

# The end of Lexicalism as we know it?

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**Abstract**

## 1 Introduction

Bruening (2017a) discusses many of the claims usually made to support the Lexicalist Hypothesis, that is, mainly the part that concerns Lexical Integrity. Lexical Integrity assumes that words are separate units that are inserted into syntactic structures (Bresnan & Mchombo, 1995; Booij, 2009). He argues that words are not anaphoric islands, that phrases can appear in words, and that parts of words can be affected by coordination, by focus, by ellipsis and so on. So, it may be that some of the restrictions that were imposed by lexicalist theories have to be given up and more flexibility is needed.

In his paper, Bruening discusses earlier arguments of mine for lexical approaches to resultative constructions and a specific analysis of them (Müller, 2006). He also takes up an argument based on coordination by Wechsler (2008) and Müller & Wechsler (2014) against syntactic analyses of nominalizations. My reply is structured as follows: Section 2 discusses empirical facts from psycholinguistics that show that the analysis that Bruening suggests as an alternative to lexicalist models is implausible. Section 3 discusses his analysis of compounds and compares it to the lexicalist alternative. Section 4 shows that the changes needed to allow for affixes to attach to phrases in theories like HPSG are minimal. Section 5 discusses my approach to resultative and particle verbs and shows that even without relying on lexical integrity as an argument there are good reasons to assume a lexical analysis. I also show that Bruening's claim with respect to optionality of arguments in nominalizations is false.

Finally, Bruening's suggestions for modeling the phenomena under consideration with respect to the  $X^0/XP$  distinction is taken up in Sections 6 and 7. It is shown that it is reasonable to assume that  $X^0$ s can be fronted and coordinated pace Bruening's claims. The paper concludes in Section 8.

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<sup>†</sup>I thank Anne Abeillé, Olivier Bonami, Bob Borsley, Rui Chaves, Berthold Crysmann, Hubert Haider, Stella Markantonatou, Christoph Schwarze, and Mark Steedman for discussion on various topics related to this paper.

Of course they are not responsible for anything I say in this note, except when indicated otherwise.

## 2 Transformational accounts of affixation involving reorganization of syntactic structures

Bruening argues that there are phenomena that affect parts of words and that the principle of Lexical Integrity should be given up. This may be true but what is probably not needed and what is also ruled out by lexicalist theories are analyses like the one of Pollock (1989) which is depicted in Figure 1 for the French example in (1) and the analysis that Bruening (2017b) suggests for nominalizations (see Figure 2).

- (1) Marie ne parlerait pas  
 Marie NEG speak.COND.3SG NEG  
 'Marie would not speak.'

In Pollock's analysis, the various morphemes are in specific positions in the tree and are combined only after certain movements have been carried out.

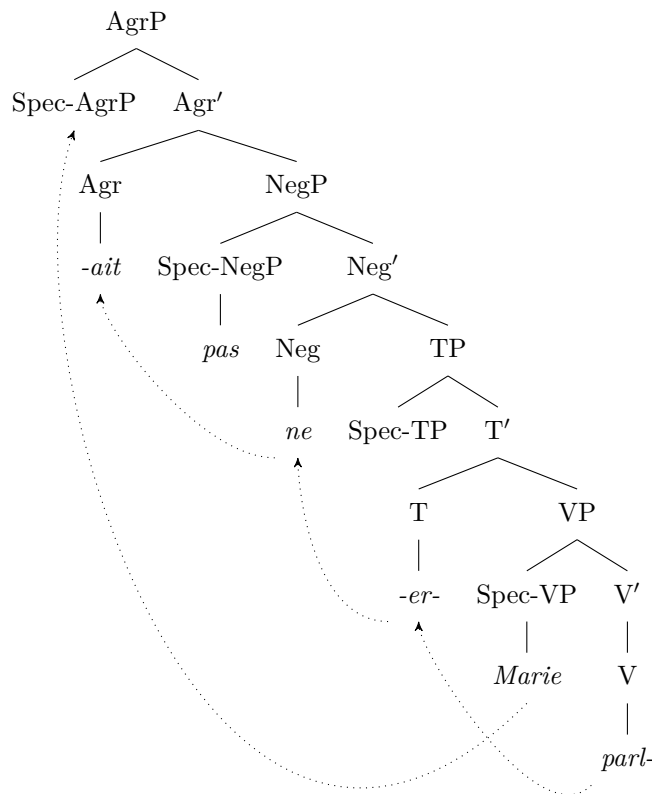


Figure 1: Pollock's analysis of *Marie ne parlerait pas* 'Marie would not speak.' according to Kuhn (2007, p. 617)

Similarly Bruening suggests that a complete sentence is the basis of a nominalization like (2a) and that the subject of the embedded clause (*them to be wrong*) is raised to object of *declare*.

