

# Parasitic Gaps as Pronominals<sup>1</sup>

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**Joh, Yoon Kyoung. 2002. Parasitic Gaps as Pronominals. *SNU Working Papers in English Language and Linguistics* 1, 175-189.** Based on the claim made by Pollard and Sag (1994) that only subject parasitic gaps are true parasitic gaps, I have found that the evidence that Levine et al. (2001) put forth is insufficient to disprove that parasitic gaps are pronominals. Their counterexamples are only limited to adjunct gaps and subject extractions which are, strictly speaking, not parasitic gaps. I have also asserted that their normal gap approach to a parasitic gap encounters an inherent problem in accordance with the Principle of Canonality. Therefore, in favor of the pronominal analysis of p-gaps, which has mainly supported by Cinque (1990) and Postal(1994), I have revised the Subject Condition and the Synsem Hierarchy. These revisions allow us to account for parasitic gaps in *tough* constructions and the resumptive property of parasitic gaps.  
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## 1. Introduction

Parasitic gaps occur in languages where subcategorization restrictions should always be obeyed even when contextual information fully predicts them. Pollard and Sag (1994) – henceforth, PS –, define a parasitic gap as a gap that appears only when another coindexed gap occurs. Engdahl (1983) additionally points out that parasitic gaps appear typically in extraction islands and are parasitic only on another filler-gap dependency. Therefore, a trace that is left by passivization in a transformational point of view does not legalize a parasitic gap like the sentence in (1).

(1) \*John was killed \_\_\_\_ by a tree falling on \_\_\_\_.

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Another essential property of parasitic gaps is that they can either be phonetically null or be locally realized, which is a property of resumptive pronouns. For this reason, there have been lots of discussions in the linguistic literature whether parasitic gaps are normal gaps or pronominals. To name a few, Postal (1994) and Cinque (1990) analyze parasitic gaps as pronominals while Levine et al. (2001) treat them as normal gaps.

In this paper, I basically assume that only subject parasitic gaps are the ones that can be characterized as "truly parasitic," totally agreeing to PS. Given that, I will make some critical comments on Levine et al. (2001)'s normal gap approach. My oppositions lie on three aspects even with all due respect to their brilliant analysis on the previously overlooked cases.

First, their evidence against Cinque and Postal's treatment of parasitic gaps as resumptive pronominals is insufficient because the counterexamples they propose are limited only to adjunct parasitic gaps. I will clarify that, as claimed by Cinque (1990), only referential NPs can be co-indexed with the phonetically null elements -- subject parasitic gaps. Secondly, Levine et al. (2001) assert that parasitic gaps can occur as finite subjects and thus not pronominals. However, the claim is also unacceptable since they don't make distinctions between whole subject extractions and partial parasitic extractions out of the subject. Third, their argument gives rise to a misprediction in the respect that their normal gap scenario blocks the possibility of the local realization of parasitic gaps in accordance with the Principle of Canonality.

Based on the refutation, I will insist that a parasitic gap is a pronominal. Therefore, there needs to be a *pro* synsem distinguished not only from a gap synsem but also from a PRO synsem. This proposal necessitates a slight modification of the current Synsem Hierarchy. Furthermore, I attempt to put forth a revised Subject Condition that is restrictive enough to exclude subject extractions but comprehensive enough to explain *tough* constructions that previous several versions of Subject Conditions couldn't account for.

## 2. Only the Subject Parasitism Is Real

Engdahl (1983) introduces representative examples of parasitic

gaps. First two examples (2) and (3) contain adjunct parasitic gaps. The difference is the former occurs in an infinitival verb environment whereas the latter is positioned in the complement place of a finite verb. When it comes to sentence (4), he does not make a judgement about which one is parasitic on which. Sentence (5) describes a parasitic gap taking place in a subject island.

- (2) Which articles did John file (g) without reading (p)?
- (3) This is the kind of food you must cook (g) before you eat (p).
- (4) Which girl did you send a picture of \_\_\_\_ to \_\_\_\_.
- (5) Which boy did Mary's talking to (p) bother (g) most?

