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In the Event of a Nominal[1]

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1. Introduction

At the core of any lexicalist approach stands the notion of a 'word', or a listed item. More specifically, lexicalist approaches typically partition the domain of rule application to that which involves the syntax, and which displays canonical syntactic properties, and that which involves lexical information, specifically as associated with listed 'words'. The motivation for such lexical operations tends to cluster into two rather conceptually distinct types. At one end of the spectrum there are operations which are presumed lexical because they are delimited by properties which are item-specific, or by 'exceptions', for instance, English dative shift which affects *give* but not *donate*. At the other end of the spectrum we find a formal motivation based on syntactic restrictions. Thus, for instance, it is generally assumed that the syntax is prevented from eliminating argument positions otherwise lexically required. The elimination of arguments, if needed, thus cannot be syntactic, but may be stated as an operation on a lexical entry. Such an operation need not be 'exceptional'. For example, in Reinhart (2002, to appear). operations which convert dyadic, causative entries into monadic, inchoative ones are general, but nonetheless must be lexical, for the syntax is prevented from performing them (and see Horvath and Siloni, to appear, for a detailed review).

These different motivations notwithstanding, they are linked by one extremely important commonality. All are committed to the existence of listed units, call them 'words', which constitute individual, syntactically atomic packets of morphological, syntactic, and phonological instructions to the grammar.[2] What, however, is a 'word', or more specifically, how can we determine what the basic listed item is, which contains this relevant information, and which can be consulted, or modified? From a syntactic or semantic perspective, we note, the issue is wide open. There is little a priory syntactic or semantic reason to assume that e.g. *the doctor* is two words, but *Mary* is one, or that *postman* is one word, but *postal worker* is two. A more coherent notion typically comes from phonology (e.g. a domain for specific phonological rule application such as stress), but why should such a phonological domain constitute a privileged unit, from the perspective of the syntax or the semantics?[3]

[1] I would like to thank Andrew McIntyre and Ivy Sichel for stimulating discussions of the material in this paper. Thanks also to two anonymous reviewers and to Tal Siloni for many helpful comments. This paper further benefited from the input of audiences at Paris XIII and Paris III, and from participants in the event workshop in Barcelona in December 2010.

[2] Where by 'word' I specifically refer to substantive words, and excluding vocabulary items such as determiners, auxiliaries, quantifiers, affixes and so on. The latter, I assume, can be characterized by being *rigid designators*, which is to say their properties, however characterized, hold in all possible worlds. For the potential relevance of this criterion to natural language semantics see Gajewski (2009). For its specific applicability to the functional/substantive lexicon, see Borer (forthcoming).

[3] The system put forth by Reinhart (2002, to appear) makes no explicit claims about the morpho-phonological realization of 'words' and is thus, in principle, compatible with a late morpho-phonological insertion. We note, however, that once morpho-phonological realization is divorced from the notion of what is a 'word', then it is no longer clear how one defines the basic lexical unit to which *–arity*-changing operations can apply. The question is particularly salient because the model does assume, explicitly, the systematic existence of 'frozen' entries, i.e. lexical entries that exist (universally) and may be operated upon, but may never be actually spelled out or be syntactically inserted in a given language.

The matter may be made sharper by appealing to the discussion in Horvath and Siloni (to appear). Specifically, and in reply to Marantz (1997), Horvath and Siloni (op. cit.) argue that evidence for the

In turn, and as is well known, syntactic, morphological and phonological properties do not always go hand in hand. Causative constructions may include two morpho-phonological heads, (English, Romance), or one (Japanese, Turkish), without any syntactic or semantic difference resulting. The English verb *whiten*, always bi-morphemic, nonetheless corresponds to two distinct syntactic structures of unequal complexity. The verb *yellow*, always mono-morphemic (or so it would appear) corresponds to those very same syntactic structures. In all of these cases, what is a word, how complex it is, or how many of it there are seems orthogonal to syntactic structure, syntactic complexity or interpretation.

In the last decade, the claim, prevalent in the 80's and the 90's, that 'words', however defined, are junctures of phonological, morphological and syntactic properties, did come under criticism (see especially Marantz, 1997 and subsequent work as well as Borer 1994, 2003, 2005 inter alia).[4] The present paper is a continuation of this research program, insofar as it presents a serious challenge to the claim that listed items, words, are syntactically atomic and hence, per force, when complex not syntactically constructed. Specifically, I will show that 'words' with an identical morpho-phonological complexity, indeed, homophones, nonetheless exhibit radically different syntactic and semantic properties which cannot be captured without appealing to the presence of articulated syntax *internal* to these words. Even more crucially, I will show that the degree of complexity of such 'internal word' syntax corresponds directly not only to syntactic and formal semantic computational properties, but is also an extremely accurate predictor of the availability of (conceptual-encyclopedic) meaning composition at the 'word' level. Concretely, there will emerge a syntax-based local domain that delimits the availability of non-compositional meaning for words. In turn, the locality conditions delimiting such non-compositionality will be shown to correlate directly, and non-trivially, with the degree of 'word internal' syntactic complexity otherwise established. In other words, the more complex the 'internal' syntax', as independently established, the more compositional the meaning. The less complex the 'internal' syntax, likewise independently established, the more likely the 'word' is to be non-compositional. Finally, I will show that the lexical specification of internal arguments yields, across the board, the wrong results on a myriad of fronts, in failing to correlate, systematically, the relationship between arguments and grammatical events.

The empirical subject matter will concern a detailed comparison of Synthetic Compounds (so-called) (e.g. as in (1)) with argument structure (complex-event) nominals, (cf. (2)-(3):

1. a. truck driving; paper writing; wall fixing; cat grooming
   b. truck driver; paper writer; wall fixer; cat groomer
2. a. The driving of the truck (by Mary); the grooming of the cats (by John)
   b. Mary's driving of the truck; John's grooming of the cats
3. a. The transmission of the documents (by Mary); the maintenance of the facilities (by John)
   b. Mary's transmission of the documents; John's maintenance of the facilities

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existence of an 'active lexicon', a distinct computational component from the syntax, cannot be based on the architecture of complex word formation or morpho-phonological properties, but rather, must be grounded in direct evidence for *–arity* changing operations that must apply before syntactic structure is available. The statement, however, begs the issue, insofar as without some sort of a definition of what is 'pre-syntax', what units it contains, and whence they come from, a certain circularity emerge, insofar as the set of representations to which *–arity* changing operations could apply appears to be defined exactly on the basis of these very operations which apply to them. To illustrate, without a clear notion of what is a possible well-formed 'lexical' representation, the existence of e.g. a transitive entry for *arrive* in English from which unaccusative *arrive* is derived becomes unfalsifiable.

[4] While Baker's UTAH (1988, 2003) seriously questions the existence of formal lexical operations, it does not question, indeed it crucially presupposes, the existence of listed items as packets of instructions to the syntax.

Traditionally, these phenomena are all handled lexically, and involve word formation (the derivation of nominals, compounding) and lexically-privileged information such as argument selection (particularly internal argument), which seems to be realized across the board in all these cases (cf. Selkirk, 1982, DiSciullo and Williams, 1987; Lieber, 2004, 2009; Ackema and Neeleman, 2004). The constructions certainly appear extremely similar, especially in the case of *–ing* nominals. Nonetheless, as I will show, their properties strongly diverge along syntactic and semantic lines, with Argument Structure Nominals (AS-Nominals) exhibiting grammatical event properties and a strictly compositional meaning, and with Synthetic Compounds exhibiting no grammatical event properties and allowing non-compositional meaning. Various attempts to account for these properties while appealing to any degree of lexical specification will be reviewed, and dismissed, along the way.

The organization of this paper is as follows. Section 2 contains a brief review of AS-Nominals, focusing primarily on the properties of AS–*ing* Nominals, as these are the ones minimally contrasting with Synthetic Compounds. In sections 3 I turn to Synthetic Compounds, reviewing a number of historically important proposals, and showing that any account for Synthetic Compounds which is based on argument incorporation is unworkable. In section 4 I discuss (non-)compositional word meaning, the way in which Synthetic Compounds and AS-Nominals differ along these lines, and how that difference emerges from their distinct structural properties established by that point. Section 5 outlines the first part of my analysis for Synthetic Compounds, focusing, specifically, on the properties of the affixes *–ing* and *–er*. In section 6 I turn to empirical evidence for the properties attributed, in section 5, to *–ing* and *–er*. Section 7 returns to the analysis of Synthetic Compounds, and makes a concrete proposal on their structure, based, to a large part, on the availability of non-compositionality. Section 8 offers a brief summary.

2. AS-Nominals

2.1. Preliminaries

I will accept, as a foregone conclusion, the central results of Grimshaw (1990), partitioning (deverbal) derived nominals into regular, referential nominals, on the one hand, and nominals which denote a grammatical event, on the other hand. Table (4) summarizes some of the relevant diagnostics. AS-Nominals correspond to Grimshaw's Complex Event Nominals. R-Nominals stand for referential or individual nominals:[5]

4.		***R*-Nominals**	***AS*-Nominals**
	a.	no role assignment; no obligatory complements	role assignment; obligatory arguments
	b.	event reading not necessary	event reading necessary.
	c.	no agent-oriented modifiers	agent-oriented modifiers
	d.	subjects are possessives	subjects are arguments
	e.	*by* phrases are non-arguments; In Spanish, selects *de;* in Hebrew *šel*	*by* phrases are arguments; In Spanish, selects *por;* in Hebrew *'al yedey*
	f.	no implicit argument control	implicit argument control
	g.	no aspectual modifiers	aspectual modifiers.