- (2) a. God's declaration of them to be wrong

b. God declares them to be wrong.

The nominalization affix *-tion* is combined with a projection of Voice and takes an NP argument as specifier. There are simple empirical reasons for rejecting

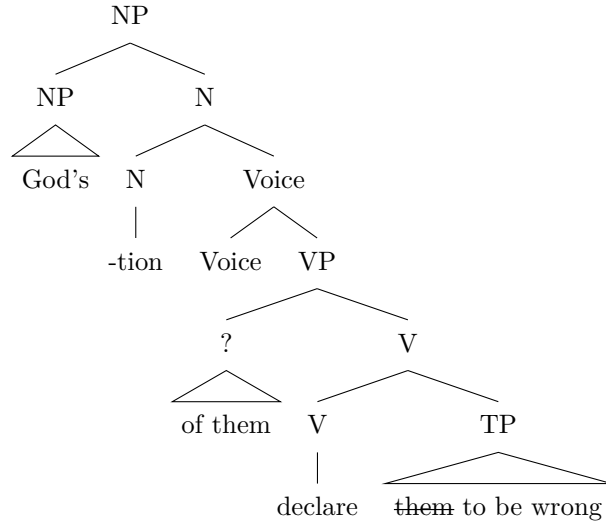


Figure 2: Nominalization according to Bruening (2017b)

such analyses: They are incompatible with all we know from psycholinguistics. Why should one assume that a full clausal structure is part of the representation of (2a)? Why should one assume that there is a TP, a VP and a Voice projection in the analysis of (2a). In the history of Transformational Grammar researchers hoped to be able to show the reality of transformations and first results were promising. But it soon turned out that the initial experiments were flawed and that there is no psycholinguistic evidence for transformations (Fodor, Bever & Garrett, 1974, p. 320–328). What psycholinguists tell us is that language is processed incrementally. To be concrete: Current Minimalist models assume that language is processed in Phases (Chomsky, 2008; Richards, 2015). A Phase is build by syntax and then shipped off to the interfaces for pronunciation and interpretation. Since *declaration* is the result of moving *declare* from *declare them to be wrong* up to the affix *-tion*, we have to have the linguistic object *declare them to be wrong* before *declaration* can be build. This is not what humans do. When humans hear the word *declaration* they know the meaning of the word and they have certain expectations on how the phrase may proceed. What is needed is a representation of the objects that are visible and a relation between these objects. This is depicted in Figure 3. The structure in Figure 3 is basically what is assumed in all alternatives to GB/Minimalism (e.g., LFG, HPSG, Categorical Grammar, Construction Grammar) modulo questions of binary/flat branching.

So, while some of Bruening’s suggestions are rejected on empirical grounds right away there are others that should be discussed in more detail. I will start in the next section with a discussion of his suggestions regarding phrases in compounds.

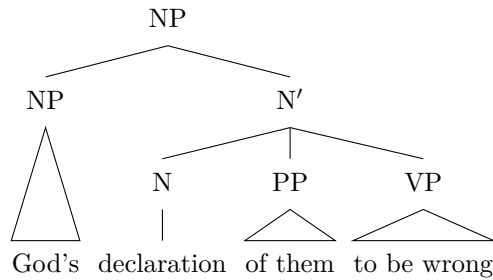


Figure 3: Nominalization according to all non-transformational theories

### 3 Compounds

Bruening (2017a) discusses examples like (3) and claims that the quotation explanation that is used in lexicalist models is not satisfying.

- (3) I gave her a don't-you-dare! look.

