

## Remarks on Clausal Gerunds\*

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### Abstract

A number of analyses of clausal gerunds have been proposed in the generative framework. However, they are confronted with some theoretical and empirical problems concerning Case assignment. In order to resolve these problems, this paper proposes an alternative analysis, adopting the Labeling Algorithm (LA). I argue that the label of Clausal Gerunds (CGs) is determined as NominalP by feature sharing, which licenses Cases of the subject of a CG and the CG itself. The analysis is further supported by facts regarding coordination and ellipsis.

**Keywords:** clausal gerunds, the Labeling Algorithm, Case assignment, coordination, ellipsis, the Movement Theory of Control

### 1. Introduction

Nominal expressions have long been a topic of debate since early days of the generative grammar. English has a number of nominal expressions, such as derived nominals and gerunds. Gerunds are further divided into three types: nominal, possessive, and clausal gerunds. An example of the first type is *the girl's reading of the sonnet*, where the subject bears a genitive while the object appears with the preposition *of*. The second type is similar to the first sort, but

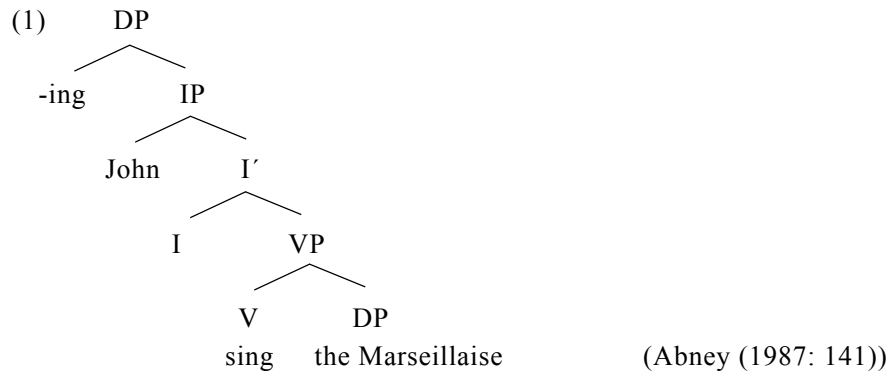
the object appears without the preposition *of*. Instead, the object bears an accusative. An example of possessive gerunds is *the girl's reading the sonnet*. An object of the final type also bears an accusative, but a subject bears an accusative or a nominative, as in *the girl reading the sonnet*. In this paper, we focus on the final type, clausal gerunds (henceforth, CGs). The purpose of the paper is to review two major previous analyses on CGs and to propose an alternative analysis. Adopting the Labeling Algorithm (LA, Chomsky (2013, 2015)), I will argue that the label of the CGs is determined as NominalP by feature sharing, so that both the subject of a CG and the CG itself can bear the same Case (an accusative in most cases). The present analysis is further supported by facts regarding coordination and ellipsis.

In the next section, I will review the two major analyses, Abney (1987) and Pires (2006). Abney provides the first approximation to the structure of CGs while it is confronted with some problems regarding Case assignment. Pires tries to solve them, but his analysis raises a number of different problems. In order to solve these problems, in section 3, I will propose an alternative analysis, adopting the LA. Then, section 4 discusses further consequences concerning coordination and ellipsis. Section 5 concludes the paper.

## **2. Previous Analyses and their Problems**

Abney (1987) is well-known for the so-called “DP Hypothesis,” but the thesis also provides an influential analysis of CGs. Abney proposes the following structure for *John singing the Marseillaise*.

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For Abney, CGs are DP, followed by IP. *John* is base-generated in the Spec of IP and assigned an accusative Case from I (AGR).<sup>1,2</sup> The nominal morpheme *-ing* is the head of DP, which is lowered to V *sing*, via I, forming *singing*.

Existence of IP/TP in CGs has widely been accepted. The primary evidence comes from availability of the expletive *there* and sentential adverbs on the one hand, and independent tense interpretations on the other. First, the sentence in (2) shows that the expletive *there* is available in CGs.

- (2) I approve of [there being a literacy exam for political candidates]  
 (Abney (1987: 72), brackets his original)

If the expletive occurs in the Spec of IP/TP, this supports the view that CGs contain IP/TP in their internal structure. Second, in (3), a sentential adverb *probably* occurs in the CG.

