

RESEARCH

Word formation is syntactic: Raising in nominalizations

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According to Chomsky (1970), raising to subject and raising to object may not take place inside nominalizations. This claim has largely been accepted as fact ever since. For instance, Newmeyer (2009) repeats the claim as crucial evidence for the Lexicalist Hypothesis, the view that word formation takes place in a component of the grammar separate from the phrasal syntax. This paper shows with attested examples and survey data that the claim is false: raising to subject and raising to object are both grammatical inside nominalizations. This argues for a purely syntactic model of word formation, and against Lexicalist accounts. Additionally, the paper shows that one argument against syntactic accounts of nominalization, that from coordination, does not go through, clearing the way for the most parsimonious type of theory: one with only one combinatorial component, not two distinct ones for phrases versus words.

Keywords: syntactic word formation; raising; nominalization; the Lexicalist Hypothesis; experimental syntax

1 Introduction

The literature includes two broad approaches to word formation. On the *Lexicalist* approach, the atoms of syntax are words, and word formation therefore requires a component of grammar separate from the phrasal syntax. In this type of theory, there are two distinct combinatorial systems in the grammar, the phrasal syntax and some word formation component.¹ According to the other view, there is only one component of grammar, a system of syntax. This system is responsible for putting all complex elements together, whether those things are words or phrases. The atoms of syntax in this approach are something smaller than words, something like morphemes.²

This paper argues for the latter view and a model of grammar with only one combinatorial system. It does so by contesting the longstanding claim from Chomsky (1970) that raising to subject and raising to object do not take place in nominalizations. They actually do, as attested examples and an acceptability survey show. This, I argue, requires a syntactic account of nominalization, where the phonological word that pronounces a nominalization is put together by the syntax. Lexical analyses of nominalization cannot account for the attested patterns without additional stipulations. Additionally, some of

¹ References for the Lexicalist approach include, among many others, Chomsky (1970), Jackendoff (1972), Aronoff (1976), Lapointe (1980), Bresnan (1982b), Kiparsky (1982), Simpson (1983), Mohanan (1986), Di Sciullo & Williams (1987), Bresnan & Mchombo (1995). Some more recent defenses of Lexicalism include Ackema & Neeleman (2004), Williams (2007), Newmeyer (2009), Müller (2013), Müller & Wechsler (2014).

² References for the purely syntactic approach include, among others, Sadock (1980), Baker (1985), Sproat (1985), Lieber (1988; 1992), Hale & Keyser (1993), Halle & Marantz (1993), Marantz (1997), Borer (2005; 2013), Bruening (2014; 2018).

the Lexicalist literature has argued against purely syntactic accounts of nominalization on the basis of coordination. I also address this argument, and show that it is without force. There is no issue from coordination for any syntactic account of nominalization, and the syntactic analysis is best at accounting for raising in nominalizations.

Section 2 begins by presenting new data regarding raising inside nominalizations. Section 3 proposes a syntactic account of nominalization and argues that Lexicalist accounts are inadequate. Finally, section 4 shows that the argument against syntactic accounts from coordination does not go through.

2 Raising is grammatical inside nominalizations

As stated above, Chomsky (1970) claimed that nominalizations may not include raising to subject or raising to object:

- (1) a. John was certain/likely to win the prize.
 b. Chomsky (1970: 189, (8b))
 *John's certainty/likelihood to win the prize
- (2) a. We believe God to be omnipotent.
 b. based on Chomsky (1970: 201, (32b))
 *our belief of/in God to be omnipotent

This claim was contested by Postal (1974: Chapter 10), but Chomsky (1977: note 47) and Kayne (1984: 142–143) dismissed Postal's counterexamples.³ The claim seems to have been accepted since. For instance, Jacobson (1990) uses the putative ungrammaticality of raising in nominalizations as an argument for her analysis of raising. Newmeyer (2009) cites such examples as crucial evidence for the Lexicalist Hypothesis, the hypothesis that (at least some) word formation is accomplished in a lexical component of grammar separate from the phrasal syntax.

According to Chomsky and Newmeyer, the Lexicalist Hypothesis rules out raising to subject and raising to object in the input to nominalization, because they are rules of the phrasal syntax. The output of lexical rules like nominalization feeds the phrasal syntax, and not vice versa. (See section 3 for discussion of Lexicalist models where raising is lexical rather than syntactic.)

In this section, I contest the claim that examples like (1b) and ones similar to (2b) are ungrammatical. I for one as a native speaker of English have always found (1b) perfectly acceptable. This is borne out by attested examples from corpora and an acceptability survey using Amazon Mechanical Turk. As for raising to object as in (2b), many speakers do not accept it with this particular word (*belief*), but examples of raising to object with nominalizations of other verbs are attested and accepted.

³ Actually, Chomsky and Kayne only addressed *one* of Postal's counterexamples, examples like *John's tendency to leave*. Postal produced several other counterexamples. These include *Nixon's likelihood of being reelected is minimal* (328, (23b)), which Postal judged marginal, *Nationalist China's continuation as a Security Council member* (330, (31)), *cancer's persistence as a frightening killer* (328, (32–33)), *the bomb's failure to go off* (354, (84)) on the raising to subject side, and *your estimate of Bob's weight to be/as being 200 pounds* (348, (71)), *your recognition of him as (being) the outstanding living malingerer* (352, (77b)) on the raising to object side. I believe Postal to be correct that these are genuine examples of raising within nominalizations.

Additionally, a recent publication (Lieber 2016: 50) cites two attested examples of raising to subject: *the adolescent's tendency to feel invulnerable* and *his only child's failure to marry*. Lieber (2016) also calls into question many other claims that have been made about nominalizations in the syntactic literature (especially those from Grimshaw 1990).

2.1 Attested examples

Numerous examples of raising to subject can be found with *likelihood* and *certainty*. I have found many examples on the web which I and others polled informally find perfectly acceptable:

- (3) *Raising to subject: certainty*
- a. If that is an accepted premise, the same concept should apply to the net neutrality debate and **its certainty to increase consumer bills**.
(<http://www.foxnews.com/politics/2014/11/17/fcc-official-warns-obama-backed-net-neutrality-plan-will-bring-backdoor-tax-on/>)
 - b. ... that the Black Panthers were eager to start a civil war despite **its certainty to cause a bloodbath**.
(blackpanthercivilrights.blogspot.com/)
 - c. ... refused to consider the underlying patent litigation, and **its certainty to be a bitter and prolonged process**.
(https://www.wsgr.com/WSGR/Display.aspx?SectionName=publications/PDFSearch/AntitrustWire_0405.htm)
- (4) *Raising to subject: likelihood*
- a. Sadly a species' name affects **its likelihood to survive**.
(<https://twitter.com/meeurotaru/status/552744000651001856>)
 - b. Interesting his psychiatrist believes **his likelihood to re-offend** is low.
(<https://twitter.com/BigBluto63/status/570248776113201153>)
 - c. But in this case whether or not a man was in a committed relationship had no influence on **his likelihood to sexually harass**.
(*In the Company of Men: Male Dominance and Sexual Harassment*, edited by James Gruber and Phoebe Morgan, 2005; accessed via Google Books, <https://books.google.com/books?isbn=1555536387>)
 - d. However, if a peer tells the student his joke is "silly" or "stupid" he will be punished by telling the joke and **his likelihood to tell another joke** is greatly decreased.
(en.wikipedia.org/wiki/Self-control)

Note that at least one of these comes from a published book.

Examples of clear raising to subject with *likelihood* can also be found in the Corpus of Contemporary American English (<http://corpus.byu.edu/coca/>). Here are a few examples:

- (5) *Raising to subject: likelihood*
- a. ... have shown positive effects on **students' likelihood to register for subsequent semesters...** (COCA)
 - b. These numbers don't necessarily track **people's likelihood to vote for or against someone, ...** (COCA)
 - c. ... participants viewed physical activity as fun, which reinforces **their likelihood to be active and maintain their healthy weight**. (COCA)
 - d. ... it is not sexual guilt per se that is directly connected to **women's likelihood to engage in force fantasy**. (COCA)

I found no clear examples of raising to subject in COCA with *certainty*, however.

