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Nominalizations: How a Marginal Construction Reveals Primary Principles

[Handbook of Morphology eds. R. Lieber and P. Stekauer Kluwer]

1. Nominalizations and Core Grammar

Nominalizations have remained both in the center and at the fringe of linguistics since the first work of Robert Lees in 1960. It has been at the center since many people have the intuition that the right level of abstraction in grammar would equally capture a description of both sentences and nominalizations, but has been at the fringe because every theory of phrase-structure fails to capture the facts in a natural way. To put it more succinctly: where theories fail to extend naturally to include the effects of category-changing derivational affixes, the theories themselves fail to be natural. Numerous proposals, with increasingly subtle distinctions have been advanced (Randall (1984), Sproat (1985)) (Zucchi (1989) and extensions to many other languages). In each instance, the proposal veers either toward an exceptional treatment of nominalizations, or toward an abstraction that makes nominalizations seem just like sentences. The former solution seems conceptually inadequate while the latter solutions usually fail to capture many of the facts. In a sense then, nominalizations are the perfect prism through which to see modern grammar. Thus Chomsky's "Remarks on Nominalizations" threw attention on the nominalizations in opposite ways: both syntactic and lexical. The lexical emphasis led to extensive discussions of subcategorical factors that affected productivity. Nonetheless, we argue that, once the puzzling idiosyncrasies are cleared away, it is precisely nominalizations that may well point to the right level of syntactic

abstraction for all constructions. We will characterize both the lexical and syntactic perspectives before we explore numerous details.

With regard to the syntactic perspective, Chomsky's proposal was that a common abstract syntactic notation, X-bar theory, could represent both the structure of nominalizations and of sentences. A simple addition or subtraction of an N or a V feature marked the whole structure. This view initiated other efforts to assimilate the lexicon to syntax. Vergnaud (1973) proposed that the passive could be a lexical transformation and Roeper and Siegel (1978) proposed that compounds reflected a transformation that occurred in the lexicon. Hale and Keyser (2000) extended the idea to transformational operations that were entailed in lexical causatives, with many proposals in between. For instance Lieber (1992) elaborated a mechanism that allows information to "percolate" higher within lexical structures (Lieber (1992)).

The X-bar syntactic perspective has remained as an assumption in Government Binding theory, without much refinement. It is a central feature of Head-driven grammars which focused on even more subtle variation in how phrase-structure nodes were represented. It has also become a core property of modern Minimalism where nodes are treated as the locus of Feature Bundles of various kinds (Collins (2001), Chomsky (1995, 2001), Halle and Marantz (1992)) .

From the lexical perspective, Chomsky's "Remarks" caused some researchers to examine the ways in which syntactic rules or principles either fail to capture idiosyncratic features of the lexicon, or to apply at all. Unlike syntactic operations that operate upon categorical labels, the internal content of lexical roots and their affixes sharply limit the productivity and scope of rules. For instance, these are common observations about

lexical restrictions:

- Lexical rules partly resist and partly accept binding relations:
?dog_i-lovers cannot part with them_i. (See Lieber (1992)) for a good discussion).
- Inside nominal compounds we find no wh-operations (dog-lover \neq **what are you a lover/* what-lover are you*).
- Thematic roles limit incorporation where dative verbs are involved. While we find compound nominalizations like *teacher-lover* we do not find **teacher-thanker*, Both roots and affixes are surprisingly limited.
- Affected objects do not allow pre-posing **algebra's knowledge*. (Anderson (197?) nor do certain affixes: **the city's destroying* (Kayne (1983)).

Nominalizations have led to the close study of lexical semantics as well as transformational rules (Bauer (1983)). It is clear that derivational affixes attach not just to a specific lexical category (N,V,A) but respond to the semantic content of roots (*help, know, push, inspire, implement* accept different affixes). We shall return to these topics.

1.1 Core Contrast

The challenge in a nutshell lies in connecting the underlying structure between two classic sentences:

- 1a. the enemy destroyed the city
- b. the enemy's destruction of the city.

Phrase-structure rules, which form the heart of Lees account, project the category of S which rewrites as NP and VP.

Sentence \Rightarrow NP VP

NP => Determiner N

How then can we express the notion of an NP that seems to be derivative from a VP where not only the verb itself, but its arguments are carried over, “inherited” by the nounphrase? In order to do so, one must break the basic rule of phrase-structure: allow the categories to change labels. S becomes another kind of NP or the S is dominated by NP. In other words, either we allow the phrase structure rule NP=>S or we fit the properties of a S into the categories of the N in some other way:

2) Sentence: the enemy destroyed the city

Nounphrase:	Possessive	Noun	PP [of Object]
	subject	verb	object

Each part of the sentence must assume a different syntactic label to make this work.

