deteriorate

grammaticality. Consider the following (modified from Chaves 2012):

- (14) a. That is the photo that I found t without looking for e.  
 b. ?That is the photo that I found Mom in without looking for t.  
 c. That is the photo that I found t while looking for e.

(14a) is a typical parasitic gap example, which is grammatical. (14b) shows that if the real gap is replaced by a referential expression *Mom*, grammaticality does not seem to deteriorate much. In addition, replacing *without* with *while* as in (14c) results in grammaticality that is just as good as (14a).<sup>3</sup> The point is that despite the presence of an uninvited guest, the grammaticality remains unaffected. This means that something rather than an uninvited guest is set in motion. The same thing can be confirmed by the following examples:

- (15) a. That is the library that I hung around in t without looking for e.  
 b. ?That is the library where I spotted the book without looking for e.  
 c. That is the library that I hung around in t while looking for a book.

(15) clearly indicates that the presence of an uninvited guest in either the trace position or the parasitic gap position does not affect the grammaticality status. If the role of the uninvited guest is not empirically justified, what would be a more plausible candidate to cover the whole cases?<sup>4</sup>

The other side of the coin is the case where even the absence of the uninvited guest does not ameliorate grammaticality status. As C&W admit themselves, there are strong violations reported regardless of the presence/absence of the uninvited guests. They mention four such cases: the LBC, the *that*-t condition, the *wh*-island condition, and the CNPC. For expository purposes, two would be enough in this regard.

A typical example of the LBC violation is given in (16) below:

- (16) \*Whose<sub>i</sub> did John give [t<sub>i</sub> pictures]?

<sup>3</sup> The original examples of Chaves (2012):

- (i) a. That is the photo that I found t in without looking for e.  
 b. ?That is the photo that I found t without looking for a book.  
 c. That is the photo that I found t while looking for a book.

These examples also challenge C&W's claim because, with the addition of a referring noun phrase, even if not in the middle of the sentence but in the sentence-final position, the overall processing complexity would increase.

<sup>4</sup> Incidentally, C&W would need extra devices to explain the following contrast:

- (i) a. ??What kinds of books do [authors of \_] argue about royalties [after writing malicious pamphlets]?  
 b. What kinds of books do [authors of \_] argue about royalties [after writing \_]?

At first glance, the contrast seems to support C&W. (ia) violates the Subject Condition; if the subject gap, however, is replaced by the parasitic gap which is licensed by the real gap in the adjunct phrase, the string becomes grammatical as given in (iib). Now consider (iia) and its modified version (iib).

- (ii) a. ??What kinds of books do [authors of malicious pamphlets] argue about royalties [after writing \_]?  
 b. What kinds of books did they argue about royalties [after writing \_]?

Chaves (2012) says that (iia) gets better if *do* is replaced by *did* and the intervening NP *authors of malicious pamphlets* is replaced by *they*. The question is why *did* and *they* make the whole string get better? C&W would encounter difficulties in explaining the difference. This paper puts this question open.

If extraction from an island is itself relatively unacceptable, we would predict that the omission of the Uninvited Guest – in the form of a true gap – should have produced a parasitic gap effect. The prediction is not borne out (C&W: 15).

- (17) a. \*Whose<sub>i</sub> did John give [t<sub>i</sub> pictures] to Mary?  
b. \*Whose<sub>i</sub> did John give [e<sub>i</sub> pictures] to t<sub>i</sub>?

(17a) is a violation of the LBC with an uninvited guest, Mary. Even if we remove it as in (17b) and replace the trace of *whose* with a parasitic gap, the sentence does not get repaired. The presence or absence of a referential NP, namely an uninvited guest does not exert an influence to their grammaticality.<sup>5</sup>

One more case of strong violation comes from the *that*-t effect.

- (18) a. \*a physicist who<sub>i</sub> I predict [that t<sub>i</sub> will win the Nobel prize]  
b. \*a person who<sub>i</sub> you suggested to t<sub>i</sub> [that e<sub>i</sub> would win]  
c. \*a person who<sub>i</sub> you suggested to Mary [that t<sub>i</sub> would win]  
d. \*Who<sub>i</sub> did you ask Mary [whether t<sub>i</sub> had argued with John]?