As for raising to object, it too is attested in nominalizations, though at a much lower rate (and speakers judge them to be less acceptable in the survey reported below). I was unable to find any examples in COCA, but the following are some examples from the web:

- (6) *Raising to object*
- a. ... again what you are telling us is **no proof of them to be hackers**.
(<http://www.kongregate.com/forums/291-yu-gi-oh-bam/topics/379107-new-hack>)
 - b. ... for true confession consisteth in the general, in a man's taking to himself his transgressions, with **the acknowledgment of them to be his**, ...
(*The Pharisee and the Publican* By John Bunyan, accessed by Google Books)
 - c. ... and how I may be erroneous in **my demonstration of them to be consistent with my argument**.
(<http://orthodoxbridge.com/is-the-protestant-church-fragmented-a-response-to-pastor-doug-wilson-1-of-2/>)
 - d. ... those acts that would be wrong must be wrong by virtue of some means other than **God's declaration of them to be wrong**.
(<https://quizlet.com/94797180/attacking-faulty-reasoning-ch-256-quiz-flash-cards/>)

Native speakers polled informally find at least some such examples to be acceptable, although they typically report that they are less acceptable than raising to subject. Many people do not accept raising to object with *proof* or *belief* (but numerous examples of *proof* appear on the web), but raising to object does seem to be acceptable with nominalizations of some other verbs (see the acceptability survey below).

These attested examples contradict the judgments reported in the literature by Chomsky (1970), Kayne (1984), Newmeyer (2009), and others.⁴

2.2 Acceptability survey

I also conducted a survey using Amazon Mechanical Turk. For this purpose I made use of the free tools described in Gibson et al. (2011) and available at <http://tedlab.mit.edu/software/>, modified for the purposes of this experiment.

The experiment used a 2 × 2 design with factors *raising to subject* (“*Subj*”) versus *raising to object* (“*Obj*”) and *nominalization* (“*Nom*”) versus *clause* (“*Clause*”). Experimental items were constructed in sets of four on the following pattern:

- (7)
- a. (Subj_Nom) According to historians, that radical group was eager to start a civil war despite its certainty to cause a bloodbath.
 - b. (Subj_Clause) According to historians, that radical group was eager to start a civil war despite the fact that it was certain to cause a bloodbath.
 - c. (Obj_Nom) According to historians, that radical group was eager to start a civil war despite their acknowledgment of it to be folly.
 - d. (Obj_Clause) According to historians, that radical group was eager to start a civil war despite the fact that they acknowledged it to be folly.

Raising to subject predicates were only *be certain* and *be likely* and their corresponding nominalizations *certainty* and *likelihood*. The raising to object verbs used were *acknowledge*,

⁴ When I have presented this material, multiple linguists have told me that they never really agreed with Chomsky's judgments on raising to subject in (1b). With raising to object, Chomsky and others simply did not try enough verbs.

pronounce, recognize, estimate, calculate, observe, presume, and calculate (*calculate* was accidentally used twice). All of these have nominalizations with either *-tion* or *-ment*. The complete list of items appears in the appendix.

Eight sets of four were constructed and divided into four lists, so that each subject saw only one item from each set. Each subject rated two exemplars of each condition. Subjects rated each sentence on a scale of 1 to 5, as follows: 1: Extremely unnatural, 2: Somewhat unnatural; 3: Possible, 4: Somewhat natural, 5: Extremely natural.⁵ Each sentence was also accompanied by a comprehension question to make sure that the subjects were not just answering randomly without reading the sentence. For the set above, the question was, *Was that radical group eager to start a civil war?* Questions were always answered yes or no and always had a right answer (an obvious one). Subjects were discarded from the analysis if they answered more than 25% of the questions incorrectly.

In addition to the 8 experimental items that each subject judged, each also rated 22 fillers. Six of these were items for an unrelated experiment. Two of these were judged by the experimenters ahead of time to be acceptable, while the other four were unacceptable (but survey participants actually judged 5 of the 6 to be unacceptable). The other 16 were control sentences that were created by modifying examples taken from the web, typically on-line newspaper articles. Each of the sixteen was manipulated to create an ungrammatical match, where the manipulation was changing the word order of S, O, or V, or a P and its object. A couple of examples follow (the ungrammatical sentences were not presented with the star):

- (8) a. South Africa became the second African country to announce that it would leave the International Criminal Court.
 b. *South Africa became the second African country to announce that it would the International Criminal Court leave.
- (9) a. One child lives in a second-floor apartment overlooking the Grand Concourse, the Bronx's main thoroughfare.
 b. *Lives one child in a second-floor apartment overlooking the Grand Concourse, the Bronx's main thoroughfare.

As stated, there were 16 pairs of controls, and once again each subject saw only one member of each pair. Subjects therefore rated a total of 30 sentences (8 experimental items + 6 fillers from another experiment + 16 control items). A different list was created for each subject with the presentation order randomized.

120 participants (“workers,” in Amazon Mechanical Turk parlance) were recruited from within the USA. Ten subjects were excluded for reporting a language other than English as their first language, for getting less than 75% correct on the comprehension questions, or for leaving more than 20% of the questions unanswered. This left 110 subjects whose data entered into the analysis.

Median ratings and mean ratings and standard deviations are shown below (again, the scale is 1–5, 1: Extremely unnatural, 2: Somewhat unnatural; 3: Possible, 4: Somewhat natural, 5: Extremely natural):

⁵ This was the scale that was provided with the free tools described in Gibson et al. (2011). Participants were not told what was meant by “(un)natural.” This is an area where the experimental setup could certainly be improved, but on the other hand, the results gleaned from using these tools indicate that participants are doing what the experimenters want them to (rate intuitive acceptability).

(10)	Obj_Clause	Obj_Nom	Subj_Clause	Subj_Nom
median	4	4	4	4
mean	4.168182	3.727273	4.190909	4.245455
SD	1.0040495	1.1259423	1.0022391	0.9478297

For comparison, median and mean ratings on the grammatical and ungrammatical controls are shown below:

(11)	grammatical	ungrammatical
median	5	2
mean	4.364773	2.361143
SD	0.9407401	1.2353854

Various statistical tests indicate that there are significant differences between the four conditions. For instance, a two-way ANOVA shows a main effect of subject versus object ($F(1,876) = 15.4038$, $p < 0.0001$) and a main effect of clause versus nominalization ($F(1,876) = 7.8591$, $p = 0.0052$), as well as an interaction ($F(1,876) = 12.9237$, $p = 0.0003$).⁶ Post-hoc pairwise t-tests show that Subj_Clause and Subj_Nom do not differ from each other ($p = 0.9439$), but Obj_Clause and Obj_Nom do ($p < 0.0001$). Subj_Nom and Obj_Nom also differ ($p < 0.0001$), but Obj_Clause and Subj_Clause do not ($p = 0.9955$), nor do Obj_Clause and Subj_Nom ($p = 0.8577$). In other words, Obj_Nom differs from the other three conditions, which do not differ from each other.

These results indicate that native speakers of English do not consider raising to subject in nominalizations degraded in any way compared to raising to subject in clauses. In fact, the mean rating was actually *higher* for nominalizations than it was for clauses, although this difference is not significant. I conclude that Chomsky (1970) was simply wrong to claim that raising to subject does not take place in nominalizations. It does.

As for raising to object, it is rated lower in nominalizations relative to the other three conditions, which do not differ from each other. This indicates that it is not as acceptable as raising in clauses or raising to subject in nominalizations. On the other hand, the mean (and median) rating for the Obj_Nom condition is still quite high, much higher than the ungrammatical control sentences. It should also be noted that there is little evidence of a dialect split: only seven out of 110 subjects rated both Obj_Nom sentences that they saw 2 or 1. All eight of the Obj_Nom items were also rated quite high (a similar range for each), so it is not the case that one or two items were responsible for the slightly lower mean rating. It appears that overall, raising to object is simply slightly less acceptable in nominalizations than raising in clauses or raising to subject in nominalizations.

