

# External arguments and gerunds\*

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Certain English nominalizations present evidence that the absence of accusative case assignment does not necessarily correlate with the absence of an external argument (one half of Burzio's generalization). Nominal gerunds (NGs), or *ing-of* constructions, contain an external argument position even though accusative case is not observed on the object. The hypothesis posits a defective light  $v$ , which introduces external arguments but does not value accusative case. We then make the following testable predications about the structure of nominalizations of this type: (i) Spec,D hosts both moved and merged arguments, although it remains a theta-assigning position (cf. Alexiadou 2001); (ii) English gerunds are limited to a nominalizing head selecting fully saturated predicates ( $vP$ ,  $vP_{\text{defective}}$ , TP) or forming a nominal in the lexicon. The behaviour of NGs in contrast to unaccusatives and passives and the variability of the semantic interpretation of the external argument of NGs bear out the predictions.

## 0. The problem

The alternation of gerundive forms in (1) presents what appears to be a classic case of Burzio's generalization:

- (1) a. Michael running the marathon.  
b. The running of the marathon (by Michael).

In (1b), the object is not marked accusative (and the case marker *of* is inserted) and the external argument is suppressed, appearing optionally in a *by*-phrase. In (1a), on the other hand, *running* can case mark its object and an external argument is required (cf. \*The running the marathon). The simple solution is to propose a functional head, light  $v$ , which assigns accusative case and introduces the external argument. This head is present in (1a), but not in (1b). But consider another variation of gerunds, the counterparts to (1a,b) where the agent appears with genitive case marking (2):

- (2) a. Michael's running the marathon.  
b. Michael's running of the marathon.

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\* Thanks to Diane Massam for helpful comments and challenging questions, most of which I still have no good answers to. Thanks also to Syntax Project at the University of Toronto for the chance to share this work, and to Kyle Johnson for helpful discussion of the issues.

In (2) object case patterns as in (1), but the expression of the external argument is the same. If (2b) does not contain  $v$  and (2a) does, then we are led immediately to the conclusion that the introduction of the external argument must be different in each case. If this were true, we would need to examine standard assumptions about the mapping of external arguments to syntactic positions; that is, that external arguments can map to positions other than Spec, $v$ . We would also need to explain why the surface realization of the subjects is the same. This paper will explore the nature of the external argument in various types of gerundive constructions in English. We will conclude that even gerunds like (1b) and (2b) contain an external argument position, introduced by a defective light  $v$  head that does not value accusative case. The main proposal of this paper is that lack of accusative case does not always indicate the absence of an external argument.

As evidence for this move, we will show that a standard account of these gerunds incorrectly predicts that the internal argument of gerunds can raise freely, since without a light  $v$  the gerundive should behave like a passive or unaccusative. One explanation for the impossibility of this movement is that Spec,D cannot host moved arguments (contra Abney 1987; cf. Alexiadou 2001). We will see that this is not the case, and that these movements are ruled out by the presence of external arguments that induce locality conditions on such movement.

In the process of making these arguments, this paper will present a reanalysis of the traditional categories assigned to gerunds. Whereas earlier analyzes distinguish between VGs like (1a and 2a) and NGs like (1b and 2b) (or gerunds vs. mixed nominalizations (Chomsky 1970, and Harley and Noyer 1997), I draw the distinction between nominal and verbal gerund in a different place, between gerunds which map their external argument to a syntactic position and those that do not. This reduces the range of gerundives syntactically to gerunds with a full (syntactically projected) argument structure and gerunds with no (syntactic) argument structure, eliminating the intermediary types proposed in earlier analyses (Abney 1987, Kratzer 1996).

The paper is organized as follows. In section 1 I outline the various types of gerunds in English and review previous treatments. In 1.1 I will show that these structures incorrectly predict certain raising behaviors, as well as not providing an adequate account of the origin of external arguments in gerunds like (2b). Following that I will propose new structures, introducing defective  $v$  for gerunds like (2b). In section 2, we find further evidence for the structures from the variable interpretation of possessor subjects in gerunds. In section 3 I return to a more complete argument for Spec,D as a position analogous to Spec,I in the clausal domain. Section 4 offers a brief conclusion.

## 1. The descriptive classification of *-ing* forms

The *-ing* forms of English appear in a variety of contexts. In particular, certain *-ing* forms appear in typically nominal distribution; I will concentrate on these, the traditional class of gerunds.<sup>1</sup> Gerunds appear to divide between two main classes: the verbal gerunds (VGs), which exhibit many verbal and sentential characteristics; and the nominal gerunds (NGs) which exhibit characteristics of nominals. Terminology differs, but I follow the

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<sup>1</sup> Cowper (1995) discusses all the uses of *-ing*, including its participial usage, and does not draw an *a priori* distinction between these and gerunds.

classification that appears to have reached some sort of consensus (Chomsky 1970, Wasow and Roeper 1972, Zucchi 1993, Kratzer 1996, Harley and Noyer 1997, Pires 2001, among others).

The defining characteristics of the VG is its ability to directly case mark its object, the obligatoriness of the subject, and its ability to be modified by adverbs but not adjectives. The VG has three variants, classified according to the realization of the subject: *Acc-ing*, whose subject appears as an accusative in ECM-like constructions (3); *PRO-ing*, whose subject is realized as PRO, controlled or arbitrary (4); and *Poss-ing*, where the subject is realized in the genitive in Spec,D (5). Note that *acc-ing* and *PRO-ing* are far more sentential in their external and internal characteristics (see Pires 2001 for a good overview).

