

# 30 Gerundive Nominalizations

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All languages are confronted with the problem of expressing propositions as arguments of larger propositions. Typically, this is done in one of two ways. The first, and by far the better researched and understood, is through finite or non-finite complement clauses, as in English examples such as (1–4):

- (1) Everyone assumed *that the tree was dying*.
- (2) Everyone assumed *the tree to be dying*.
- (3) *That the tree was dying* saddened us all.
- (4) *For the tree to be dying* would be devastating.

The second strategy is nominalization. In this device, the proposition is expressed by means of a phrase projected from a noun (or perhaps its determiner) that is related lexically or syntactically to the predicate of the corresponding clause. English examples related in this way to (1–4) are:

- (5) Everyone expected *the death of the tree*.
- (6) Everyone expected *the tree's death*.

(7) *The death of the tree* saddened us all.

(8) *The tree's death* saddened us all.

Many languages have a particular nominalization strategy characterized by essentially full productivity. The poster child for this sort of construction is the English *ing* construction exemplified in (9–13):

(9) The orchestra went on strike after *playing the overture*.

(10) We didn't approve of *them doing that*.

(11) We didn't approve of *their doing that*.

(12) We didn't approve of *doing that*.

(13) *Their playing the overture so badly* disgusted the audience.

In the generative literature, as well as in traditional work on many languages, constructions of this sort are referred to as the gerund or the gerundive nominalization. Generative inquiry into the properties of English gerundives dates to the origins of the discipline and has continued sporadically since then.

More recently, it has been realized that the puzzling properties of constituency, case, movement, and control that characterize the English gerundive have counterparts in many other languages as well, and the inquiry has expanded considerably. Since much of the work discussed below is concerned with the English construction, it may be appropriate in this introduction to address two potential confusions that can arise in considering the English data and their implications.

One concerns the relationship between true gerundives of the type illustrated above and a superficially similar nominalization exemplified by (14–17) below and referred to variously in the literature as the 'nominal gerundive', 'action nominalization', or 'derived nominalization in *ing*':

(14) The opera began after *the playing of the overture*.

(15) We thought that *his repeated retuning of the instrument* was

unnecessary.

(16) *The constant retuning of instruments* seems to be a feature of early music concerts.

(17) *Their playing of the overture* was excruciating.

The contrast between these types of nominalization has been noted repeatedly, as in [Chomsky \(1970\)](#), [Fraser \(1970\)](#), [Wasow and Roeper \(1972\)](#), and [Horn \(1975\)](#). The derived nominalization (DN) type in (14–17) poses no particularly interesting problems. The *ing*-affixed verb form appears to be of nominal category and its projection has exactly the properties one should expect: it occurs in argument positions canonically occupied by nominal projections; it can include determiners, genitive subjects, and adjectival modification; and its internal complements require the preposition *of*. Also, the construction is limited in productivity, as shown by pairs such as (18, 19):

(18) Several factors led to *her achievement of legendary status*.

(19) \*Several factors led to *her achieving of legendary status*.

Thus, one may conclude that this sort of example represents merely one of many partially productive lexical nominalization mechanisms provided by English, parallel to affixations and stem changes such as those in (20–22):


(20) We objected to *their retention of the documents*.

(21) *Her disavowal of vegetarianism* is quite recent.

(22) *The loss of his investment income* made Fred a wage slave.

True gerundives of the type shown in (9–13) (sometimes called ‘verbal gerundives’, ‘VP gerundives’, or ‘sentential gerundives’) are quite a different matter, and their analysis has presented difficult questions which will be taken up below.

The second potential confusion concerns the complements of certain ‘perception verbs’ in English:

(23) 

(23)	a.	I saw <i>them climb the hill.</i>
	b.	I heard <i>them laugh like idiots.</i>

(24)	a.	I saw <i>them climbing the hill.</i>
	b.	I heard <i>them laughing like idiots.</i>

This construction has spawned a fairly long and contradictory literature in generative grammar, but its relevance in the present context resolves to the question of whether it is sensible to regard the italicized constructions in (24) as instances of the gerundive construction. Reasonable people (e.g., [Reuland 1983](#) and [Johnson 1988](#)) have disagreed about this, but it would seem to be prudent to exclude such examples from consideration here, since they show a clear divergence from the syntactic patterns seen in true gerundives. These differences include the following.

First, the case of the apparent subject in such examples is always accusative. While accusative case subjects are sometimes possible in true gerundives, as noted in below, genitive is far more common. When genitive case is substituted in examples such as (24), the result is ill-formed:

(25)	a.	*I saw their climbing the hill.
	b.	*I heard their laughing like idiots.

Second, both A- and A'-extraction from the apparent subject position of examples such as (24) are easily possible:

(26)	a.	They were seen climbing the hill.
	b.	They were heard laughing like idiots.

(27)	a.	Who did you see climbing the hill?

- (27) 

b. Who did you hear laughing like idiots?
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As noted in 2.2 below, A'-extraction from the subject position of true gerundives is decidedly vexed, and A-extraction (as in (28)), is entirely impossible:

- (28) \*They were enjoyed playing the concerto.