Particularly compelling evidence for the Grimshaw classification comes from the fact that any attempt to mix the properties of the two nominal types immediately leads to

[5] The change in terminology represents some theoretical divergence as well as some empirical qualms. See Borer (1999, forthcoming) for a more complete discussion.

ungrammaticality, thereby presenting a serious challenge to earlier accounts, originating with Chomsky (1970), which postulate massive argument optionality in derived nominals:

5. a. *Mary's deliberate collection
   b. *The collection to document the disappearance of mushrooms
   c. *The examination/exam by the teacher
   d. *The destruction in a day

2.2. R-ing Nominals

In Grimshaw's (1990) account, as well as in a number of subsequent accounts following her footsteps, an important distinction is drawn between nominals derived with *–ing* and nominals derived with other (overt) English affixes, i.e., *-ation, –ment*, *-ance/ence, -al* etc. (henceforth*–ation+kin*) (cf. (6)-(8)). Of particular significance in this respect is the ungrammaticality of (6c):

6. a. the transmitting of the documents (by Kim)/the deferring of the payment (by the bank)
   b. Kim's transmitting of the documents/the bank's deferring of the payment
   c. *the documents' transmitting (by Kim)/*the payment's deferring (by the bank)

7. a. the transmission/transmittal/transmitance of the documents (by Kim)
   b. Kim's transmission/transmittal/transmitance of the documents
   c. the documents' transmission/transmital/transmitance (by Kim)

8. a. the deferment of the loan (by the bank)
   b. the bank's deferment of the loan
   c. the loan's deferment (by the bank)

The ungrammaticality of (6c), for Grimshaw, derives from the crucial claim that *–ing* nominals (a few listed exceptions notwithstanding) *must* be (our) AS-Nominals, and cannot be R-Nominals. This claim is combined with the assumption that pre-nominal genitives are always free interpretation possessors and never arguments. In (6b), the pre-nominal genitive is interpreted as agentive, as, indeed, possessors may (cf. *Puccini's La Boheme*). In (6c), however, and because the possessor cannot be an argument, an internal argument is missing for an *–ing* nominal, per force an AS-Nominal, leading to ungrammaticality.

Importantly, by this logic, (7c) and (8c) must be R-Nominals, a consequence Grimshaw (op. cit.) endorses. However, as has been frequently observed, the nominals in (7c) and (8c) largely display all the characteristics of AS-Nominals (cf. (9)). The claim that they are not thus runs the risk of undermining the diagnostics in (4) across the board, and thereby casting doubt on the usefulness of the proposed putative *–ing*/*–ation+kin* distinction, at least in this context:

9. a. the documents' (constant) (intentional) transmission (in seven hours) (by Kim)
   b. the loan payments' (frequent) deferment (by the bank)

Many subsequent accounts, some, but by no means all, consisting of a syntacticalization of Grimshaw's system, nonetheless adopt some version of her proposed distinction between *–ing* and *–ation+kin* nominals, assuming the former to always contain a grammatical event, but not so the latter.[6] As it turns out, however, this core claim is simply wrong.[7] A few examples

[6] For example, van Hout and Roeper (1998) assume that *–ing* merges with VoiceP and TP and thereby contain full aspectual structure while *–ation+kin* merge with VP or V, thus allowing the exclusion of grammatical event nodes. Marantz (2000), as well as Alexiadou (2001), proposes to derive *–ation+kin* AS-Nominals by embedding them under event structure. *–ing* nominals, on the other hand, involve the merger of *–ing* above a *v* or VoiceP node and are hence per force AS-Nominals. In a later execution, more in line with Borer, 1999 and subsequent work, Alexiadou and Grimshaw (2008) as well as Alexiadou (2009) assume that both (AS)*–ing* and (AS)*–ation+kin* merge above grammatical event structure. However, in an effort to give a unified account to *–ing* in verbal gerunds and in-*ing* nominals, they also claim that in both, the merger of *–ing* entails the merger of VoiceP,effectively forcing *–ing* nominals to be

(including some corpus cases) are in (10a-b) (note that the italicized cases in (10b) cannot be verbal gerunds). Even more clearly, consider the cases in (11). The complement of *this kind of* is clearly a nominal, and clearly can be a deverbal derived nominal. In turn, it can also be followed by bare, complement-less *–ing* forms, some derived from very 'strong transitive' verbs. In fact, complements to nominals, derived or otherwise, are at best marginal here even when generically construed (cf. (12)). As expected of R-Nominals, *by-phrases,* implicit argument control or aspectual modifiers are all illicit:[8]

10. a. good living, strong craving, violent beating, a reading, (leftist) leaning, (good) standing, (one) sitting, etc
    b. "Women are reared not to feel competent or gratified by *the questing, the competing, the outbidding* that collecting … demands." S. Sontag, *Volcano Lover*, p. 138

11. a. this kind of *friendship/table/behavior/love/music/clarity/event/journey/happiness*
    b. this kind of *destruction/ transmission/ deferral/ defferment/ adherence/ attainment*
    c. (this kind of) *fighting; fraternizing*; *parenting; terrorizing*, *bidding; bullying; craving; viewing; knowing; seeing; sinking (ambiguous); breaking (ambiguous); growing (ambiguous)*

12. a. ??this kind of destruction of cities; ??this kind of transmission of information
    b. *this kind of outbidding of friends; *this kind of bullying of the innocent
    c. *this kind of bullying in order to make up for low self esteem
    d. *this kind of parenting for prolonged years
    e. *this kind of terrorizing by immature males
    f. ??this kind of *picture(s) of boys/ table for guests/story by a young writer*

Note that (10) and (11c) cannot be accounted for by appealing to the presence of a generic or habitual operator of some sort, e.g. on a par with what might be licensing the omission of the internal argument in (13). Whatever the conditions on the omitted complements in (13) are, they clearly differ from those that apply to (10) and (11c). Thus note the contrasts in (14)-(15):

13. Mary outbids/terrorizes/bullies. That's just what she does

14. a. ??underage teens cannot parent very well (cf. *this kind of parenting*)
    b. *Kim typically craves/views/sees *(things) cf. *this kind of craving; viewing; seeing*)
    c. *philosophers know *(things). That's their metier (cf. *this kind of knowing*)

15. a. Guy bullies in order to make up for low self esteem (cf. the ungrammatical (12c))
    b. Kim competes to gratify her desire to win

But if R-*ing* Nominals exist, are there any restrictions on the occurrence of *–ing* nominals, or do they fully share the distribution of *–ation+kin* nominals? The matter, we note, certainly bears on the ultimate explanation for the ungrammaticality of (6c), and from the perspective of a comparison between derived nominals and Synthetic Compounds, is particularly salient, as the core cases of Synthetic Compounds involve *–ing* nominals, as in (1a).

AS-Nominals. Guided by a similar desire to unify the treatment of *–ing* across gerunds and derived nominals, Sichel (in press) assumes that *–ation+kin* only license a single event but *–ing*, in both gerunds and nominals, licenses a 'complex' event, i.e., an event with a subordinate subevent. Within this execution as well, *-ing* nominals must be AS-Nominals.

[7] As is, in my view, any attempt to unify the nominal suffix *–ing* and the gerundive suffix *–ing* along aspectual lines. See section 3.2.2 for a few additional brief comments. See section 6 on some crucial contrasts.

[8] Contra Alexiadou (2005) the same is true for adjectival *-ing* constructions, otherwise not discussed in this paper (see fn. 9):

i. a terrorizing event; a growing experience; a parenting experience; a bullying incident

As it turns out, differences between *ing* nominals and *ation+kin* nominals do exist, and their investigation will turn out to shed important light on the properties of Synthetic Compounds, as well as on properties of syntactic word formation in general. I must, however, beg for the reader's patience at this point, as I turn to a more detailed introduction of Synthetic Compounds and the ways in which they differ from AS-Nominals. I return to the distinct properties of *–ing* and *–ation+kin* in sections 5 and 6.

3. Synthetic Compounds

3.1. Preliminaries and the First Sister Principle

By way of providing a description of the range of constructions which come under the title Synthetic Compounds, consider the following quote, from Spencer (2005, pp. 88-89):

> A number of researchers have followed Marchand (1969) and others in distinguishing two types of noun-noun compound in English: *root compounds* such as *coffee table* and *verbal nexus compounds, or synthetic compounds, in which the lexical head is derived from a verb…* The point about these constructions is that the non-head of the compound seems to bear a syntactic dependency to the head, realizing its direct object or some other grammatical function… There is thus prima facie case for the involvement of syntax at some level of representation and, indeed, synthetic compounds bear some resemblance to noun incorporation structures which some take to be a classic case of syntactic word formation (e.g. Baker 1988).[9] [*Emphasis mine, HB*]

A particularly influential syntactic treatment of Synthetic Compounds is that of Roeper and Siegel (1978), who suggest a syntactic operation of Synthetic Compounding which involves the incorporation of a constituent into a the verb, providing it is its first sister:

16. **First Sister Principle (FSP) (Roeper and Siegel, 1978):**
    All verbal compounds are formed by the incorporation of a word in first-sister position of the verb.

The FSP seeks to capture the fact that the non-head in Synthetic Compounds, as described above, is typically understood to refer to an internal argument or alternatively to an adjunct, but not to an external argument:[10]

17. a. truck driving; letter writing; bread eating
    a. truck driver; letter writer; bread eater

18. a. fast acting; slow growing; quick drying
    b. pan frying; step dancing; church going (*fry (in) pan; dance (in) steps; go (to) church*)

19. a. *chef maker/making (of cakes); *man driver/driving (of trucks)
    b. *cake baked; *letter written; *church gone

A few comments are in order about the technical aspects of the FSP before we proceed. First, we note, FSP presupposes, in accordance with its period, a rather different model of both the syntax and the lexicon. The lexicon assumed is in essence that of Chomsky (1965, 1970), in

[9] Spencer (op. cit.) further notes that accounts differ in what they consider Synthetic Compounds, and specifically, in the context relevant here, whether e.g. *tomato growth* or *bridge construction* are Synthetic Compounds. As I will show, however, *-ing* and *–er* compounds systematically behave differently from compounds constructed with *ation+kin* Nominals.