Each of these solutions involves a wrenching revision of higher structure.

There are two broad strategies to deal with these facts, to cope with what fails to fit neatly into sentential grammar:

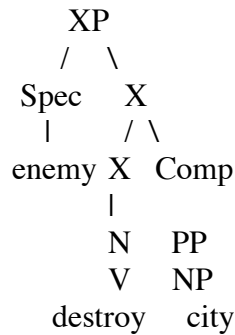
- Abstract Theory: create a more abstract theory in which nominalizations and sentences look the same or in which sentential structure falls inside of NP structure.
- Lexicalist Theory: attribute all of the oddities to historical residue or lexical exceptions found in a vocabulary list whose properties may reach outside of a particular language or grammar.

Lees chose the route of subordination, where a Sentence was inside the NP.

Chomsky, on the other hand, chose an abstract syntax (X-bar) which left lexical restrictions to be stated elsewhere. Chomsky’s approach is extended in modern

minimalist theories. Lee's approach continues to be reflected in the view that there is a hidden VP in the NP; we will return to this approach below.

Under Chomsky's approach a choice of feature (N,V) determined the behavior of the label on an XP. If a phrasal node became a VP, then it assigned case (*destroy the city*); if it became an NP, then it acquired an affix or an extra bracket that blocked the assignment of case to an object, requiring insertion of a preposition to do the work (*the destruction of the city*).



This is a beautiful resolution of the core problem. But it created other problems which continue to be a challenge, as we shall see.

1.2 Transformations

Beyond phrase-structure, the anchor of transformational grammar is the concept of transformations. If common transformations apply to both sentences and nominalizations, then the argument for their common source is much stronger.

Chomsky argued that the passive transformation can occur inside the nominalization:

3) the city's destruction by the enemy

The object moves into the subject position and the agent into a *by*-phrase. This is the kind of evidence for abstraction that good theories have. Yet questions remain.

Why is the subject apparently optional in nominalizations but obligatory in sentences?

2. The Subject Enigma

One explanation for the apparent optionality of the subject in nominalizations is that it really is obligatory but is carried by an invisible PRO, just as in VP structures [John wants PRO to sing]. If there is a hidden PRO, then it should be able to be controlled. Evidence for control of a subject position comes from contrasts like from (D. Charney pc):

4) a. John was in PRO control of the army => John controls

b. John was in the PRO control of the army => the army controls

The definite article has the interesting power to block outside control, an interesting phenomenon for which a deeper theory remains elusive. One possibility is that the Determiner “protects” the inner PRO from requiring case-assignment (Chomsky pc)) and blocks obligatory control as well.

Binding facts fall into place as well as a support for the hidden subject PRO:

5) a. ? the dressing of himself thrilled the little boy.

b. the dressing of the little boy thrilled him

c. The little boy's dressing himself thrilled him

In (b) we get the implication that someone else must have dressed the little boy, exactly as if there were a PRO_{arb} in a higher position [the PRO_{arb} dressing of the little boy] which can only be identical with an object if a reflexive is present, while in (a) it follows that a coindexed PRO is in the higher position [the PRO_i dressing of himself_i], allowing the reflexive to appear in (c) and in (a) (with a clear meaning even for those who find the sentence marginal),

The nature of the subject role in nominalizations has, however, been the persistent target of discussion. Wasow and Roeper (1972) assumed that nominal gerunds had no subject:

6) the singing of songs

Grimshaw (1990), Kratzer (1996), Alexiadou (1999) and others have made a similar assumption.¹ Williams (1987) proposed that the possessive relation can encompass any relation and therefore one can independently capture the notion of subject without a true verbal subject position. Evidence in behalf of this claim comes from forms like:

7) John's idea

where no verb is present but John takes on the Agent role.

What would show that sentence-like subject behavior is involved. In the best scientific tradition, it should be abstract, indirect evidence which proves the most persuasive. Modern work has provided new support for the hidden subject position.

First it has been argued by Roeper (1987) that the hidden subject can act as a controller in sentences of the form:

8) the PRO_i destruction of the city [PRO_i to prove a point]

where it is possible to claim that the Agent that destroys the city proves a point.

This argument has been criticized by Williams (1985) and Lasnik (1984), although their criticism seems to apply to the example, not the deeper claim. They observe that it is possible that the entire nominalization is the subject:

9) the destruction of the city proved a point

¹ See Alexiadou (in preparation) for a good summary.