(18a) is a typical example of the *that*-t effect violation. In (18b), even if the real gap is replaced by a parasitic gap, no repair is observed, and ungrammaticality persists. If there is an uninvited guest, grammaticality does not change for sure as in (18c). (18d) demonstrates that the same phenomenon occurs not only with the complementizer *that* but also with other complementizers, such as *whether*. These strong islands are not explained in C&W but only mentioned.

## 2.4. Uninvited Guest Issues in Korean

C&W's hypothesis is that if an uninvited guest is met in the middle of processing track, the processing complexity increases and therefore grammaticality deteriorates. Let us test this against Korean data. It is widely known that the head noun of relative clauses in Korean comes clause-final. This makes a prediction that the subject relative clause (19a) is more complex from processing point of view than the object relative clause (19b) or the adjunct relative clause (19c). This is because the linear distance between the gap and its head noun of (19a) is longer than those of (19b) and (19c).

- (19) a. [\_\_\_ Mary-lul cafe-eyse manna-n] namca  
M-ACC cafe-at meet-rel man (rel=relative pronoun)  
'a man that met Mary at the cafe'

<sup>5</sup> These examples involve a possessor phrase as the left branch in a ditransitive NP-PP configuration. In the case of (17a), the PIC is violated as possessors function as modifiers akin to adjectives (Bošković 2008, 2012a, 2012b, 2023). Since modifiers do not occupy a specifier position from which they can undergo extraction, any extraction that doesn't occur from a specifier inherently violates the PIC. As for (17b), it cannot be derived due to its flawed base structure from the outset. In simpler terms, the movement of *whose* from \*[to whose] cannot be assumed, which would breach the subcategorization requirement of a preposition. In this regard, C&W does not appropriately address the question of LBC violations in these examples. For these reasons, we disregard the examples in (17) for more discussion.

- b. [John-i \_\_\_ cafe-eyse manna-n] yeca  
 J-NOM cafe-at meet-rel woman  
 'a woman that John met at the cafe'
- c. [John-i Mary-lul \_\_\_ manna-n] cafe  
 J-NOM M-ACC meet-rel cafe  
 'a cafe where John met Mary'

However, as shown in the above examples, the grammaticality of the three relative clauses does not sound different to native Korean speakers. If the judgment is correct, C&W's prediction does not seem to be borne out. Experimental results also report that the processing of (19a) takes as long a time as the processing of (19b) and (19c). It indicates that processing complexity has nothing to do with grammaticality, contrary to C&W's prediction according to which an uninvited guest can raise processing complexity.

Turning to the repair by parasitic gap effect, if the subject gap is replaced by a parasitic gap following C&W's hypothesis as in (20b), then it is expected that grammaticality would be improved.

- (20) a. [[t<sub>i</sub> Mary-lul hotel-esey mannassta-ko] Tom-i Sally-eykey malha-n] namca;  
 M-ACC hotel-at meet-comp T-NOM S-to said-rel man  
 'a man who Tom said to Sally that met Mary at the hotel'
- b. [[e<sub>i</sub> Mary-lul hotel-esey mannassta-ko] Tom-i t pinanha-nun] namca;  
 M-ACC hotel-at meet-comp T-NOM blame-rel man  
 'a man who Tom blames that met Mary at the hotel'

Grammaticality, however, does not change if these are put in the *that-t* context even. (20a) and (20b) sound grammatical without difference. Consider the following contrast for confirmation:

- (21) a. [[t<sub>i</sub> Mary-wa akswuhanun kes]-i Sally-lul ccacungnakey ha-nun] namca;  
 M-with shakes hands-NOM S-ACC annoy-Rel man  
 'a man who t shaking hands with Mary annoys Sally'
- b. ?[[e<sub>i</sub> Mary-wa akswuhanun kes]-i t<sub>i</sub> ccacungnakey hanun] namca;  
 M-with shakes hands-NOM annoy-Rel man  
 'a man who is annoyed by shaking hands with Mary'

(21a) is an example of the subject extraction from a relative clause. (21b) is an example where the subject gap is replaced by a parasitic gap. The thing is that the two sentences, are quite acceptable. This is another example where the string is grammatical even with an uninvited guest as shown in (21a). Quite contrary to C&W, (22b) with a parasitic gap sounds more awkward than (21a) to Korean ears. This is also another case where the absence of an uninvited guest behaves differently from the prediction that C&W makes. Despite the presence of an uninvited guest as in (21a), grammaticality is not affected. This way Korean rebukes C&W's uninvited guest hypothesis. Is there a syntactic alternative? To this we will turn in the next section.