[10] The FSP derives the (passive) compounds in (ia-b) by incorporating the passivized subject into the verb, under a demotion analysis of passive. The ungrammaticality of (ic) thus follows from the assumption that the object is promoted and hence is no longer a sister of the verb:

i. a. man driven; secretary written; moth eaten
   b. quick-fried, slow-roasted
   c. *cake baked; *letter written; *church gone

which argumental roles, thematic roles, are not specified in verbal entries. Rather, verbal entries come with a subcategorization frame. Syntactically, phrase structure need not be binary branching, and more specifically, all constituents that follow the verb within the VP, including, e.g., *quickly* in *fry quickly* are sisters of V. As a consequence, in a phrase such as *fry the pasta quickly*, both *pasta* and *quickly* may be sisters of V. Finally, the FSP does not assume the Unaccusativity Hypothesis, and in all likelihood, predates its earliest formulations (cf. Perlmutter, 1978). As a consequence, subjects of unaccusatives are not assumed to be sisters of the verb, but rather bona fide subjects. The ungrammaticality of (20a) follows, then, from the assumption that e.g. *tree* is never a sister of V, and as such, patterns with the ungrammaticality of (20b):

20. a. *tree falling; *train arriving; *volcano erupting
    b. *boy laughing; *elf dancing; *slave laboring

Any attempt to formulate the FSP in present day theoretical terms faces serious foundational (rather than mere executional) problems as we shall see. For instance, an attempt to subsume the FSP under an incorporation account along the lines of Baker (1988) and subsequent work would not, in fact, yield the correct results given the fact that many of the non-heads are not direct complements of the verb (e.g. *church going*), and some are altogether adjuncts and not complements (*pan frying*). Most crucially, however, the FSP is squarely incompatible with the Unaccusativity Hypothesis. According to the latter, the sole argument of unaccusatives is, structurally, a direct object. The FSP thus erroneously predicts the existence of synthetic compounds composed of the unaccusative and its argument (e.g., 20a) [11]

Suppose we turn, then, to a closer investigation of whether the core generalization expressed by the FSP is on the right track altogether, and whether a formal system can be constructed so as to capture it. Specifically, let us pose the question in (21) relative to the claim in (21i):

21. *COULD IT BE MAINTAINED THAT:*
    i. There exist N+N compounds, call them *Synthetic Compounds*, in which the head contains a verbal nexus, and the non-head exhibits (syntactic or lexical) argumental dependency on it.

The argumental dependency under consideration here is very vaguely stated in (21i), precisely because, at least in principle, it could captured syntactically or lexically; as a relationship that holds between the non-head and a root; between the non-head and a verb, or the non-head and a derived nominal. What I hope to show is not that *one or another* execution of (21i) is untenable, but rather, that in principle, there could not be any explanatory adequate executions of (21i). In short, that the answer to the question in (21) is a resounding *NO*!

More specifically, I will now embark upon considering some actual and hypothetical accounts of Synthetic Compounds which adhere to some version of (21i). As I will illustrate, they lead, inevitably, to theoretical contradictions as well as to massive empirical and theoretical inadequacy, which, at the end of day, strongly militate against the veracity of the claim in (21i).

3.2. On the Absence of Event Structure in Synthetic Compounds

A rather striking difference between Synthetic Compounds and AS-Nominals concerns the fact that the former, in contrast with the latter, do not have grammatical event properties

[11] For empirical problems with the FSP, see Bauer (1983) as well as Borer (forthcoming). As I will reject the FSP, or any account based on argument incorporation, on general theoretical grounds, these issues are not reviewed here.

(independently also noted in Roeper and van Hout 1998). Thus consider the contrast between (22) and (23):[12]

22. a. The breaking of the door by Mary in two minutes in order to retrieve her locked-up dog
    b. The stubbing of the emperor by Brutus for ten minutes in order to kill him

23. a. (I watched) the door breaking (*by Mary) (*in two minutes) (*in order to retrieve her locked-up dog)
    b. (I read about) the emperor stubbing (*by Brutus) (*for ten minutes) (*in order to kill him)

Additional evidence for the absence of grammatical event structure in Synthetic Compounds comes from their felicity in the context of *this kind of*. In allowing such a context they pattern with the R-*ing* Nominals in (10)-(11), and contrast with the AS-Nominals in (12):

24. this kind of *spouse terrorizing/ dog grooming/ child parenting/ neighborhood bullying; tomato growing/ fast acting/ door breaking/ compound dissolving/door breaking/emperor stubbing*

The contrast between (22) and (23), as I shall proceed to show, presents an intractable problem for any lexical or syntactic account that subscribes to some version of (21i).

3.3 Syntactic Problems, Syntactic Solutions

3.3.1 Syntactic Problems

Consider first syntactic approaches to event structure. Although eschewing a lexical execution, it is nonetheless the case that a host of current approaches to event structure are crucially invested in the link between the presence of arguments and event structure. For these approaches, as well, the conjunction of (21i) with the absence of event structure for Synthetic Compounds presents a difficult puzzle. To illustrate, according to at least some of these approaches, 'internal' arguments are not properties of listed items (be they verbs or roots), but rather emerge from (or are checked by) the presence of some syntactic structure which is also associated with grammatical event structure. But if *truck*, in *truck driving* or *truck driver,* is indeed an internal argument in the intended sense, it follows, in such systems, that Synthetic Compounds must come complete with at least some event structure, i.e. with whatever functional structure would be licensing the 'internal' argument.[13] However, given the absence of grammatical event properties in Synthetic Compounds, the origin of the internal argument, if indeed linked to an event node of some sort, becomes unclear. The absence of grammatical event properties in Synthetic Compounds, combined with the continued presumed validity of (21i), is equally if not more problematic for views which link the presence of *–ing* nominals with grammatical event properties, either directly, or through the licensing of an external causer (and causing event) (see fn. 6). As Synthetic Compounds with *–ing* do not have grammatical event properties, then regardless of the source of the *internal* argument, one must either give up on the assumption that *–ing*, in and of itself, always entail the projection of grammatical event structure/external causer of some sort (and the corollary assumption that *–ing* nominals are always AS-Nominals), or alternatively postulate two homophonous *–ing* morphemes – one, *-ing*

[12]For reasons of space, the text discussion focuses, by and large, on *–ing* Synthetic Compounds. Note, however, that at least from the perspective of the diagnostics in (4), AS-*er* nominals do not quite 'behave':

i. The breaker of the door (*in seven minutes) (*in order to retrieve the luggage)

For some discussion of the role of events in the interpretation of *–er* nominals, see van Hout and Roeper (1998) as well as, more recently, Alexiadou and Schaffer (2010). For a detailed analysis of *–er* nominals and their contrastive properties with those of synthetic *–er* nominals, see Borer (forthcoming).

[13] AgrO for van Hout (1994) (crucially a telicity inducing node); Asp_Q (erstwhile Asp_E) for Borer (1994, 2005); *v*, an eventive node, for Alexiadou (2009).

1, that is associated with grammatical events (and which presumably could be the same in gerundive –*ing* and AS-*ing*) and a second, which is *not* associated with event structure, - -*ing* 2 - for R-Nominals and Synthetic Compounds. But even this unsavory move does not solve the problem. If it is –*ing* 2 and not –*ing* 1 that is implicated in the derivation of -*ing* Synthetic Compounds, then an argument should not be able to incorporate, contra (21i), for the simple reason that by assumption,–*ing* 2 does not take arguments.

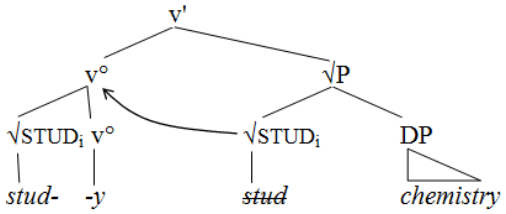
Before turning to the consideration of some current analyses which assume some version of (21i), we note that the problems encountered by syntactic and lexical accounts are extremely similar here (and as we shall see, will be similar all the way down the line), indicating the fact that at least when it comes to the statement in (21i), the resolution of the problem does not bear directly on the question of the syntax/lexicon division.

3.3.2. A Non-Solution: Syntactic Incorporation into a Root

We concluded that the assumption that internal arguments are associated with event structure, as well as the assumption that –*ing* nominals always entail a grammatical event, are both incompatible with the fact that Synthetic Compounds do not have properties of grammatical events (under the assumption, recall, that (21i) is valid). A number of obvious fixes do present themselves at this point, which, it appears, would allow us to hold on to (21i). Suppose we abandon the view that –*ing* entails a grammatical event, or an external causer, or an AS-Nominal (under any execution), a conclusion at any rate warranted by the fact that R–*ing* Nominals do exist, as already noted. Suppose we now further abandon the claim that internal arguments are licensed structurally only in the context of events.[14] Rather, suppose we adopt, instead, the proposal, put forth by Marantz (1997 and subsequent literature) and Harley (2009a,b), according to which roots come with a specified internal argument. Would such partial listing, associated with roots and not with verbs, and including only the internal argument, solve our puzzle? At first blush, this does look promising. If internal arguments are properties of roots, and are not contingent on the presence of event structure, then their presence – in fact *their presence alone* – would be predicted to occur without event structure and AS-Nominal properties necessarily emerging.

Alas, the solution is only apparent, as we shall shortly see. An explicit proposal that Synthetic Compounds are formed by incorporating internal arguments into selecting roots is put forth by Harley (2009b). Concretely, Harley assumes that roots merge directly with their complements (including but not necessarily just direct internal arguments), and crucially, that complements are always realized prior to the categorization of the root. The merger of the root and its complement give rise to a RootP. In regular clauses, the head root further merges with a categorial *v* head, giving rise to a structure such as that in (25):

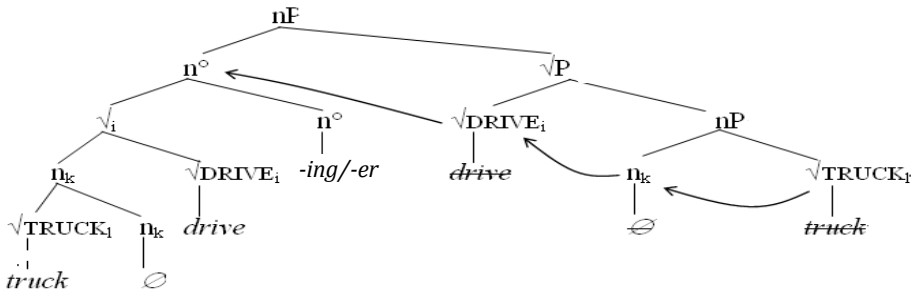
25.