They are what has generally been called parasitic gaps. In Levine et al. (2001), all of the parasitic gaps have been regarded as normal gaps with no particular distinctions or constraints. However, I would like to point out that there are some idiosyncratic properties in subject parasitic gaps different from adjunct parasitic gaps. Firstly, let's see some examples of parasitic gaps located in an adjunct island. Examples below are from Engdahl (1983: 14) and PS (1994: 191).

- (6) a. Here is the paper that John read (g) before filing (p).  
       b. \*Here is the paper that John read his mail before filing (p).  
       c. Here is the paper that John read (g) before filing his mail.
- (7) a. Those boring old reports, Kim went to lunch without reading (p).  
       b. Those boring old reports, Kim filed (g) without reading (p).

The sentences in (6) reveal the typical properties of parasitic gaps. The sentence (6a) points out that they are parasitic on another unbounded-dependency gap in the same sentence and (6b) shows us that adjunct parasitic gaps cannot survive independently. The sentence in (6c) notes that a parasitic gap is able to be recovered by a referential NP. However, (7a) tells a different story since there is a parasitic gap in an adjunct island without a licensing gap. In fact, adjunct p-gaps can easily survive without the presence of another gap. This naturally brings us a doubt whether they are truly parasitic.

Different from the arbitrary dependency condition of adjunct parasitic gaps, parasitic gaps that occur in subject complex NPs must abide by the dependency condition which is the key property of parasitic gaps. Additionally, subject parasitic gaps always occur in less oblique positions than licensing gaps -- an anti-c-command condition. These can be illustrated by the following examples introduced by Engdahl (1983: 14) and PS (1994: 186, 189, 199) listed respectively from (8) to (11). Sentences (8) and (9) illustrate that extraction can take place in a gerund nominal phrase and a bare nominal phrase. A subject parasitic gap can also occur in a noun phrase that serves as a subject for an object raising verb or for a subject raising verb as shown in (10) and (11).

- (8) a. Who did John's talking to (p) bother (g) most?  
       b. \*Who did John's talking to (p) bother you most?  
       c. Who did John's talking to Mary bother (g) most?
- (9) a. That was the rebel leader who rivals of (p) shot (g).  
       b. \*That was the rebel leader who rivals of (p) shot the British consul.
- (10) a. Here's the jerk that I expected my pictures of (p) to bother (g).  
        b. Here's the jerk that I expected my pictures of (p) to bother you.  
        c. Here's the jerk that I expected my pictures of you to bother (g).
- (11) a. I never know which topics jokes about (p) are likely to offend (g).  
        b. \*I never know which topics jokes about (p) are likely to offend people.

As shown above, subject parasitic gaps keep a dependency condition and an anti-c-command condition without exceptions while adjunct parasitic gaps abide by them in a rather arbitrary way. These different behaviors necessarily lead us to question whether adjunct parasitic gaps are really parasitic if they are sometimes parasitic and sometimes are not. As PS (1994: 195) has already argued, it seems that all the cases of true parasitic gaps are contained within subjects.

One possible reason why this discrepancy arises can be explained

by the more-than-one-island-effect. Levine et al. (2001) cites Cinque (1990: 133) who claims that one island is able to be violated but more than one island is not to be violated at a time. This island effect seems to provide an explanation about the different behaviors between subject p-gaps and adjunct p-gaps. Subject parasitic gaps are surrounded by a strong island that is composed of two constraints, i.e., a sentential subject constraint and a complex NP constraint that have been discussed in Ross (1967). On the other hand, adjunct parasitic gaps are positioned within a rather weak island and thus are able to overcome it. Therefore, I would like to assume that real parasitism lies only in subject complex NPs that make a strong, unbreakable island. Gaps that occur in a weak island do not reveal true parasitism.

### 3. Parasitic Gaps are Pronominals Not Gaps

Based on the assumption that only subject parasitic gaps are true p-gaps, I will try to convince that p-gaps are not normal gaps. To this end, I would like to make comments on three points. First two subsections are as to the weaknesses found in Levine et al (2001)'s argument that parasitic gaps are not pronominals. However, this does not directly refute their claim that parasitic gaps are normal gaps. Thus, the last part will discuss the inherent problem encountered in analyzing subject parasitic gaps as normal gaps.