Now it seems that there is no necessity for the Agent, separate from the nominalization, to be at work. However other examples point exactly at the hidden Agent:

- 10) a. The use of drugs to go to sleep
- b. The opening of the side door to enter the room

Here it would be impossible to argue that the whole nominalization is the subject because it would produce these readings:

- 11) a. *The use of drugs went to sleep.
- b. *The opening of the door entered the room.

Further evidence that the nominalization involves a true subject position comes from the argument that it can be blocked by preposing the object:

- 12) ?*the drug's use to go to sleep
- 13) ?*the city's destruction to prove a point

These data have been further challenged from the perspective of the view that no subject is involved, by claiming that they are Results (Grimshaw (1990)). If those prenominal possessives are linked to Result nominalizations, then the absence of control could have a different explanation, namely, that only action nominalizations allow purpose clauses to be controlled.² Thus we would no more expect **the city's destruction to prove a point* than **the city's façade to prove a point*.

Is there further evidence relevant to this dispute?

2.1 Passive –ability Nominalizations

² There is some subtlety here too. We do have cases like *the man to do the job* but it is not very general. Sentences like:

- a. ?*the goal to win
- b. the goal of winning

shows that bare nouns do not usually take such clauses, and therefore result nouns might not either.

New evidence points again to the existence of the subject position in nominalizations (van Hout and Roeper (to appear)):

- 14) a. the learnability of grammar by children
- b. the heritability of IQ by children
- c.*children's learnability of grammar
- d.*children's heritability of IQ

If the subject position is free, then it ought to allow an Agent reading. Why would -ability nominalizations, in particular, block these possessives? What stands out is that the subject position is blocked for the adjective in sentences as well:

- 15)*children are learnable [like *children are learned]
- 16) *children are heritable

One possible explanation is that there is a form of passive hidden in the suffix *-able* which involves a requirement that the subject be filled by a THEME or an object, exactly as in the grammar of sentences. Therefore we have only:

- 17) grammar is learnable (like: the grammar is learned)
- 18) IQ is heritable.

How would this system translate into nominalizations. Here again, the most abstract features of grammar come into play.

The question is this: since the object is not in the possessive/subject position what blocks the projection of a subject in that position? In a number of instances a notion of covert movement has received support. In Germanic languages, the subject often is often filled by an expletive, but features of the subject move there invisibly to accomplish subject/verb agreement:

19) there are three men

there is one man

there were pushed three men³

Here the object of a passive remains unmoved, but it seems to have moved covertly because number agreement is carried out.

If the same operation applies inside passive *-ability* nominalizations, then it can explain the blockage of an agent subject in those positions:

20) Covert-Object Movement:

the [obj] learnability of grammar

<←=====

the [grammar]'s learnability of grammar

grammar <===== t

Not only do we capture the facts, but we support the claim that both a subject position exists and a movement operation has occurred inside the nominalization, much as Chomsky originally proposed, which is the obligatory heart of passive in both sentences and nominalizations. Whereas overt movement is necessary for the object in sentences, in nominalizations the movement is overt or covert.

This analysis can shed light on many of the old facts as well. It has always been mysterious that nominalizations allowed a *by*-phrase in all environments:

21) the city's destruction by the enemy

the destruction of the city by the enemy.

³ Such sentences are very awkward in English but common in other Germanic languages.

If covert movement is allowed, then we can see why the by-phrase can appear; the sentence has a passive as one reading (see Borer (1998)).

If subjects cannot appear in the subject position, then no other element should either. We find this to be true of temporal adverbials as well for *-ability*:⁴

22) a. the deniability of tenure to a beloved professor last year [was easier because of budget demands]

b. *last year's deniability of tenure to a beloved professor.

c. last year's denial of tenure to a beloved professor.

Where the object has not moved forward, it appears that the temporal adverb can occupy the subject position (as it can in other Germanic languages). Since there is a non-passive form for *-tion* (*the enemy's destruction of the city*), *-tion* allows only optional passive, which means optional movement of the object to the subject, which in turn means that the subject position can be open for a temporal adverb when passive is not present.⁵

The covert movement analysis provides a straightforward explanation for this contrast as well:

23) a. the appearance of John/John's appearance

b. *there's appearance of John

In (a) the covert movement occurs and therefore the justification for there-insertion is eliminated. The occurrence of *there* in the sentential syntax is reduced to the need for case-assignment.

⁴ Blocked pronominal temporal possessives is discussed in Roeper (1987), van Hout and Roeper (1998), Snyder (1998).