In Synthetic Compounds, on the other hand, the complement incorporates into the root, and then the result, in its entirety, incorporates into an *n* head:

[14] See van Hout and Roeper (1998) for precisely this move, abandoning at least for derived nominals, the claim in van Hout (1994) and subsequent work that telicity can only emerge when internal arguments, selected by the verb, move to AgrO. The critique below, concerning the inherent incompatibility of any argumental incorporation system with the Unaccusativity Hypothesis applies to their revision as well.

26.



Elaborating on the properties of (26), note, first, that at no point is there a verbal head in the structure. This is a matter of significance for Harley, who seeks to reconcile, this way, the presence of an internal argument which is dependent on some head, with the fact that English does not have an N+V compounding strategy. Harley in fact highlights this result as evidence for roots and root selection, in preference to selection by categorially specified verbs. We note further that as there is at no point a verbal projection in the structure, and under the natural assumption that grammatical events entail a verbal structure, however executed, the absence of a grammatical event in (26) comes for free. (26), with its accompanying assumptions, seems to resolve the problem, then. Or does it? As further scrutiny will reveal, (26) in fact fails on a number of fronts, including, but not limited to, actually failing to provide an account for the absence of grammatical event properties in Synthetic Compounds.

The structure in (26) comes at the cost of severing the relationship between internal arguments and grammatical event structure, thereby rejecting, across the board, the typology of derived nominals put forth in Grimshaw (1990) and outlined in (4) and the related discussion. The problem for this as well as any system which rejects this link, is not how to associate the presence of an internal argument with the existence of a grammatical event. That can be easily accomplished with the addition of structure. Rather, the problem is how to capture the systematic absence of grammatical event properties when the internal argument is missing.

A more serious problem for (26) (as well as for root selection in general) is the fact that Synthetic Compounds with the set of properties already reviewed, may be formed from derived verbs:

27. a. (I don't approve of) this (*deliberate) root verbalizing (*by the linguist) (*in order to to do away with counterexamples)
    b. This glass encasing (*in plastic) (*in order to protect it from stone throwing)
    c. (they noted) the minority patronizing (*for the past several years) (*by the supposedly progressive administration)

28. a. (I don't approve of) this (deliberate) verbalizing of roots (by the linguist) (in order to do away with counterexamples)
    b. This encasing of the glass in fortified plastic (in order to protect it from stone throwing)
    c. (they noted) the patronizing of minorities (for the past several years) (by the supposedly progressive administration)

And yet, in the case of derived verbs, the incorporated argument cannot possibly be selected by the root, and the derivation outlined in (26) cannot possibly proceed as such. The difficulty is not just a matter of execution, but rather, involves a rather radical undermining of the rationale guiding (26) to begin with. To see that this is the case, consider the structure that Harley (2009a) herself assigns to derived verbs, in a different context. Specifically, in (29), the root √GLOB incorporates into the (little) *a* head (which spells out as *–al*), and the result, *nominal*, incorporates into *–ize*. The argument *markets*, in turn, is not in actuality the internal argument of *globalize* or of the root √GLOB, but rather a specifier, the external argument of a

(little) *a* Small Clause, headed by (√GLOB)-*al* (accusative assigning structure omitted for expository reasons):

29. a. The IMF globalizes markets
    b. [$_v$ -ize … [$_{a\text{-}sc}$ [$_n$*markets*] [$_a$ al$_a$ √GLOB]]]
    c. [$_v$ √GLOB -al -ize [$_{a\text{-}sc}$ [$_n$*markets*] [$_a$ *√GLOB -al √GLOB*]]]

Suppose we were now to derive the Synthetic Compound *market globalizing* from (29), on mimicking as close as possible the operations in (26) (e.g., as in (30)). Note that [$_n$ *market*], by assumption a specifier of the clause headed by *–al*, cannot incorporate downward either onto the root or onto *–al* for structural reasons. Thus, presumably, [$_n$ *market*] would need to incorporate into *globalize*. But in (26) *n* incorporates into a *root*. In (30), rather, it incorporates into a *v*, a situation which Harley (2009b) seeks to explicitly avoid, as already noted. In the next step, for (26), the constituent √P incorporates into a categorial label, obeying, as we already noted, the very same rationale used to incorporate the root into *v* in (25). The movement of [*verb nominalize*] to incorporate into *–ing*, however, is the movement of the fully labeled and fully articulated verbal syntactic constituent boxed in (30), and cannot, in any way, be subsumed under the general adjunction of roots to categorial nodes:

30. [$_n$ *-ing/-er* …[$_v$ [$_n$*verb*] [$_v$√NOMIN -al -ize] [$_a$[$_n$*verbs]* [$_a$ *√NOMIN -al √NOMIN*]]]]

What is significant, from our perspective, is that the operations in (29)-(30) cannot be reduced to root selection, and that they involve the incorporation of an *n* into a *v*, and not into a root. Insofar as (26) could capture the fact that English has Synthetic Compounds although it does not have an N+V compounding strategy, this result is lost for derived verbs. Insofar as it was possible to correlate the absence of a grammatical event in (26) with the absence of a verbal projection, that, too, no longer follows from (30). Rather, for (30), the question one must ask is why the *v* constituent cannot be embedded under some sort of event structure, on a par with AS-Nominals, so as to give rise to an event reading for Synthetic Compounds. Even more damagingly, if, indeed, something along the lines of (30) is required in the grammar alongside (26), the prediction would be that for root incorporation cases, there would be neither N+V compounding, nor event structure, but both would be attested for incorporation into derived verbs. No such effects are attested.

Finally, note that all cases of so-called root incorporation could be subsumed under (30), if the root categorizes prior to incorporation, i.e., as in (25). It therefore follows that there is, in actuality, no advantage to the assumption that Synthetic Compounds are derived by incorporating an argument into a selecting root. The direct corollary is that there also appears to be no argument from Synthetic Compounds for the selection of the internal argument by the root, contra Harley (op. cit.).

3.4 The Obligatory Transitivity of Synthetic Compounds

3.4.1 Growing Irony

The structure in (26) derive, correctly, it would appear, the fact that internal arguments are the prime candidates for Synthetic Compounding. It fails, however, to account for one crucial factor highlighted as the statement in (31):

31. When the non-head is construed as an internal argument, Synthetic Compounds *must have a transitive construal.*

In other words, when the non-head is construed as an internal argument, there *must be* an implied external argument in addition to the expressed internal one. The issue is particularly clear for causative/inchoative pairs, in which an identical verbal form may alternate between transitive and intransitive instantiations: (32)-(33) (the latter with derived verbs) entail an

implicit external argument while (34) is ungrammatical. The effect is of course attested in non-alternating transitive cases such as those in (35) as well:

32. CAUSATIVE-INCHOATIVE PAIRS, TRANSITIVE READING ONLY
    a. *ship sinking*
    b. *window shuttering*
    c. *noise diminishing* (and compare with *noise diminishment*)
    d. *tomato growing* (and compare with *tomato growth*)

33. CAUSATIVE-INCHOATIVE PAIRS, DERIVED VERBS TRANSITIVE READING ONLY
    a. *root verbalizing* (and compare with *root verbalization*)
    b. *dust accumulating* (and compare with *dust accumulation*)
    c. *fabric redenning*

34. UNACCUSATIVES
    a. *tree falling
    b. **train arriving* (and compare with *train arrival*)
    c. **smoke (dis)appearing* (and compare with *smoke appearance/disappearance*)

35. TRANSITIVES:
    city destroying; child abusing; wall painting; pasta frying …

Importantly, (32)-(33) contrast with cases in which the non-head is not construed as an internal argument, but as an adjunct or modifier of some sort, and where no obligatory transitivity is attested. Thus (36)-(37) are ambiguous, and (38) fully grammatical:

36. a. the fast/ocean-sinking (of the ship)
    b. the slow/night-shuttering (of the window)
    c. the fast/mountain-growing (of the crops)

37. a. the quick/backyard verbalizing (of roots)
    b. the slow/summer reddenning (of the fabric)

38. the quick falling (of trees); the fast wilting (of flowers); the night arriving (of trains); the noontime appearing/disappearing (of smoke)

The obligatory transitivity effects in (32)-(35) also contrasts with the construal of 'bare' R-*ing* Nominals (cf. section 2.2) where no such effects are in evidence. Thus the expressions in (39) are all ambiguous, and the intransitives in (39) licit:

39. a. (This kind of) growing; sinking; dropping; verbalizing; reddenning …
    b. (this kind of) (dis)appearing, wilting, departing, arriving

Finally, the possibility of omitting the 'internal' argument altogether in (40), although retaining a transitive construal:

40. daytime destroying; pan frying, backyard terrorizing

(36)-(38) are cases in which the Synthetic Compounds in its entirety can serve as the nominal head of an AS-Nominal (cf. the parenthesized *of*-objects). Clearly, then, it cannot be maintained that the compounding process *as such* deprives the resulting Synthetic Compound from its ability to take arguments or to be associated with a grammatical event. Rather, the absence of grammatical event properties, in Synthetic Compounds, is a statement applying exclusively to the relationship, however characterized, between the head and the non-head. It is *within that domain* and within that domain alone that grammatical event properties are excluded. It thus emerges that Synthetic Compounds are just like any other derived nominal. They have an R-Nominal as well as an AS-Nominal instantiation, and the fact that they are, in some internal sense, compounds, appears to play no significant role in this respect (and see section 7 for some important structural ramifications of this conclusion).