### 3. Proposed Analysis

#### 3.1. Toward a Proposal

Repair strategies in grammar appear to be genuine. However, merely attributing the difference in grammaticality to the presence or absence of unexpected elements is essentially just repeating the problem, unless it is theoretically and empirically justified why the nature of processing complexity matters. The central idea of this paper is that we should consider integrating discourse factors into the realm of syntax. In this paper, it is presumed that there exists a projection referred to as HumeP (Humean Phrase), which serves as a overarching term encompassing all the coherence factors that play a role in accurately comprehending the discourse-pragmatic information conveyed by a particular utterance. In particular, this may be one of the various coherence factors given in the Appendix with respect to Humean principles.<sup>6</sup>

Numerous noteworthy scholarly works, including those by Rizzi (2004), Cinque (2002), Kehler (2001), and more recently, Miyagawa and Hill (to appear), have explored this research direction. There are many similar avenues of research as well. Building on Ross's (1970) performative analysis, several linguists have suggested the inclusion of speech acts within the clausal structure, introducing the concept of SAP (speech act phrase). Notably, Speas and Tenny (2003) have made significant contributions to this aspect of research. To provide a more detailed explanation, Haegeman and Hill (2013) introduced the concept of saP to address illocutionary force and SAP to address perlocutionary force. Another significant advancement in syntax is the concept of D-linking, which was introduced in the early 1980s to handle syntactic phenomena related to *wh*-phrases. An illustrative instance of recent research in this vein can be found in the work of Wiltschko (2021, 2022). She argues that language serves not only as a tool for individual thought, as Chomsky posits, but also as a means of communication. To elaborate, she introduces the concepts of GroundSpkP and GroundAdrP, which are separate syntactic structures added onto the p-structure to account for illocutionary and perlocutionary forces. In a similar vein, this paper adopts the view that discourse-pragmatic considerations should be integrated, or syntactically incorporated, into the clausal spine.

If we incorporate these modifications into the clausal architecture, it opens up several theoretical possibilities within the framework of dynamic phase hypotheses, particularly concerning movement and ellipsis. This line of thought has been explored in previous studies as outlined by den Dikken (2006, 2007, 2017), Bošković (2008, 2012a, 2012b, 2023). Building on these prior investigations, we introduce the concept of HumeP in the clausal structure.

We investigate syntactic responses with the assumption that repairing sentences by removing unexpected elements is influenced by discourse coherence. Specifically, we analyze how discourse coherence can be integrated into structural considerations using the contextual phase theory framework. To illustrate this concept further, consider ellipsis as an example. The presence of voice mismatch varies depending on coherence factors, as discussed by Kehler (2001) and Tanaka (2011) along with corresponding examples provided in (22-23).

- (22) a. This problem was to have been looked into, but obviously, nobody did.  
 b. Roses should have been brought by somebody, but surprisingly, nobody did.
- (23) a. \*This problem was looked into by John, and (similarly) Bob did, too.

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<sup>6</sup> The importance of discourse coherence in syntax has been extensively emphasized by Lakoff (1986). For more details and examples related to Humean factors, readers are referred to the Appendix, which contains the examples of Kehler's (2001) research.

- b. \*Roses were brought by someone, and others did.

Although the passive-active mismatch is the same, (22) and (23) show different grammaticality. For this contrast, Kehler (2001) argues that VP-ellipsis is influenced by discourse-pragmatic factors like "cause-effect" and "resemblance". He proposes that cause-effect allows voice mismatch as in (22) but resemblance does not as in (23).<sup>7</sup>

Turning back to our examples under consideration, look at (24) again:

- (24) a. \*Sam interviewed t and showed t his secret lab, [the members of ...]. (=6a)  
b. Sam interviewed t before showing e his secret lab, [the members of ...]. (=6b')

We argue that the contrast between (24a) and (24b) is not a matter of discourse coherence but a matter of syntactic structures. The structures of (24a) and (24b) differ in that the former involves coordination in terms of &P (ConjP) and the latter has adjunction. In (24a), the extraction out of &P is illicit because two conjuncts are not structurally parallel. To clarify further, the first conjunct is a simple transitive construction, whereas the second conjunct exhibits a ditransitive construction. This is similar to the following example, which is considered problematic.

- (25) \*John [Transitive saw t]and Bill [Ditransitive gave t a book], Mary.