- (3) John probably being a spy, Bill thought it wise to avoid him  
 (Reuland (1983: 108), cited in Abney (1987: 115))

Given that such a sentential adverb adjoins to IP/TP, the existence of IP/TP is

evidenced. Lastly, the example in (4) demonstrates the availability of independent tense interpretations. The tense in the CG has the future interpretation with respect to the matrix tense, as clearly shown with the adverbs *yesterday* and *tonight*.

(4) Mary worried *yesterday* about [Paul coming dinner *tonight*].

(Pires (2006: 25), italic and brackets his original)

Hence, the existence of IP/TP is empirically borne out.

Abney's analysis correctly explains the fact that CGs appear in argument positions, as well. As (5) shows, CGs occur in a complement position of verbs (5a) and prepositions (5b, c) on the one hand, and in a subject position (5d) on the other.

(5) a. Mary favored [Bill taking care of her land].

b. Susan worried about [Mark being late for dinner].

c. Sylvia wants to find a new house without [Anna helping her].

d. [Sue showing up at the game] was surprise to everybody.

(Pires (2006: 20), brackets his original)

Although he does not provide detailed analysis, if CGs behave as DP in external distribution, it is straightforwardly explained why CGs appear in these positions.

However, Abney's analysis is problematic empirically and theoretically. Empirically, his analysis cannot explain the fact that a subject of CGs can be PRO. To see why, consider the examples in (6), where each illustrates that a subject of CGs cannot be a subject of passive and raising predicates.

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- (6) a. \*Paul is preferred [swimming in the morning].  
b. \*John appears [liking Mary]. (Pires (2006: 27))

In order to deal with these facts, Abney has to assume that an accusative is obligatorily assigned to a subject of CGs. Then, the sentences in (6) would be excluded as receiving two Cases: one (accusative) from I (AGR) in the CGs and the other (nominative) from I (AGR) in the roots. However, this assumption is not only motivated, but also incorrectly predicts that the sentence (7) is ungrammatical. In (7), the subject of the CG is PRO.

- (7) John prefers swimming. (Pires (2006: 39))

If an accusative is obligatorily assigned from I (AGR) in the CG, then, the PRO in (7) receives the Case, which is undesired. In general, PRO must bear null Case rather than an accusative or nominative Case. Therefore, Abney's analysis incorrectly excludes the grammatical sentence in (7).

Furthermore, it is theoretically unclear why I (AGR) in CGs assigns an accusative. Generally, I (AGR) is assumed to assign a nominative. Abney does not provide any reason, just stipulating.

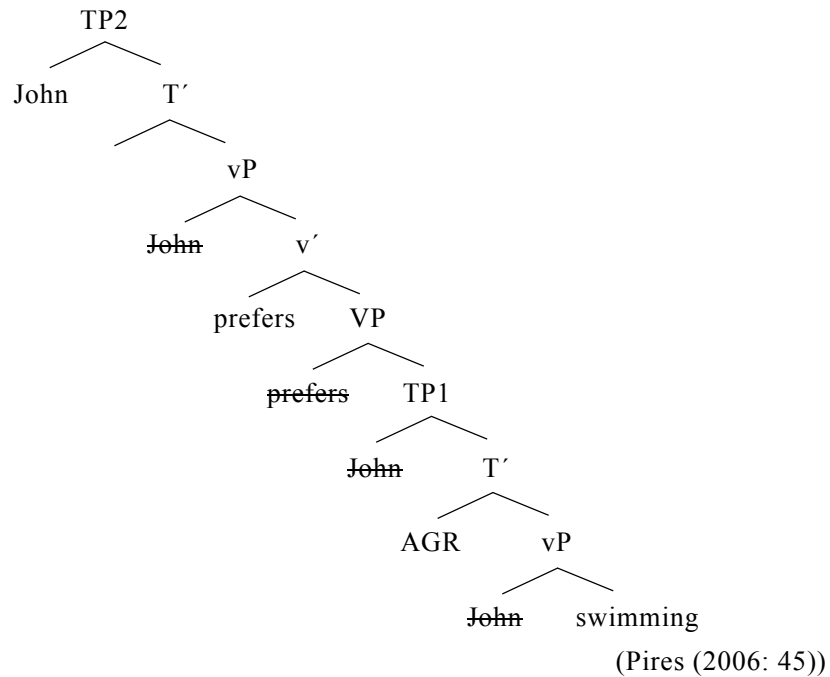
To solve these problems, adopting the Movement Theory of Control (MTC, Hornstein (1999)), Pires (2006) proposes an alternative analysis of CGs, with the hypothesis in (8).