⁵ Note that temporal adverbs can occupy subject position in Germanic languages in many constructions.

The following facts—though tenuous themselves---at first seem to contradict this account, but once again fall into line with the analysis:

24) a. ?there's appearing to be a problem

b. "I mean, there's appearing stiff on camera. And then there's being dead"

We even find cases like (24b) from the internet in a commentary on the presidential candidate John Kerry and the war in Iraq. If these are acceptable, then why is there a distinctive decline in acceptability for (25):

25) *there's appearing of a problem

We can explain the acceptability of (24) as derived from (26):

26) ? the appearing of there to be a problem

(26) requires raising the lower expletive to the upper position, which is what happens overtly in (24). Therefore it is grammatical because it is a moved-expletive not an expletive inserted to capture case. A number of subtle facts fall into place under the covert movement analysis.

2.2 -ing Nominalizations

A longstanding puzzle about -ing is solved by this analysis, namely that the passive is not available for all nominalizing affixes. The -ing affix does not allow any object in subject position:

27) the destroying of the city

28) *the city's destroying

We can explain this fact too now that we have identified the familiar passive operation inside nominalizations hidden within the abstract concept of covert movement. The -ing is purely transitive, not passive, and therefore does not project a THEME role into the

subject position that must be subject to Feature-checking. Therefore no movement to that position is allowed.

A new taxonomy emerges: if *-ability* carries an obligatory passive rule, *-tion* carries an optional one, it is not a surprise to find an affix which has no passive property, *-ing*.

We will turn to structural differences that these affixes reflect shortly.

3.0 Case Assignment

Hovering in the background of this discussion is the question of how case is assigned to both the subject and the object. In each instance a variety of possessive marking occurs. Here is where an “exceptionality” approach is common. A special form of of-insertion has been proposed for objects and default genitive has been proposed for subjects. Neither is a straightforward reflection of any deeper principles of grammar. The direction of explanation we would advocate should be clear: a more abstract theory of case-assignment would indicate that these genitives are just as natural as Nominative and Accusative in the sentence domain. We are far from such an analysis, but the genitive and of-insertion are currently widely studied and may yield a more natural analysis (Kayne (2002)).

3.1 Coping with Exceptions

There are, however, other intriguing facts which suggest that nominalizations are “exceptional” and therefore marginal to grammar. Anderson (1976) observes that there is an Affected Object Constraint that is active in nominalizations:

29) the knowledge of algebra

30) *algebra's knowledge

31) algebra was known

If the sentential passive allows movement of this object, why is it ruled out in nominalizations?

Lebeaux (1988) attempts to explain this observation by suggesting that there are two kinds of movement: thematically-based movement and case-based movement. These forms occur together as a rule, but nominalizations allow a finer discrimination among them.

32) destroy => destroy [+accusative, +Affected THEME]

destruction => [+Affected Theme]

know => [Accusative]/Abstract complement

knowledge => \emptyset

The nominalization subcategorizes only for thematic roles, not case. Case requires an independent subcategorizer, which is carried by *of*. Therefore we can say *the knowledge of algebra*. However since *know* does not affect an Object, it cannot project one. Rather it projects only accusative case in the verbal form and something more complex than a single thematic role in the nominal form, with no case. In the form **algebra's knowledge* the preposition is gone, therefore no case-assignment can be generated. Moreover, there is also no theme projection which in a case like *the city's destruction* (*THEME-trace*.) allows a thematic trace to occur in object position. Therefore what is needed to reconstruct the origin of the phrase is completely unavailable. From this perspective, **the theory of empty categories receives a more refined interpretation**: the thematic and case properties are potentially splittable, as revealed in nominalizations. A thematic-trace is different from a case-trace. It is natural in a modular theory that the set of empty categories also reflects modular differences. It remains to be

seen if this logic extends to other modules as well.

What does a verb like *know* project? Under this view of thematic roles, it projects a semantically open object that takes case, but allows propositions as well, as in *John knows the truth* or *John knows that Bill is here*. This view fits the claim that traditional Agent/Theme type thematic roles are derivative from the notion of Event. If no Event is present, the semantic structure is different.