However, (24b) does not raise such a parallelism issue because it has only one movement, leaving a real gap, and this gap regularly licenses the parasitic gap. As such, we can avoid the vagueness of Overfelt's suggestion that conjuncts are more or less costly in processing due to their neutrality in cohesion.

The observed contrast between phrases like "writing a book about something" and "destroying a book about something" has puzzled linguists for a while. This distinction has often been attributed to pragmatic considerations by many functional linguists, such as Kuno (1987), Erteschik-Shir (1981), and Deane (1992). For instance, Kuno (1987) suggests that when you write a book, the act is inherently related to the book itself as its topic, creating a natural coherence between the event and the subject matter. On the other hand, when you destroy or lose a book, this coherence between the event and the topic is lacking. In his view, the difference in grammaticality can be explained by the degree of coherence between the event and the subject matter. For instance, if John is infamous for often tearing apart books, this sentence becomes more understandable (Chaves 2012). In this context, we suggest that in (26) the distinction arises because the phrase "write a book" inherently makes sense even without additional context, while "destroy a book" lacks coherence on its own and relies on additional context. This distinction serves to highlight the contrast between these two constructions, as demonstrated in (26).

- (26) a. Who did John [<sub>VP=phase</sub> write a book ] [<sub>PP</sub> about \_] ?  
b. \*?Who did John [<sub>HumeP=phase</sub> [<sub>VP≠phase</sub> destroy a book] [<sub>PP</sub> about \_] ?

<sup>7</sup> Not all ellipsis are influenced this way. Pseudogapping does not allow voice mismatch, although it is considered as a subtype of VP ellipsis.

- (i) a. \*Roses were brought by some, and others did lilies.  
b. \*Some brought roses, and lilies were by others.

The distinction can be explained through specific syntactic structures. This is a reasonable explanation since HumeP is primarily linked to discourse-coherent features related to the act of destroying a book. Thus, we offer a clear explanation for why the question *What did John destroy a book about?* sounds less natural than *What did John write a book about?* in terms of syntactic structures. In the case of *What did John write a book about?* as described in (26a), the *wh*-phrase undergoes a specific syntactic process. It initiates its movement from the Spec-PP to the Spec-*v*P, satisfying the Phase Impenetrability Condition (PIC), rendering the structure grammatically correct.

On the contrary, in (26b), the moving *wh*-phrase violates the PIC because it fails to land in the Spec-HumeP after leaving the Spec-*v*P. The reason for this violation is that the Spec-HumeP lacks the necessary features required to accommodate the *wh*-phrase (or to check the features of the *wh*-phrase). Consequently, this movement crosses the HumeP phase, which contradicts the PIC.

To repeat, it is important to note that these distinct syntactic structures reflect the underlying reasons. This distinction is reasonable because HumeP primarily deals with discourse-related coherence features related to the action of destroying a book, rather than being directly connected to the extracted *wh*-feature. In essence, there is no inherent syntactic dependency between the Hume head and the *wh*-phrase, which explains the observed violations.

Now, let's revisit the examples involving parasitic gap repair:<sup>8</sup>

- (27) a. \*a person  $who_i$  [talking to  $t_i$  about this] would prove to the Mayor that there is a problem.  
b. a person  $who_i$  [talking to  $e_i$  about this] would prove to  $t_i$  that there is a problem

We assume that the structure of the subject and its vicinity may be influenced by pragmatic factors. Additionally, the subject phrases of (27a) and (27b) are assumed to have different structures (28a) and (28b) respectively, as shown below:<sup>9</sup>

- (28) a. ...  $who_i$  [<sub>SubjP</sub> PRO [<sub>vP</sub> talking to  $t_i$ ] about this] ...  
b. ...  $who_i$  [<sub>HumeP</sub> [<sub>SubjP</sub> PRO [<sub>vP</sub> talking to  $e_i$ ] about this]] ...  $t_i$  ...

<sup>8</sup> There are a couple of examples reported against the view that the amelioration effect is not exactly due parasiticism (Chaves and Dery 2018). Firstly, the violations of the Subject Condition can be repaired even by a real gap:

(i) This is a man who [friends of  $\_$ ] think that [enemies of  $\_$ ] are everywhere.

Secondly, even without parasitic gaps, not all violations of the Subject Condition lead to ungrammaticality:

(ii) a. Which problem would [the resolution of  $\_$ ] surprise you the most?

b. Which disease did [the vaccine for  $\_$ ] suddenly stop working?