Finally, the position occupied by *them* in (24) must be lexically filled, while true gerundives, such as that in (29c), have no such requirement:

- (29) 

a. *I saw climbing the hill.
b. *I heard laughing like idiots.
c. I enjoyed climbing the hill.

The fact pattern shown here is compatible with an analysis in which perception verbs are ditransitive object control predicates similar in relevant respects to verbs such as *force* and *persuade*, which take nominal objects followed by infinitival complements. If this is correct, the structure of an example such as (24a) would be something like (30):

- (30) I saw them<sub>j</sub> [PRO<sub>j</sub> climbing the hill].

Whether the bracketed constituent in (30) is a gerundive or something else, perhaps a 'small clause', as suggested by [Reuland \(1983\)](#), will not be pursued here. The only important point for present purposes is that examples such as these should be left out of consideration in the discussion that follows, since crucial factual judgments can be obscured if one confuses these rather problematic cases with the core examples of the gerundive construction.

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### 2.1 Constituency

The basic problem presented by the English gerundive construction, and by similar nominalizations in many languages, is that there is a contradiction between its internal structure and what would appear, on the evidence of its distribution in larger structures, to be its category type. Like the DN structures discussed above, gerundives occupy argument positions canonically assigned to nominal projections (NP) or their functional shells (DP). The most convincing examples of this are provided by structures containing psychological predicates, raising predicates, extraposition, prepositional arguments, or subject embedding, since these are the positions where there is the most unequivocal contrast between the distribution of nominal and sentential categories. In all these instances, gerundives have a distribution that parallels that of lexical nominals and contrasts with that of finite clauses:

(31)	a.	We were amazed that they left the city.
	b.	*We were amazed their leaving the city.
	c.	*We were amazed their decision.

(32)	a.	It seems that they left the city.
	b.	*It seems their leaving the city.
	c.	*It seems the departure.

(33)	a.	It is false that they left the city.
	b.	*It is false their leaving the city.
	c.	*It is false that story.

(34)	a.	*We talked about that they left the city.
	b.	We talked about their leaving the city.
	c.	We talked about the decision.

(35)	a.	*Fred said that that they left the city surprised him.
	b.	Fred said that their leaving the city surprised him.
	c.	Fred said that nothing surprises him anymore.

Despite this distributional evidence for nominal constituency, the internal structure of gerundives resembles in nearly all respects that of a sentence. Nominal objects are possible (36a), articles and quantificational determiners are barred (36b, c), and modification is adverbial (36d, e). Finally, as [Pullum \(1991\)](#) may have been the first to notice, the gerundive *ing*-form itself does not seem to be morphologically nominal, as shown by the resistance to pluralization exemplified in (36f.). The only respect in which these gerundives have an internal structure resembling that of a nominal projection is that they accept genitive case subjects, and even here the data are mixed: accusative case sometimes occurs in place of genitive under conditions that are not at all well understood (36g, h):

(36)	a.	Leaving the city is difficult.
	b.	*The leaving the city is difficult.
	c.	*Some leaving the city is difficult.
	d.	Leaving the city quickly is difficult.
	e.	*Rapid leaving the city is difficult.
	f.	*Leavings the city is difficult.
	g.	Their leaving the city surprised everyone.
	h.	?Them leaving the city surprised everyone.



One further peculiarity of the internal structure of gerundives that has sometimes been taken as evidence of a non-sentential internal structure is that they do not permit modal auxiliaries:

(37)	a.	*John's must leaving was surprising.
	b.	*John's musting leave was surprising.

It is not clear that this fact has any structural implications, however. Modals are also barred from infinitivals, and it may be that both these facts are to be attributed to the morphological deficiency of English modals, which are restricted to finite inflectional forms.

It was once supposed that the categorial contradictions present in the English gerundive represented an unusual and highly marked phenomenon. Abney, in the course of his detailed study of gerundives (1987), remarks for instance that he was able after some effort to find a construction with the mixed properties of the English gerundive only in Turkish. This speculation was reinforced by evidence of historical instability in the properties of the construction within English.

There are literary examples ranging from the seventeenth to at least the mid-nineteenth centuries which seem to show the construction exhibiting different properties from those it has today. Typical is the following sentence from Act I, Scene 4, of Shakespeare's *Macbeth*:

(38) Nothing in his life became him like the leaving it.

The co-occurrence here between the definite determiner and the nominal object is entirely impossible in contemporary English, as shown by examples such as (36b). [Wescoat \(1994\)](#) notes several such instances, and a wealth of similar examples is found in [Poutsma \(1923\)](#) and [Jespersen \(1909\)](#). [Emonds \(1990\)](#) discusses further issues in the history of the English gerundive construction, as does [Abney \(1987\)](#).

More recently, however, investigations into a number of languages as historically remote from each other as Finnish, Kikuyu, and Quechua have revealed the existence of constructions with

properties that closely resemble the categorial peculiarities of the English gerundive. Many of these constructions are nominalizations, as one might expect, but some are not. Taken as a whole, this work seems to show that something more general is at stake here than the analysis of a peculiar construction in a particular language, and has given rise to the term ‘mixed category’ to describe the problematic constructions in a more general fashion.