Returning now to the statement in (31), we note a certain irony associated with the fact that the Synthetic Compound *tomato growing* is *exclusively* transitive, when compared with the obligatorily intransitive *tomato growth*. For approaches which subscribe to root selection of internal arguments, and in particular Marantz (1997 and subsequent work), crucial evidence for that hypothesis is summoned from the properties of *grow* in its derived instantiations, as illustrated by the contrasts between (41a-c) and (42a-c):

41. a. the growth of the tomatoes *intransitive only*
    b. *the farmer's growth of the tomatoes
    c. *the growth of the tomatoes by the farmer

42. a. the growing of the tomatoes (for seven weeks/in seven weeks) *ambiguous*
    b. The farmer's growing of the tomatoes
    c. The growing of the tomatoes (by the farmer) (in order to prepare for the fall season)

Marantz (op cit., following speculations in Chomsky 1970) suggests that the absence of transitive reading for *growth* derives from the fact that it is the root, *grow*, that assigns the internal argument. The external argument in such cases (and specifically when understood as an external causer in the sense of Levin and Rappaport, 1995), is assigned by an additional layer of functional structure which is verbal in nature (e.g. *v* or VoiceP). As a result, the intransitive instantiation of *grow* need not be verbal, but the transitive one must be. The claim about the properties of *grow* is then augmented by the assumption the affix *–th* is the spellout of a (little) *n* node which attaches directly to the root (potentially with its selected argument), but without any intermediate verbalization. *Growth*, then, and by extension all derived nominals with the exception of those derived with *–ing*, are the spellouts of nominalizations of the root (with or without an internal argument), and at any rate, well below the merger of any verbalizing structure.[15] The *transitive* grammatical reading in (42a,c), in turn, emerges directly from the assumption that *–ing* is the spellout of a nominalizer which merges with verbal structure, and is thus the only nominalizing form that can occur with transitive *grow* and its verbal layers.

Consider now this set of assumptions in conjunction with the structure in (26). By assumption, Synthetic Compounds here are derived without any verbal layers. First, clearly, and in reference to the structure in (26), the claim that *–ing* always signals the existence of a verbal layer clearly cannot be maintained (as Harley, 2009b in fact concedes). More seriously, however, as the derivation here crucially excludes any verbal layers, it also, by assumption, must exclude an external causer reading, and be restricted to whatever interpretation may emerge from the combination of the root with its selected argument. In other words, Synthetic Compounds with *grow* should pattern with *growth* in excluding a transitive reading. Instead, they enforce it.

If one nonetheless wishes to preserve (21) as a statement concerning the arguments of roots (or verbs, as we shall see) while still accounting for the obligatory transitivity of Synthetic Compounds, two possible repair strategies come to mind. One could claim that external, as well as internal, arguments are listed with the root and that Synthetic Compounding is akin to a lexical passive of sorts, an operation of suppressing the external and promoting the internal. Clearly, however, such an execution is fundamentally incompatible with any approach which seeks to minimize, if not eliminate altogether, lexical information and lexical computation. In turn, for a system that wishes to avoid stating external argumental selection on the root, or the verb for that matter, the only way to reconcile (21) with (31) would be to consider the domain of Synthetic Compounding to be considerably larger than that put forth in Harley (op. cit.), and to include in it whatever verbal structural nodes are responsible for the emergence of external arguments in general, and external causers in particular. On the bright side, that just might give

[15] This requires assuming that the subject of e.g. *destroy* is fundamentally different from the subject of *grow*, as *the destruction of the city by the enemy* is clearly grammatical, when contrasted with (41c). See Borer (2003, forthcoming) for some discussion of this issue.

a boost to the faltering claim that –*ing* may only merge with a higher, verbal domain. On the not-so-bright side, however, note first that *tomato growing* or *ship sinking* **must** be transitive, while *the growing of tomatoes*, with its full verbal projection, is ambiguous.

More damagingly, we seem to have now come a full circle. The assumption that Synthetic Compounds are derived by incorporating the internal argument into a selecting root, which appeared, initially, to account for the presence of an internal argument without grammatical event properties, now seems to work only if one assumes that the domain of Synthetic Compounding includes a fully specified event structure, complete with whatever event functional structure is implicated in licensing an external argument, including (by assumption) am external causer which implies an event. For that approach as well, then, one must now ask why it is that Synthetic Compounds have none of the properties of AS-Nominals associated with e.g. (42a-c) – no aspectual modification, no *by phrases*, no implicit argument control and so on.

Finally, the problem carries over to any account which subscribes to (21), while at the same time assuming that the licensing of the external argument (be it an external causer or otherwise) is associated with event structure of any sort. Thus consider the possibility that the internal argument is selected by a verbal head of some sort, and that the domain of the verb and its internal argument do not carry an event entailment.[16] It remains the case that within such a system, (31) can only be accounted for if reference is made to the existence, or lack thereof, of an external argument, by assumption licensed in a bigger, event-denoting structure, thereby raising anew the original puzzle: why is event structure missing in Synthetic Compounds?

3.4.2 Whence the Unaccusative Hypothesis?

Viewed from an even broader perspective, the obligatory transitivity of Synthetic Compounds as stated in (31) (together with (21i)) is fundamentally incompatible with the Unaccusativity Hypothesis, insofar as the operation under consideration seem to make a distinction, incompatible with the Unaccusativity Hypothesis, between the licit incorporation of internal arguments of transitives and the illicit incorporation of internal arguments of intransitive predicates.

3.5 Non-Solutions 2: Incorporation into a Nominal

For completeness sake, we must consider another possible syntactic execution of the idea in (21i)– one in which the internal argument is selected by the derived noun itself (possibly through inheritance), and where syntactic incorporation would adjoin that argument to the deverbal nominal, essentially as in (43):

43. $[_N\ [_N$ *truck* $[_N$ driving $]]$ *truck*]

I am not actually aware of current proposals specifically along such lines, but interestingly enough, and from a very distinct perspective, the proposal in (43) is directly critiqued by Ackema and Neeleman (2004) as part of their general critique of syntax-based word formation operations. Assuming, correctly, I believe, that (43) amounts to deriving *truck driving* from its derived nominal correlate in (44), clearly an instance of AS-Nominal, they point out to the obligatoriness of *of* in (44), vs. its impossibility with Synthetic Compounds, as in (45) (and see sections 4 and 7 for some more comments on their perspective):

44. The driving of the truck

45. a. *of truck driving *of truck*
    b. *truck driving of *truck*

[16] See, within syntactic approaches to word formation, Embick (2004) as well as van Hout and Roeper (1998)

Crucially, they reject the claim, originally put by Baker (1988), that incorporation would satisfy the case requirements on *truck*, thereby eliminating the need for *of* insertion. We note, however, that even if the complementarity of incorporation and *of* insertion *is* assumed, the problem remerges in contexts such as those in (46):

46. a. the frying (of pasta) in the pan
    b. *in pan frying (of pasta) *in pan*
    c. *pan frying (of pasta) in *pan*

This objection is augmented, first, by observing that if (43) were to be derived from (44), we would expect it to share its event argument properties, contrary to fact, and, second, by it being entirely unclear why the very same operation that derives (43) from (some version of) (44), could not derive (47b) from (47a):

47. a. the growing of the tomato (intrans.); the falling of the tree
    b. *tomato growing (intrans.); *tree falling

And finally, we note that some Synthetic Compounds have particularly correlating AS-nominals:

48. a. *the acting fast; *the smelling strong (and compare with *Mary's acting fast*)
    b. ??The frying in the pan (and compare *The pan frying of the pasta*)
    c. *the going to church

In short, the analysis in (43) does not fare any better in attempting to resolve the major problems we already noted: the absence of grammatical event properties in Synthetic Compounds, and the obligatory transitivity constraint, as stated in (31).

3.6. Non-Solution 3: a Lexicalist Treatment?

Under any plausible execution, the event properties of AS-Nominals stem either from some specification on the noun itself that it is an event/argument taker (Grimshaw, 1990; Siloni, 1997 i.a.). Alternatively they may emerge through the inheritance of argument structure from the verb (Selkirk, 1982; DiScuillo and Williams; 1987; Lieber; 2009, i.a), or, finally, be a direct relationship between V and N which is embedded under a nominalizer (Ackema and Neeleman, 2004). Crucially, and to capture the relevant properties of AS-Nominals when contrasted with R-Nominals, all these executions would need to link the presence of a grammatical event to the presence of an argument, and the absence of grammatical event properties to the absence of arguments. But from this perspective, the contrast between (22) and (23) is entirely unexpected. If the veracity of (21i) is assumed, then the non-head in e.g. *emperor stubbing* is an argument of *stub(ing)*. Likewise, *emperor* certainly is the argument of *stub*(*ing*) in *the stubbing of the emperor*. That the latter is a grammatical event but not so the former simply cannot be derived, under such circumstances, without some added mechanisms. However, the hypothetical mechanisms that might be needed appear less than attractive. One could assume, for instance, that grammatical event properties are severed from argument realization, and that some additional specification, syntactic or lexical, renders AS-Nominals grammatical events. This assumption, alas, would pull the rug from under the Grimshaw typology to begin with. Alternatively, one could claim that some absorption is associated with Synthetic Compounds, depriving them of their event reading. That, however, would amount, again, to severing the event argument from other arguments, thereby equally undermining the original, valuable typology under consideration. [17]

[17] In their lexical account of Synthetic Compounds, Ackema and Neeleman (2004) attribute the properties of AS-Nominals to the merger of N with a phrase (e.g. NP), while Synthetic Compounds involve the merger of terminals (specifically [[N+V]+aff], with the non-head of the Synthetic Compound absorbing the theta-role assignment of its verbal sister. While I agree with the structure proposed for Synthetic

We did note briefly that to capture the generalization in (31) a lexicalist could be devised so as to suppress or otherwise bind the external argument, but force the realization of the internal one. Crucially, the operation would have to be restricted to dyadic predicates, thereby excluding the formation of Synthetic Compounds for unaccusatives, or, for that matter, for unergatives. But even such a stipulation would not quite suffice, as any restriction of Synthetic Compounds to transitive, dyadic entries would fail to capture the grammaticality of the both transitive and intransitive variants of (36)-(**Error! Reference source not found.**) or the grammaticality of (38). To the extent that the incorporated adjuncts in (36)-(38) are not arguments and are presumably not lexically specified, accounting for the 'preservation' of the internal argument is not a trivial matter.