3.2 Thematic-binding

If the thematic system is separable from the case-system, then we should see it work independently. Williams (1994) has argued that forms of **thematic-binding** are possible, indicating that they are a **definable subsystem**: one verb's thematic projection, like Agent, can bind another verb's Theme. In fact, they appear in the invisible projections of nominalizations. We find that the difference is clearly evident in:

33) John needs Bill's support

which requires us to take *John* as the object-Theme of support. Where there is an affix that gives case, like -ing, then a subject blocks object binding and it is only possible to get the object reading through an empty PRO subject position as in (35) (Clark (1985)):

34) . *John needs Bill's supporting

35). **John needs supporting ____**

John₁ needs PRO₁ supporting t₁

In (36) the subject of *prevention* is filled, blocking control by another NP *disease*, which is possible when the subject is gone (37):

36) *the disease calls for the city's prevention

37) the disease calls for prevention

The object control is also blocked when higher DP structure, above NP, is invoked as these examples reveal where plural entails more than a bare noun:

38) the president needs thought (=thinking about him)

39) the president needs thoughts (= he thinks)

We can see that object control is sensitive to the same thematic system because where non-affected objects occur, they are excluded:

38) the disease calls for knowledge

This does not specifically mean *knowledge of the disease* but rather knowledge in general.

We find that a parasitic-gap relation can also exist among nominalizations, just where Affected Objects can occur:

39)a. No taxation ___ without representation ___

b. Ideas should not undergo presentation without preparation

A plural again generates an unspecified interpretation

c. Ideas should not undergo presentation without preparations

where here the *preparations* means more than preparing the ideas.

41) As for disease, prevention___ is better than curing___

At a very subtle level we can see our argument reflected again:

42) *the disease's prevention is better than curing.

(42) fails because there is a lack of parallelism, since *curing* has no analogous preposed form. However in this case, where covert movement invisibly converts *the prevention of disease* into *the disease's prevention* we achieve the parallelism needed:

43) the prevention of disease is better than its curing.

We find again that nominalizations provides a sharper representation of core linguistic phenomena.

One criticism that might be made of this proposal is that it distorts thematic roles or does not honor their traditional definition. Our approach here is different, though we leave it as just a suggestion. Once again, if we take nominalizations to reflect central properties of grammar, then we need to revise the theory of thematic roles to make a sharp distinction between those entailed by Events and another set of semantic relations that are engaged in a different manner for verbs like *know*.

It is quite possible that the deepest insights into Case will come from languages with richer case systems. We have reason to believe that Case will also be appropriately abstracted by seeing nominalizations as a core phenomenon. Chomsky once remarked that “modes of execution should be resolved into leading ideas” when we have a full understanding. What looks like a technical solution should have the germ of a principle within it. If grammar is in some sense a “perfect” system, then all exceptionality should be resolved in nominalizations, which is too robust a phenomenon to be relegated to the periphery. The capacity of nominalizations to convert the nominative assigned by an auxiliary into a genitive should follow from a principle (like transformation) which captures other case-conversion cases, like the capacity of affixes to convert dative into accusatives (be- in German). Yet the insight is not yet there.

4.0 Intriguing Issues: Aspectual Differentiation of Nominalization Affixes

What emerges from this analysis is that the process of derivational affixation carries all the properties of syntax, the natural prediction that follows from Chomsky’s

original claims. The fact that affixes change category should not overshadow an important question for the future: what other information is carried by affixes? Why should there be more than one nominalizing affix? We find there are transitive affixes: *-ing*, passive affixes *-ability* and ambiguous ones: *-tion*, *-ment*, *-ence*.

44) John's enlargement of the house

the house's enlargement by John

45) the maintenance of order

the persistence of problems

A closer look shows that affixes often captures a kind of "aspect" of Event, although here I am just beginning to sketch out terrain that is theoretically unexplored. For instance, the affix *-ment* is used primarily for results, although with considerable historical drift:

47) acknowledgement, enlargement, complement, arrangement, inducement

.In addition, we find that the *-ence* affix is defined as "usually of quality, rarely of action" in the OED:

48) dependence, existence, persistence

However it seems like the other nominalizations in:

49) John's transference of money

Nevertheless, where action is behind the word, it is often the quality of the action that is captured:

50) violence, subservience, prudence, pretense

The word *violence* surely refers to actions but fails to be an action nominalization, but refers to the quality of action instead, just as the OED claims.

The *-ence* was often confused with *-ance* which also carries action meaning:

51) assistance, resistance, connivance

thus we find that affixes point to a kind of Nominal Aspect, but that considerable drift can occur. The affix *-th* **is widely discussed**, but has become unproductive and therefore difficult to analyze, though it seems to be inchoative:

46) the growth of tomatoes/*Mary's growth of tomatoes

It is here we see both the strong lexical dimension of nominalizing affixes and an important, but largely mysterious question of exactly what subtle meaning each affix conveys beyond the conversion of a verb to a noun.