An example of the sort of facts that have emerged is found in Finnish. The language has four morphologically distinct non-finite verb forms, referred to in traditional grammars as the first through fourth infinitives. The first infinitive (formed with the suffix *-da*) corresponds exactly to the infinitives of Indo-European languages: it is indeclinable, and its object arguments bear the same cases as they would in a finite clause. It is, in other words, unambiguously verbal in nature. The fourth infinitive (in *-minen*) is often described (for instance in [Lehtinen 1967](#)) as a ‘verbal noun’, and for good reason: its characteristic suffix is morphologically related to a noun-forming suffix found in complex nominals not related to verbs, such as *Englantilainen* ‘English’ and *päskiäinen* ‘related to excrement, foul person’; it is inflected for case, and its object arguments appear in genitive case. The form thus appears to be the exact analogue of the English DN gerundive and similar lexical nominalizations found in many other languages. In contrast to these examples of well-behaved categorial integrity, the second and third infinitives (in *-de* and *-ma* respectively) have mixed properties that are exactly analogous to those of English gerundives, within the limits of the syntactic and morphological parameters that distinguish the languages. Both forms are clearly nominal, accepting case and possessor affixes (the apparent analogue of English gerundives being restricted to cased positions), yet requiring clause-like case marking on their object arguments (the analogue of the presence of non-prepositional objects in English gerundives).

## 2.2 Subject properties

A second issue concerns the properties of the internal subject position. As noted above, lexical subjects may occur here, and genitive and accusative case alternate in the position under unclear conditions. However, gerundives also occur without audible subjects. These empty subjects are subject to control or to arbitrary

interpretation, depending on their structural environment, a fact which has led most authors to assume the presence of PRO:

(39) PRO revealing one's emotions is often dangerous.

(40) Fred's revealing his emotions was tasteless.

(41) We regretted PRO performing the piece so badly.

(42) We regretted their performing the piece so badly.

This raises two issues. First, it is another respect in which the internal structure of gerundives appears to be sentence-like. While a number of people have suggested that PRO can occur in nominal categories, the evidence for this is somewhat slender. No one who acknowledges the existence of PRO at all, however, would doubt its presence in the subject position of non-finite clauses. Thus (39, 41) are exactly to be expected if gerundives are sentential. Further, [Wasow and Roeper \(1972\)](#) point out that control (and thus PRO) does not occur in DN gerundives, which are unquestionably nominal. Thus, (43) is not necessarily a claim about George's feelings about his own well-drilling:

(43) George regrets the drilling of all those oil wells.

This difference in control properties was exploited in a language acquisition study reported in [Roeper \(1982\)](#), in which it is argued that children show evidence of prior knowledge of the contrast in control between DN and true gerundives.

Second, the alternation between controlled PRO and lexical subjects in examples such as (39–42) is reminiscent of the situation in the subject position of infinitival complements of mixed control verbs such as *want* or *expect*.

(44) We expected them to understand the argument.

(45) We expected PRO to understand the argument.

Examples like these are an old source of puzzlement in generative analysis and have yet to receive a really satisfactory treatment, although they are no longer so obvious an embarrassment as they were in GB analyses incorporating the 'PRO Theorem' ([Chomsky](#)

[1981](#) ).

### 2.3 Extraction and interrogatives

There is at least one minor issue concerning A'-extraction from gerundives. The construction shows a subject–object asymmetry that is unusual when compared with analogous phenomena in finite clauses and infinitivals:

(46)	a.	Who did she claim read the book?
	b.	What did she claim he read?

(47)	a.	Who did you want to read the book?
	b.	What did you want them to read?

(48)	a.	*Whose did you regret playing the piece?
	b.	*Who(m) did you regret playing the piece?
	c.	Which piece did you regret their playing?

The resistance to extraction of genitive subjects shown in (48a) is not in itself particularly mysterious, since genitive subjects behave the same in ordinary nominals, as noted originally by [Ross \(1986](#) (original dissertation 1967)) in his discussion of the Left Branch Condition.

(49) \*Whose did you see book?

From this point of view, (48a) is at most another indication that gerundives are nominals of some sort. Interestingly, however, accusative subjects of gerundives also resist extraction, as shown in (48b), although many speakers do not find this sort of example as repulsive as those with genitive subjects, and published claims

about their status differ. [Reuland \(1983\)](#) and [Abney \(1987\)](#) cite sentences such as (50) as grammatical, while [Johnson \(1988\)](#) assigns double question marks to analogous examples:

(50) Who(m) do you approve of studying linguistics?

A related issue raised perhaps first in [Stowell \(1981\)](#) and taken up later by [Reuland \(1983\)](#), [Abney \(1987\)](#), and [Johnson \(1988\)](#) is the absence of interrogative gerundives:

(51) I asked what she had done.

(52) I asked what to do.

(53) \*I asked what (her) doing.

Stowell and Reuland took this as evidence that gerundives do not have a complementizer position that can accept interrogative elements. Abney's analysis, in which gerundives are not sentential, actually predicts this result.

## 2.4 Exceptional distributions

Occasionally, for instance in [Battistella \(1983\)](#) and [Milsark \(1988\)](#), it has been noticed that gerundives can in some circumstances show exceptions to the nominal distribution pattern shown in (31–35). The gerundive in (54) seems quite acceptable in a position normally allotted to sentential, rather than nominal, constituents. It is important, by the way, that these examples be read without 'comma' intonation breaks after *pleasant*. In the presence of such intonation breaks, the contrast in judgments disappears:

(54) It is pleasant walking in these woods.