### *Verbal Gerunds*

- (3) I saw [Michael running the marathon quickly]. *acc-ing*
- (4) a. Michael<sub>i</sub> likes [PRO<sub>i</sub> running the marathon quickly]. *PRO-ing*  
 b. [PRO<sub>arb</sub> running a marathon quickly] is a challenge for anyone. *PRO-ing*
- (5) [Michael's running the marathon quickly] convinced us that he was an excellent athlete. *Poss-ing*

VGs can also appear with aspectual auxiliaries (6a) and in passive formation (6b), just like sentences:

- (6) a. Michael('s) having sung the national anthem...  
 b. Michael('s) being summoned to the king...

In contrast to VGs, NGs exhibit characteristics of derived nominals. The object is case marked by *of*; a 'subject' is only optional (7b) and when it appears it is marked as a genitive (7a); and the NG is modified by adjectives. Adverbial modification is also grammatical, as shown in (8) (see Fu et al.). This point will later become crucial to the analysis.

### *Nominal Gerunds*

- (7) a. Michael's quick running of the marathon *Poss-ing<sub>of</sub>*  
 b. The quick running of the marathon *Det-ing<sub>of</sub>*
- (8) The shutting of the gates regularly at ten o'clock had rendered our residence very irksome to me. [Kratzer (1996), citing Jespersen (1940)]

1.1 *The prevailing analysis*

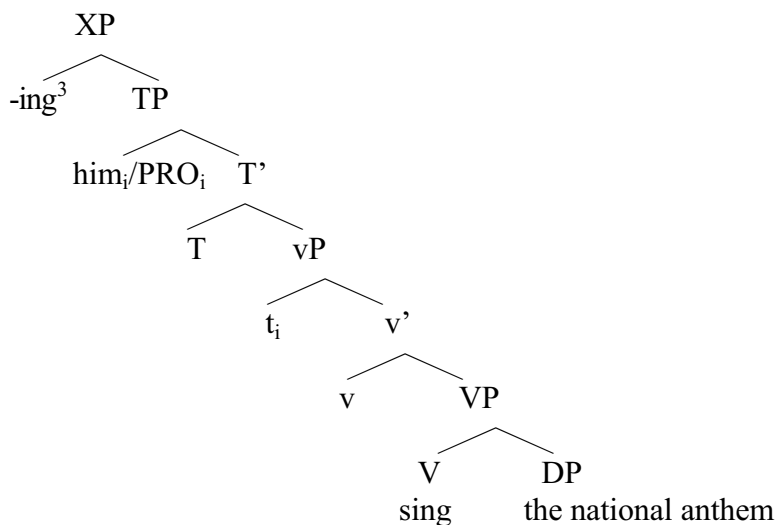
The standard treatment of these different types of gerunds is to propose that the nominalizing affix *-ing* can attach to different segments of a verb's (extended) projection (Abney 1987). There are disagreements in the literature as to exactly what projection these are, but generally it is argued that VGs involve a head, *-ing*, nominalizing a higher functional projection than NGs (Krazter 1996; Abney 1987). In this approach, the V root moves via head-movement to this *-ing* head.

Alternatively, Pires (2001) simply proposes that VGs project more structure than NGs, without committing to head movement. I will follow the head movement approach, but adopt Pires' insights regarding *Acc-ing* and *PRO-ing*. Pires (2001) presents a number of convincing arguments that *Acc-ing* and *PRO-ing* collapse together as clausal gerunds (hereafter CGs), projecting all the way to TP. *Poss-ing*, while still a VG, does not project past *vP*. First, CGs allow *there* insertion (a sign of TP bearing an EPP feature) while *Poss-ing* cannot (9a,b). CGs can also occur with sentence adverbs (10a) while *Poss-ing* cannot (10b) [examples from Pires 2001].

- (9) a. You can count on there being a lot of trouble tonight. CG  
 b. \*You can count on there's being a lot of trouble tonight. *Poss-ing*
- (10) a. Mary probably being responsible for the accident, the attorney did not want to defend her.  
 b. \*Mary's probably being responsible for the accident, the attorney did not want to defend her.

The structures below represent one account for the CG (11) and the *Poss-ing* (12).

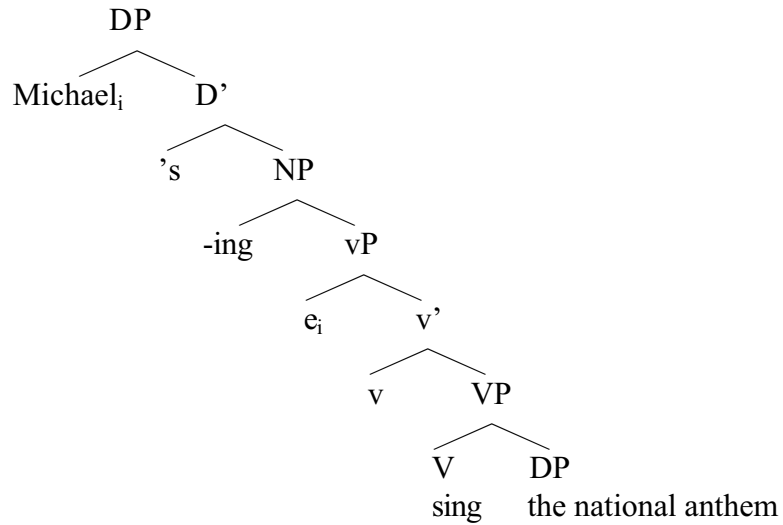
- (11) CG<sup>2</sup>: I<sub>i</sub> like [him/PRO<sub>i</sub> singing the national anthem patriotically.]