To conclude this section, it appears that any attempt to hold on to the insight originally put forth through the First Sister Principle seems quite simply unworkable. The inevitable conclusion, then, is that the successful account for Synthetic Compounds must avail itself of other means of explaining their properties, and that (21i), under any presently imaginable execution, should be dispensed with.

4. Compositionality

4.1. On the Obligatory Compositionality of AS-Nominals

Before I turn to an actual account of the derivation of Synthetic Compounds, another crucial distinction between AS-Nominals and Synthetic Compounds must be discussed. Thus far, our discussion of AS-Nominals and Synthetic Compounds highlighted two important distinctions between them, as summarized in (49):

49.

	AS-Nominals	Synthetic Compounds
grammatical events	+	-
obligatory transitivity	-	+

In this section, I will pursue yet another difference between AS-Nominals and Synthetic Compounds – one related to the presence, or lack thereof, of compositional reading. This difference will serve to augment the already massive arguments against (21i). It will also serve to provide us with a crucial insight into the structural difference between AS-Nominals and Synthetic Compounds that will inform the subsequent discussion in an important way. Beyond that, it will point to an extremely strong and compelling correlation between syntactic complexity and compositionality, and lend strong support to the syntactic representation of words.

AS-Nominals are always fully compositional, which is to say that their meaning can be reliably computed from the meaning of the verb (or the adjective for de-adjectival AS-Nominals), the arguments, and the event structure (see also Marantz, 2001). This holds for AS–*ing* as well as for AS-*ation*+*kin*. The matter can be illustrated by considering some derived nominals which are non-compositional and comparing their behavior with that of their compositional correlates:

50. a. *the *transformation* of the structure by the linguist
    b. *the patient's *transference* of his feelings

Compounds (albeit I do not think it is morphological, see section 7 for discussion), it is not clear how the putative distinction could derive the event properties of AS-Nominals, or, for that matter, how thematic absorption can account for the obligatory transitivity effects or for the failure of intransitive unaccusative arguments to give rise to well-formed synthetic compounds.

51. a. the *transformation* of our department by the administration
    b. the *transference* of merit

The contrast is, from any possible perspective, very surprising. Both forms are derived from the same verb with an identical suffix, and thus there is little about their morpho-phonology that could account for this contrast. Presumably, in anybody's account, the jargon senses of *transformation* and *transference* must be listed *somewhere*. It is not clear, however, why such listing should correspond to the inability to take arguments, or why the ability to take arguments should correspond to the impossibility of listing. All the more so since the arguments, were they present for the listed forms, could be identical to those that are otherwise assigned by the AS-Nominal or by its source verb (e.g. *agent* and *patient* in the case of *transformation*). The sets of meaning under consideration, note, are perfectly expressible with, e.g., light verbs, as in (52a-b), with pretty much the same roles or event properties, and yet the AS-Nominals corresponding to them are ill-formed:

52. a. the linguist did/performed a transformation on the structure
    b. the patient finally went through transference

Suppose we consider, from this perspective, the lexicalist view developed in Chomsky (1970) whereby there could exist argument-taking entries which are underspecified relative to being a noun or a verb. To capture the absence of argument structure for the listed entry of *transformation*, however, one would have to ban it to a different entry, and augment the lexicon with the statement that when an entry does not have a verbal instantiation *with an identical meaning*, it may not have arguments. But if so, such a system boils down to the claim that only verbs may have arguments, and that, for all intents and purposes, argument-taking nominals inherit their arguments from verbs.[18] But even under such an execution, matters are not entirely straightforward. Morpho-phonologically, jargon-*transformation is* derived from *transform*, and its morpho-phonological properties are entirely predictable from this derivational process. The account required would thus have to actually block *transformation* from inheriting the arguments of *transform*, but only when it doesn't mean '*the act of transforming*'. Alternatively, it would have to be stipulated that for some reason, R-nominals may drift, but not so AS-Nominals.[19]

It appears, however, that all these hypothetical attempts are putting the cart before the horse. Intuitively, it seems rather clear that what keeps the derived nominal compositionally 'honest' so to speak, is not its relationship with the verb, but rater, its relationship with the full verbal/argumental complex. When it is the full verbal/argumental complex that is nominalized, the derived nominal must be compositional. When it is the verb alone that nominalizes, non-compositionality may emerge. The simplest, most direct way to capture this generalization would thus be syntactic: in AS-Nominals, the nominal head scopes over the verbal/argumental complex. In R-nominals, it scopes over the verb, and excludes, specifically, any structure that may be implicated in the projection of arguments.

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[18] To be workable, note, any inheritance account would need to subscribe to some notion of phonological faithfulness. Without such phonological faithfulness, it is not obvious how to exclude, in a principled fashion, the derivation of jargon-*transformation* or similar terms from a 'frozen' verbal entry '*transform'* with the relevant jargon sense which may not be directly inserted into the syntax, and with *transformation*, as a consequence, behaving like an AS-Nominal. Such derivations do not exist, thereby casting doubt on their availability in principle, and by extension, on the idea that 'frozen' forms can serve as a source for derivational processes in general, contra, e.g. Reinhart (2002,to appear).

[19] The generalization is even tricker to state for lexicalist accounts which do not assume inheritance, e.g. Grimshaw (1990). In her account, the argument structure of derived nominals emerges from the assignment of *Ev* as an external argument in the context of some nominalizing affixes. It is hard to see, however, why in such an account *transformation* can assigns *Ev* and select arguments, but only if it means the *act of transforming*, and not the *act of performing a (grammatical) transformation*.

Consider what a syntactic execution would be like. Crucially, we cannot assume that verbs – or roots for that matter – come lexically specified with their arguments, internal or otherwise. If that were the case, then it is hard to see how nominalizing the verb in and of itself would allow the omission of the arguments, and the emergence of non-compositionality. If, however, verbs (and hence perforce roots) are deprived of arguments, and arguments, including the internal one, emerge from the presence of functional structure, then the problem disappears. Specifically, we may assume that the structure for R-Nominals, derived or underived, compositional or non-compositional, is the simplest possible one, as in (53a), involving either a non-branching structure altogether, or alternatively, the merger of either a (verbalized) root or a derived verb with a nominalizer, to give rise to one of the structures in (53b-c). The absence of argument structure for R-Nominals follows now directly from the fact that verbs, or roots, do not have arguments, and that the nominalization of either a root or a derived verb includes no syntactic structure otherwise associated with the licensing of arguments:[20]

53. R-NOMINALS, STRUCTURE:

a. $[_{L}\ \sqrt{}\ ]$
class

b. $[_{N}[_{V}\ \sqrt{}\ ]\ \ N]$
(trans)form *ation*
ing

c. $[_{N}[_{A}[_{N}\ \sqrt{}\ ]\ \ A\ ]\ \ V\ ]\ \ N\ \ ]$
verb *al* *ize* *ation*
ing

The structure of AS-Nominals, however, is considerably more complex. Here, the structure includes at the very least one, if not more, functional nodes which are event related, and which may license the merger of arguments. N, in turn, merges with this functional complex. Subsequent to this merger, the verb must move through the relevant functional nodes (notated here as F1 and F2 for expository reasons), to reach N and incorporate into it, stranding behind its arguments. The initial structure (setting aside irrelevant projections) is thus as in (54a). The derived structure is as in (54b):

54. a. $[_{N}$ N $[_{F1}$ (subj) (F1) $[_{F2}$ obj (F2) [V]]]]

b. $[_{N}\ [[_{F1}[_{F2}$ V]] N] $[_{F1}$ (subj) $[_{F1}[_{F2}\ V\ ]]$ $[_{F2}$ obj $[_{F2}\ V\ ]$ $[V\ ]]]]$
transform *ation* *(of) the-city*
transfer *ence*

[20] The structures in (53b-c) are essentially re-worked from Borer (1991/1993)'s Parallel Morphology, where they were crucially assumed to be morphological, precisely because they do not adhere to X'-Theory (for an argument for a morphological component distinct from syntax based on a similar rationale, see Ackema and Neeleman, 2004). If, however, X'-theory is replaced with the relativized system of Bare Phrase Structure (cf. Chomsky, 1995), the configurations in (53b-c) become syntactically licit rendering its relegation to a separate hierarchical component unmotivated.

For reasons of parsimony I am setting aside here issues having to do with linear order and projection in complex word structure such as those in (53b-c), but see Borer (forthcoming) for discussion. Issues having to do with the categorization of roots are also set aside. By way of clarification, I assume, as in Borer (2005, forthcoming) that while what merges may, of course, be a root, roots, as such, are not syntactic objects, as in (just about) any syntactic context they are equivalent to a categorial complement-set defined by some rigid designator. Specifically, in an R-Nominal such as *form-ation*, √FORM is rendered V-equivalent by being in the complement-set of *–ation*.

The boxed constituents in each of these structures are the constituents that spellout as *transformation* or *transference.* Seeking now to characterize the fact that the boxed constituents in (53) by assumption, may be non-compositional ((53a) note, trivially so), but not so the boxed constituent in (54), a natural direction to proceed would appeal to the presence, in (54) but not in (53a-c) of the functional structure which intervenes between the verb and the nominalizing affix.

Anticipating somewhat (and see section 4.3. below for discussion), Synthetic Compounds, just like R-Nominals, but in a striking difference with AS-Nominals, need not be compositional. To fully appreciate the ramifications of this fact, however, we need to digress briefly and review in some depth the issue of complex words and (non-)compositionality.

4.2. Non-Compositionality in Syntactic Word Formation.

Questions concerning the (non-) compositionality of complex words by far transcends the narrow matter of AS-Nominals vs. R-Nominals or Synthetic Compounds. Rather, they are at the core of any attempt to combine word formation and phrasal syntax into a single computational system. Clearly, insofar as derived nominals were presumed lexical and not syntactic by Chomsky (1970) largely because of their (at times) non-compositional nature when compared to gerunds, any attempt to return them to the syntax without addressing this matter is, at best, incomplete.