(55) It is pleasant that we can walk in these woods.

(56) It is pleasant to walk in these woods.

(57) \*It is pleasant this walk through the woods.

Interestingly, examples such as (56) become quite unacceptable when the gerundive has a subject:

(58) \*It is pleasant our walking in these woods.

This phenomenon has been little researched, but the properties seen here would seem to indicate that if gerundives are generally nominal projections of some kind, there are nonetheless some like (54) that are not. There are additional complications, however. [Michaelis and Lambrecht \(1996\)](#) discuss examples such as *It's amazing the people you see here*, in which non-propositional nominals occupy a position that seems to be the same as that occupied by the gerundive in (54). The existence of such examples raises the possibility that gerundives in examples such as (54) might be nominal categories after all. As Michaelis and Lambrecht point out, however, the structures they studied always seem to carry an exclamatory force and a marked intonation contour. This is not true of gerundive examples such as (54), so it is not clear what if any relationship there is between the cases, especially since an intonation break after *pleasant* repairs examples such as (57) and (58), as noted above.

## 2.5 The 'doubl-ing' phenomenon

Beginning with [Ross \(1972b\)](#), a surprisingly copious literature has assembled around judgments of the sort shown in (59–62), showing that some, but not all, sequences of contiguous *ing*-affixed forms result in degraded acceptability. It is generally conceded that the examples in which iterated *ing*-forms are well-formed are those in which the second *ing*-form is a gerundive, while those exhibiting degraded acceptability contain some different construction in this position:

(59) They kept talking.

(60) \*They were keeping talking.

(61) They enjoyed singing.

(62) They were enjoying singing.

Several approaches have been taken to the description of this phenomenon, ranging from purely descriptive statements to attempts to explain the phenomenon as a consequence of larger generalizations, such as an avoidance of morph repetition.

## 2.6 How many ings are there and how do they arise?

One of the enduring puzzles of English syntax is that there seem to be several affixes with the phonological shape *ing*, raising questions about how many distinct morphological elements they actually represent and how they are introduced into derivation. In addition to gerundives and the derived nominals and perception verb complements mentioned in the introduction, this affix appears in progressive aspect (63), in adverbial adjuncts (64), in a number of non-propositional nouns such as those in expressions like *fine clothing*, *wire fencing*, *wool carpeting*, *mine tailings*, and in adjectives such as *astonishing*, *terrifying*, *interesting*, *amusing*.

(63) They were walking down the street.

(64) Walking down the street, we saw a rainbow in the distance.

While most work on the gerundive and related phenomena has left this apparent syncretism unexplored, there have been some attempts (e.g., [Milsark 1988](#) ; [Emonds 1990](#) ; [Siegel 1998](#) ) to reduce it in some way.

## 3 Generative literature related to the gerundive construction

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Below are descriptions of a number of works which include discussion of the issues surrounding the analysis of gerundives. Many have been mentioned in passing in previous sections. Where convenient, they are grouped in thematic categories.

### 3.1 Beginnings

Early discussion of the gerundive appears in [Chomsky \(1975a\)](#) (written in 1955–1956), [Lees \(1960\)](#) , and [Rosenbaum \(1967\)](#) ). The Chomsky and Lees works contain attempts to derive gerundive structures from structures underlying the ‘kernel sentences’ most closely approximating them by insertion of appropriate morphology

and the use of generalized transformations. Rosenbaum, writing after the replacement of generalized transformations by expanded phrase structure operations ([Chomsky 1965](#)), takes gerundive complements to be present at deep structure but differentiated from other complement types by the application of a transformation inserting the 'POSS-ing' complementizer. Emonds, in his 1970 discussion of root and structure-preserving transformations, notes the distributional differences between gerundives and complement clauses, particularly with respect to extraposition. He suggests that gerundives are generated in argument positions, while other (non-nominal) complements are generated in rightward adjunct positions and sometimes 'intraposed' to the argument positions in which they may appear in matrix structures. While these works are largely concerned with questions peculiar to their time, they still reward consultation in some ways. They introduce a number of the issues that animate later inquiry, such as the alternation between accusative and genitive case subjects, the resistance of gerundives to extraposition, the ambiguity of *of*-phrases in gerundives with respect to subject or object interpretation, the existence of gerundives with both nominal and prepositional objects, and the multiplicity of distinct constructions employing the formative *ing*. Rosenbaum's book, in particular, is laden with facts of great importance to later work.

### 3.2 [Chomsky \(1970\)](#) ; [Fraser \(1970\)](#) ; [Wasow and Roeper \(1972\)](#) ; [Marantz \(1997\)](#) ; [Harley and Noyer \(1998\)](#) )

[Jacobs and Rosenbaum \(1970\)](#) contains two articles taking opposing positions on the derivational properties of DN gerundives: Chomsky's "Remarks on Nominalization" and Bruce Fraser's "Some Remarks on the Action Nominalization in English." Chomsky's paper argued on the basis of productivity and internal morphology that gerundives of the type seen in (9–13) above were sentential complements (transformationally derived, in the view current at the time), while derived nominals in general (and gerundive derived nominals such as (14–17) above) were lexically derived. Fraser's paper was an effort to refute these arguments and defend transformational derivation for both true and DN gerundives. [Wasow and Roeper \(1972\)](#) is primarily noteworthy for its careful discussion of the distinction between true and DN gerundives ('verbal' and 'nominal' gerundives in their terminology).