The notion of Aspect has emerged as both important and difficult to capture in the representation of sentence grammar. Proposals exist to project an Aspect node in the syntax which can capture progressivity, telicity, achievement, etc. However, as one can readily feel, it is not quite clear what kind of aspectual meaning is carried by these affixes.⁶ It is also an ever-present lexical fact about nominalizations that they, being listed in the lexicon, are open to semantic drift, which further obscures the subtle meaning of

⁶ See Snyder (1998) for discussion of the aspectual nature of nominalizations, refining the notions of simplex and complex Events. This leads naturally to asking how each affix captures different aspectual notions. See Harley and Noyer (1998) for pertinent data about pronominal possessives. They argue that “encyclopedic” knowledge of Event types determines what can occur pronominally, not syntax, but we would argue that the concept of covert object-movement explains directly why there is a contrast between:

i) ??the Cold War time's separation of East and West Germany

ii) the separation of East and West Germany during the Cold War time

The verb separate favors the passive option for -tion, blocking the proposed temporal (the Cold War period) nominal.

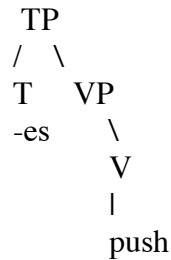
affixes. Ultimately, the aspectual properties of sentences may be more deeply comprehended when a full theory of the aspectual properties of nominalizing affixes are represented. This is what we expect under the view that nominalizations both articulate the core properties of grammar and show the obscurity typical of lexical items.

Do structural properties match the claim that there are aspectual characteristics of nominalizations? If nominal aspect parallels verbal aspect, then we should seek structural correspondence as well. We need to look at the syntactic tree more carefully.

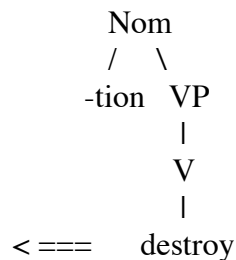
5. Where do Affixes Attach?

The claim that we should have an X-bar theory where nodes are abstract has become a pillar within Minimalist Theory. Chomsky (1994) articulated the concept in Bare Phrase Structure and it has been extended by Chris Collins (2001) in a variety of ways, also by Halle and Marantz (1992) in Distributed Morphology (see also Marantz (1997)). However within nominalizations themselves a new range of arguments points to the existence of a real VP on the inside, not simply an ambiguous abstract node, hearkening back to Lee's original position.

First we need to address the position of the affix itself. Inflectional affixation has led to a different twist on how to compose nominalizations as well.. Where the affix – *tion* was once seen as a kind of Spellout rule, many modern versions of syntax have linked affixes to their own nodes. Such nodes involve a leftward movement to satisfy Features that are like mini-subcategorization frames. Thus we have higher Tense affixes to which a verb moves, particularly in Germanic languages with more information in the affix:



If a Nominal form is, in some ultimate grammar, a kind of [-Tense] form then it naturally alternates with Tense and may allow a projection of Tense via certain affixes of a [+V] feature which has to be satisfied by leftward movement. In effect, this form occupies either the TenseP or the smallv proposed Chomsky (1995) following the causative analysis of Hale and Keyser (1992).⁷



Once again, we find that at a deeper level the parallelism between noun phrases and sentences holds.

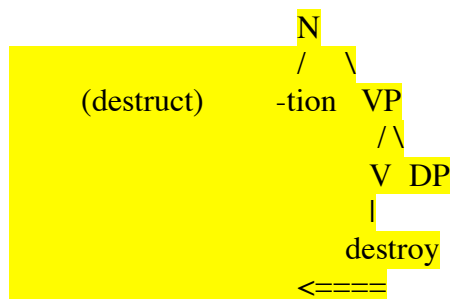
Now if we expect a node to capture a semantic difference, which Chomsky (2001) has suggested, as well as the tradition of formal semantics, we find a natural candidate: the complex semantic entity—EVENT—then we would expect its semantic property to receive articulation somewhere in the grammar of affixation (See van Hout (1995), Borer (2003), and van Hout and Roeper (1998) and references therein). We argue that -tion arguably refers precisely to that notion of EVENT. It is a question of profound depth

⁷ Widely utilized for a number of claims, including connections to Middle, Telicity, and passive.

to ask why it is not explicit in the verbal syntax. We have no answer, but we regard the question as a promising one.