<sup>2</sup> Structure adapted from Abney 1987 and Pires 2001.

<sup>3</sup> The suffix *-ing* could also be in Infl, since it is in complementary distribution with tense (an approach taken, for instance, in Johnson 1988).

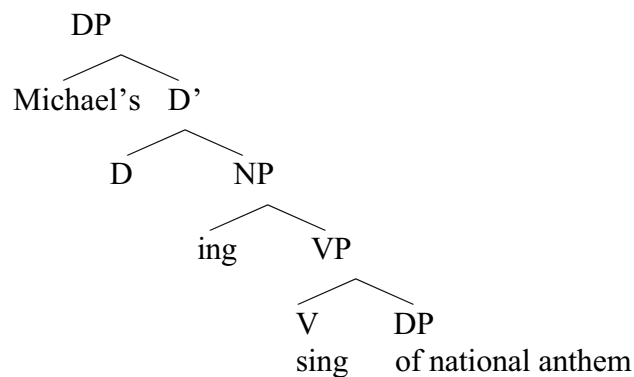
- (12) Poss-*ing*<sup>4</sup>: I<sub>i</sub> like [Michael's singing the national anthem patriotically.]



I have simply identified the base position of the subject of Poss-*ing* by an *e* in Spec,vP. I will conclude that it moves from that position to Spec,D. While this may be a standard approach, I will still make a number of arguments throughout to motivate this decision.

Turning now to NGs, Abney proposes that *-ing* attaches directly to V, explaining the case marking of objects. Assuming a functional head like light *v* or Voice, Kratzer (1996) proposes that NGs result from the attachment of *-ing* to VP, thus explaining possible adverbial modification in NGs. Both approaches predict that the head responsible for accusative case and the presence of external arguments is not present in NGs, consistent with the basic facts. The structure for NGs is given in (13)

- (13) NGs<sup>5</sup>: I like [Michael's singing of the national anthem].



<sup>4</sup> Structure adapted from Abney 1987.

<sup>5</sup> Structure adapted from Kratzer 1996.

## 1.2 *Problems with the standard analysis*

Different sites of nominalization predict especially well the facts relating to Burzio's generalization seen in (1): the NG does not contain a light  $v$  and as a consequence we explain why there is no accusative case and no (obligatory) external argument. What cannot be explained by the structures above is the way in which the external arguments of the Poss-*ing* and the NGs are realized. In the case of the NG, no external argument is merged in the verb's projection, since the head responsible for its introduction,  $v$ , is absent. For Poss-*ing*, an external argument is introduced by  $v$ . The fact that it appears in Spec,D could be a matter of case requirements. But if external arguments are merged in this position in Poss-*ing* gerunds, why should they merge differently in NGs, as the standard view holds? Moreover, how would the external role be assigned to the subject of an NG? Do the possessor subjects in Poss-*ing* and NGs bear different relations to the gerund?

Another challenge for the standard structures concerns raising. The absence of light  $v$  in NGs predicts that these constructions behave much like passives and unaccusatives. We expect that the internal argument could raise to Spec,D generating sentences such as (14i). These are not grammatical, however, unlike analogous derived nominal constructions (14ii).

(14i) *Passive in gerunds* (Grimshaw's examples, 1990:83)

- a. \*The tree<sub>i</sub>'s felling t<sub>i</sub>
- b. The felling of the tree
- c. \*The city<sub>i</sub>'s destroying t<sub>i</sub>
- d. The destroying of the city

(14ii) *Passive in derived nominals*

- a. The city's destruction (by the Romans)
- b. The intern's promotion (by her boss)

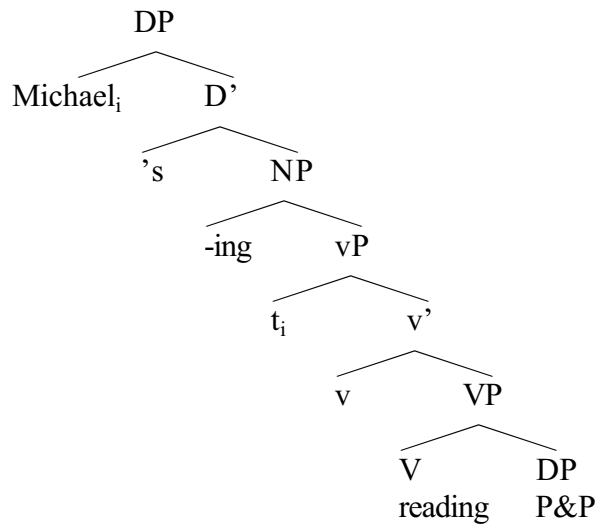
It has been proposed that the reason internal arguments cannot raise to Spec,D in these situations is because that position is not a target for A-movement, since it is a theta-position (Alexiadou 2001, Grimshaw 1990). I will spend some time in section 3 arguing that this is not true and that arguments can and do raise to Spec,D. Thus it is the structure of the gerund that needs to be reconsidered. My proposal rules out (14) because there is, in fact, a (defective) light  $v$  that introduces an external argument. This argument blocks the raising of the internal argument.