The distinction between true and DN gerundives has been revisited more recently by [Harley and Noyer \(1998\)](#) (a paper first presented in 1997)). [Chomsky \(1970\)](#) had noted that English verbal particles may occur in either their internal or their external positions in gerundive nominals, but only in the internal one in DN nominals:

- (65) John's marking up the book was discourteous.
- (66) John's marking the book up was discourteous.
- (67) John's marking up of the book was discourteous.
- (68) \*John's marking of the book up was discourteous.

For Chomsky, this constituted an argument that DN gerundives were lexical nominalizations, while true gerundives were syntactically derived. Harley and Noyer attempt to provide an alternative treatment of examples like (70) that does not make use of Chomsky's distinction between lexical and syntactic derivation, since the distinction is unavailable in the theory of Distributed Morphology which they assume. On their account, DN gerundives differ from true gerundives (and from sentences as well) in that they lack certain functional projections that provide a target for movement of the object DP to the left of the particle in examples such as (66). [Marantz \(1997\)](#) provides a similar reanalysis of Chomsky's observations that also relies on a difference in functional content between gerundives and other nominalizations, in this case an agent-licensing category 'v-1' which is claimed to inhabit sentences and gerundives, but not other nominalizations. The goal here is to account for the distinction between examples such as (69) and (70) without maintaining a distinction between the lexicon and the syntax:

- (69) \*John's growth of the tomatoes . . .
- (70) John's growing the tomatoes . . .

### 3.3 Ross: 'doubl-ing' and succeeding work

[Ross's \(1972b\)](#) article introduced the doubl-*ing* phenomenon to discussion. He took the facts as evidence for a 'transderivational constraint' on grammaticality related to the possibility of an overt subject occurring in the structures. Compare (71–74) with (75, 76):

- (71) They kept talking.
- (72) \*They were keeping talking.
- (73) They enjoyed singing.
- (74) They were enjoying singing.
- (75) \*They kept our talking.
- (76) They enjoyed our singing.

The facts discussed in Ross's paper form the material for a discussion that has been surprisingly long-lived. [Milsark \(1972\)](#) and [Emonds \(1973\)](#) argued independently that the doubl-*ing* phenomenon can be derived more simply from the observation that *singing* in (73, 74, 76) shows evidence of nominal constituency, while *talking* in (71, 72, 75) does not. Put otherwise, complements of *enjoy* are gerundives, while those of *keep* and other verbs that trigger doubl-*ing* are not. An account in [Williams \(1983a\)](#) is built on the same observation, but generalizes the descriptive mechanism in an attempt to account for certain properties of non-gerundive complements of 'perception verbs' such as *see* and *watch* (see examples (23) through (27) above). An analysis of gerundives developed by [Milsark \(1988\)](#) entails that PRO subjects of gerundives carry genitive case in instances like (73, 74), allowing the doubl-*ing* phenomenon to be assimilated to the case-based analysis of restrictions on *to*-contraction suggested in [Jaeggli \(1980\)](#). In a number of papers, Pullum and others ([Pullum 1974, 1991](#) ; [Pullum and Zwicky 1999](#)) have argued the necessity for a more intricate and purely descriptive account of doubl-*ing* incorporating structural information of greater detail than that envisioned by Milsark and Emonds. [Menn and MacWhinney \(1984\)](#) have attempted to embed the facts in a broader analysis of morph repetition constraints. A similar approach within an optimality theoretic framework is to be found in [Yip \(1998\)](#).

### 3.4 Responses to the question of the sources and apparent multiplicity of *ings*

In the earliest work on English complementation, the gerundive *ing* and the progressive *ing* were taken to be independent entities

introduced into derivations through different syntactic processes, and other instances of the formative were left out of consideration as lexical phenomena outside the realm of the syntax. Typical are [Chomsky \(1957, 1964b, 1975a\)](#), [Lees \(1960\)](#), and [Rosenbaum \(1967\)](#), where the progressive *ing* is introduced as an auxiliary element by phrase structure expansion and reordered by affix movement, while the gerundive *ing* is introduced by generalized complementation or nominalization transformations (Chomsky and Lees) or as a special POSS-ing complementizer (Rosenbaum and much following work). [Chomsky \(1970\)](#) retains aspects of this position, in that derived nominals are regarded as lexical, while gerundives are transformationally derived. More recently, [Reuland \(1983\)](#), [Baker \(1985b\)](#), [Abney \(1987\)](#), [Johnson \(1988\)](#), [Milsark \(1988\)](#), [Emonds \(1990\)](#), and [Zucchi \(1993\)](#) have agreed that the gerundive *ing* takes part in a process of syntactic affixation that is in some respects reminiscent of the early work cited above. Most have been silent about the question of how many distinct *ing* affixes must be assumed for English, but Milsark and Emonds have argued that there is only one. The adjective-forming *ing* affix has come under particular scrutiny in [Fabb \(1984\)](#), [Brekke \(1988\)](#), and [Borer \(1990\)](#). In an interesting variation on this question, [Siegel \(1998\)](#) has noticed that gerundives with genitive subjects have different aspectual properties from those with PRO subjects. She proposes that this is because the progressive *ing* is morphologically related to the gerundive *ing* when the subject of the gerundive is PRO, but not when it is an overt genitive DP.