- (8) The Tense ( $T^0$ ) head of a CG carries an uninterpretable Case feature that needs to be valued. (Pires (2006: 41))

To see how the hypothesis in (8) works, consider the structure of *John prefers*

*swimming*, given in (9).

(9) John prefers swimming.

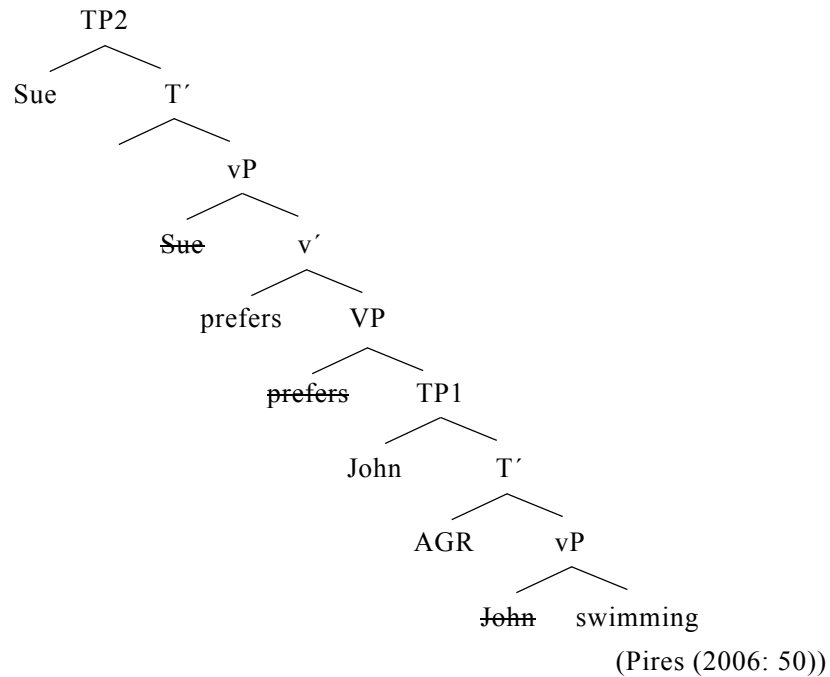


In this structure, TP2 and TP1 correspond to the matrix clause and the CG, respectively. The subject *John* is base-generated in the Spec of vP in the CG and receives the first theta role. The Case feature of AGR, the head of TP1, is valued by the matrix *v* and an accusative Case is assigned to AGR, under the hypothesis in (8). *John* further moves to (or internally merges with) the Spec of TP1 in order to satisfy EPP in T1 (AGR). Then, it moves to the Spec of TP2 via the Spec of vP in the matrix clause, satisfying the EPP requirement. When it passes the Spec of vP in the matrix clause, it receives the second theta role.

When a CG has an overt subject, he assumes a slightly different derivation. Consider, for concreteness, the derivation of *Sue prefers John swimming*,

illustrated in (10).

(10) Sue prefers John swimming.



In this case, the derivation up to VP proceeds similarly to (9). It differs from the one of (9) in the way of theta assignment to and movement of the root subject *Sue*. *Sue* is base-generated in the Spec of the matrix vP, where it receives a theta role. It receives a Case from the matrix T, and then, moves to the Spec of TP2 to satisfy EPP.<sup>3,4</sup>

Pires argues that the hypothesis in (8) accounts for the reason why CGs occur in argument positions: T in CGs has to be valued for its Case feature (and assigned a Case), so that CGs appear in complement positions of verbs and prepositions on the one hand, and subject positions on the other, as illustrated in (5).

Pires' analysis partially resolves the problems with Abney's. In Pires' analysis, it is clear why an overt subject of CGs receives an accusative. After T in a CG receives an accusative, it is, in turn, assigned to the subject of the CG. This is why CGs appear in argument positions, as observed in (5). In addition, the analysis correctly accounts for (6) and (7). (6) is ungrammatical because T in the CGs is not assigned any Case. In (7), T in the CG is assigned an accusative from the matrix verb. The subject of the CG *John* moves to the Spec of the matrix TP, receiving a nominative, before the accusative is "transferred" from T in the CG. However, the idea that T itself bears a Case feature (and receives a Case) is not independently motivated, being a construction-specific stipulation. In general, T is assumed to bear phi-features rather than a Case feature. Therefore, both Abney's and Pires' analyses have some problems and should be revised.