The last problem with the standard analyses is a conceptual one: it does not provide a satisfying explanation for the types of segments that can be nominalized by *-ing*. Why is it that TP,  $v$ P and VP can all be selected by *-ing*? My analysis constrains the site of nominalization to either TP (CGs) and  $v$ P (Poss-*ing* and certain NGs). The third site is V (other NGs), which I believe is a lexical process. The *-ing* proposed here selects only fully saturated predicates (TP,  $v$ P), which comports with the intuition that *-ing* phrases denote an event—and a fully mapped argument structure contributes to the eventive

reading (cf. Grimshaw 1990 and the notion of complex event nominals). A further lexical rule is proposed for purely nominal gerunds.

Below I present the structures I will argue for in the remainder of the paper. Putting CGs aside, I maintain the straightforward account for *Poss-ing* that there is a *vP* which introduces the external argument. After nominalization at the *vP* level, a D with genitive case licenses the raising of the external argument and its case requirements. If genitive D is not merged and an article merges with the NP, then the external argument will fail to have its case valued and the derivation will crash (Chomsky 1998). This is desirable since VGs cannot occur with determiners: \**The reading Pride and Prejudice*.

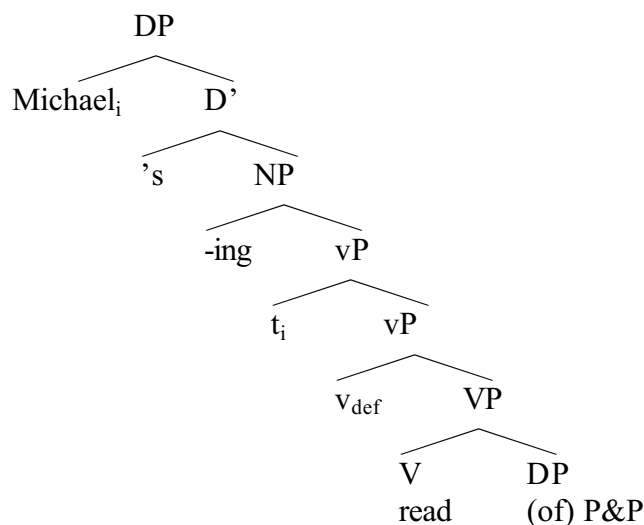
(15) *Poss-ing*: Michael's reading *Pride and Prejudice*



In nominal gerunds, there are two possibilities: nominalizing can occur at the *vP* level or in the lexicon at the V level. In the former, a defective *v* introduces the external argument which then raises to Spec,D, according to the same mechanisms in *Poss-ing* gerunds (15). Let's call this NG a *Syntactic NG*, since all the verb root's theta-roles are mapped to syntactic positions in the verbal domain. Just as with *Poss-ing*, only a genitive D can merge, or else case on the external argument will remain unvalued. The crucial difference between *Poss-ing* and a *Syntactic NG* is the nature of *v*. In *Poss-ing* *v* values object case in the same manner as in clauses. In *Syntactic NGs*, *v* introduces the external argument but does not value case. I will simply say here that this *v* is defective. Alternatively, we could say that it licenses the object marking *of* that we see in nominals.<sup>6</sup>

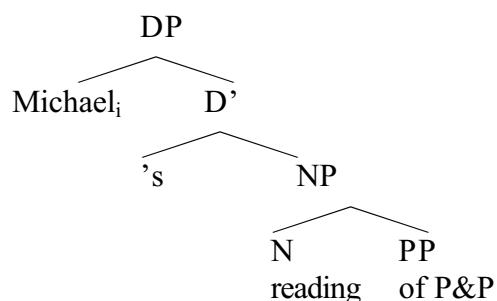
<sup>6</sup> A third option is to divorce case assignment and the light verb. Under this view, a light verb will introduce the external argument but another head will be responsible for object case. See Johnson (1991) for such a proposal. In this framework, *Syntactic NGs* will contain *v*, but not a typical accusative case assigning head (Johnson's  $\mu$ ). A different head may be responsible for nominal object case.

- (16) Syntactic NG: Michael's reading of
- Pride and Prejudice*
- .



When V undergoes nominalization this is a lexical process. In this case, no VP is formed and as a consequence *v* cannot merge. Thus external arguments are not licensed here and predictably accusative case is not present either. A genitive D can merge, selecting its own argument and valuing that argument's case, giving a possessor subject. Alternatively, a determiner can merge with no undue consequences since there is no external argument to license, unlike Syntactic NGs and Poss-*ing*. Let us call these NGs *Relational NGs*, due to the status of the possessor subject.

- (17) Relational NGs



In the case of the last two gerundives (NGs), the distinction is really between a syntactic gerund and a nominalization (along the lines of Chomsky 1970 and Harley and Noyer 1997). In fact, only Relational NGs are true nominalizations. Syntactic NGs are versions of Poss-*ing* with defective light *v*. The fact that two NGs exist finds empirical support. We will see that NG subjects can bear a theta-role of the nominalized verb (e.g. agent) or return a relational reading, and that these differences correspond to the possibility of modification: adverbial in the case of Syntactic NGs, adjectival in the case of Relational NGs. This fact is predicted since Relational NGs do not contain a VP and thus cannot be adverbially modified. Furthermore, Relational NGs are the least verbal in that they enter



the syntax as nouns. That these verbs are formed lexically finds support in the idiosyncrasies of Relational NGs to be found below. The remainder of the paper is devoted to evidence in support of these structures, including defective light  $\nu$  and raising to Spec,D.