#### 3.1 Coindexing with Referential NPs

First of all, I would like to mention that the evidence discussed in Levine et al (2001) is not sufficient to refute that parasitic gaps are pronominals since their counterexamples are targeted at only one kind of parasitic gaps -- adjunct p-gaps -- which is in the marginal categorization of parasitic gaps. More strictly speaking, their examples are not parasitic gaps. Let's take some examples discussed in Levine et al. (2001):

- (12) a. How harshly do you think we can treat THEM (g) without  
in turn being treated (p) OURSELVES?
- b. That's the kind of table ON WHICH it would be wrong

- to put expensive silverware (g) without also putting (p) a fancy centerpiece.
- c. I wonder just how nasty you can PRETEND to be (g) without actually BECOMING (p).
  - d. A doctor, you could spend your whole life trying to be (g) without ever becoming (p)!
  - e. That Robin is a spy would naturally be difficult to refute (g) without having first conjectured (p)
- (13) a. I found a really nice card that I decided to keep(g) for myself instead of sending ROBIN (p) for his birthday
- b. Mint green is a color that you might paint your CEILING (g) without necessarily wanting to paint the surrounding Walls (p).
  - c. Anybody can become a bureaucrat, but a doctor, one could spend one's whole life STUDYING to be (g) without ever BECOMING(p)!
  - d. The Greek Army is one national service that I would certainly want to assess (g) carefully before entering (p).

They provide a number of instances where the fillers are not referential NPs as in (12) and examples in which parasitic gaps take place in anti-pronominal environments as in (13). Each sentence in (12) respectively shows that adverbial P-gaps, PP P-gaps, AP P-gaps, nonreferential NP P-gaps and clausal P-gaps can occur as p-gaps. Sentences in (13) all explain p-gaps can be positioned in places where pronominals cannot survive such as extraposed slots, arguments denoting change of color, predicate nominal positions, and specialized locations. All of them seem to support that p-gaps are neither referential NPs nor pronominals.

As discussed in section 2, however, true parasitic gaps are found in subject places not in adjunct clauses but their counterexamples above are only adjunct p-gaps that are hardly characterized as parasitic. Therefore, the evidence against parasitic gaps as pronominals is not satisfactory and this cannot serve as a jumping off point to the conclusion that parasitic gaps are normal gaps.

In fact, only NPs can take place in subject parasitic gap sites. Phrases other than noun phrases cannot serve as subject parasitic gaps since they typically occur in the complement position of a

preposition. Postal (2001b: 412) even provides examples from (14) to (16) that show us that nominals combined with "how adjectives" are excluded as extractees out of the subject. This illustrates that even nonreferential NPs cannot be extracted out of the subject. Only referential NPs are potential candidates of subject parasitic gaps, which are totally compatible with the characteristics of pronominals.

- (14) a. [What type of gorilla] did stories about \_\_ (p) enrage \_\_?  
 b. \*[How ferocious a gorilla] did stories about \_\_ (p) enrage \_\_?
- (15) a. [What type of gorilla] did your stories about \_\_ (p) enrage \_\_ shortly after Bob's story about \_\_ (p) enraged \_\_?  
 b. \*[How ferocious a gorilla] did your stories about \_\_ (p) enrage \_\_ shortly after Bob's story about \_\_ (p) enraged \_\_?
- (16) a. [What type of gorilla] did your stories about \_\_ (p) enrage \_\_ shortly after Bob's story about \_\_ (p) did?  
 b. \*[How ferocious a gorilla] did your stories about \_\_ (p) enrage \_\_ shortly after Bob's story about \_\_ (p) did?

### 3.2. A Parasitic Gap Cannot Be A Finite Subject

Levine et al. (2001: 186) provide additional sets of examples to support their claim that parasitic gaps are not pronominals. The examples tell us that a parasitic gap can occur as a subject of a finite clause where pronominals can never appear. Thus, they insist that p-gaps are not pronominals.

However, what is erroneous about their argument is that they do not distinguish subject parasitic gaps and subject extractions themselves. (17a) seems to contain a parasitic gap in the subject position of an adjunct phrase dependent on the real gap in the main clause. However, problems of this analysis become obvious when (17b) and (17c) are taken into account since, in the sentences, two subject parasitic gaps occur without a hosting gap.