To date, the few attempts at an account for non-compositionality within a syntactic approach to word formation have focused, and correctly so, on identifying a well-defined syntactic domain within which such non-compositionality is available. These accounts share the assumption that access to the encyclopedia, by assumption a reservoir of listed meaning, is available to constituents which are potentially larger than just roots, or terminals, but clearly not too big, for AS-Nominals must be excluded. In an influential account Arad (2003) proposes that the domain under consideration is that of (first) categorization – the point at which the root merges with a category label. A different, larger domain is proposed in Borer (2009, forthcoming):[21]

55. a. reactionary (ACT, REACT, REACTION, REACTIONARY)
    b. naturalization (NATURE, NATURAL, NATURALIZE)
    c. editorialize (EDIT, EDITOR, EDITORIAL, EDITORIALIZE)
    d. festival (FEST, FESTIVE, FESTIVAL)

In a nutshell, I propose that the domain of non-compositionality extends as far as the first functional bracket. More specifically, I assume the existence of a single encyclopedia which is the reservoir of all (non-rigidly designating) meaning. A single encyclopedic search takes, as its input, a phonologically realized bracketed string, and returns a single meaning for that string . In other words, *a simple, non-compositional meaning is that which is associated with a single encyclopedic search* (*en-search*). Trivially, that is the meaning that that a single *en-search* would link with all non-branching structures, i.e. those containing a single root, whether categorized or not. An *en-search,* however, may return a single meaning for a larger domain, and specifically, it may return a listed, *single* meaning (and hence non-compositional) for any domain, however otherwise complex, which does not include a functional bracket. An *en-search*, in short, cannot jump over a functional bracket (and where by assumption $[_V$; $[_N$; $[_A$ do not constitute functional brackets in the intended sense). From this perspective, it is now clear how the difference emerges between R-Nominals and AS-Nominals. In R-Nominals, no functional brackets intervene between the verb, or the verbalized root, and N. In fact, the entire structure of the R-Nominal is functional-bracket free, internally. This, however, is not the case for AS-Nominals. Event structure, with its full functional glory, intervenes between the verb and its target, and the

[21] With thanks to Heidi Harley (p.c.) for NATURALIZATION and EDITORIAL. See Borer (forthcoming) for a fuller critique of the Arad system

successive head movement of the verb to N yields the boxed string in (54b), where any *en-search* for a listed reading for *transformation* would be stopped by a functional boundary. The schematic workings of the system are illustrated in (0)-(0):[22]

56. R-NOMINALS – AMBIGUOUS:

a.[$_N$[$_V$*transform]* *-ation*]	*en-search* returns TRANSFORM meaning for *transform*. *transformation* is composed from TRANSFORM plus the grammatically specified NOM function of *-ation*
b.[$_N$[$_V$*transform]-ation*]	*en-search* returns TRANSFORMATION for *transformation.* (i.e., a technical term in Generative Grammar)

57. AS-NOMINALS – COMPOSITIONAL ONLY:

a.[$_N$[$_{F1}$[$_{F2}$ [$_V$*transform*]]]-*ation*]	*en-search* returns TRANSFORM for *transform*. *transformation* composed from TRANSFORM plus the grammatically-specified functions of F1, F2 and *-ation*
b.[$_N$[$_{F1}$[$_{F2}$[$_V$*transform*]]]-*ation*]	at least in principle, there could be a single licit *en-search* for *transform*+F2 (see Borer, forthcoming). F1 and *–ation* would still compose with it.
c.*[$_N$[$_{F1}$ [$_{F2}$ [$_V$*transform*]]]-*ation*]	Impossible *single en-searches. En-search* would need to skip over F2 bracket and possibly F1 as well. Non-compositional meaning excluded

4.3. Non Compositionality and Synthetic Compounds

With the domain of non-compositionality defined, let us now return to Synthetic Compounds. As it turns out, Synthetic Compounds, or things that look an awful lot like them, need not be compositional, nor is their non-compositionality in these cases traceable in any way to the syntactic incorporation of an argument of a verbal or root head, as noted already by Ackema and Neeleman (2004). Thus the Synthetic Compounds in (58) could not inherit their non-compositional meaning from some verbal or root head plus its complement, for the simple reason that the corresponding VPs do not share their idiomatic meaning. Indeed, at times there isn't even an independent verb (e.g., *monger*). Of particular interest is (58b), as *to serve time* <u>*is*</u> idiomatic, but the idiomatic meaning of *timeserver* is distinct from it and is not available in the clausal domain:[23]

58. a. war mongering — *—* — *to monger (a) war
b. time serving — *opportunist* — (!)to serve time
c. baby sitting — *—* — *to sit (a) baby
d. line producing — *film accountancy* — #to produce (a) line
e. crystal gazing — *future telling* — #to gaze (into) a crystal
f. face lifting — *—* — #to lift (a) face

We note that the reading is likewise missing in AS-Nominals, thereby providing yet one more argument that Synthetic Compounds are not derived from AS-Nominals:

[22] The encyclopedia, as argued in Borer (2009, forthcoming) operates on syntactically bracketed phonological strings. As a consequence, non-compositional meaning is not associated with e.g. *transfer+N*, but rather, specifically, with *transference*, and not with the compositionally identical *transferral*.

[23] Care must be taken *not* to analyze the Synthetic Compounds in (58) as the nominalization of complex verbs such as *to baby sit, to copy edit, to proof read,* etc., all, arguably cases of *Back Formation* (so-called) whose existence postdates the existence of the corresponding Synthetic Compound. I return to this matter in some detail in section 7.

59. a. *the mongering of war
    b. #the serving of time (V idiom only)
    c. #the sitting of (a) baby
    d. #the lifting of faces
    e. #the producing of (a) line
    f. *the gazing of (#into) crystal

If the account of non-compositionality outlined here is on the right track, the inevitable conclusion from the existence of non-compositional Synthetic Compounds is that they do not contain an internal F bracket. Importantly, this conclusion is entirely consistent with the fact that they do not have grammatical event properties, just as the non-availability of non-compositional reading for AS-Nominals correlated directly with the presence of grammatical event properties.

It thus appears that we have here a convergence of evidence from very distinct domains all pointing towards the exact same conclusion. Complex syntax, complete with functional structure, is necessary in order for arguments, including the event argument, to be licensed, and grammatical event properties to emerge. That very same functional structure then serves to block the emergence of non-compositional (word) meaning. Conversely, in the absence of complex syntax, grammatical event properties are not attested, arguments are not available, but non-compositionality is possible. Explicit statements of the correlations are in (60):

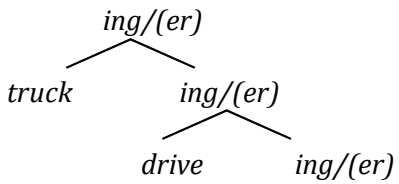
60. a. complex functional structure → compositionality
       non-compositionality→ no complex functional structure
    b. grammatical event (licensed event argument) → complex functional structure
       no functional structure → no grammatical event (event argument not licensed)

The correlations in (60) cannot be coincidental, nor can they be captured, directly, by any lexical-entry based account. Rather, they provide extremely strong evidence not only for a syntactic representation of event structure, but to the presence of complex, meaningful syntactic structure internal to so called words.

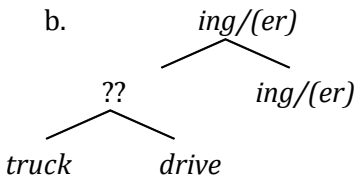
5. Synthetic Compounds – All that Remains

In the previous sections, I established that Synthetic Compounds cannot be successfully derived by appealing to any generalization according to which the non-head is an argument of the head, without running into a series of unresolvable difficulties. But if so, what remains of the claim that Synthetic Compounds involve a relationship of argumental dependency on a verbal-nexus head? In other words, is the distinction between Synthetic Compounds and Root compounds altogether motivated? An alternative, and a simple one, would be to assign to Synthetic Compounds the structure in (61a) or possibly in (61b) and assume that as such, they do not differ from any other root compound, and that the argument construal is but an implicature:

61. a.



b.



An investigation of the effects erstwhile attributed to the FSP, however, reveals that a significant residue does remain, consisting, specifically, of the descriptive generalizations in (62):[24]

[24] The generalization in (62) is necessary, but may not be completely sufficient, to account for the contrasts in (ia-b), noted, but not explained here:

62. a. *-ing* Synthetic Compounds exclude a 'subject' construal for the non-head
    b. When the non-head of an *-ing* Synthetic Compounds is interpreted as an 'object', Synthetic Compounds must refer to a transitive activity (i.e. must be atelic and non-stative)

Attempting to formulate these generalizations, I suggest that the properties of Synthetic Compounds with *–er* and *–ing* are attributable directly to the properties of the suffixes used. Specifically, I propose the (informal) statements in (63a-b):[25]

63. *-ing* a rigid designator, is a *Simple atelic (activity) Event* with an *Originator*[26]

Specifically, then, by virtue of including *–ing*, an expression such as *collecting* designates a *Simple Event* that has a 'perpetrator', in this case, a presumed *collector*. By *Simple Event* I refer, specifically, to the distinction first drawn by Grimshaw (1990), between Complex Events, and specifically, those which include arguments in general and the event argument in particular, and Simple Events, which are nominals that refer to events, but which lack arguments (including, by assumption, the event argument) and which do not conform to the diagnostics in (4). Importantly, the latter may, but need not be derived from verbs. We note finally that at least intuitively, some sort of (a)telicity effect can be eked out in the contexts underlined in (64a-b), although, given the isolated nature of the nominals and their high degree of coercibility, all such tests are suggestive rather than conclusive:

64. a. the class/friendship/journey/event/exam started at pm and went on for 3 hours
    b. the (instantaneous) victory/collision/destruction/disaster/catastrophe/incident occurred at 3pm exactly

65. a. the class/friendship/journey/event/exam (*for 3 hours)
    b. the accident/victory/collission/disaster/catastrophe (*in 2 seconds)

66. a. the class of physics (*by Prof. Smith)
    b. the friendship (*of Mary) (*by John) (*in order to copy her homework)
    c. The victory (of the chess player) (*in order to collect the substnatial price)