The question is what we are to make of this result. It is not possible to decide that below a given mean rating (say, 2.5) sentences are ungrammatical, and above that they are grammatical. For one thing, the judgments reported by subjects are judgments of acceptability, not grammaticality, and judgments of acceptability are affected by numerous non-grammatical factors (such as length, complexity, and familiarity). Such factors can both lower subjects' ratings for sentences that we must consider grammatical, and raise subjects' ratings for sentences that we must view as ungrammatical within a well-motivated model of grammar.

⁶ Mixed models that include subjects and items as random effects lead to different results depending on how they are set up. The one thing they all agree on is that the interaction between the two factors is significant. They differ on whether there are any main effects.

This means that we have two options. The first option is that we can decide that raising to object is not grammatical in nominalizations, but other factors lead subjects to rate such examples surprisingly high in acceptability. The second option is that we can decide that raising to object *is* grammatical in nominalizations, but other factors lead subjects to assign examples of it somewhat lower ratings of acceptability.

I believe that several considerations favor the second view. First, the median and mean ratings of the Obj_Nom condition are quite high, close to 4 on a 5-point scale (the median rating is 4). This is much higher than we would expect for truly ungrammatical sentences, at least without some kind of “illusion” of the type discussed in Phillips et al. (2011). No such grammaticality illusion seems to be at work here, however. In cases of grammaticality illusions, native speakers will initially accept the examples, but then, given more time, agree that the examples are actually unacceptable. This does not seem to be the case with the examples of raising to object in nominalizations. Typically, native speakers that I have consulted either do not revise their initial judgments at all, or they revise them positively given more exposure to such examples.

Second, we have now concluded that raising to subject is grammatical in nominalizations. Given that, we should have every reason to expect that raising of all kinds would be possible, since in most models of grammar raising to subject and raising to object are very similar, parallel operations. That is, within a motivated model of grammar, there is no reason to expect that raising to object would be ungrammatical in nominalizations, if we accept that raising to subject is. Third, there may be an independent reason that raising to object is judged slightly less acceptable than raising to subject. Consider first that Chomsky (1970) contrasted raising to subject in nominalizations, which he judged to be ungrammatical, with raising to subject in gerunds, which is acceptable:

- (12) Chomsky (1970: 188, (7b))
John’s being certain/likely to win the prize.

According to Chomsky (1970), (at least some types of) gerunds are formed syntactically and can include any relation or operation that is part of the phrasal syntax. However, gerunds are not very acceptable with raising to object when the object is marked with *of*:

- (13) a. *their believing of him to be a genius
b. *their considering of him to be a genius

One could claim that all nominals with *of*, including gerunds, are lexically derived and so do not permit syntactic operations. However, gerunds with *of* do permit particles and they do not permit the logical object to appear as a prenominal possessor, in contrast with other nominalizations (Abney 1987). These sorts of facts led Abney (1987) and others to propose syntactic accounts of gerunds with *of*. An alternative explanation is that there are restrictions on what can appear with *of* in a nominalized form of a verb. The first object of a double object construction never can, for instance (Kayne 1984; Pesetsky 1995), see (14), and various verbs that take direct objects also do not allow those with *of* (15):

- (14) a. *the gift of Mary (of) a necklace/*his giving of Mary (of) a necklace
b. *the sale of us (of) a defective car/*their selling of us (of) a defective car

- (15)
- a. *this tent's sleeping of twenty people
 - b. *his weighing of 200 pounds
 - c. *his resembling of his wife
 - d. *the trees' surrounding of the house
 - e. *Martin's entering of the navy

It appears that there are some (poorly understood) restrictions on what can appear with *of*,⁷ and this is what leads subjects to view raising to object with nominalizations as less than fully acceptable, since the raised object in a nominalization must appear with *of*. This is not about the grammaticality of combining raising to object and nominalization, however, it is something about the acceptability of different kinds of objects with *of*. It is probably not the case that this is a hard grammatical constraint, since subjects do rate NPs raised to object and marked with *of* as fairly acceptable in context (see the examples in the appendix). Postal (1974) also presented examples like the following, which also seem to involve raising to object:

- (16) Postal (1974: 348 (71c), 352 (77b))
- a. your estimate of Bob's weight as (being) 200 pounds
 - b. the/my recognition of him as (being) the outstanding living malingerer

It is therefore possible in principle for a non-thematic object of a verb to appear marked with *of* in a nominalization derived from that verb. However, there seem to be some restrictions which make this less acceptable than raising to subject, although I cannot at this point say exactly what those restrictions are. One suggestion I will tentatively offer is that internal arguments marked with *of* in a nominalization are somewhat less acceptable if they are not canonical patients of the nominalized verb stem.⁸

To sum up, several considerations favor the view that raising to object is grammatical but somewhat degraded in acceptability in a nominalization. I know of no considerations that would favor the opposite view according to which raising to object is ungrammatical in nominalizations, but something leads subjects to rate examples surprisingly high in acceptability. I conclude that both raising to subject and raising to object are grammatical within nominalizations. Raising to subject is not any less acceptable in nominalizations than it is in clauses. Raising to object is slightly degraded in nominalizations as compared to clauses, but this seems to be due to poorly understood factors governing the acceptability of NPs marked with *of* in nominalized forms of verbs. In principle, raising to object is grammatical in nominalizations, and any model of grammar should be able to capture this.

3 Discussion and analysis

Attested examples and the acceptability survey described in the previous section indicate that both raising to subject and raising to object do take place in nominalizations. In this section, I discuss the consequences of this finding and propose a purely syntactic account of nominalizations, adopting existing proposals from the literature.

⁷ One might think from some of these examples that acceptability with *of* correlates with acceptability of the passive. For instance, most of the corresponding verbs in (15) cannot passivize. However, *the house was surrounded by trees* is acceptable (as an adjectival passive, at least). Conversely, NPs raised to object are fine as passivized subjects in clauses, although they are degraded with *of* to different degrees.

⁸ An anonymous reviewer offers the alternative suggestion that *of*, unlike *for*, strongly prefers to case-mark its sister and does not like to case-mark the specifier of its sister. In the analysis I propose below, *of* is just a marker of genitive case and is not a case assigner, so I cannot adopt this suggestion.

3.1 Discussion: Lexical versus syntactic models

The first important point is that the facts of raising cannot be taken as an argument in favor of the Lexicalist Hypothesis, as Chomsky (1970) and Newmeyer (2009) presented them. Contrary to their assertions, raising to subject and raising to object do feed nominalization. In the kind of feed-forward view advocated by Chomsky (1970), nominalization could not be a lexical process if raising is syntactic. In this view, lexical processes strictly precede the syntax, and it is not possible for a syntactic process to feed a lexical one.

Can we then use the existence of raising in nominalizations to argue against the Lexicalist model, and for a purely syntactic theory with no separate lexical component? Not yet, because there are theories where raising is also accomplished lexically, for instance LFG and HPSG (e.g., Bresnan 1982a; Pollard & Sag 1994; Müller 2006; Müller & Wechsler 2014). In this type of account, there is no syntactic raising at all. Rather, lexical entries for raising verbs simply specify that a certain syntactic argument is not a semantic argument of the verb but is instead interpreted as the subject of a non-finite complement of the same verb. For, instance, *declare* as a raising to object verb says that it takes an NP complement and a non-finite clause as another complement. The NP receives no interpretation with respect to the predicate *declare*, it is instead interpreted as the subject of the non-finite complement. So, in *declare those acts to be wrong*, *those acts* is syntactically but not semantically the object of the verb *declare*; it receives its semantic interpretation solely from the lower clause. In this analysis, there is no syntactic raising, although we get the semantic effect of the object NP functioning as the logical subject of the non-finite clause. It receives no interpretation qua object. The analysis of control is almost identical, except that the object (or subject, in the case of subject control) is assigned two semantic roles, one as the missing subject of the infinitive and one as the object of the higher verb (see especially Pollard & Sag 1994: 132–145).