## 2. External arguments

Since I have provided two possible structures for NGs, one with an external argument and one without, then we should be able to detect two different sorts of NGs. This prediction is borne out. Kratzer (1996) points out that the genitive-marked possessor of an NG can be interpreted as an agent, but that this reading is not obligatory. Thus in (18),

- (18) Maria's reading of *Pride and Prejudice* received better reviews than Anna's.  
(Kratzer 1996: 128)

*Maria* and *Anna* can certainly be interpreted as agents of the reading, but they do not have to be. Kratzer sets up a scenario in which there are several public readings of the novel (say on the anniversary of its publication), readings at which *Maria* and *Anna* are only spectators and not the actual readers. For Kratzer these genitive subjects are not agents, but “express a general notion of relatedness of which the agent argument is a special case” (128). This line of reasoning leads to Kratzer's conclusion that the absence of accusative case is accompanied by the absence of the verb's external argument in NGs. For Kratzer, then, NGs never contain an agent below the nominalizer *-ing*.

In contrast, both CGs and Poss-*ing* do not allow for the alternate readings seen in NGs such as (18). In (19) *Maria* can only be the agent of a reading event:

- (19) a. We remembered Maria's reading *Pride and Prejudice*. CG  
b. We remembered Maria reading *Pride and Prejudice*. Poss-*ing*

In order to make the agent reading obligatory in Poss-*ing*, we generate the external argument in Spec, $\nu$  and move it to Spec,D, following my proposal. Yet we still have to explain why NGs *do* allow for an agentive reading—this is where the proposal for two different NG structures finds its support. Surely the fact that NG subjects can be true external arguments of the predicate tells us that even NGs can have a light verb. But to do this, though, we would ignore the original solution to the puzzle: that NGs do not contain an external argument selecting/accusative marking light  $\nu$ . In order to preserve that analysis, we would need to assume that NG subjects are always merged in Spec,D and the role assigned in that position, Kratzer's “relatedness”, can vary between an truly agentive one and merely a “related”, and appeal to Kratzer's statement that the agent role is a “special case” of the relatedness role. If this were the case, however, we would expect that when the subject of a Poss-*ing* gerund (a true external argument selected by  $\nu$ ) raises to Spec,D it will also receive a “relatedness” role and therefore be able to display the alternate interpretations that the NG in (18) does. This is not the case: possessor subjects of Poss-*ing* must always be strictly interpreted as the agent, as we saw in (19).

Given the structures proposed above, we find a straightforward solution. The argument reading of the subject arises from a Syntactic NG with a defective *v*. The external argument then raises to Spec,D to establish a case relation. Spec,D also appears to contribute a relatedness role to the subject. But since agent is a subset of “related” then an agent can move to this position and still be compatible. The Relational NG, however, has no *v*. In this case, a DP merges in Spec,D, where its case is valued and its theta-role assigned<sup>7</sup>. The possessor subject only receives a “related” role and the alternate reading is derived. This analysis finds additional support from the fact that the relation reading of the subject is not available when the NG is modified by an adverb. So in (20a), we can only interpret Maria as the agent, unlike (20b), where the relational interpretation is available.

- (20) a. Maria’s reading of *Pride and Prejudice* regularly. *Syntactic NG*  
 b. Maria’s regular reading of *Pride and Prejudice*. *Relational NG*

The correlation between type of modification and the role of the subject follows from the two types of NGs I have proposed. Since Relational NGs do not contain a VP, they cannot be modified adverbially and they don’t have true external arguments. Syntactic NGs can be modified adverbially, and must have true external arguments.

Since the Relational NG is actually a derived nominalization we predict that these gerunds are idiosyncratically formed and that there are gaps in the paradigm. This is true: only certain gerunds can return the relational reading. The gerund formed from the verb *to eat*, for instance, is difficult to interpret unless the genitive subject is actually an agent:

- (22) Maria’s eating of the apple pie was less criticized than Anna’s

Here it is difficult to imagine that Maria merely attended an *eating* and did not eat herself. Relational NGs, as lexically formed gerunds, can exhibit idiosyncrasies such as this.

Moreover, when a derived nominal exists for a predicate, the relational NG is highly degraded. For example, the roots *destroy* and *promote* can be nominalized to *destruction* and *promotion*. The corresponding *-ing* seem awkward.

- (23) a. The destruction of the city...  
 b. ??The destroying of the city...  
 c. The promotion of the interns...  
 d. ??The promoting of the interns...

But the *-ing* forms improve when we distinguish between Syntactic NGs and Relational NGs. Thus the a. examples in (24) and (25) are much better than the b. examples:

- (24) a. The Roman’s destroying of the city quickly... *Syntactic NG*  
 b. ??The Roman’s quick destroying of the city... *Relational NG*

<sup>7</sup> We must assume that this case is inherent, since the mechanics of Agree and case valuation cannot hold between a head and its specifier (Chomsky 1998). Alternatively, we might propose a Poss head, below N, which allows a subject to have the appropriate meaning. Under this solution, true external arguments (in Syntactic NGs) and possessor subject would both raise to Spec,D for case purposes.

- (25) a. Maria's promoting of the interns regularly... *Syntactic NG*  
 b. ??Maria's regular promoting of the interns... *Relational NG*

If the contrasts in (24) and (25) are at all detectable, they show that Syntactic NGs are not "blocked" by the presence of a derived nominal, but the Relational NGs are. We predict this if Relational NGs are true nominalizations, but Syntactic NGs are analogous to VGs in every respect save the expression of object case. Harley and Noyer (1997) reach a similar conclusion about NGs (their *mixed nominalizations*) and treat *-ing* as an elsewhere nominalizer. They do not, however, distinguish between two types of NGs, as I have.