Thirdly, parasitic gaps do not exhibit a reparative effect when the subject is associated with a finite verb, as seen in (iv) in contrast to (iii):

(iii)a. \*What did [the attempt to repair  $\_$ ] ultimately damage the car?

b. What did [the attempt to repair  $\_$ ] ultimately damage  $\_$ ?

(iv)a. \*What did [the medicine that repaired  $\_$ ] ultimately damage the car?

b. \*What did [the medicine that repaired  $\_$ ] ultimately damage  $\_$ ?

These examples support the view that the repair by parasitic gaps is not genuine.

<sup>9</sup> A reviewer proposes an alternative analysis in terms of more conventional assumptions. In (28b), for example, ( $who_i$ ,  $t_i$ ) forms a chain, ( $O_i$ ,  $e_i$ ) does another chain, and later these two chains become a single chain by chain composition. Under such assumptions, (28a) is ungrammatical since  $who$  crosses an island, while (28b) the null operator does not cross the island boundary. We admit that this alternative is basically on right track, but we take a different track to the issue because the alternative does not count on pragmatic factors, which we believe must be seriously taken into deeper consideration.

In (28), SubjP and HumeP serve as shorthand representations for distinct categories that are differentiated by the inclusion of pragmatic or informational elements within the clause. Specifically, HumeP is responsible for conveying pragmatic or informational aspects from the discourse to the syntax, a role that SubjP does not possess. This assumption aligns with the notion that pragmatic and informational elements are typically expected to be part of left-peripheral categories, akin to FocP as proposed by Rizzi's (2004) cartographic framework.

With the reanalysis of *talking to* as a single transitive verb, we can explain the contrast between (28a) and (28b) in terms of the PIC. (28a) is ruled out because the relative pronoun *who* cannot move down into the Spec-SubP from the Spec-vP since PRO occupies the Spec-SubP position, leading to a PIC violation. In contrast, (28b) can be rescued by the parasitic gap which undergoes the null operator movement. This is possible because SubjP no longer functions as a phase, thanks to HumeP inheriting phasehood from SubjP. Consequently, there is no PIC violation even when this movement skips the Spec-SubP and occurs from the Spec-vP to the Spec-HumeP. Additionally, the parasitic gap inside the subject phrase can be licensed by the trace of the relative pronoun *who*.<sup>10</sup>

The central theme of this paper revolves around the structural distinction between (28a) and (28b). Engdahl (1983), a pioneer in the field of parasitic gap study, proposes that there exists an acceptability hierarchy in parasitic gap constructions, and this hierarchy adheres to the linguistic characteristics of individual languages. This paper adopts the notion of "pragmatic coherence" as these linguistic characteristics, in alignment with Chaves's (2012) expectation-based approaches to the Subject Condition. Chaves suggests that speakers hold an expectation that the subject should not contain a genuine gap; if a parasitic gap replaces the gap, it somehow aligns with the speakers' expectation, leading to the amelioration effect of parasitic gaps. This expectation on the part of speakers largely relates to pragmatic coherence, akin to a syntactic projection like HumeP in this paper. As previously mentioned, HumeP serves as a broad term encompassing syntactic projections that evoke various aspects of discourse coherence, as detailed in the Appendix.<sup>11</sup>

<sup>10</sup> An alternative phase-based analysis is worth considering. (28a) has two derivational possibilities. Let us consider the first possibility. If the complement of P moves to the Spec-PP, this would violate the Anti-locality. Even if a derivations proceeds upward, the derivation fails since it already violated a severe derivational constraint, the Anti-locality. The second possibility is where PP moves in a pied-piping fashion. The whole PP, not its complement, moves to the Spec-VP. This derivation does not violate the Anti-locality since the PP is not a complement but an adjunct. However, on its way upward, the *wh*-phrase moves out of PP with leaving P behind, it skips the Spec-SubjP which is already occupied by PRO. This movement turns out to violate the PIC since it crosses over SubjP, which is a phase according to the definition of den Dikken's (2006, 2007) predication-based definition. SubjP is an inherent phase. Both derivational possibilities fail. Therefore, (28a) has no way to survive. Adopting the pied-piped movement of PP, in (28b), the PP moves to Spec-VP in no violation of the Anti-locality since it is an adjunct but not a complement. A big difference between (28a) and (28b) is that the latter has HumeP over SubjP. By phase extension (den Dikken 2006, 2007), phasehood is yielded to HumeP and SubjP loses its phasehood. On its movement upward, the *wh*-phrase drops by the Spec-HumeP in satisfaction of the PIC.