To solve the problem, the extraction of the whole subject should be analyzed to leave a real gap, not a p-gap. Subject parasitic gaps occur only when a part of the subject is extracted. This distinction can explain sentence (17b). Here, the first gap is the only parasitic gap licensed by the following hosting gap. Thus, the gap in a finite

subject position is not a parasitic gap but a real gap. When it comes to sentences (17a) and (17c), there are no parasitic gaps but both of them are real gaps.

- (17) a. Which people did you invite (g) to the party without thinking (g) would actually come?
- b. Robin was the guru that critics of (p) traveled halfway round the world to prove (g) had been cheating young students out of their spring break money.
- c. John is someone that Mary expects (g) will be successful though believing that to his dying day (g) will have the intelligence of a horsefly.

The distinction between extractions of the subject itself and subject parasitic gaps has already been made by the subject condition suggested by Tilman Hähle as stated in PS (1994: 380). The condition below restricts that a gap out of a subject should outrank another gap and covertly adds that the subject itself cannot be slashed since it cannot be realized as a constituent when the subject itself is a gap-ss.

(18) Subject Condition

A slashed subject can be realized as a constituent only if it locally o-commands a slashed element.

This condition has originally been proposed to make it nonapplicable to the extractions of objects in object raising verbs as in (19). The verb *expect* has a subject and a complement in its argument structure as follows: V[SUBJ <NP>, COMPS <VP[SUBJ<[LOC1]>, INHER|SLASH {1}]>]. Here the slashed complement subject is not realized as a daughter of the matrix VP but is not licensed by the subject condition since the subject's local value itself is slashed.

- (19) I wonder who he expected to win.

The original version of subject condition<sup>2</sup> (PS-94: 195) also makes the same assumption because Trace Principle and Subject Extraction



Lexical Rule implicitly do tell subject parasitic gaps from subject extractions. However, Bouma et al. (2000), who reject SELR (Subject Extraction Lexical Rule) in favor of lexicalized subject extractions, encounter a serious problem when stating subject condition as follows: a slashed subject must outrank another slashed argument. By not restricting that the slashed local value should not be identical with the subject local value itself, they have no way to explain the sentence (20).

- (20) Robin is someone who even [friends of \_\_\_\_] believe [\_\_\_\_ should be closely watched.]  
 (21) a. \* Who \_\_\_\_ sent a picture of \_\_\_\_?  
       b. \* Who \_\_\_\_ remembered talking to \_\_\_\_?

Bouma et al. (2000) put forth the sentence (20) to support their view that subject extractions should be lexically incorporated. However, if the extracted subject itself is not distinctively analyzed from a subject parasitic gap, the sentence (20) should be ungrammatical since the subject extraction in the dependent clause is not followed by an additional gap.

Engdahl (1983) introduces examples in (21) which show that extracted subject should not be followed by another gap. Therefore, it is reasonable to claim that subject extractions should be differently treated from parasitic gaps and hence, going back to the starting point, the examples in (22) are not appropriate evidence to refute parasitic gaps as pronominals. The gaps appearing in finite subject positions --non-pronimimal positions-- are not parasitic gaps.

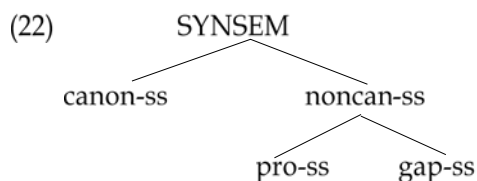
### 3.3. Parasitic Gaps Should Not Be Normal Gaps

Two points discussed above have mainly showed that there are no examples to argue against the fact that (subject) parasitic gaps are pronominals. Here, I will provide a more direct, theory-internal reason why parasitic gaps should not be normal gaps. Within the

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<sup>2</sup> PS defines Subject Condition as follows: "The initial element of a lexical head's SUBCAT list may be slashed only if that list contains another slashed element."

HPSG framework, SYNSEM hierarchy is bi-branched with canon-ss and noncanon-ss. Again, gap-ss and pro-ss are subtypes of noncanon-ss as shown in (22).