### 3.5 Issues of case and lexicality in gerundive subjects

Most work on gerundives has taken the genitive to be the usual subject case in these structures and treated accusative as an idiosyncrasy or ignored it entirely. Notable exceptions are [Reuland \(1983\)](#), [Abney \(1987\)](#), and [Johnson \(1988\)](#).

Early treatments of the genitive, such as [Rosenbaum's \(1967\)](#) POSS-ing complementizer, were stipulative in the spirit of the time, but more recent analyses have sometimes aimed at greater explanatory depth. One example is [Abney \(1987\)](#), in which genitive case results from agreement with the D head of the gerundive in exact analogy with the treatment of genitive specifiers in ordinary DPs. Another is [Milsark \(1988\)](#), where a different structural analogy

between gerundives and non-gerundive nominals is exploited to the same purpose.

[Reuland \(1983\)](#) and [Johnson \(1988\)](#) have taken opposing positions on the problem of accusative case subjects. Reuland suggests that accusative case arises through transference from the inflectional head (*ing*) of a gerundive when the gerundive is governed by a matrix verb that assigns accusative case. [Johnson \(1988\)](#), on the other hand, holds that accusative case is assigned directly to the subject by an external case assigner in the manner of exceptional case marking in the infinitive complements of verbs such as *believe*. [Abney \(1987\)](#) claims that accusative case in gerundive subjects arises through internal assignment by whatever inflectional element is peculiar to these structures.

All the above attempts to grapple with the subject case problem must also deal with the alternation exemplified in (39–42) between lexical subjects of whatever case and PRO. Under the GB assumptions that underlie much of this work, this means that a way must be found to allow the subject positions of gerundives to be both governed (when lexical subjects are present) and ungoverned (when PRO is). Johnson's response is to allow gerundives to occur as both IP and CP complements (S and S' in earlier work), the former allowing external government of the subject and the latter preventing it. Reuland tries to resolve the problem by means of a particular claim about verb raising and affix movement in English. Milsark deals with it by locating the derivational recategorization of gerundive verb forms in the PF component, where, on his assumptions, the recategorization will be relevant to Case Theory but not to Binding Theory.

### 3.6 Approaches to the conflict between internal and external constituency in English gerundives

In early work on this issue, the recourse was to assume that verbal gerundives had a complex phrasal identity consisting of a sentence exhaustively dominated by NP, as in (77):

(77) [<sub>NP</sub> [<sub>S</sub> Fred's asking the question]]

Thus, the conflict between the internal and external properties of

these structures was resolved by main force. However, with the advent of X'-Theory, and later in the extremely impoverished and restrictive phrase structure system assumed in the Minimalist program, such an approach is rendered impossible, and the problem is red-flagged in a fairly dramatic way. A number of responses are distinguishable in the literature. [Horn \(1975\)](#) claims that gerundives are non-sentential; rather, he regards them as direct NP projections of the gerundive marker *ing*, which he takes to have nominal constituency and to accept VP complements. [Jackendoff \(1977\)](#) suggests that the affixation of gerundive *ing* forms a deverbal noun that forms the head of a nominal projection. [Schachter \(1976a\)](#) suggests a somewhat similar analysis in which gerundives are NPs projected from the *ing*-affixed verb through an intermediate VP. Schachter's approach, although it dispenses with a sentential constituent in gerundives, does not resolve the X'-Theoretic difficulties that cast the earliest phrase structure analysis of gerundives into doubt. An analysis similar to Schachter's is developed within the framework of Generalized Phrase Structure Grammar by [Pullum \(1991\)](#). The analyses of Marantz and of Harley and Noyer mentioned in above also share this general approach.

At least as often, it has been assumed that verbal gerundives are sentential in nature, and means other than nominal constituency have been enlisted to derive the fact that they are distributed into positions characteristically occupied by nominal projections. [Stowell \(1981\)](#) contains perhaps the most ingenious and principled account of this type. He proposes a category-neutral base in which all differences in the internal structure of different phrasal categories are derived from general principles of grammar, primarily Theta-Theory and Case Theory. In this approach, so-called 'NP positions' are those to which abstract case is assigned, while a principle of case resistance bars from such positions any category headed by a category that itself assigns case. Thus, there should be a complementarity between positions occupied by nominal projections (case receivers) and those occupied by verbal or inflectional projections (case assigners). The exception presented by gerundives then can be construed as their being case-receptive (thus occupying 'NP positions'), despite being projections of the case-assigning element INFL. Stowell resolves the contradiction by claiming that case resistance further demands the presence of a tense feature which is not present in the gerundive INFL. [Kornfilt \(1984\)](#), discussing a propositional nominalization in Turkish that

strongly parallels the English gerundive, also opts for a sentential analysis, but extends it to the point of claiming that in Turkish at least, not only the gerundive but also ordinary nominals containing possessive elements are instances of IP. Other authors adopting the sentential analysis include [Reuland \(1983\)](#) and [Johnson \(1988\)](#).