<sup>11</sup> In addition, the parasitic gap in (28b) is not c-commanded by the real gap, conforming to the Anti-c-command condition which requires parasitic gaps not to be c-commanded by the real gap (Arregi and Murphy 2022). They propose the Anti-c-command generalization in (ii) to explain why double object constructions cannot allow two gaps, one of which is a parasitic gap. They provide an example, cited as (i), to illustrate this phenomenon.

- (i) \*Which girl<sub>i</sub> did you give t<sub>i</sub> [DP a picture of e<sub>i</sub>] yesterday?  
(ii) Anti-c-command generalization

The licensing gap cannot c-command the parasitic gap.

### 3.2. Consequences

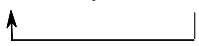
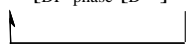
The proposed analysis is crucially based on the contextual or dynamic definition of phases. This stands in contrast to Chomsky's (1995, 2001, 2008) rigid concept of phases, which restricts phases to CP and  $\nu$ P. The dynamic phases present a more adaptable definition of a phase, allowing phasehood to vary based on the specific context. In this paper, we posit that the structural context, whether purely syntactic or syntacticized, has the capacity to alter phasehood from a PIC perspective. Let us consider the LBC and the Adjunct Condition in turn.

The analysis grounded in the contextual or dynamic phasehood can elucidate the diverse levels of violations in the Left Branch Condition (LBC). It is reported that the quantity *how* and degree *how* exhibit different behavior, as can be seen in the following examples (Wei 2011):

- (29) Quantity *how*
- a. i. \*How many should I buy \_\_\_ peppers for the dinner?
  - ii. \*How much did she find \_\_\_ gold?
  - b. i. I should buy some peppers for the dinner, but I don't know how many.
  - ii. She found gold, but won't say how much.
- (30) Degree *how*
- a. \*How does she want [a \_\_\_ detailed list]?
  - b. i. \*He wants a detailed list, but I don't know how.
  - ii. \*She bought an expensive car, but I don't know how.

(29a) shows the behavior of the quantity *how*: This conforms to the general prediction of the LBC. (29ai) and (29aii) are all ungrammatical due to LBC violation. As has been discussed by many scholars, ellipsis can repair the otherwise ungrammatical string by deleting problematic parts of the string. Sluicing with quantity *how* remedies ungrammaticality as shown in (29b). The degree *how*, however, is different. (30a) is a violation of the LBC. Sluicing does not seem to remedy the LBC violation as shown in (30b), although the ellipsis deletes the problematic part of the string.

For this difference, the present paper makes use of the dynamic definition of phases. Its pivotal assumption is that their structural architectures are different. The thing is that the noun phrase with a quantity *how* is actually assumed to end up with QP (above DP). Although DP is a phase by definition, it transfers its phasehood to QP by phase extension. The extraction of *how many* out of DP does not result in a PIC violation.<sup>12</sup> In contrast in the case of degree adverbs like *how*, there is no QP involved, and therefore, there is no movement of D to Q. Consequently, DP retains its status as a phase. When we extract *how* in this context, it violates the PIC because its movement does not originate from the edge of DP but from an adjoined position under [<sub>D</sub> *a*]. It does not land in Spec-DP either, because D lacks a *wh*-feature. This observation is reasonable, considering that "how a detailed list" forms an unacceptable phrase.

- (31) a. Quantity *how*  
 [QP=phase *how many* [DP <how many> D [NP *peppers*]] (PIC satisfied)  

- b. Degree *how*  
 ... *how* [DP=phase [D *a*] <how> detailed [NP *list*]] (PIC violated)  


The proposed analysis opens a pathway to elucidate certain counterexamples to the Adjunct Condition. Look at the following contrast:

- (32) a. \**War and Peace* is a book<sub>i</sub> that I always amuse Sandy [while reading t<sub>i</sub>].  
 b. *War and Peace* is a book<sub>i</sub> that I always fall asleep [while reading t<sub>i</sub>].

Although extraction out of an adjunct is known to be banned as in (32a), (32b) shows that this is not always the case.<sup>13</sup> Under the proposal of this paper, the representations of (32) are given below:

- (33) a. \**War and Peace* is a book<sub>i</sub> that I always amuse Sandy [AdjunctP while reading t<sub>i</sub>].  
 b. *War and Peace* is a book<sub>i</sub> that I always fall asleep [HumeP [AdjunctP while reading t<sub>i</sub>]].