### **3. An Alternative Analysis**

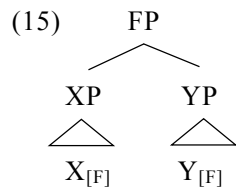
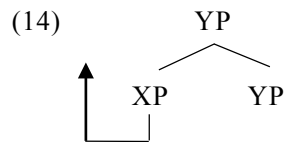
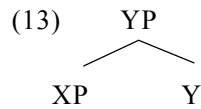
This section presents an alternative analysis adopting the Labeling Algorithm (LA) in Chomsky (2013, 2015), which solves the problems discussed thus far. For readers who are unfamiliar with the LA, I overview how it works, first.

Chomsky tries to articulate the way of determining traditional projections. In the long history of the Generative Grammar, it is not considered seriously how to determine projections. The LA attempts to provide rules for choosing their labels. The detailed contents of the LA are given in (11) and (12). The situation in (12) is called the XP-YP problem because we cannot determine a label automatically as in (11).



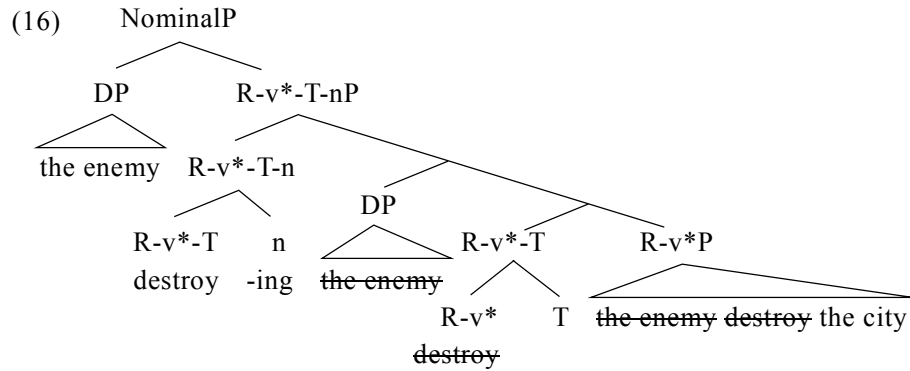
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- (11) When a maximal projection XP and a head Y are merged, Y becomes the label, as in (13).
- (12) When a maximal projection XP and another maximal projection YP are merged,
- a. if XP moves, Y becomes the label, as in (14).
  - b. if the head of XP and that of YP have the same feature F, F becomes the label, as in (15).



In addition, Chomsky assumes that root R in general and T in English are too weak to determine a projection.<sup>5</sup>

Given the LA and the assumptions above, I propose an alternative analysis for CGs. Assuming that the nominal suffix *-ing* is introduced by nominalizer *n*, I argue that the top-most label of a CG is NominalP because of nominal-feature sharing. For concreteness, consider the derivation of *the enemy destroying the city*, illustrated below:



The way of labeling up to R-v\*P is the same as standard cases (see Chomsky (2013, 2015)). The nominalizer *-ing* is a suffix and needs to be attached to an element. Root *destroy*, thus, internally merges with *n*, via *v\** and *T*. Since *T* is too weak to determine a label, the label at this point is the amalgamation, R-v\*-T-nP. The CG subject *the enemy*, base-generated in the Spec of R-v\*P, internally merges with R-v\*-T-nP via the traditional Spec-TP position. Here, the XP-YP problem arises, which is solved only by taking the option (12b), the feature sharing. What the two projections have in common is a nominal feature. Therefore, the top-most label/projection of CGs is NominalP.<sup>6</sup>

The present analysis correctly explains the facts discussed in the previous section. First, as we have observed in (5), CGs have to appear in argument positions. This is because both CGs themselves and their subject require a Case. Under the present analysis, a CG subject and the nominalizer *-ing* share a Case feature, which projects onto NominalP. As a result, these Cases are licensed when the whole NominalP is assigned an accusative (or a nominative in the case of (5d)). Second, it has been observed in (6) that A-movement of a CG subject is barred. The ungrammaticality is explained in terms of failure of assigning a Case. In (6), the subjects, *Paul* and *John* are assigned a Case from the matrix verbs *is* and *appear*, respectively, but the CGs themselves do not

receive any Cases, which is the reason why the sentences are ungrammatical. Lastly, in (7), an accusative is assigned only to the CG itself. Rejecting the MTC, I assume that the subject of the whole sentence, *John* is base-generated in the matrix Spec-vP. Although the nominal feature is shared between the nominal head *-ing* and PRO, a Case feature is not, because PRO does not have such a feature. Hence, an accusative is assigned only to the CG head, *-ing*.