We have motivated two NGs. The Syntactic NG, however, requires us to posit movement to Spec,D along with Poss-*ing* gerunds. The next section shows that such movement is possible and demonstrates its mechanics.

### 3. Spec, D: theta-position?

In this section I will address the mechanisms of movement that lead to the realization of the gerund subject in Poss-*ing* and Syntactic NGs. We will reaffirm that movement to Spec,D in nominals is analogous in certain respects to Spec,T in the clausal domain. Furthermore, the data examined in this section will provide further support for the proposed structures of the range of English gerunds.

It has often been noted that derived nominals and NGs exhibit characteristics of passives and unaccusatives (Chomsky 1986; Alexiadou 2001, to name a few). As we have seen in NGs, it *appears* as if accusative case is unavailable and the agent role is absorbed. As demonstrated in 1.2, given the standard solution that NGs lack  $v$  we might expect the internal argument of these gerunds to raise, just as arguments of passive and unaccusatives do in the clausal domain. Grimshaw (1990) and Alexiadou (2001) present some evidence that this does not happen in certain nominals. One solution is that Spec,D is not a possible landing site for arguments. I will show that these facts can be explained better if Spec,D *is* a landing site for arguments but that the structure of gerunds is such that certain movements here are blocked—specifically by the external argument I propose exists in Syntactic NGs.

#### 3.1 Evidence that there ISN'T movement to Spec,D from *-ing* phrases

There are two main pieces of evidence that arguments cannot raise to Spec,D, and that genitive subjects are base generated there. The first concerns passivization. If we assume that NGs do not contain a  $v$  then we would predict that the single argument of the gerund could raise to an available case position. However, this does not happen in NGs (26).

- (26) *Passive in gerunds* (Grimshaw's examples, 1990:83)
- a. \*The tree<sub>i</sub>'s felling t<sub>i</sub>
  - b. The felling of the tree
  - c. \*The city<sub>i</sub>'s destroying t<sub>i</sub>
  - d. The destroying of the city

Since the standard structure for these gerunds does not include a light *v*, we expect the internal argument to raise. A straightforward solution for why this does not happen is to propose that movement is banned because Spec,D cannot host raise arguments.

Further support for this claim is the fact that NGs and Poss-*ing* gerunds do not allow for expletives in Spec,D, just like derived nominals (27a-c). Acc-*ing*, the CG, however, permits expletives (27d) [examples from Pires 2001].

- |         |  |                        |
|---------|--|------------------------|
| (27) a. | *there's appearance to be sick...                        | <i>derived nominal</i> |
| b.      | *there's frequent appearing to be sick...                | <i>NG</i>              |
| c.      | *You can count on there's being a lot of trouble tonight | <i>Poss-ing</i>        |
| d.      | You can count on there being a lot of trouble tonight    | <i>CG</i>              |

This distinction follows straightforwardly if we assume with Pires (2001) that only CGs have TP, and that *there* is only available in that position to satisfy an EPP requirement. Derived nominals, NGs, and Poss-*ing* do not permit *there* as subjects. The simple explanation is that these structures do not contain T, but D, and *there* is not permitted in Spec,D (Grimshaw 1990, Alexiadou 2001, Pires 2001). Spec,D is a theta-position, without EPP, and expletives are licensed only in non-thematic positions.

The conclusion from the raising facts and *there*-insertion data is that (i) Spec,D is a thematic position and not an EPP subject position; and, as a consequence, (ii) Spec,D is not a target for A-movement. As Alexiadou puts it: "arguments of nouns do not exhibit obligatory movement to a designated functional position in order to satisfy the requirements of this projection the way subjects move to Spec,TP..." (2001:61). This conclusion contradicts entirely the structure of gerunds I have proposed, since I have crucially relied on the external argument raising to Spec,D in Poss-*ing* and Syntactic NGs. I will show, however, that Spec,D is a position for movement and that the contrary conclusion results from misconstruing the facts presented above. We will now see below that there are many case of clear movement of arguments to Spec,D in gerunds.

### 3.2 Evidence that *there* IS movement to Spec,D from -*ing* phrases

First, all types of gerunds formed from unaccusative verbs allow for their internal argument to raise. This is predicted in the case of CGs where there is a TP. In the case of Poss-*ing* and NGs, this is evidence that Spec,D is a target for A-movement, since this is where the internal argument appears (28-29).

#### (28) 'Unaccusative' gerunds

- |    |  |                 |
|----|--|-----------------|
| a. | ?[The snow <sub>i</sub> 's quick melting t <sub>i</sub> ] surprised us.        | <i>NG</i>       |
| b. | [The snow <sub>i</sub> 's having melted t <sub>i</sub> so early] surprised us. | <i>Poss-ing</i> |
| c. | [The snow <sub>i</sub> having melted t <sub>i</sub> so early] surprised us.    | <i>CG</i>       |
| d. | The snow <sub>i</sub> has melted t.  | <i>sentence</i> |
- 
- |         |  |                 |
|---------|--|-----------------|
| (29) a. | ?[The stone <sub>i</sub> 's quick dropping t <sub>i</sub> ] surprised us.    | <i>NG</i>       |
| b.      | [The stone <sub>i</sub> 's dropping t <sub>i</sub> so quickly] surprised us. | <i>Poss-ing</i> |
| c.      | [the stone <sub>i</sub> dropping t <sub>i</sub> so quickly] surprised us.    | <i>CG</i>       |
| d.      | The stone <sub>i</sub> dropped t <sub>i</sub> .                              | <i>sentence</i> |