In the lexicalist world it is often assumed that phrasal parts of compounds are quoted chunks of material that is taken from somewhere else and inserted as a chunk into the compound.<sup>1</sup> The evidence for this is that phrases from other languages and even sounds can be inserted into compounds. Since it is unlikely that speakers that use foreign phrases in the first position of a compound possess knowledge of the complete syntax of the respective language, this seems to be a reasonable assumption. Wiese (1996) suggested an analysis for such compounds that is depicted in Figure 4. Wiese uses the quotation marks to indicate the

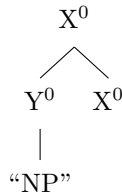


Figure 4: Analysis of phrasal parts in compounds as quotations following Wiese (1996)

encapsulation of the NP (or whatever phrase/gesture/facial expression is inserted into the compound). Now, Bruening suggests the analysis in Figure 5 instead. According to Bruening an empty nominal head is combined with a CP to form an N<sup>0</sup>. Apart from assuming an empty head for the recategorization of the phrasal material the analysis is very similar to what Wiese suggested. Bruening does not account for utterances from other languages, facial expressions or sounds in such compounds. He claims that his account is superior to

<sup>1</sup>An alternative suggested independently by Christoph Schwarze and Nigel Vincent (p.c. 2017) is to treat *don't you dare* as an adjective. This would be similar to the compound analysis suggested below in the sense that this approach also involves a rule that recategorizes a phrase.

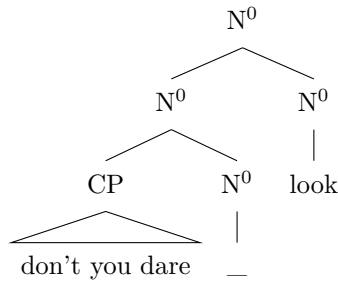


Figure 5: Analysis of phrasal parts in compounds following Bruening (2017a)

the quotation account since it rules out strings like \* *gimme-the* in compounding or zero derivation. But of course nobody claimed that arbitrary material can be inserted into a first slot of a compound. Since the role of *gimme-the* in a compound would be unclear from a semantic/pragmatic point of view such strings are ruled out.<sup>2</sup> The difference is that Bruening claims that the Lexicalist Hypothesis does not hold in its full breadth but only as far as  $X^0$  and XP differences are concerned. According to Bruening,  $X^0$ s may have complex internal structure. They can consist of several  $X^0$ s or may contain phrases as in Figure 5. While the analysis of compounds is almost identical to what Lexicalist authors suggested, Bruening also allows for inflectional and derivational affixes that attach to phrases. These are discussed in the following section.

## 4 Phrases in inflectional and derivational morphology

Bruening argues that it has to be possible to have phrases in morphology (or rather that one should not distinguish morphology and syntax at all, see also Haspelmath, 2011 and Jacobs, 2011). Let's assume that he is right and one would need phrases like *Bonnie and Clyde* as input to inflectional rules to allow for his example (9a) repeated here as (4a) and that we need phrases as input to derivational rules to allow for his example (32) repeated here as (4b):<sup>3,4</sup>

- (4) a. You just Bonnie and Clyded my starting middies! (Archer season 3, episode 3)

<sup>2</sup>Of course one can construct contexts in which exactly this string is possible:

- (i) a. Bruening discussed his gimme-the example again.  
b. He made this gimme-the noise again.

It could be argued that this is a type of meta statement but the status of the first elements in the compounds is exactly as in those with quotations from other languages or mentionings of sounds.

<sup>3</sup>The alternative would of course be to assume a unary rule that turns *Bonnie and Clyde* into a stem. This is basically what was suggested by all those who followed the quotation approach to phrases in compounds. See Section 3.

<sup>4</sup>A note on example (4b): Steve Wechsler (p.c. 2017) informed me that examples like (4b) were rejected by the two Japanese linguists he contacted (David Oshima and Katsuya Fujikawa). So some empirical work regarding such examples has to be done in order to confirm their status as challenges to lexicalist analyses.

- b. Hanako ga Masao ni uti o soozisuru ka heya-dai o  
 Hanako Nom Masao Dat house Acc clean or room-rent Acc  
 haraw-aseru koto ni sita  
 pay-Cause that to do  
 ‘Hanako decided to make Masao clean the house or pay room rent.’