To provide more detail, this paper assumes that (33a) has a straightforward AdjunctP structure, while (33b) incorporates an additional HumeP layer above it, which accounts for coherence factors reflected in its organization. The introduction of HumeP is justified by the fact that the purpose of reading *War and Peace* is not solely to fall asleep; instead, these two events occur in parallel, which falls under a subtype of discourse coherence (see Appendix for further examples). In the case of (33a), AdjunctP functions as a phase, and the moving element (the null relative operator) does not land in Spec-AdjunctP on its way upward. This is because it lacks relevant features to be checked in that position, resulting in a violation of the PIC. In contrast, in (33b), HumeP becomes a phase either through head movement (following den Dikken 2006 *et seq.*) or by serving as the highest phrase (as proposed by Bošković 2008 *et seq.*). In this scenario, the moving element successfully drops into Spec-HumeP, satisfying the PIC requirement. The extractee lands in Spec-HumeP because Hume has relevant grammatical dependencies with the head of AdjunctP, which is understandable given that HumeP's formation arises from its pragmatic interaction with the adjunct. The movement out of HumeP does not pose any issues as it occurs from its edge.

## 4. Conclusion

Up to this point, the paper has addressed the assertion that parasitic gaps can rectify initially ungrammatical constructions, improving their overall grammaticality. C&W interpret this reparative effect from a processing perspective. They argue that the so-called RPG effect is nothing but a syntactic illusion but something that must be understood as a reducing device of an otherwise heavier processing cost. They demonstrate this by replacing

<sup>13</sup> According to C&W, grammaticality deteriorates in (32a) due to the presence of an uninvited guest like *Sandy*, a point that this paper argues is not on the right track.

the referential expression under consideration, or an uninvited guest, with a parasitic gap. This paper has demonstrated that their "uninvited guest" hypothesis faces challenges in terms of both overgeneration and undergeneration. In order to address these issues, the paper proposes that the RPG effect is not a genuine phenomenon and suggests that a more plausible approach involves syntactic analysis from a derivational perspective. Specifically, this paper illustrates that dynamically evolving phases in derivation can offer a more effective solution to phenomena that encompass examples with robust islands, such as the LBC and the *that-t* effect. Ultimately, if the conclusions drawn in this paper prove to be correct, it would be a significant contribution towards integrating discourse-pragmatic concepts into syntax, leading to a collaborative syntax, which we believe to be an advanced stage beyond autonomous syntax.

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Examples in: English

Applicable Languages: English

Applicable Level: Tertiary



## Appendix: Kehler's Discourse Coherence Theory

Kehler (2001) discusses three Humean principles: Resemblance, Contiguity, and Cause/Effect. Resemblance relation includes Parallel, Contrast, Elaboration, Exemplification, Generalization, Exception, which can be exemplified by the followings:

- (1)
  - a. Jill built a snowman, and Sue made snow angels. (Parallel)
  - b. Jill likes building snowmen, but Sue prefers making snow angels. (Contrast)
  - c. Today, Jill built a snowman. She piled three snowballs on top of another, and decorated it with button eyes, carrot nose, and a pipe and a scarf. (Elaboration)
  - d. Children love to play in the snow after the storm. Today, Jill built a snowman. (Exemplification)
  - e. Today, Jill built a snowman. Children love to play in the snow after the storm. (Generalization)
  - f. Children love to play in the snow after a storm. But today Jill stayed inside. (Exception)

Cause/Effect includes Explanation, Result, Violated Expectation, Denial of Preventer, which are exemplified as below:

- (2)
  - a. I hope it snows this weekend. I love building snowmen. (Explanation)
  - b. I love building snowmen. I hope it snow this weekend. (Result)
  - c. I love building snowmen, but I hope it does not snow this weekend. (Violated Expectation)
  - d. I hope it does not snow this weekend, even though I love building snowmen. (Denial of Preventer)

Contiguity includes Occasion.

- (3) A huge storm hit Scranton this weekend. Many children were seen out playing in the snow. (Occasion)

On the basis of the above relations, he sets up the following Hypotheses.

- (4) Kehler's Hypotheses
  - Hypothesis 1: Arguments of Humean Resemblance relations have a common topic.
  - Hypothesis 2: Arguments of Humean Cause/Effect and Contiguity relations do not impose constraints on topics.