Thus far, I have proposed an alternative analysis, which overcomes the drawbacks in the previous analyses. In the next section, I will discuss further consequences of the present analysis.

#### 4. Further Consequences

This section presents new data concerning coordination and ellipsis, which pose problems for Abney's (1987) and Pires' (2006) analyses but provide further support for the present approach. I begin with discussion of coordination.

As far as I know, it has not been noticed that CGs can coordinate with other nominals. In (17), CGs and deverbal derived nominals are coordinated.

- (17) a. John preferred destroying an existing notion and creation of a new idea.  
b. John preferred destruction of an existing notion and creating a new idea.

Pires' analysis cannot explain the fact, while Abney's and ours can. In Pires' analysis, the top-most projection of CGs is TP. Then, it will incorrectly be predicted that coordination with other nominal expressions is disallowed. In other words, (17) would be excluded as coordination of different categories,

as illustrated in (18).

- (18) a. John preferred [<sub>TP</sub> destroying an existing notion] and [<sub>DP</sub> creation of a new idea].  
b. John preferred [<sub>DP</sub> destruction of an existing notion] and [<sub>TP</sub> creating a new idea].

On the other hand, Abney takes CGs to be DP, which correctly accounts for the fact. In the present analysis, the top-most projection is NominalP, permitting coordination with other nominals.

The examples in (17) also cast doubt on the MTC, which is adopted by Pires. They would be blocked by the Coordinate Structure Constraint (CSC, Ross (1967, 1986)). In this case, moving the subject of the CGs is tantamount to extracting an element only from one conjunct. The derivations of (17a, b) under the MTC would be as follows:

- (19) a. John preferred [<sub>*t*<sub>John</sub></sub> destroying an existing notion] and [creation of a new idea]  
b. John preferred [destruction of an existing notion] and [<sub>*t*<sub>John</sub></sub> creating a new idea].

The derivations clearly violate the CSC. Therefore, Pires' analysis is also problematic in terms of coordination, which, in contrast, provides further support for the present analysis.<sup>7</sup>

Ellipsis in CGs has not been discussed actively. It poses problems for the two previous analyses while it supports the present analysis. As shown below, a verb phrase in *to*-infinitival and tensed clauses in (20) and (21) can be elided

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(verb phrase ellipsis, VPE) when an antecedent is a CG. (20b) and (21b) are derived by applying VPE to (20a) and (21a), respectively.

- (20) a. John preferred using a computer and Mary preferred to use a computer, too.  
b. John preferred using a computer and Mary preferred to, too.
- (21) a. I know of Chomsky criticizing the Viet Nam War, and I know that Obama criticized the Viet Nam War, too.  
b. I know of Chomsky criticizing the Viet Nam War, and I know that Obama did, too.

However, reversing the relation between an antecedent and an elided position makes the sentences ungrammatical. To wit, eliding (parts of) CGs is impossible when an antecedent is a *to*-infinitive and a tensed clause, as in (22) and (23). Since (a) sentences without ellipsis are grammatical, we can attribute the ungrammaticality of (b) sentences to the ellipsis.

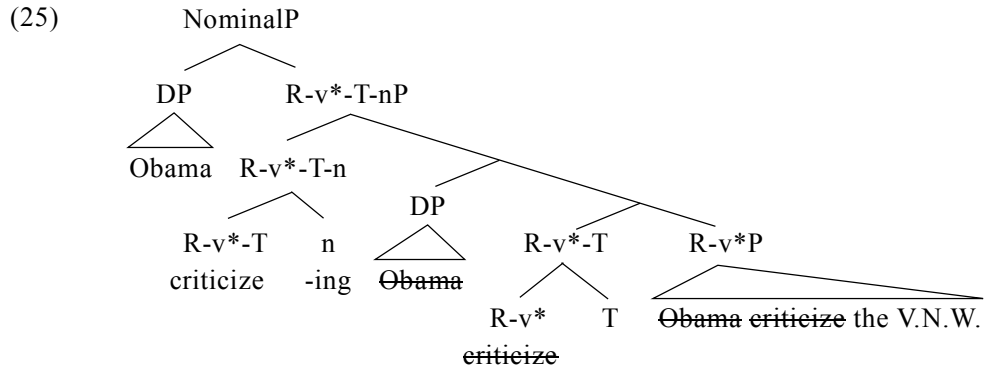
- (22) a. John preferred to use a computer and Mary preferred using a computer, too.  
b. \*John preferred to use a computer and Mary preferred, too.
- (23) a. I know that Chomsky criticized the Viet Nam War, and I know of Obama criticizing the Viet Nam War, too.  
b. \*I know that Chomsky criticized the Viet Nam War, and I know of Obama, too.