We can hazard an answer in line with the philosophy articulated in this overview: the analysis of derived structures helps to illuminate core features of the grammar. If tion does refer to Event, then it provides an example of where a derived construction expresses explicitly a core concept. This should be regarded as a broad speculation because, if *-tion* does have a semantic core, the notion of Event might need more refinement to capture the range of uses for *-tion*. Words like *intention* must refer to mental events. Therefore the term Event may itself be ripe for greater decomposition into a more refined array of concepts (see Brandt (2003), Snyder (1998) for suggestions in this direction, as well as work in semantics (see Kratzer (in preparation))).

Our theory of nominalizations matches sentential syntax if we assume that a verbal stem moves up leftward to a nominal affix (*-tion*) which seeks a [+V] stem to match a Feature which it carries. Under this analysis, we are led to argue that a real VP exists below the Nominal *-tion*, and if so, we should expect to find syntactic evidence of a VP from which a root moves to a higher node to pick up the Event marker:



This representation is now common in the literature, reviving Lees original idea.

It was assumed in Lebeaux (1988), extensively elaborated in Fu, Roeper, and Borer

(2000), and **commonly assumed in most work on the topic now** (see Alexiadou (in

prep)).. The most explicit evidence in its behalf comes from adverbs and VP-ellipsis.

The pro-form *do so* regularly refers to a VP: ***John sand and Bill did so too.*** It is instantly

evident that where there is a hidden VP in a nominal, *do so* becomes acceptable or almost

acceptable:

52) *John's version of the story and Bill's doing so too

53) ?John's telling of the story, and Bill's doing so too

54) John's destruction of the city and Bill's doing so too

The behavior of adverbs leads to the same conclusion:

(55) a. While the removal of evidence *purposefully* (is a crime), the removal of
evidence *unintentionally* (is not).

b. ?His explanation of the problem immediately to the tenants (did not
prevent a riot).

c. ?Protection of children *completely* from bad influence (is unrealistic).

d. His resignation so *suddenly* gave rise to wild speculation.

These judgments have sometimes received a question-mark, but it is of particular

interest that they seem to occur in conversation and in newspapers, as Keller (2002)

has reported: "This letter deserves a response, but before you do.." While a desire for

parallelism might affect our judgments, the sentence is only comprehensible online if an

underlying verb (respond) can be found, which is so sharply absent in a case like **John's*

version was quick and Bill did too, even though its overall semantics is perfectly

comprehensible. This should then be seen as an instance where language use provides sharper insight than intuitions.

Above the nominalized verb we find that the structure behaves just like a DP and carries adverbial meaning via adjectives:

56) The enemy's careful destruction of the city

Sentential adverbs are excluded from the VP, but possible as adjectives in the DP:

57) *John's destruction of the city unfortunately

58) John's unfortunate destruction of the city.

This follows because the VP is encapsulated by the nominal affix and so no higher Speaker-linked adverbial attachment site is possible.

All of these facts accord with the split character of nominalizations. The bottom half behaves like the VP, which we argue is there, and the top half behaves like the NP which *-tion* introduces.

6. Elaborated Phrase Structure and Nominalizations

If our refined theory of nominalizations is correct, then we can argue that there are choice points for the attachment of the nominalization affix that mirror the structure of the verbal syntax. This is the position of van Hout and Roeper (1998) who argue that a node where Event and telicity information is represented must be present as has become common in many syntactic accounts.

The nominalization then picks out different amounts of sentential structure where we use VP to cover what is often called "small v":