What would have to be changed in an HPSG theory in order to accomodate his claims? Usually morphology is done via lexical rules in HPSG. Lexical rules are unary branching trees (Copestake & Briscoe, 1992; Riehemann, 1993, 1998; Meurers, 2001; Sag, Boas & Kay, 2012). As such they are defined with the same formal tools as syntactic rules, something Bruening argues for. For instance, the following lexical rule licenses an inflected past form:

$$(5) \left[ \begin{array}{l} \text{word} \\ \text{PHON } f(\boxed{1}) \\ \text{DTRS } \left\langle \left[ \begin{array}{l} \text{stem} \\ \text{PHON } \boxed{1} \end{array} \right] \right\rangle \end{array} \right]$$

If one believes that past forms are created from phrases rather than stems or maybe that both phrases and stems are allowed, one can change the constraint on the daughter from *stem* to *phrase* or remove it altogether.<sup>5</sup> The change is minor as far as formal details are concerned but the question whether one wants to allow for structures with phrasal daughters is an empirical question. To take a concrete example, I will argue in the next section that the analysis of resultative predicates and particle verbs should be done as was suggested by Müller, 2002, 2003, namely in a lexical way.

## 5 Resultatives and particle verbs

Bruening (2017a, Section 2.2) argues that the nominalization in (6) should be analyzed as a nominalization of the syntactic combination of *leer* and *fisch*.

- (6) wegen der Leerfischung der Nordsee<sup>6</sup>  
 because.of the.GEN empty.fishing of.the North.Sea.GEN

Bruening claimed that there are generalizations about nominalizations that would be explained by his phrasal approach and which would be problematic for lexical approaches. Subsection 5.1 discusses the alledged obligatoriness of arguments in nominal environments and shows that Bruening’s generalization does not hold. Subsection 5.2 explains the much discussed bracketing paradoxes in the morphology of particle verbs and resultative constructions and argues that these are entirely unproblematic in a lexical approach.

### 5.1 Obligatory arguments of nouns

In Müller, 2006, p. 869 I argued that the *-ung* suffix has to attach to the resultative variant of *fisch-* since we have *Leerfischung* as in (6) but not *Fischung* as

<sup>5</sup>Haspelmath (2011) and Jacobs (2011) argue that the notion of word is ill-defined/problematic. What would be needed in rules like (5) if one wanted to do without the type *word* would be something that distinguishes elements that are inflected from those that are not and that have to be inflected before being able to be used in larger contexts.

<sup>6</sup>Taken from the newspaper taz, die tageszeitung: taz, 20.06.1996, p. 6.

a derivation of the intransitive verb *fischen* ‘to fish’. The noun *Fischung* exists but it does not refer to an event but to parts of a boat.

Bruening – citing Williams (2015, p.312) with an observation on English gerunds – criticizes my approach and claims that all arguments of nouns are optional and hence one would expect that the resultative argument that is selected by the noun *fischung* can be omitted. However, this is not possible since omitting the adjectival predicate in *Leerfischung* would result in *Fischung* and *Fischung* has a totally different meaning. Bruening concludes that the only way to deal with this situation is to assume that *-ung* applies to phrasal combinations, namely the result of combining *leer* and *fisch-*.

Now, while it is generally true that arguments of nouns can be omitted there are situations in which the argument cannot be omitted without changing the meaning. Sebastian Nordhoff (p. c. 2017) found the following examples:

- (7) a. Weichensteller ‘switchman’, Bartträger ‘bearded man’, Spaßmacher ‘jester’, Arbeitgeber ‘employer’, (Unfallbauer ‘crasher’), (Abibauer ‘secondary school leaving examination taker’)
- b. Traumfänger ‘dreamcatcher’
- c. Zeitschinder ‘temporizer’
- d. Pläneschmieder ‘contriver’

What the examples above have in common is the following: the verbal parts are frequent and in the most frequent uses of the verb the object is concrete. In the compounds above the first part is unusual in that it is abstract. If the first element of the compound is omitted, we get the default reading of the verb, something that is incompatible with the meaning of the verb in the complete compound.

The contrast between *Leerfischung* and *#Fischung* can be explained in a similar way: the default reading of *fisch-* is the one without resultative meaning. Without the realized predicate we get the derivation product *Fischung* that does not exist.

So, in a lexical analysis of resultatives we have to make sure that the resultative predicate is not optional and this is what my analysis does. It says that *fisch-* needs a resultative predicate. It does not say that it optionally takes a result predicate. What is needed is a careful formulation of a theory of what can be dropped and then the nominalization rules have to be set up accordingly. I do not see any problems for the analyses of resultatives and particle verbs that I suggested.