What is crucial to note is that *Poss-ing* accusatives allow for movement. This sort of movement is slightly degraded in the NGs; I will return to this point in my analysis. In addition, raising-to-subject also occurs with raising verbs in gerundive constructions (30)<sup>8</sup>:

- (30) a. Michael's frequently seeming \_\_\_ to be sick *Poss-ing*  
 b. Michael frequently seeming to be sick *CG*

And lastly, passive constructions can appear in the gerundive. Again, this is expected for CGs, where an EPP on T position is present. In the *Poss-ing*, however, this shows us that Spec,D can host moved arguments:<sup>9</sup>

- (31) a. Michael witnessed [the cat being beaten by the criminal] *CG*  
 b. Michael witnessed [the cat's being beaten by the criminal] *Poss-ing*
- (32) a. I was surprised by [the national anthem being sung by Michael] *CG*  
 b. I was surprised by [the national anthem's being sung by Michael] *Poss-ing*

In sum, we see that Spec,D *is* a position to which arguments can move. This might not be surprising, but it means that a new solution needs to be found for why arguments don't raise or *there-insertion* is prohibited in the examples cited in section 3.1. The claim presented here is that these data show us *not* that Spec,D is unavailable for movement, but that it is the structure of the gerund that prevents movement in those cases. We need to look more closely at the examples in 3.1.

Note that the examples in (26) do not distinguish between Syntactic NGs and Relational NGs. Once we distinguish, with the help of modification, a contrast emerges:

- (33) a. \*The hymn<sub>i</sub>'s singing t<sub>i</sub> beautifully (by Mary) *Syntactic NG*  
 b. ?The hymn<sub>i</sub>'s beautiful singing t<sub>i</sub> (by Mary) *Relational NG*  
 c. \*The dog<sub>i</sub>'s beating t<sub>i</sub> cruelly (by its owner) *Syntactic NG*  
 d. ?The dog<sub>i</sub>'s cruel beating t<sub>i</sub> (by its owner) *Relational NG*

When the gerund is syntactic (33a,c), as diagnosed by the adverbial modification, a passive-like structure is impossible; the genitive subjects of (33a,c) simply cannot be interpreted as the internal arguments of the predicate. When the gerund is purely nominal, as diagnosed by adjectival modification, the passive-like structure is improved (33b,d).

<sup>8</sup> Relational NGs cannot occur as raising verbs, simply because as Ns they cannot select for a small-clause complement:

- (i) \*[<sub>DP</sub> Michael<sub>i</sub>]'s frequent [<sub>NP</sub> seeming [<sub>SC</sub> (to be) t<sub>i</sub> sick]

See Kayne (1984) for a discussion of the absence of small clause complements in nominals.

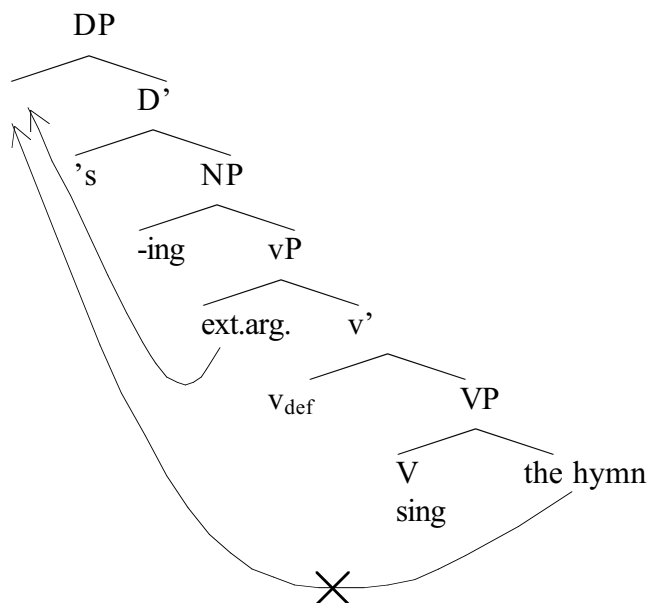
<sup>9</sup> This does not work if the gerund is a Relational NG (i):

- (i) \*Michael saw [the cat's brutal [<sub>NP</sub> being [<sub>VP</sub> hit by the criminal ]]

The reason is because the Relational NG, *being*, enters syntax as N, in which case it cannot take a participial VP (*hit \_\_\_ by the criminal*) as a complement.

This contrast follows directly from the two structures proposed for NGs. In the case of Syntactic NGs, a *vP* is selected by *-ing*. As such, an external argument is required. (33a) is out for the same reason a sentence with an active verb does not allow an internal argument to raise to Spec,I. (33a) will have the structure in (34)

(34) *Raising of internal argument blocked in Syntactic NG*

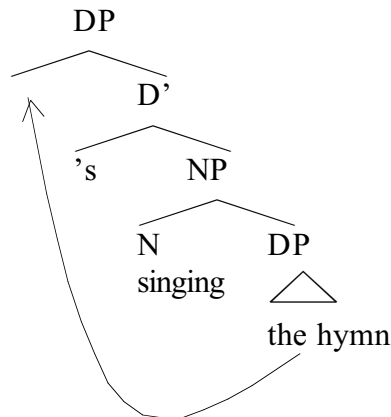


The presence of  $v_{\text{def}}$  calls for an external argument. If no external argument is merged then (33b,c) are out for theta-violations. If a null subject is merged, such as PRO, then movement of the internal argument will violate locality constraints. Allowing PRO to merge will explain why we find Syntactic VGs selected by definite determiners, such as (8) above, repeated below with other examples:

- (35) a. [<sub>DP</sub>The shutting of the gates regularly at ten o'clock] had rendered our residence very irksome to me. [Kratzer (1996), citing Jespersen (1940)]  
 b. [<sub>DP</sub>The running of marathons too quickly] causes exhaustion.  
 c. [<sub>DP</sub> The playing of cards frequently] improves a person's memory.