59) TP – ing = progressive transitive

The mowing of the lawn

VP-tion, -ability, -er = Event Agent

the mowability of the lawn

the mower of the lawn

the transformation of the lawn

V-bar: -er = non-event Agent

the lawn-mower

V- inchoative

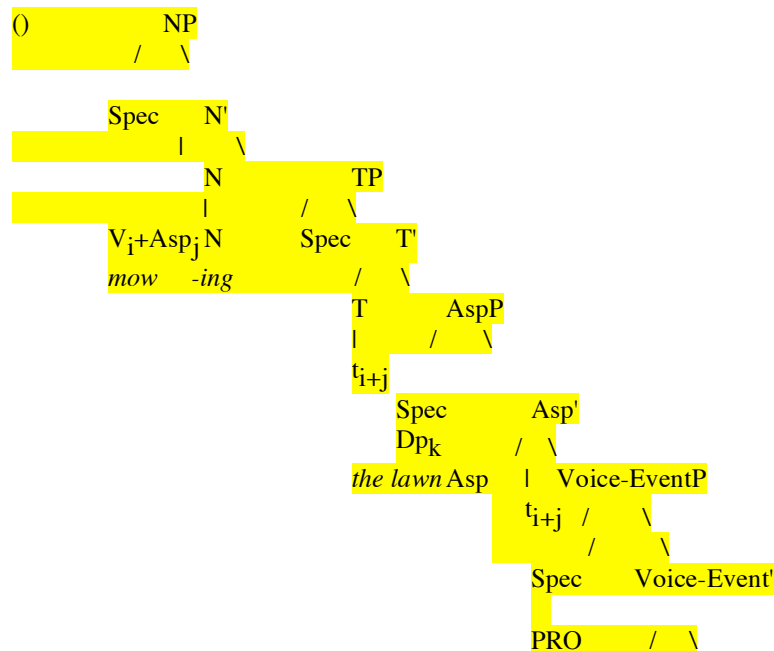
the growth of the lawn

V-Bare Nominal => result

the view of the lawn

as the toplevel of Verbphrase that can be subcategorized by the -tion affix. before movement into the actual nominal domain.

Here is the representation offered by van Hout and Roeper to capture this derivation for -ing:





We will not review all of these options in depth, but point out that one can plausibly argue for each of them.

6.1 Bare Nominals: Predictable Restrictions

Although this seems never to have been noticed before, a small pocket of nominals, which might have been dismissed as drifted and idiosyncratic, nonetheless show an interesting characteristic:

60) my help, your advice, your push, your

my kick, his shove, his kiss, my hug

your control, your view of the house

61) *the house's view

*the car's kick (=kick the car)

In each instance we have only the Agent reading. Why is the object reading unavailable?

The answer follows again from the fact that nothing licenses object-movement here.

There is no passive morpheme to bring out this possibility. Therefore it is exactly

like the *-ing* affix, however in this instance at the bottom of the syntactic tree, at

the V-connection, not the topmost *-ing* connection.

A deeper semantic observation holds as well. Because it is at the bottom of the

tree it is not eligible for any action-related aspectual interpretation. It is therefore restricted to a Result interpretation, even though the exact formulation of this claim is not straightforward. It is not clear what *love*, *help*, *advice* mean as Results. Nevertheless they are intuitively not capturing actions. It is whatever the difference between *John's help* and *John's helping* is. There is some sense, perhaps imposed by syntax, that *help* is encapsulated while *helping* is not.

6.2 High *-ing*

The high connection of *-ing* nominalizations allows a much wider range of argument projections. We do not find:

63) *the being of no solution to this problem.

This stands in contrast to:

64) the appearing of no solution to this problem

The difference is traceable once again to the covert operation of object-preposing, which applies only in the (64) case, where *no solution* can move to the subject position because of the unaccusative properties of *appear* not because of a hidden passive. Without object-pre-posing the nominalization fails to have a required expletive subject. The implication is that the expletive in (62) plays a slightly different role in *there appeared a problem* and *there is a problem* which is reflected in the fact that we can say *a problem appeared* but not **a problem is*. Once again a rather subtle analysis carries over to the nominalization.

6.3 Accusative and *-ing* Nominalizations

The *-ing* nominalizations show other characteristics of **engaging more syntax**. There are both forms which lack an *of*-phrase and cases which allow the projection of Accusative case, known as *Acc-ing* constructions:

- 65) a. His opening the door
- b. him opening the door
- c. *him opening of the door.
- d. him seeing her came as a surprise

Note that the *of*-phrase here is sharply excluded, as (65c) shows. The Accusative is often seen as a Default, found even among children (*me want*), but clearly it is appearing jointly with a verbal accusative. In fact (65d) is possible. We are being pushed toward a more abstract theory of case where the choice of subject/object case assignment is not independent. One has the intuition that deeper insights will come both from languages with a more elaborated case system and from keeping a steady eye precisely on those structures which appear to be “peripheral” and how they dictate case.

7. Conclusion

We have traced the history of the two primary properties of Chomsky’s theory of nominalization: phrase-structure and movement. We have found that the core idea of phrase-structure has been taken over in the grammar in general, while the concept of transformation has survived at the covert level in precisely the way that Chomsky proposed. The highly elaborated phrase-structure common in most current analyses leads to the prediction that highly differentiated nominalizations should exist in a corresponding fashion. While many more facts remain to be incorporated, the project works.

Our larger goal has been to argue for a view of grammar in which there is no real distinction between core and peripheral parts of the grammar. We argue that the abstract properties of grammar are etched most clearly precisely in

the non-central constructions. This claim in turn, parallels a suggestion by Ken Hale, that he found the greatest regularity in grammars by looking at the most complex properties.

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