The raising to object stem, *declare* in our example, as a verb stem can undergo lexical rules that can affect verb stems. For instance, it can undergo a lexical rule of nominalization. This will relate the stem to a nominal *declaration*, which will inherit the argument structure of the raising to object stem. That is, it too will take an NP object and a non-finite clause, and the NP object will be interpreted as the semantic subject of the non-finite clause. This will be the raising to object *declaration*. (Presumably the *declaration* that takes a finite CP complement instead is related to a verb stem *declare* that also takes a finite CP complement; if one wanted to relate this form to raising-to-object *declare*, then another lexical rule would accomplish that.)

This type of lexical account is compatible with the facts as we have seen them here. However, there is an argument against this type of analysis, and for a purely syntactic account. This argument comes from Williams (2015: 312). In the opposing syntactic account, a verb stem takes a non-finite complement clause, out of which the subject raises to become the object of the verb stem. This entire syntactic construct forms the input to nominalization in an example like the following:

- (17) a. ... those acts that would be wrong must be wrong by virtue of some means other than **God's declaration of them to be wrong**. (<https://quizlet.com/94797180/attacking-faulty-reasoning-ch-256-quiz-flash-cards/>)
- b. input to nominalization: [declare them [~~them~~ to be wrong]]

That is, the nominalization *God's declaration of them to be wrong* can only be formed from the full phrase [*declare them to be wrong*], where the NP has undergone raising (see below for an analysis).

The difference between the two accounts is that in the lexical analysis, the nominalization is only a nominalization of a verb stem, not a phrase. The nominalization takes the arguments of the stem it is formed from, but they will not necessarily be present in the syntax. In contrast, in the syntactic account, raising to object is purely syntactic, and there can be no such thing as raising to object in the absence of a full phrase structure to support it (that is, raising will not be possible unless there is a clause for the NP to raise out of).

The argument against the lexical account comes from the fact that arguments of nominalizations are never obligatory. Now, they have sometimes been claimed to be, so it is important to establish that they are not. For instance, Grimshaw (1990) claimed that certain types of nominalizations (her “complex event nominals”) require that their internal arguments be realized. However, this was shown by Reuland (2011) to be false. Here are a couple of his examples, which show that as long as there is a supporting context, complex event nominals do not require their internal argument (Reuland 2011: 1294):

- (18) a. There were a lot of trees on the building lot. *The workers felled for several days.
b. There were a lot of trees on the building lot. The felling took several days.
- (19) a. The city was in the way of a strong enemy army. *The enemy completely destroyed, which took them several days.
b. The city was in the way of a strong enemy army. Yet, the complete destruction by the enemy took several days.

In these examples, the internal argument of the verb is obligatory, but it can be left out in the corresponding nominalization (even with the definite determiner, which Grimshaw claims is not possible). A few more examples of my own follow:

- (20) Reporter: Is the military really considering annexing the disputed territories?
Government Spokesperson:
a. *If we do annex, it will not lead to open conflict.
b. The proposed annexation should not lead to open conflict.
- (21) Reporter: Are the refugees really not going to be allowed to stay?
Government Spokesperson:
a. *We plan to relocate, and that is in everyone’s best interests.
b. The relocation currently being planned is in everyone’s best interests.

See also Lieber (2016), who cites several attested examples of complex event nominals without their internal arguments.

The question arises, of course, of why arguments of nominalizations, complex event nominals in particular, have been thought to be obligatory in the past. Adger (2013) suggests that there is a pragmatic requirement of identifiability on the arguments of such nominals. If there is no context that can identify the argument, then it will appear to be obligatory, but if there is a context, then it is not. I note that in this respect, nominalizations are behaving just like verbs that idiosyncratically permit their arguments to drop, but where those dropped arguments are interpreted as definites. For instance, *win* and *notice* permit their internal arguments to be missing, but only if what is won or what is noticed is pragmatically identifiable (Fodor & Fodor 1981; Dowty 1981; Fillmore 1986):

- (22) a. A: Check it out. Ron has a new car!
B: He won a contest./*He won. (Williams 2015: 100, (19))
b. A: How did Ron do in the big snail race?
B: He won!

- (23) a. A: Why does Ron look like he got kissed?
 B: He noticed Hermione's new hairdo./*He noticed.
 b. Hermione has a new hairdo, but Ron hasn't noticed.

It therefore appears that verbs idiosyncratically choose whether their arguments are obligatory or optional, and they furthermore choose whether any missing argument is interpreted as a definite or an indefinite (the optional arguments of *eat* and *steal* are indefinite, for instance, and do not need to be identifiable at all; see Williams 2015: Chapter 5 for discussion and references). Nominalizations as a class, in contrast, have optional internal arguments that are interpreted as definites. They can therefore only be dropped when the context provides a unique, identifiable referent for the missing argument. This is something that the analysis of nominalization will have to specify (see below), but all that is important here is the conclusion that arguments of nominalizations are never obligatory in the syntax. Provided a suitable context, the arguments of nominalizations can always be dropped, just like the internal arguments of *win* and *notice*.

A more recent claim that there are nominalizations with obligatory arguments comes from Müller (2018). Müller cites German examples like *Barträger*, 'bearded man' (lit. 'beard-bearer') and *Spassmacher*, 'jester' (lit. 'fun-maker'). English examples of this sort might include *babysitter* and *treehugger*. According to Müller, such nominalizations may not have the meaning they do without the internal argument. These examples are of a very different type, however. All of Müller's examples involve a particular verb stem with a particular object which, just when combined, have a conventionalized meaning. It is not that *träger*, 'bearer', requires an object, rather, the meaning of 'bearded man' only resides in the particular combination *Bart-träger*.⁹ Similarly, *treehugger* is only a pejorative term for an environmental activist with that particular object. A *planthugger* or *pandahugger* does not have that meaning. Moreover, whether the logical object can be dropped or not is idiosyncratic. As an example, *sitter* can be used by itself, for instance, *We won't be able to go out tonight if we can't get a sitter* could be uttered by either a parent or a dog owner, but a bulldozer operator could not complain about the *huggers* lying down in front of his machine. In contrast, as I will show below, the facts involving raising are *systematic*. They should not be handled on a case-by-case basis, simply listing requirements of individual lexical items (as Müller 2018 appears to advocate), but demand a systematic, grammatical account.

Having established that arguments of nominals are never obligatory, we can turn back to the argument against the lexical account. To illustrate optionality of arguments with the kinds of nominalizations under discussion, it is possible to talk about a *declaration*, with no syntactic realization of a complement clause or NP. We should then expect that the arguments of the nominalization formed from raising-to-object *declare* are also optional. Moreover, since this *declaration* takes two objects, an NP and a non-finite clause, they should be independent of one another (compare *placement of the stones on the path*, *placement of the stones*, *placement on the path*). We should be able to drop the complement clause while keeping the NP, and preserve the raising to object interpretation. This is not possible, however. A raising to object interpretation is only ever possible in the presence of the complete phrase structure for it. *God's declaration (to him)* is grammatical by itself but implies a proposition, but *God's declaration of those acts* is nonsensical, and certainly does not imply a predicate that takes *those acts* as its subject. The same is true of all such

⁹ This is exactly like phrasal idioms like *eat crow* ('be humiliated by having to admit being wrong'). No one would say that the fact that *eat* by itself cannot mean what *eat crow* does shows that the object of *eat* is obligatory.

examples: any NP after *of* can only be taken as the thematic direct object of the verb used as a simple transitive, and never as the subject of an implied predicate:

- (24)
- a. God's declaration of those acts (nonsensical)
 - b. their acknowledgment of it (no raising interpretation)
 - c. their pronouncement of them (no raising interpretation)
 - d. their recognition of it (no raising interpretation)
 - e. their presumption of it (no raising interpretation)
 - f. their calculation of it (no raising interpretation)

This is true even when a supportive context of the type illustrated in (18–19) is provided:

- (25)
- a. Ritual demanded that the high priests go to the prisoners one by one and declare each to be a heretic. *Their declaration of them took more than two days.
 - b. The pope had to carefully examine each of the three purported miracles performed by the candidate before pronouncing it to be a true work of God. *His pronouncement of them took over two weeks.