- (23) Principle of Canonality  
 Sign -> [ SYNSEM canon-ss]

The principle of canonicity in (23) ensures that every overt linguistic expression has a SYNSEM value of canon-ss. In other words, the noncanonical synsems cannot be realized locally. Thus, unexpressed controlled subjects of nonfinite phrases (pro-ss) and gap arguments in an extraction construction (gap-ss) cannot be replaced with overt signs as in (24) and (25).

- (24) a. It is unclear what PRO to do.  
       b. \*It is unclear what him to do.  
 (25) a. I saw a girl who (g) used to live in my neighborhood.  
       b. \*I saw a girl who she sued to live in my neighborhood.

However, one of the typical characteristics of parasitic gaps is that they can locally be realized as already shown in examples (6), (8) and (10). Therefore, the missing arguments with distinctive properties -- parasitic gaps -- must not be normal gaps and should be differently dealt with from normal gap-ss.

#### 4. Revision

In the previous section, I have discussed the reasons why parasitic gaps should not be normal gaps. It seems to me that there is no real extraction in subject parasitic gaps, but the slot is just filled with a resumptive pronoun or alternatively with a phonetically

empty element. This point of view, which has already held by many linguists, has the advantage to explain why parasitic gaps can optionally be realized while normal gaps do never get the property. Also, it can account for why the slots where parasitic gaps appear should always keep the Binding Principle B. To be consistent with the new proposal, I will revisit the Subject Condition and the Synsem Hierarchy.

#### 4.1. Subject Condition Revisited

As mentioned above, p-gaps are pronominals that are parasitic on the presence of another oblique gap in the same ARG-ST. Treating p-gaps as pronominals, a slight modification on Subject Condition is necessary. Therefore, I put forth the following revised condition.

(26) Subject Condition<sup>3</sup> Revisited

When complex NP appears in the subject, the noun phrase can be realized containing a phonetically null pronoun, only if it o-commands another slashed element that is co-indexed with the null pronominal.

The revised version of the Subject Condition implicitly states that the parasitic pronominal cannot be a finite subject, as the condition stated in (18), since it only requires complex noun subjects with resumptive pronominals to have additional gaps while extractions of the subjects themselves are not restricted by it. In fact, subject extractions become ill-formed when additional gap appears in more oblique positions. Therefore, it does not cause the same problem that the subject condition of Bouma et al. (2000) does.

The condition I propose in (26) has another advantage that it can solve a remaining puzzle in PS (1994: 199). The puzzle has been

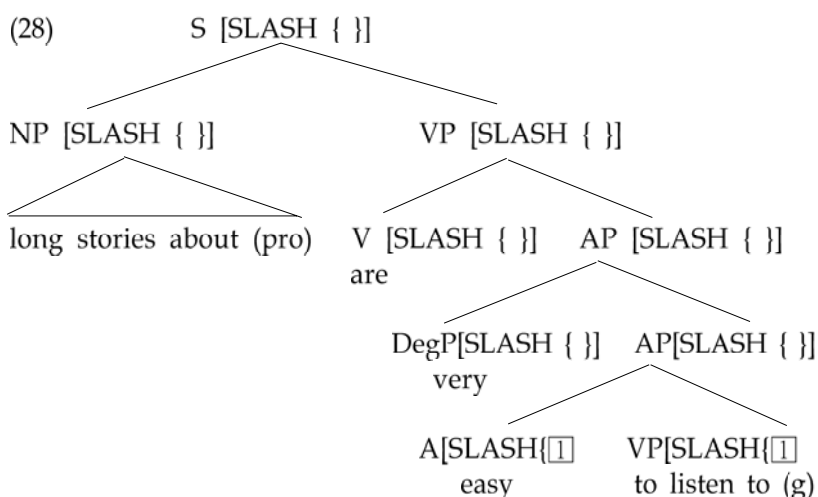
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<sup>3</sup> Subject condition is also used to explain invisible relativizers. But Sag and many other linguists make no use of them due to no independent justification for their existence. Without invisible relativizers, subject condition stands only for parasitic gaps in the syntactic literature to my best knowledge. Thus, the revision on the subject condition I propose only consider linguistic phenomena involved with parasitic gaps.

raised because the subject condition disallows the inside of arguments to be seen through. Some slash values are not inherited to their phrasal level. For example, in cases of *tough* predicates, slash values are lexically bound. Thus, the following examples have no way to be explained with previously proposed subject conditions.