[Milsark \(1988\)](#) attempts to have the constituency issue both ways. Adapting ideas from [Fabb \(1984 b\)](#) and [Baker \(1985b\)](#), he claims that *ing* is an affix without set categorial features, and that gerundives arise through the attachment of this affix by a process of syntactic affixation. This allows gerundives to be thought of as fundamentally sentential constructions that may exhibit either nominal or sentential (or adjectival or prepositional, for that matter) properties in larger phrase structure depending upon what sort of categorial features the affixation introduces. [Emonds \(1990\)](#) gets similar results by taking *ing* to be a nominalizing affix whose attachment can take place at more than a single level of derivation.

One of the most detailed and influential accounts of the constituency problem and many of its consequences is given in [Abney \(1987\)](#). Abney's analysis is, like several mentioned above, one in which gerundives (at least those with genitive subjects) are not sentential constituents. It differs from those cited, however, in that it incorporates the 'DP Hypothesis', in which determiners are complement-taking heads that project a functional phrase category DP. Noting with certain previous researchers that the sentential properties of gerundives (e.g., the presence of nominal objects) are essentially confined to the VP Abney claims that gerundives are headed by a determiner whose major peculiarity is that it takes VP rather than NP complements. A secondary property of this determiner is that it undergoes an agreement relationship with its genitive specifier exactly as does whatever D head is present in non-gerundive examples with genitive specifiers, such as *Fred's book*, accounting for the one 'nominal' internal property of gerundives, the presence of genitive case subjects. Since what have traditionally been thought of as NP positions are DP positions in this theory, the structural conflict that lies at the heart of inquiry into the gerundive is neatly resolved: gerundives are simply DPs whose sentence-like properties result from the fact that their D heads agree with their specifiers and take VP complements. Essentially this analysis is adopted by [Zucchi \(1993\)](#), as well.

### 3.7 Broader issues of constituency in mixed categories

Since the mid-1980s, a number of books and papers have investigated the broader topic of ‘mixed categories’ that first came to the attention of the field through the study of the English gerundive. Since nearly all the instances that have been discussed concern nominalizations, a particularly useful and thorough descriptive compilation is [Koptjevskaja-Tamm \(1993\)](#), where nominalizations from a variety of languages are classified according to syntactic and morphological properties.

Perhaps the earliest study of mixed category phenomena in a language other than English is [Hale and Platero \(1985\)](#). They are concerned with a class of nominalized clauses in Navajo that exhibits sentential internal structure but is found in positions normally occupied by nominal projections, exactly as is the case with English gerundives. In order to describe this, they propose that the structures under discussion are projections of a feature complex they identify as [+N, +S], where the latter feature identifies the internal structure of the construction and the former identifies its external distribution. A very similar analysis of English gerundives is proposed within a lexicalist framework by [Lapointe \(1993\)](#).

Another interesting work which shares this general point of view is [Lefebvre and Muysken \(1988\)](#). The data they report are from Quechua, a language which exhibits a variety of morphologically and semantically distinct verbal nominalizations that do the work of a variety of clause types in languages such as English. All of them bear unmistakable signs of nominal constituency in that their heads bear case affixation, like the Finnish second, third, and fourth infinitives mentioned in above. The arguments of these nominalizations, however, show a striking mixture of case-selection properties. Some assume cases parallel to those found in finite clauses; others show case selection parallel to that in projections headed by simple nouns; still others show various mixtures of properties. Lefebvre and Muysken suggest that these phenomena arise because nominalizations comprise a lexical category which is distinct from both nouns and verbs and is defined by the features [+N, +V]. In the process of phrasal projection, items of this category are subject to a neutralization whose effect is to convert them either to [+N, -V] or [-N, +V]. Depending on which option is taken, the



resulting structure will exhibit either nominal or sentential internal properties.

[Borsley and Kornfilt \(2000\)](#) approach the mixed-categories problem by making use of the more abstract and articulated theory of phrase structure that has become familiar within the Principles and Parameters framework since the time of Lefbvre and Muysken's work. Adapting from [Grimshaw \(1991\)](#) the idea that particular functional heads are definitionally associated with particular lexical categories, they suggest that the properties of mixed categories arise when the functional structure dominating a verb projection is composed of one or more noun-type functional categories in a position superordinate to the verb-type functional categories normally associated with such projections. They apply this analysis to data from a variety of languages, most prominently Turkish and English, and claim that many of the particular facts about the precise ways that categories may be 'mixed' follow from their approach. As Borsley and Kornfilt note, their analysis has roots that can be traced to [Abney \(1987\)](#), whose analysis proceeds from the notion that gerundives contain a determiner that takes VP rather than NP complements. It also resembles in some ways those of [Marantz \(1997\)](#) and [Harley and Noyer \(1998\)](#). The common thread in this work is an attempt to explain various properties of gerundives or other mixed-category constructions by appeal to the selection and distribution of functional heads.