Since, in the lexical account, the NP object and the non-finite clausal object are independent, that account also expects that it should be possible to drop the NP object while keeping the non-finite clause. However, that is not possible, either:

- (26)
- a. *God's declaration to be wrong
 - b. *the pope's pronouncement to be the work of God

The generalization is that nominalizations may only have a raising interpretation when they actually occur with overt raising of a phrase out of a phrase.¹⁰ This in turn means that the nominalization must be a nominalization of phrasal syntax. Treating raising and nominalization lexically makes the wrong predictions. Compare control verbs, which can nominalize and drop the non-finite clause argument:

- (27)
- a. her persuasion of him doubles as an act of seduction
(<https://newrepublic.com/article/126835/age-power-couple>)
 - b. their urging of him was the deciding factor

In the lexical account, control verbs and raising verbs are treated in an almost identical fashion, as mentioned above (and see more below). There is no way to distinguish the two for this purpose.

Of course, the lexical account could stipulate that when a nominalization is related to a raising to object stem, the arguments of the stem are obligatory in the nominalization. This would be nothing but a stipulation, however, and would contradict the general pattern where arguments of nominalizations are not obligatory (as we just saw with control verbs, for instance). In contrast, the syntactic view *predicts* that raising

¹⁰ I assume that missing complements are not present in the syntax at all. This is why neither the NP nor the complement clause can be dropped while the other is present. If the non-finite clause is missing, there was nothing for the NP to have raised out of. If the NP is missing, the non-finite clause is missing a subject, which violates both selectional requirements and the EPP in the lower clause. See below.

could never be possible in the absence of the phrase structure that is necessary for its existence.

This argument can be extended from the nominal to the clausal domain. In the lexical account, there is no literal raising to object or raising to subject, even in clauses. As described above, the lexical entry for a raising verb says that the verb takes an NP and a non-finite clause as arguments, and specifies that the NP is interpreted as the subject of the non-finite clause. The NP is not the syntactic subject of the non-finite clause it is the semantic subject of. Raising in this account is treated exactly like control, with the only difference being that a control verb also assigns a thematic interpretation to the NP (so the NP plays two thematic roles; see Pollard & Sag 1994 for extensive discussion). However, observe that control verbs often permit their clausal argument to drop, while the NP argument remains:

(28) *Subject control*

- a. I tried. (“Did you fix the car?”)
- b. I dare. (“Who dares to enter the domain of Smaug the Magnificent?”)
- c. I promise. (“Do you promise to tell the truth?”)

(29) *Object control*

- a. I convinced them. (“Who convinced them to come with us?”)
- b. I told them. (“Who told them to take the money?”)
- c. I asked them. (“Who asked them to come?”)

This is never possible with raising (Jacobson 1990). A raising to subject or raising to object interpretation is simply not available in the absence of the clause the NP raised out of. The only possibility is VP ellipsis within the clause, not dropping the entire clause:

(30) *Raising to subject*

- a. I began *(to). (“Did you fix the car?”)
- b. There began *(to be). (“Were there rumblings of dissent?”)
- c. He appears *(to be). (“Is Jerome talking right now?”)
- d. She is likely *(to). (“Will Abby get the job?”)
- e. Hillary is thought *(to be). (“Who is a real animal lover?”)

(31) *Raising to object*

- a. I believe them. (bad as answer to “Who believes them to be the culprits?”)
- b. Many people believe there *(to be). (“Is there a liberal bias in the media?”)
- c. I consider them. (bad as answer to “Who considers them to be viable candidates?”)
- d. I estimate them. (bad as answer to “Who estimates them to number in the thousands?”)

If raising were really a verb taking two syntactically independent arguments, an NP and a clause of some type, we would not expect this dependency between them. We do not observe it in control. A purely syntactic theory of raising, in contrast, does expect this dependency: raising requires the presence of a clause for the NP to raise out of. If there is no clause, there can be no raising.

Pollard & Sag (1994) claim that the above facts follow in the lexical theory from a principle that they call the Raising Principle:

- (32) Pollard & Sag (1994: 140, (117))
 Raising Principle:
 Let E be a lexical entry whose SUBCAT list L contains an element X not specified as expletive. Then X is lexically assigned no semantic role in the content of E if and only if L also contains a (nonsubject) Y[SUBCAT (X)].

According to Pollard & Sag (1994), this principle ensures that subjects not assigned a semantic role by the predicate they are a syntactic argument of can only appear when an unsaturated phrase is also present (as a co-argument of the predicate). But note that this principle is a pure stipulation, stating by brute force what follows as a consequence from the syntactic theory. The Raising Principle could not follow from some kind of general semantic recoverability condition, for instance. The semantic content of missing arguments is clearly recoverable and applicable to pronounced arguments. Consider the following question-answer pair:

- (33) Q: Who did you persuade to reconcile with each other?
 A: I persuaded Bonnie and Clyde/#Bonnie.

The semantic content of the missing non-finite clause in the answer is obviously recoverable and applicable, for if it were not, the answer would be nonsensical and there would be no basis for the judgment that a plural NP is a felicitous answer to the question and a singular is not. The answer has no overt representation of the item that requires a plural (the reciprocal). This means that a missing argument can be recovered and interpreted semantically, and, in particular, an overt NP can be interpreted with respect to the missing argument. Since this is possible with control, it should be possible with raising, too, and there is no justification for the Raising Principle. Similarly, we already noted that raising is possible in the presence of VP ellipsis, where the lexical item that assigns the raised NP its thematic role is not actually present (34a). Other kinds of elliptical processes are also fine with raising, for instance sluicing (34b), fragment answers (34c), and bare argument ellipsis (34d):

- (34) a. A: Does Jerome enjoy milking goats? B: He appears to.
 b. A: A certain someone is likely to be asked out tonight. B: Who?
 c. A: Who do you consider to be the best living goatherd? B: That guy.
 d. A: This screw is threatening to pull away from the wood. B: That screw, too.

There is no general requirement that the predicate that assigns the raised NP its semantic role be present overtly. The Raising Principle, then, cannot follow from anything, and is nothing but a stipulation.¹¹

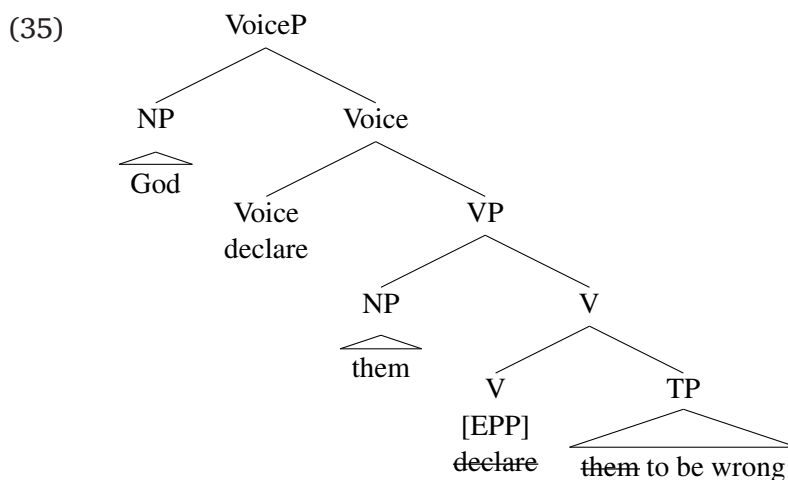
I conclude from these facts that we need a syntactic account of raising, not a lexical one. Raising is only ever possible with the full syntactic structure that the syntactic account

¹¹ Pollard & Sag (1994: note 43) do state that VP ellipsis has to be treated differently from argument drop (or “null complement anaphora”). However, it is not clear that it is even possible to formulate a process of VP ellipsis in HPSG—which generally eschews null structure—in such a way that it can avoid violating the Raising Principle. The analysis of VP ellipsis in Sag et al. (2003: 416–419), for instance, seems to directly violate the Raising Principle. Moreover, Pollard & Sag 1994 go on to treat infinitival *to* as a raising verb exactly like *seems*, on their page 143, example (124). If *to* and other auxiliaries are raising verbs, there is no way their complements can be elided without violating the Raising Principle. Yet, as we see in (34a), the complement of *to* can be null.

requires. This is true in both clauses and nominalizations, and so we need a syntactic account of both.