- (27) a. There are certain heroes that Kim finds long stories about  
(p) are very easy to listen to (g).  
b. There are certain heroes that Kim finds long stories about  
(p) are too boring to listen to (g).

According to the previous conditions, grammatical sentences in (27) are to violate the subject condition because the more oblique argument AP has an empty slash value. To disentangle the tricky part, I let the condition see into the inside of an argument by stating "o-command" instead of "locally o-command." Thus, the sentences in (27) are to be accepted as grammatical in accordance with the revised Subject Condition in (26).



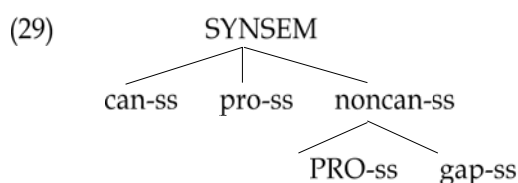
As illustrated in (28) with a structure, the slash value of the AP *very easy to listen to* is empty because the slash value of the head daughter's complement is not inherited to the AP. However, inside

of it, there exists a gap. The revised subject condition can see through the inner part. Therefore, the subject condition is satisfied.

#### 4.2. SYNSEM Hierarchy Revisited

Within the HPSG framework, it has generally been assumed that *pro* does not occur in English but is only present in languages such as Italian that permit empty subjects of finite clauses. It is certain that English doesn't allow finite clauses without subjects. Declarative non-subject clauses should not be used independently. However, in English, the necessity of phonetically null equivalents of nouns seems obvious, since some empty noun slots should be treated differently from gaps and PROs.

In standard HPSG, *pro*-ss has not been included in the Synsem Hierarchy as already shown in (22). The subtype *pro*-ss of noncanonical synsem stands for PRO, subjects of infinitive clauses, such as the complements of control verbs like *try* and *persuade*. However, I would like to suggest a possible candidate of the alternative hierarchy of SYNSEM that distinguishes PRO from *pro* as follows:



(29) denies a bifid structure of *can*-ss and *noncan*-ss by adding *pro*-ss to the same level. However, it accompanies the need to restate the principle of canonicity into the constraint of noncanonicity to the effect that only noncanonical synsem cannot be an overt syntactic element. In other words, both *pro*-ss and *canon*-ss should be allowed to be signs. The difference is that *can*-ss is obligatorily a sign whereas *pro*-ss is optionally a sign. Since all signs can never have a value of noncanonical synsem, no overt element can ever function as the subject of a head whose SUBJ value contains PRO or as a gap that is bound to a filler.

(30) Constraint of Noncanonicity

\*Sign -> [SYNSEM noncanon-ss ]

Embracing resumptive pronouns in HPSG, however, can create an additional big burden to the theory because it has to explain more resumptive pronoun cases such sentences as in (31). Resumptive pronouns can not only occur in parasitic gap sites but also occur in unbounded dependency constructions where the slot has been treated as normal gaps. Especially *wh*-interrogative sentences as in (31b) demand more complex mechanisms to explain resumptive pronouns in normal gap sites. It brings about a potential trouble but I also believe that it will be an extremely challenging and intriguing task to figure out: when resumptive pronouns are allowed in gap sites as in (31b) and when they cannot as in (31c).

- (31) a. I would like to meet the linguist that Mary couldn't remember if she had seen \_\_\_/him before.  
 b. Which of the linguist do you think that if Mary marries \_\_\_/him then everyone will be happy?  
 c. Which of the linguist do you think everyone like \_\_\_/\*him?

## 5. Conclusion

I have discussed why parasitic gaps should not be normal gaps. In the discussion, I pointed out some insufficient evidence and logical flaw of Levine et al. (2001). As a conclusion, I claim that parasitic gaps are pronominals as already proposed by Postal and many other researchers. The pronominal analysis I take has necessitated additional revisions on the Subject Condition and the Synsem Hierarchy.

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