## 5.2 Bracketing paradoxes

Bruening argues that *-ung* attaches to *leer fisch-*. This is an option that has been discussed in the literature regarding German resultative constructions and that was also suggested for particle verbs, which have a similar structure (Bierwisch, 1987; Stiebels & Wunderlich, 1994; Lüdeling, 2001; Müller, 2002, 2003). The problem with this approach is that there are cases in which the inflectional or derivational endings are discontinuous. For example the inflection of the participle (*ge- -t* or *ge- -en*) attaches to the verbal stem and separates the particle from the base verb *fang-* and the discontinuous derivational affix *Ge- -e* separates the result predicate from the main verb *fisch-*, respectively:

- (8) a. an-ge-fang-en  
 PART-PTCP-catch-PTCP  
 ‘started’  
 b. Leer-ge-fisch-e  
 empty-GE-fishing-GE  
 ‘repeatedly fishing empty’

Nevertheless, as was observed by Bierwisch and others, tense information scopes over the content contributed by the whole particle verb combination. The two structures in Figure 6 have been suggested in the literature for the finite verb *anhört* ‘listens to’. The left structure was suggested for semantic reasons and

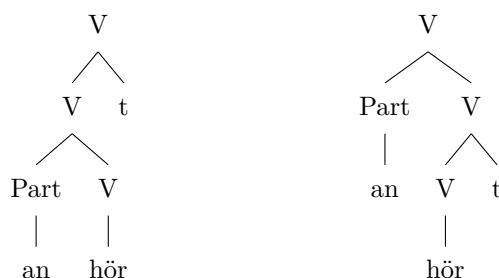


Figure 6: Two possible structures for particle verbs (and resultatives)

the right structure is the one that is needed for morphological reasons since the affixes attach to the verbal stem rather than to the complete particle verb. The examples above are from inflection, but derivation interacts in a similar way with semantics. German has a discontinuous nominalization *Ge- -e*. One can form *Leergefische*, which means something like ‘repeated fishing empty’ with a negative connotation. As Lüdeling (2001) pointed out two different structures seem to be necessary for morphological and for semantic reasons for resultative constructions as well.

Authors like Bierwisch and Stiebels & Wunderlich suggested rebracketing mechanisms that take one of the structures and reanalyze it into the second one. Approaches that can account for the data without such additional tools have to be preferred for reasons of simplicity. Müller (2003) suggested an analysis that treats particles like a selected argument. So, the particle verb *anfangen* is specified in the lexicon as a lexical item that contributes the phonology *fang*, selects for the particle *an* and contributes the meaning of *anfangen* ‘to begin’. Productive particle verbs like those formed with the particle *los*, which marks the beginning of an action are licensed by a lexical rule that maps stems of monovalent verbs onto verbal stems that select a particle in addition to their original valence. These stems can be inflected and then be used in syntax. Since the particle is combined with the verb after inflection no bracketing paradox arises and no mechanisms like rebracketing, percolation of inflectional material or movement of stems or affixes is needed. To summarize: Even though inflection of phrases may be needed in some cases, the lexicalist analyses of particle verbs and resultative constructions that were suggested by Müller (2002, 2003, 2006) and Wechsler & Noh (2001) remain unrefuted and are to be preferred over other, especially phrasal approaches.



## 6 Partial fronting

Bruening argues that much of what the assumption of lexical integrity does can be explained by the difference between  $X^0$  and XP and by the assumptions that only XPs can be extracted. This is an assumption that is usually made in GB/Minimalism but it is not accepted by other frameworks and even within GB/Minimalism it is not accepted by everybody (Haider, 1993; Fanselow, 2002).

Bruening mentions my work on partial verb phrase fronting in a footnote but states that “these analyses can be recast so that extraction is not able to target an  $X^0$ . Partial VPs can be targeted, and a verb by itself can be viewed as a partial VP. That is, phrases can contain only one word and still be phrases.” As the following examples show: adjectives, verbs and particles can be fronted alone:

- (9) a. Leer hat er den Teich gefischt.  
empty has he the pond fished  
‘He fished the pond empty.’
- b. Gelesen hat er das Buch.  
read has he the book  
‘He did read the book.’
- c. Mit schwingt aber auch: In den Sommerferien einen  
with swings but also in the summer.holidays a  
Parteitag zu veranstalten, ist eigentlich nicht zulässig.<sup>7</sup>  
party.meeting to organize is in.principle not allowed  
‘What is implicitly conveyed in this message is that it is prohibited  
to organize party meetings during the summer holidays.’