3.2 A syntactic analysis

For the purposes of this paper I will try to make the minimal assumptions necessary for a syntactic account of raising in clauses and in nominalizations. In clauses, I will assume that a verb or adjective takes a non-finite TP as its complement. In raising to object, the subject of this non-finite TP raises to an object position in the main clause, which I will take to be Spec-VP. There is a head Voice above VP which projects the external argument (Kratzer 1996). This external argument typically moves to Spec-TP (not shown in the tree below). The verb V moves to Voice to produce the correct word order (strikethrough indicates lower copies of moved elements):

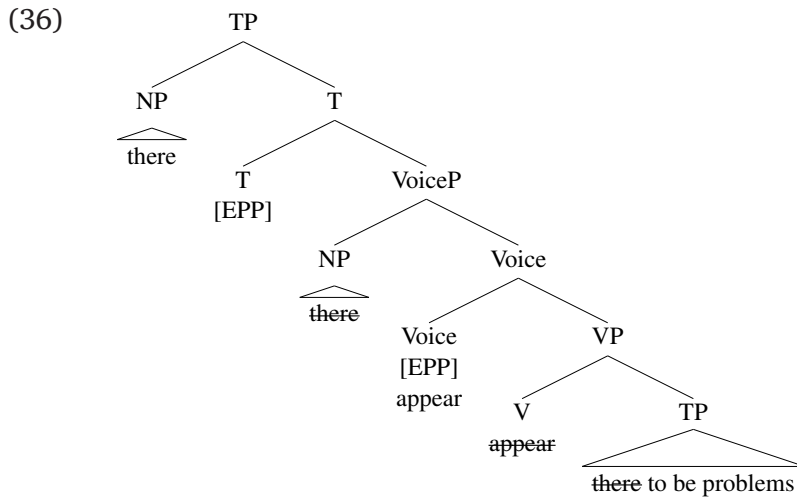


An adverb can adjoin to the intermediate projection of V, giving the word order *God declared them so forcefully to be wrong*.

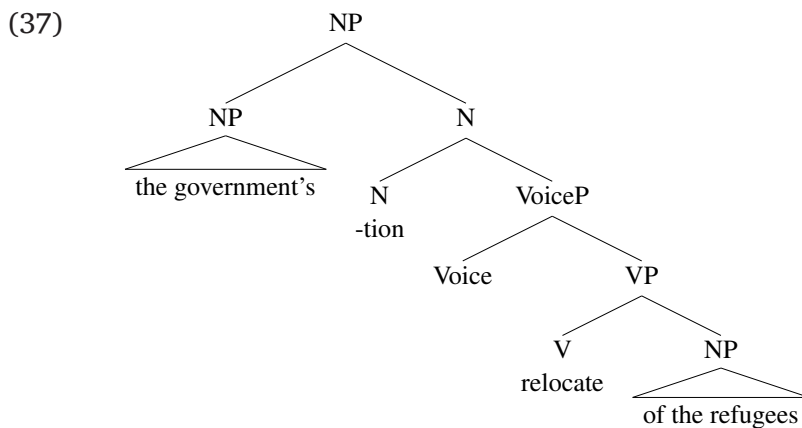
I suggest that the motivation for the movement of the subject of the non-finite embedded clause is related to but is not case. A long tradition holds that subjects of non-finite clauses do not receive case within the non-finite clause, and have to receive case from elsewhere. Following Kratzer (1996), active Voice (one that projects a thematic specifier) is what assigns accusative case to a syntactic object. I propose that case assignment is strictly local, so that Voice can only assign case to an NP that is the specifier or complement of its sister. In the tree above, the sister of Voice is VP, so case assignment is only possible to Spec-VP or to the complement of V. Voice cannot assign case to the subject of the non-finite clause. However, V can optionally be endowed with an EPP feature (Chomsky 2000) that attracts an NP from within its complement to its specifier. This causes the embedded subject to move to Spec-VP. When Voice is active, this NP will be assigned accusative case there. (If no EPP feature is given to V, the NP will not move and the derivation will crash, because the NP will not be assigned case.)

Raising to subject will be similar, except that Voice will not project any external argument (it is non-active). It therefore also does not assign accusative case. The only case assigner is the matrix T, which assigns nominative case. Given the locality condition on case assignment, T can only assign case to either Spec-VoiceP or the complement of Voice, so this time the lower subject will have to move to Spec-VoiceP. I assume that heads can freely be given EPP features, so Voice can be endowed with an EPP feature which attracts the embedded subject. In Spec-VoiceP, the embedded subject can be assigned nominative case by the matrix T. Of course, English also requires an NP in Spec-TP, which I formalize

as T also having an EPP feature, only on T it is obligatory. This will cause the NP to move further, to Spec-TP:

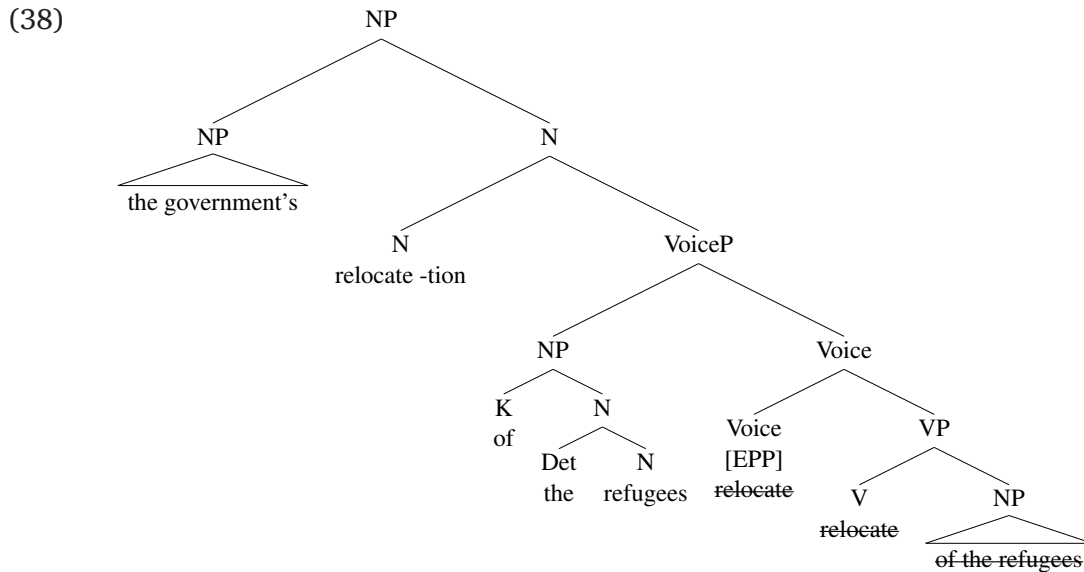


Turning to nominalizations, numerous syntactic accounts have been proposed for deriving nominalizations from phrases (e.g., VPs). These include, among others, Marantz (1997); Alexiadou (2001); Borer (2003); Roeper (2005); Bruening (2013). I will adopt the account in Bruening (2013), where a nominalizing head N takes an unsaturated projection of Voice as its complement (a VoiceP that has not projected its thematic specifier). N may project an NP in its own specifier:



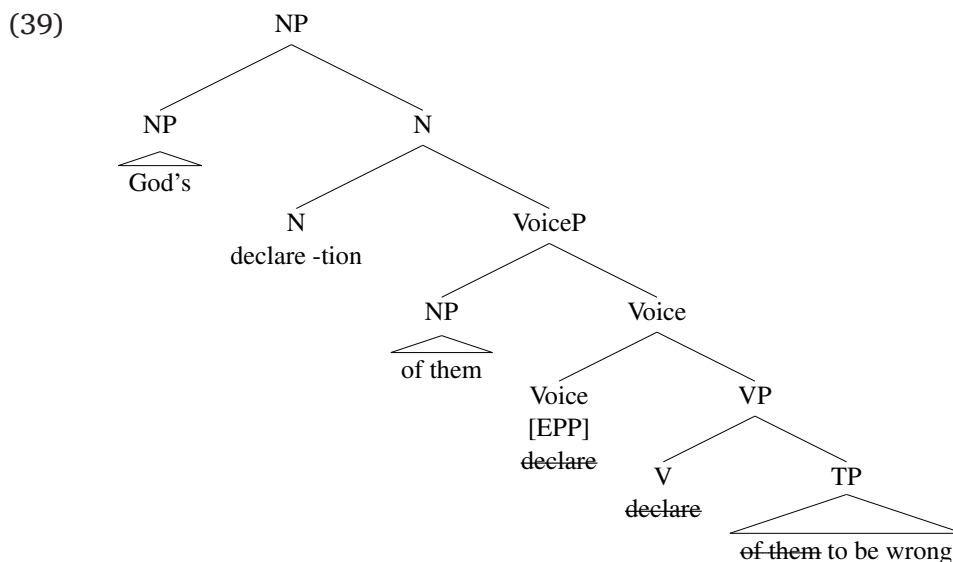
The NP in Spec-NP may be, but does not have to be, interpreted as the unsaturated argument role of Voice. Alternatively, a by-phrase can adjoin to Voice and fulfill the same function (see Bruening 2013 for details). Importantly, Voice is not active, since it does not project a thematic specifier. This means that it does not assign accusative case. However, the head N can assign case, I propose. Ns assign genitive case rather than accusative case.

I will adopt the view that *of* is the spellout of genitive case, assigned to the syntactic object by the nominalizing head N. As mentioned above, Voice in a nominalization is non-active and so does not assign accusative case. The N head is able to assign case, but the case that Ns assign is genitive. Once again, case assignment is local, so in (37) above the complement of the V stem will have to move to Spec-VoiceP. Once again this is accomplished by giving Voice an [EPP] feature. At the same time, the V stem moves through Voice to N, where the complex V-Voice-N is pronounced *relocation*:



The tree in (38) spells out the internal structure of the NP complement of V in the higher position. I assume that NPs can have a K(ase) head merged with them. In English, this head is only spelled out on non-pronominal NPs when the case that is assigned to the NP is genitive. In that case, K is spelled out as *of*. In Spec-VoiceP, the NP is sufficiently local to N for N to assign genitive case, and K is accordingly spelled out as *of*.¹²

Turning to a raising to object example, in (39), everything is exactly the same, except that the NP that moves and gets assigned genitive case starts as the specifier of the lower TP, rather than the complement of the V:



Once again, the subject of the non-finite clause is not close enough to the case assigner, so it has to move. The case assigner, N, takes Voice as its complement, so the embedded subject has to move to Spec-VoiceP, as indicated. Voice again needs to be given an [EPP] feature. As for the heads involved, the V moves through Voice to N, where V-Voice-N are

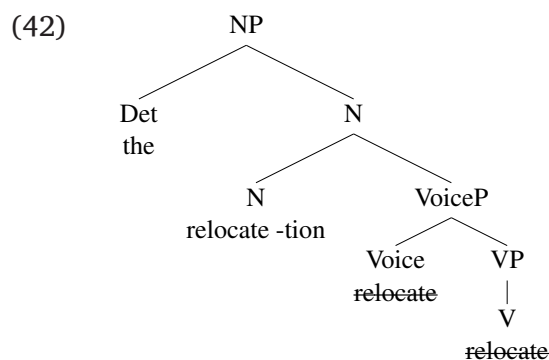
¹² I indicate the lower copy as also having *of*. I view the NP as starting with unvalued case features, which will only be pronounced as *of* once they are valued as genitive in the higher position. However, given that all copies in a movement chain are formally the same item, once the features are valued on the highest copy, they are valued on all lower copies as well. This is why I indicate the presence of *of* even in the lower copy.

pronounced as *declaration*. As with *relocation*, the NP that is assigned genitive case has a K merged with it, which is pronounced *of* when assigned genitive case.¹³

As mentioned above, outside of raising the internal arguments of nominalizations are not obligatory. If they are dropped, they are interpreted as definite and need to be pragmatically identifiable, just like the objects of verbs like *win* and *notice*. Since this is something common to all nominalizations and is not related to the verb involved, it must be specified by the nominalizing head, N in the structure above. Let us consider how this might work. There does not appear to be a null argument in the syntax in such cases, because it cannot be modified by a secondary predicate, unlike null internal arguments in recipe contexts:

- (40) a. A: I'm so embarrassed that they came!
 B: They're so short, I don't think anyone will notice *(them) over there.
- b. A: I'm embarrassed that I need a hearing aid already.
 B: No one will notice *(it), tucked behind your ear like that.
- (41) a. (Directions on bottle of wine:) Serve chilled.
 b. (Directions on raw meat:) Do not consume raw.

In the analysis of passives and nominalizations in Bruening (2013), the argument of Voice is allowed to remain unprojected just when Voice combines with a head with the right properties, for instance a Pass(ive) head or the nominalizing head. Pass and the nominalizing head are able to satisfy the selectional requirements of Voice without it actually projecting an argument (see Bruening 2013 for a formalization). In the case of the internal argument of the verb, the verb appears to be too far away from the nominalizing head for it to perform this function. Take an example like *the relocation*, with no overt internal argument (but one which is pragmatically identifiable). I assume that the internal argument is simply not projected:



I will assume that the argument of the stem *relocate* is allowed to remain unprojected just because the V moves through Voice to N. At that point it combines locally with N. The N head checks off the so-far unsatisfied selectional requirement of the V (again, see Bruening 2013 for a formalization of this checking), and specifies that the unprojected argument of V is definite. As this is a property of the abstract nominalizing head N, N can do this with any V stem it combines with (even when it is pronounced as something other than *-tion*).

¹³ It should be noted that expletives like *there*, one of the primary diagnostics of raising, are not possible in nominalizations when they are marked with *of* or with genitive's (**acknowledgment of there to be dissent*, **there's likelihood to be protests*). Postal (1974: 325) suggests that this is due to a surface restriction against such NPs being marked with genitive case. Expletives are grammatical in nominalizations (gerunds) when they receive a different case (*there being likely to be* vs. **there's being likely to be*), so it does not appear that there is anything that blocks expletives in nominalizations in general.

This will not work with a raising clause, however. In (39), if the argument of the V stem *declare* is not projected, then there will be no clause and no subject of that clause. There will simply be a pragmatically identifiable proposition. It will be impossible to have an NP without projecting the TP that the NP started in. This is why the non-finite clause can never be dropped, leaving the NP behind. It will also be impossible to have TP without a subject for that TP: the nominalizing head N does not combine with the head that projects the embedded subject, so it cannot check off the selectional requirements of that head. This is why it is also not possible to drop the NP argument, leaving just the non-finite clause. Thus, we explain why argument drop is never possible with raising.