Still another analysis of nominalizations that depends crucially on the properties of functional heads is that of [Alexiadou \(2001\)](#). While her major concern is not with gerundives or mixed categories per se, responses to many of the issues that are highlighted in these structures are scattered throughout the book. Her conception of the role of functional heads contrasts with that of [Grimshaw \(1991\)](#) and [Borsley and Kornfilt \(2000\)](#), in that she adopts a position (familiar in the theory of Distributed Morphology) in which functional categories determine the categorial identity of major lexical items. In this approach, it is not that lexical heads determine the type and distribution of functional heads, but rather the opposite.

[Yoon \(1996\)](#) addresses a different aspect of the comparative study of mixed nominalizations. Citing an observation of [Pullum \(1991\)](#), Yoon notes that the *-ing* affix in English gerundives does not appear to be morphologically nominal. Thus, pluralization is impossible in



examples such as (78), no matter how many excursions the dog experiences. This contrasts with the situation in DN gerundives and other lexical nominalizations, as shown in (79):

(78)	a.	John enjoys walking his dog frequently.
	b.	*John enjoys walkings his dog frequently.

(79)	a.	There were many outdoor readings of <i>Midsummer Night's Dream</i> last summer.
	b.	There seem to be more performances of Dvořák these days.

The Navajo nominalizations discussed in [Hale and Platero \(1985\)](#) seem to be similar to the English gerundives in (78) in this respect. In languages such as Korean, however, and in other languages mentioned above such as Quechua and Finnish, the heads of nominalizations are morphologically nominal, as shown by their ability to take nominal inflections. Indeed, in languages of the Korean–Quechua–Finnish type, this is often the strongest evidence that ‘mixed’ nominalizations are mixed at all. Yoon's response to this fact is to attribute the nominal properties of the English gerundive not to the affix *-ing*, as is usually done, but to a phonetically null nominalizing affix that is applied to the participial *-ing* form of a verb. This affixation is assumed to be free to apply either in the lexicon or in the syntax, as is the affixation of *-ing* in many prior analyses. Because the null affix is applied syntactically in gerundives, the nominal character of a gerundive is not visible in the lexical morphology of its head. Lexical application of the null nominalizer, as in (79a), results in a form with overt nominal properties, as does lexical attachment of nominalizing affixes in languages of the Korean–Quechua–Finnish type.

Much of the work discussed above is couched in theoretical frameworks in which syntactic derivation, movement, and empty categories assume substantial explanatory weight. Such frameworks range from the early transformationalism of the 1950s and early 1960s to recent approaches such as Government-Binding Theory and various versions of the Minimalist program. There have also been a number of investigations of mixed categories within theories that attempt to replace these notions with

an expanded theory of lexical structure and/or a complex system of construction-specific phrase structure rules. Generally, this literature focuses on the English gerundive, but it is clearly intended to have implications extending into the broader world of mixed categories found in other languages.

[Pullum \(1991\)](#) and [Lapointe \(1993\)](#), both cited briefly above, are examples of this sort of work. Another is [Malouf \(2000\)](#). This account is typical of work within the theory of Head-Driven Phrase Structure Grammar, relying on a system of head features and construction-specific lexical rules to specify the syntactic properties of the gerundive. Malouf's article is well worth consulting for its critical summary of other analyses of the gerundive, whatever one's degree of familiarity with HPSG. [Bresnan \(1997\)](#) cites a number of types of mixed categories in a variety of languages and offers an analysis within the framework of Lexical Functional Grammar. Her essential insight is one that is shared to one or another degree by [Abney \(1987\)](#), [Zucchi \(1993\)](#), and [Borsley and Kornfilt \(2000\)](#), among others: mixed categories are not mixed randomly; rather, they exhibit a property of 'phrasal coherence' by which the characteristics of their different category types are localized in different parts of the construction. Bresnan conceptualizes this as the result of nested categories of different types anomalously sharing a single head, and she develops a formal account for expressing this within the construct system of LFG. A somewhat similar idea is found in [Wescoat \(1994\)](#), where it is proposed that a single word in a terminal string may represent more than one lexical head standing in an unordered relation to one another. The effect of this is to allow the head of a gerundive construction to function simultaneously as a noun and a verb.

## 4 Conclusion

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Like pretty much everything else in generative syntax, inquiry into the properties of gerundives and other mixed categories is very much a work in progress. The studies cited above have revealed a number of interesting facts, and some of those facts have been to

some extent explained. The explanations are partial and shallow, however, and it seems clear that no theoretical approach has been able to provide a fully convincing account of the properties of these constructions. One should not be surprised at this. Explanations are always contingent and never complete, and those in linguistics are if anything more contingent and less complete than those in many fields.

It is interesting to note how this study has developed historically. It arose from an initial concern among generative grammarians with the properties of a particular, putatively rather marked construction: the English gerundive. As inquiry advanced, it became clear that the properties involved were actually more wide-spread than at first was believed. Thus the particular and peculiar became the general, if still rather peculiar. Many larger inquiries within generative syntax have similar pedigrees; one need only think of the way that case theory, thematic theory, and the study of argument structure grew out of an initial concern with the properties of the passive construction, or the manner in which the study of operator-variable dependencies proceeded from the study of informational questions and the crossover phenomenon.

## NOTE

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