The gerunds in (35) are Syntactic NGs because they can be modified adverbially. But they are selected by a determiner which does not value the case of the subject. In these cases, the external argument must be PRO, for the standard reason that PRO may not be case-marked.

In the case of Relational NGs, however, movement is predicted:

(36) *Raising of internal argument permitted in Relational NG*

(36) should be analogous to derived nominals, where locality constraints play no role in the movement of the internal argument: there is no intervening external argument because Relational NGs contain no verbal projection. I concede that raising is less than perfect even in these constructions, but the direction of grammaticality with respect to Syntactic NGs is accounted for. There may be other factors affecting the realization of an argument in Spec,D. Questions remain as to why passive-like Relational NGs are less felicitous than passive-like derived nominals. Under my proposal, Relational NGs should behave just like derived nominals, which also enter syntax as N. Derived nominals, however, seem to more easily permit a theme in Spec,D: e.g. *The city's destruction*. The semantic content of the notion “relational subjects” needs to be determined. We need to ask whether this is a theta-position or some type of adjunct position (see Massam 1996 for proposals).

In sum, we have seen that arguments may move to Spec,D, locality conditions permitting. We accounted for the lack of passive gerunds based on a proposal that distinguishes two types of nominal gerunds.

#### 4. Conclusion

We have presented evidence for several claims. (i) Certain gerunds contain a position for an external argument even though accusative case is not observed on the object; this led to the proposal of a defective *v* in Syntactic NGs. (ii) English gerunds are limited to *-ing* head selecting fully saturated predicates (*vP*, *vP<sub>defective</sub>*, *TP*) or forming a nominal in the lexicon (Relational NGs). When *-ing* selects *vP<sub>def</sub>* it can still embed under a D (a determiner or genitive 's), giving rise to Syntactic NGs. This structure accounted for NGs that do not adhere to Burzio's generalization: external arguments are detected but accusative case is not; and the whole structure does not behave like unaccusative or passives in allowing the internal argument to raise. The lexically derived NG does not map its external argument to a syntactic position, and *does* adhere to Burzio's generalization in both case assignment and raising behavior.

## References

- Abney, S. 1987. The English noun phrase in its sentential aspect. Ph.D. dissertation, MIT.
- Alexiadou, A. 2001. *Functional Structure in Nominals*. Michael Benjamins.
- Chomsky, N. 1970. "Remarks on Nominalization," in R. Jacobs and P. Rosenbaum, eds. *Readings in English Transformational Grammar*. Waltham, MA.
- Chomsky, N. 1995. *The Minimalist Program*. MIT Press: Cambridge, MA.
- Chomsky, N. 1998. Derivation by Phase. MIT Occasional Papers in Linguistics 18.
- Cowper, E.A. 1995. English Participle Constructions. *Canadian Journal of Linguistics* 40.1: 1-38.
- Fu, Jingqi, T. Roeper, and H. Borer. 2001. The VP within process nominals: evidence from adverbs and the VP anaphor *do-so*. *Natural Language and Linguistic Theory* 19: 549-592.
- Grimshaw, J. 1990. *Argument Structure*. MIT Press: Cambridge, MA.
- Harley, H. and R. Noyer. 1997. Mixed nominalizations, short verb movement, and object shift in English. In *Proceedings of NELS 28*. Pius N. Tamanji and Kiyomi Kusumoto, eds. GLSA, University of Massachusetts, Amherst.
- Hornstein, N. 1999. Movement and control. *Linguistic Inquiry* 30: 69-96.
- Johnson, K. 1988. Clausal Gerunds, the ECP, and Government. *Linguistic Inquiry* 19:4. 583-609.
- Johnson, K. 1991. Object Positions. *Natural Language and Linguistic Theory* 9: 577-636.
- Kayne, R. 1984. "Unambiguous Paths." In *Connectedness and Binary Branching*. Foris Publications: Dordrecht. 129-164.
- Kratzer, A. 1996. Severing the external argument from the verb. In Roryck, J. and Zaring, eds. *Phrase Structure and the Lexicon*. Dordrecht: Kluwer. 109-138.
- Massam, D. 1993. The Licensing of genitives. *Linguistica Atlantica* 15: 115-129.
- Pires, Acrisio. 2001a. A Minimalist Approach to Clausal Gerunds. University of Maryland at College Park. Unpublished manuscript.
- Pires, Acrisio. 2001b. The syntax of gerunds and infinitives: Subjects, Case and Control. Unpublished Ph.D. Dissertation. University of Maryland at College Park.
- van Hout, A. and T. Roeper. 1993. Events and Aspectual Structure in Derivational Morphology. MITWPL.
- Wasow, T. and T. Roeper. 1972. On the subject of gerunds. *Foundations of Language* 8: 44-61.
- Zucchi, A. 1993. *The language of propositions and events*. Studies in Linguistics and Philosophy. Dordrecht: Kluwer.