Finally, note that VP in the structures here provides an adjunction site for adverbs, yielding examples like *the relocation of the refugees forcibly* and *God's declaration of them so forcefully to be wrong*. In my judgment, such adverbs are acceptable with nominalizations derived from VPs, but are not acceptable with underived nouns. So **his claim so forcefully that cheetahs are not cats* is not acceptable. In this my judgments accord with those reported in Fu et al. (2001). These judgments have been disputed by Newmeyer (2009) and Ackema & Neeleman (2002: 119, (41)), both of whom present examples of putatively underived nouns that also permit adverbs. Newmeyer's examples all seem to be derived nouns, while Ackema and Neeleman's examples are all unacceptable in my judgment (and the judgments of other speakers I have asked). I will have to leave full exploration of this matter to future research, but I will provide some data that I think indicate that derived nominals can be modified by adverbs while underived nominals cannot. Consider the following contrasting sets, using underived nouns that can be eventive from Newmeyer (2009) and Lieber (2016):¹⁴

(43) *Derived nouns*

- a. Fu et al. (2001: 555, (8))
His transformation into a werewolf so rapidly was unnerving.
- b. Harley (2008: note 18)
The treatment of the symptoms regularly is important for a good prognosis.
- c. (Bruening 2018: 31, (78b))
The growth of the tomatoes so suddenly really shocked me.
- d. Newmeyer (2009: 109, (47d))
Could we arrange for the prisoners' release more gradually than has been the practice?

(44) *Underived nouns*

- a. *the government's moratorium so swiftly on gun purchases by the mentally ill
- b. *the child's mischief so wickedly
- c. *the scientist's treason so abruptly
- d. *the impulse undeniably to mate
- e. *the noise so overwhelmingly inside the prison
- f. *my home atop the hill so comfortably
- g. *the bait so dishonestly
- h. *the event so selectively

¹⁴ Payne et al. (2010) show that certain types of adverbs can freely modify both derived and underived nouns. However, the semantic classes of adverbs that can do this are different from the manner and act-related adverbs at issue here, which seem to indicate a contrast. These types of adverbs are missing from corpora, as Payne et al. (2010) show, but it appears that a significant number of speakers judge them to be acceptable just with nouns derived from verbs.

Bruening (2013) also claims that certain PP adjuncts like instrumentals and subject-oriented comitatives are acceptable with derived nominals, but not with underived nominals. If this is correct, it would again corroborate the presence of VP structure within nominalizations.

Fu et al. (2001) also claim that nominals derived from VPs can serve as the antecedent for the VP anaphor *do so*, but underived nominals cannot. They take this to also indicate that nominals derived from verbs include VP structure within them. It does indeed appear that there is a contrast along these lines. All of the attested examples that I have found of nominals antecedent *do so* involve derived nominals:

(45) *Derived nominals*

- a. Kehler & Ward (1999: 247, (39))
The **defection** of the seven moderates, who knew they were incurring the wrath of many colleagues in doing so, ...
- b. Kehler & Ward (1999: 248, (41))
Even though an Israeli **response** is justified, I don't think it was in their best interests to do so right now.
- c. Text of Larsen (2014: 377)
Second, I believe that Fraser's (1976: 29ff) claim that the combinations are ruled out on phonological ground warrants **examination**, though I am unable to do so here.
- d. Ward & Kehler (2005: 375, (35))
One study suggests that almost half of young female **smokers** do so in order to lose weight.
- e. Ward & Kehler (2005: 375, (36))
The majority of **horse riders** do so purely for leisure and pleasure.

(46) *Underived nominals*

- a. *In the morning, we were surprised by Andrew's **metamorphosis** into a werewolf, and then again in the afternoon by Beth's doing so.
- b. *The court's **opinion** in the *Vinegar* case overshadowed their doing so on the issue of abortion.
- c. *The **storm** last weekend was compounded by (it) doing so again a few days later.
- d. *I was sad to have to leave my **home** of many years atop a hill, and to have to do so in the lowlands.

While the matter may not be settled yet, it appears to me that the weight of the existing evidence points to the presence of VP structure within derived nominals, exactly as in the analysis proposed here.

3.3 Summary

I have argued here that raising requires a syntactic account, not a lexical one, and I have also spelled out a minimal syntactic analysis of nominalization that is compatible with a syntactic account of raising. We can do without lexical processes altogether, and move in the direction of a more parsimonious theory, with only one component of grammar and not two.

4 Defending a syntactic account of nominalizations: coordination

One argument that has been presented against syntactic accounts of nominalizations like the one outlined above is that nominalizations of verbs can be coordinated with underived nouns and share arguments with them (Wechsler 2008; Müller & Wechsler 2014).

However, all the examples that I have been able to find (both in the literature and in corpora) involve coordination of *derived* nouns, like the following:¹⁵

- (47) Wechsler (2008: 505, (25b), (22a))
- a. the [hiring and promotion] of faculty members into tenured positions
 - b. ... after the soldier's [destruction and looting] of their home, ...

In fact, coordination of derived nouns and truly underived nouns seems to be ungrammatical:

- (48)
- a. *the resurrection and church of Christ
 - b. *the bundling and pouch of tobacco
 - c. *the occupation and center of the city

It is possible that this incompatibility is semantic in nature, and so I will not make anything of it here.

However, Wechsler (2008) presents examples like those in (47) as problematic for specific accounts of nominalizations which ascribe very different structures to nominalizations like *destruction* and gerunds derived with *-ing*, like *looting* (e.g., Marantz 1997). The first response to this argument is that it is only an argument against accounts that treat *-tion* and *-ing* nominalizations very differently. Other syntactic accounts may not be subject to this criticism. For instance, we could give *-ing* nominalizations the exact same account as *-tion* nominalizations in (39), only with *-ing* in place of *-tion*. (An issue for such an account is that *-ing* nominalizations, unlike *-tion* nominalizations, permit particles but do not permit the logical object to appear as a prenominal possessor. An analysis that treated them the same would have to explain these differences.)

The second, and more important, response to this argument is that there is evidence for an ellipsis account of coordination with argument sharing as in (47). For example, such coordinations can antecede elements that require plurals, as shown in (49):

- (49)
- a. The hiring and promotion of faculty members into tenured positions are two very different processes.
 - b. The soldiers' destruction and looting of their home took place on different days.

The NPs here have the same interpretation as *the hiring of faculty members into tenured positions and the promotion of faculty members into tenured positions*, and *the soldiers' destruction of their home and the soldiers' looting of their home*. This points to an ellipsis account, with deletion of shared material in the first conjunct. See Chaves (2008) on this point with apparent coordination of word parts, and a deletion analysis. If a coordinate ellipsis account is correct, then coordination is not problematic for any syntactic theory of nominalizations. It is possible to give *destruction* a very different analysis from that given to a gerund like *looting*, and still have them coordinate, because the analysis will have full phrases in each conjunct (*the [destruction of their home] and [looting of their home]*).

¹⁵ A reviewer asks whether such coordinations would work with nominals in *-ing* that have a contrasting *-tion* form. I believe they do:

- (i)
- a. ... after the soldiers' [castration and destroying] of their bulls...
 - b. the [promotion and (subsequent) demoting] of unevenly productive workers

This is expected on the ellipsis account that I provide for coordination, regardless of whether *-ing* and *-tion* forms are analyzed differently, or the same.

I conclude that coordination is not problematic for any syntactic account of nominalization, contra claims in the Lexicalist literature. This clears the way for a purely syntactic account of word formation.

5 Conclusion

Since Chomsky (1970), it has been accepted that raising is ungrammatical in nominalizations, and some have argued that this points to a Lexicalist conception of grammar, with distinct components for word formation and phrasal syntax. I have shown here that this is not correct: raising to subject and raising to object are both grammatical in nominalizations. I have also argued that raising is better treated syntactically, as a lexical analysis cannot explain the need for a lower clause for a raised NP to have raised out of. This is true in both clauses and nominalizations: a raising to object interpretation is not possible without the full phrasal syntax to support it. This points to a purely syntactic account. We then also need a syntactic account of nominalizations. Recent arguments against such accounts from coordination were shown not to go through, since coordination requires an ellipsis analysis and so is compatible with fully phrasal analyses.

More generally, the results of this study point to a model of grammar where there is only one combinatorial component, not two. We can do without a lexical component altogether, and analyze everything, including word formation, with the phrasal syntax.

Additional File

The additional file for this article can be found as follows:

- **Appendix.** Experimental items for the acceptability survey. DOI: <https://doi.org/10.5334/gjgl.470.s1>

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Competing Interests

The author has no competing interests to declare.

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