Notice that even when an antecedent is a CG, eliding (parts of) CGs is barred. (24b) below is derived by applying ellipsis to (24a).

- (24) a. I know of Chomsky criticizing the Viet Nam War, and I know of Obama criticizing the Viet Nam War, too.  
b. \*I know of Chomsky criticizing the Viet Nam War, and I know of Obama, too.

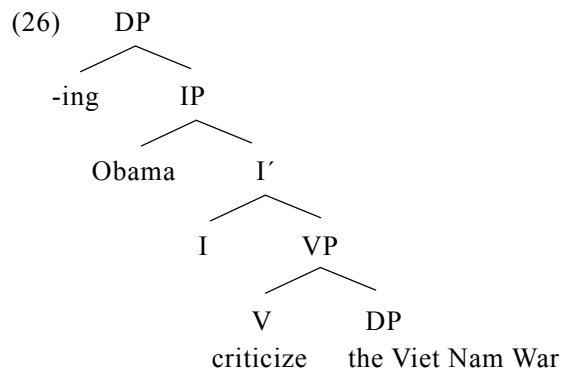
The (b) examples in (20), (21), and (24) indicate that the ungrammaticality of (22b) and (23b) cannot be accounted for in terms of the syntactic/morphological identity condition. In (20b), the head of the antecedent is *using* while that of the elided element is *use*. In (21b), V *criticize* is elided even though the corresponding position is *criticizing*. In these sentences, despite the morphological mismatch, ellipsis is permitted. On the other hand, in (24b), the forms of the antecedent and elided heads are exactly the same, yet the sentences are ungrammatical. Therefore, we cannot attribute the ungrammaticality of (22b) and (23b) to the syntactic/morphological identity condition.<sup>8</sup>

Then, how can we explain the (un)grammaticality of the sentences above? I will explain it in terms of the licensing condition on ellipsis proposed in Lobeck (1995), who argues that ellipsis can be applied only to the complement position of functional categories (C, T, and D). The present analysis gives (23b) the following structure:



The root *criticize* moves to *n* via *v\** and *T* on the one hand, and the external argument *Obama* to Spec *R-v\*-T-nP* via canonical Spec TP in the informal sense, on the other. In this position, the XP-YP problem arises, which is resolved by the nominal feature sharing. The label of the whole phrase is determined as *NominalP*. In this structure, deletion of *R-v\*-T-nP* violates the licensing condition which dictates that an elided element have to be placed in complement to a functional phrase.

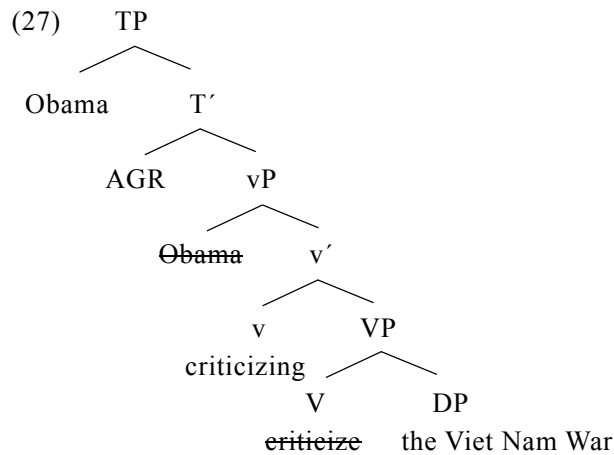
Abney's analysis cannot provide satisfactory explanation. The structure of the elided position in (23b) would be as follows:



(cf. Abney (1987: 141))

In this structure, after the morpheme *-ing* is lowered to V via I, we incorrectly expect VP to be deleted since it is placed in the complement position of IP, which is a functional projection.