If Bruening assumed that these categories could or should project to full phrases then the question would be why. This seems just to be required to get the fronting data right. A common analysis for predicate complexes in German assumes that the involved elements are  $X^0$ s. The alternative is remnant movement approaches (G. Müller, 1998) but these make wrong predictions when it comes to the movement of indefinites and so on (Haider, 1993, p. 281; De Kuthy & Meurers, 2001, Section 2; Fanselow, 2002).

## 7 Coordination

Wechsler (2008) and Müller & Wechsler (2014) argued that nominalizations should be treated lexically since nouns of various types can be coordinated, which would be a surprise if a nominalization involved phrasal structure.

Bruening claims that examples like (10a) involving the coordination of verbs do not provide evidence for the coordination of lexical items since such coordinations may be reformulated and *but does not* may be inserted as in (10b):

- (10) a. He knows and loves this record.  
b. He knows but does not love this record.

How (10b) can be analyzed is an open question but the existence of other patterns of coordination does not show that lexical coordination is not at work in

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<sup>7</sup>taz, 10.07.2017, p. 11

examples like (10a). This would only follow if one could show that all coordination is phrasal and then a theory that handles both examples in (10) as phrasal coordination would be simpler than one that treats the examples differently. However, there are areas in grammar that seem to require coordination of non-phrasal material. Consider the example in (11), which is taken from Heycock & Zamparelli (2005):

(11) the ill-matched man and woman

As Kubota & Levine (2013, p. 26–27) point out, an ellipsis-based analysis of such examples would not work, since such examples cannot be related to *the ill-matched man* and *the ill-matched woman*. What is *ill-matched* is the group of *the man* and *the woman*. So there is clear evidence that words can be coordinated. Bruening writes: “Such coordinations can also include more words, for instance *even: No intellectual or even academic has the courage to speak out about the war* (COCA). This supports the contention that they are actually phrasal.” However, this does not show anything. What is shown is that complex phrases can be coordinated but it does not show that *man and woman* is the coordination of two phrases.

The examples in (12) are related to what has been discussed in Section 6 on  $X^0$  fronting: Two coordinated  $X^0$ s are fronted, the remaining arguments stay behind.<sup>8</sup>

- (12) a. [Vertraut und zufrieden], das war er nie mit was.  
 familiar and pleased this was he never with something  
 ‘He was never familiar and pleased with anything.’  
 b. [Treu und ergeben], das wäre er ohnehin nie wem gewesen.  
 faithful and devoted this was he anyway never who been  
 ‘He would not have been faithful and devoted to anybody anyway.’

The fronted coordinated items are taken up by a demonstrative pronoun in a left dislocation construction. Note that one cannot claim that full VPs or APs are fronted since the rest of the sentence contains indefinites (*was* and *wem*) and these do not move (Haider, 1993, p. 281) and hence an analysis assuming that *wem* and *mit was* are moved out of a VP before its remnant is fronted is implausible.

## 8 Conclusion

Bruening wrote an interesting paper that shows that many areas within words maybe affected by syntactic processes. He argued that lexical approaches cannot explain the lack of optionality of arguments. I have shown that his claims are wrong and that it is not the case that all arguments are optional in nominal environments. Hence there is no counter argument against lexical treatments of resultatives. The discussion of bracketing paradoxes showed that there are arguments for lexical analyses.

Bruening tried to tie some of the constraints that follow from the Lexicalist Hypothesis on the difference between  $X^0$ s and XPs but I have reminded the reader that various  $X^0$  categories may be extracted and that remnant movement approaches are problematic for several reasons.

<sup>8</sup>Thanks to Hubert Haider for reminding me of this type of examples.

Coordination of  $X^0$ s is possible despite Bruening's claims and finally his rather programmatic paper did not say anything about more interesting morphological phenomena that may indeed require tools different from what we use in syntax.

So, Bruening's paper may be the end of Lexicalism as we know it, since some changes in constraints may be required, but it is not the end of Lexicalism.

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