The ellipsis data go against Pires' analysis, too. His analysis would provide the elided site in (23b) with the following structure:



Here, the same problem arises regarding ellipsis. After *Obama* moves from Spec vP to Spec TP, deletion of vP should be permitted. vP is placed in the complement position of T (AGR), which observes the licensing condition. Therefore, both Abney's and Pires' analyses make the incorrect predictions.

Thus, the present analysis can provide principled explanation to the ungrammaticality in question, which the previous analyses cannot account for.

## 5. Conclusion

In this paper, I have overviewed the two previous analyses (Abney (1987) and Pires (2006)), pointing out their problems concerning Case assignment to a CG itself and its subject. In order to overcome these problems, I have proposed



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an alternative analysis under the framework of the LA (Chomsky (2013, 2015)) in which the label of CGs is determined as NominalP by feature sharing. I have provided the analysis with additional support by the new facts regarding coordination and ellipsis. The coordination data indicate that CGs are nominals, posing a problem to the analysis by Pires, who takes them as TP on the one hand, and go against the MTC adopted by Pires in terms of the CSC on the other hand. I have also pointed out that ellipsis phenomena are problematic to both of the two previous analyses, assuming with Lobeck (1995) that ellipsis is deletion of a complement position of a functional category. I hope the present analysis contributes to articulating the structure of CGs, inspiring the study of ellipsis, and elaborating mechanisms of the LA in general.

\*I am indebted to Professor Yoshiaki Kaneko and Professor Etsuro Shima, who read the earlier versions of the paper and gave me a lot of invaluable comments. I would also like to express my gratitude for insightful advice to the members of the department of English Linguistics in Tohoku University. Last but not least, I am grateful to Professor Max Phillips Jr. and Professor James Tink, who kindly acted as informants. All remaining errors are, of course, of my own.

#### Notes

1) In this era, “the VP-Internal Subject Hypothesis” (Kuroda (1988), Koopman and Sportiche (1991), among others) has not been established. However, even if we adopt the hypothesis, the main thesis remains intact.

- 2) The internal argument *the Marseillaise* is assigned an accusative Case from V (AGR).
- 3) When a CG occurs in a subject position, the CG itself and its subject receive a nominative Case.
- 4) In addition, Pires observes that there is another type of gerunds and proposes a different structure for them. He calls the gerunds TP-defective gerunds, arguing that such gerunds project up to vP rather than TP. Gerunds of this sort appear in the complement of *start*, *finish*, *continue*, *try*, and *avoid*. He points out that in TP-defective gerunds, aspectual *have* cannot appear, tense is always dependent on a matrix clause, and a subject of the gerunds is always null. I put this sort of gerunds aside, discussing only (TP-projecting) CGs.
- 5) For reasons why R in general and T in English cannot determine a label, see Chomsky (2013, 2015). Briefly, his reasoning is related to the fact that R is category neutral and English is not a *pro*-drop language. The latter implies that English T always determines the whole label by sharing a feature with an overt subject.
- 6) I assume that the label of CGs is always NominalP even if a subject of CGs is a covert element, PRO, because it also has a nominal feature. See also Note 7.
- 7) It is observed that coordination of CGs with CP is permitted. In (i), which comes from Shimokariya (2017), the CG and the *that* clause are coordinated. In (ii), the *to*-infinitive, which is supposed to be CP, and the CG are coordinated. One of two informants of mine judges the sentences in (ii) are perfectly acceptable

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(while the other informant judges them unacceptable).

- (i) I remember [<sub>Ger</sub> you winning the lottery] and [<sub>CP</sub> that your family roared with joy].

(Shimokariya (2017: 419), brackets and labels his original)

- (ii) a. John preferred [to destroy an existing notion] and [creating a new idea].  
b. John preferred [destroying an existing notion] and [to create a new idea].

Based on this fact, he argues that CGs project up to CP rather than TP, *contra* Pires. The fact would be problematic for the present analysis, but the same is true for his analysis. His analysis cannot explain the data in (17). One possibility to account for these facts uniformly is to consider that CP and NominalP/DP are essentially the same because both CP and nominals constitute semantic units (Marantz (2001)). However, I leave the detailed analysis for the future research.

- 8) See Potsdam (1997) for related discussion.

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