Informally, (63) accounts for (62a) under the assumption that two (disjoint) Originators cannot inhabit the same minimal functional domain. Specifically, if we assume that *–ing* in 67a has an Originator meaning built into it, then it follows that *chef*, in (67a) cannot be interpreted as an additional Originator. If, however, *chef* refers to a manner, and not to an *Originator*, thereby functioning as a modifier of an event with an understood Originator linked, by

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i. a. fast growing; pan frying; slow spinning; sick feeling
   b. #light frying; #nice spinning; #school cooking (=cooking at school); #well feeling

[25] The term *Originator* is used here in accordance with the system developed in Borer (2005). In terms of its actual interpretation, it comes very close to that of *Internal Causer* (and assuming external causation, in the relevant sense, to always entail internal causation). It spans not only traditional agents and causers, but also, importantly, subjects of activities, including those occurring with so-called variable behavior verbs in their unergative instantiation (cf. (ib)). The subjects of the unaccusatives in (ia), on the other hand, are *Subjects of Quantity*, in Borer (2005), or alternatively *Patients or Undergoers*. The reader is referred to Levin and Rappaport-Hovav (1995) as well as Borer (op. cit.) for the relevant discussion of variable behavior verbs:

i. a. the ship sank/the flower wilted/the table moved ***in three minutes***
   b. the ship sank/the flower wilted/the table moved ***for three minutes*** (*Originators*)

[26] And for *–er*:

i. *-er* is a rigid designator meaning an *Originator*

Effectively, note, this boils down to the claim that the suffix *–ing* is the 'sum' of the meaning of the suffix *–er* plus a Simple activity Event, or, alternatively, a relation between *–er* (potentially abstract) and a Simple Event (and see fns. 27 and 32 below for a few more comments. See Borer, forthcoming, for a fuller analysis of *–er*.

assumption, to the presence of –*ing*, i.e., the cooking has been done by a non-*chef* in a *chef-manner*, so to speak, then the expression becomes licit, as in (67b):

67. a. **chef stewing* (of the dish) (with *chef* as *originator*) → two originators in one functional domain.
    b. *chef-stewing* (of the dish) (by incompetent graduate students) → licit if in reference to a manner of stewing not necessarily performed by some *chef* .

(63) now accounts for the obligatory transitivity of the Synthetic Compounds as stated in (62b) (and cf. (32)-(35)). Suppose we assume that the non-head in compounds, in general, is only constrained by having to instantiate some relationship of relevance to the head, and thus is free to imply *any* argument, including an Originator. Specifically, there is clearly no across-the-board restriction against having an Originator implicature associated with the non head of compounds, including some derived directly from verbs or from verbal derivatives, as the cases in (68) show. A restriction against an Originator implicature for the non-head *only* occurs, then, in the presence of –*ing* (or –*er*), precisely where the presence of such an Originator would lead to a double Originator reading, as detailed above:

68. a. enemy destruction; court investigation; bank referral
    b. court intrusiveness; government destructiveness; teenager inventiveness

In turn, because the non-head in –*ing* compounds may not be an Originator, it may either be a modifier or, if an argument, an internal one. In the latter case, however, and in the presence of an incorporated grammatical Originator in –*ing*, the result is a transitive reading.

The effect, we note, is missing in AS-*ing* nominals where the overt or covert presence of an Originator is certainly licit, both in transitive and intransitive cases:[27]

69. a. Kim's lifting of the package
    b. the lifting of the package by Kim
    c. the lifting of the package in order to dry its bottom

70. a. Salome's (sensual) dancing
    b. the dancing of Salome
    c. the dancing in order to seduce Herod

To account for the contrast between Synthetic Compounds and AS-Nominals, suppose we consider a system of functional composition very much inspired by Lieber (2004), although differing from it in some central points. Within Lieber's system, the *skeleton* of a morpheme consists of all and only features that are of relevance to the syntax in a given language. The features, or feature bundles, under consideration are in turn functions which may take arguments.[28] Specifically, we may think of –*ing* as a function expressing a relationship between an Originator and a (Simple) atelic Event, as in (71a). Note that the statement that –*ing* denotes a Simple, rather than grammatical (complex) event follows directly from the absence of the relevant grammatical event structure and hence need not be stated. Following a similar logic,

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[27] The effect does hold for AS-*er* nominals, where an *of* phrase must be disjoint from the Originator and transitivity is obligatory in AS-Nominals as well:

i. a. the sinker of the ship; the verbalizer of the noun *transitive only*
   b. the ship's sinker; the noun's verbalizer *transitive only*

ii. a. the arriver (*of the train); the wilter (*of the flower)
    b. the jumper (*of the boy); the dancer (*of Salome)

See Borer (forthcoming) for discussion of this effect.

[28] In addition to assuming a different set of features and a slightly distinct architecture, the primary fundamental divergence from Lieber (2004) involves the assumption that skeletons and features, in the relevant sense, are associated exclusively with rigid designators, and never with substantive items, be they roots or lexemes of any other sort.

we can think of what is notated, e.g., in (54) as F1 as a relationship between an Originator and F2, with F2 standing for the rest of the relevant grammatical event structure, as in (71b):

71. a. *–ing* ([*Originator*], [$\text{Event}_{\text{atelic}}$])
    b. F1 ([*Originator*], [F2])

Semantic skeletons, in turn, may enter hierarchical relations, and as pertaining to the case at hand, let us assume that F1, as a semantic function, is embedded under $\text{Event}_{\text{atelic}}$ giving rise to the following semantic representation:

72. *–ing* ([*Originator*], [$\text{Event}_{\text{atelic}}$ ([F1 ([*Originator*], [F2])])

The composition of meaning in (72) is now subject to Lieber's (slightly modified) Principle of Coindexation as in (73):

73. PRINCIPLE OF COINDEXATION (SLIGHTLY MODIFIED FROM LIEBER, 2004)
    When semantic skeletons are composed, coindex the (highest) argument of the head skeleton with the (highest) argument of the immediately subordinate skeleton. Indexing must be consistent with the semantic conditions on the highest argument, if any.

Applying (73) to (72) now gives us the coindexation of the Originator argument of *–ing* with the Originator argument of F1, as required:

74. *–ing* ([*Originator*]$_i$, [$\text{Event}_{\text{atelic}}$([F1 ([*Originator*]$_i$, [F2])])

Note that the representation explicitly licenses two Originator instances, one a semantic argument of the *–ing* event, and the other a semantic argument of F1. The only restriction on the structure amounts to forcing them to be identified. That an Originator may, thus, occur overtly in AS-*ing* nominals, but not in R-*ing* nominals follows directly.

Consider, however, the applicability of the very same system to Synthetic Compounds. The representation of *–ing* is the very same one as in (71a). In this case, however, there are no embedded additional skeletons nor could there be an additionally licensed Originator, for the simple reason that Synthetic Compounds, as already extensively argued, do not contain the functional structure required for the emergence of grammatical event properties. In the absence of any function that could assign interpretation to the non-head, it can only be interpreted as a secondary predicate, a modifier, of arguments otherwise licensed in the structure. It can thus modify the Originator, as we already saw, or the event itself. The argumental implicature, I suggest, falls under the latter category, thereby rendering the ambiguity of a Synthetic Compounds such as *hand washing* a non-grammatical matter.[29]

In section 7 I return to matters concerning the internal syntactic representation of Synthetic Compounds, and specifically, to the choice between the structures in (61). Before doing so, section 6 reviews evidence that substantiates the core of the empirical claims in (63). Before proceeding, however, it is important to localize the account I have given here within a broader context. While empirically (63) may appear as a mere relaxation of the FSP, in actuality, it constitutes a radical theoretical departure from it. The FSP, or, for that matter, the statement in (21i), is an attempt to account for Synthetic Compounds by appealing to the privileged relationship between an item and its arguments, taking Synthetic Compounds to be fundamentally an instantiation of the very same relationship found otherwise between heads and arguments in clauses. In contrast, (63) as well as (71)-(74) are based on the complete

[29] To draw an analogy (and thus run the usual risks), that the non-head in Synthetic Compounds cannot have an Originator implicature follows, presumably, from the same reason that *Puccini's La Boheme by Puccini* is infelicitous, or is construed as *Puccini's* being a modifier, of sorts, of the head, e.g., a *puccini-style opera by Puccini,* or finally, must involve the assignment of a distinct 'argumental' function, namely, that of a possessor, to *Puccini's*, with the meaning *La Boheme, by himself, which Puccini owns* (e.g. he owns a particular recording of the opera).

rejection of any parallelism between Synthetic Compounds and the syntax of clauses, or, for that matter, the syntax of grammatical events even when not clausal (e.g. AS-Nominals). More broadly, it constitutes a rejection as well as a challenge to any account that appeals to a privileged relationship between verbs and arguments, indeed, between roots and arguments, be they syntactic or lexical.

6. *-ing*

6.1. R-ing Nominals are Simple Events

The purpose of this section is to provide evidence for the claim, made above, that *–ing* incorporates an Originator reading and that it denotes a (Simple) activity Event. Recall, first, that I already argued in section 2.2 at some length that contra Grimshaw (1990), *-ing* need not head an AS-Nominal and can head an R-Nominal. In turn, it's occurrence in Synthetic Compounds, where no grammatical event is in present, is of course entirely consistent with that claim. As it turns out, and rather strikingly, the overwhelming majority of the productive instantiations of *R–ing* Nominals are denotations of Simple Events:

75. a. This kind of parenting lasts many years, and occurs when education is deficient
    b. yesterday's bullying started at dawn, took place in my back yard, and only ended when I intervened.
    c. my kind of compounding never takes place in the lexicon and only occurs in the very last step of the derivation

R-*ing* Nominals are structurally very basic indeed, and it is therefore very hard to see, given that structure, that anything but *–ing* itself could be the source of the Simple Event properties. That *–ing*, especially when compared with R-*ation+kin* Nominals, is the direct contributory to that event reading is thus a natural conclusion.

Armed with this preliminary result, I turn to a closer investigation of the event properties of *–ing* nominals, in both R- and AS- contexts, as well as a comparison between those properties and those of AS–*ation+kin* Nominals, verbal gerunds, and progressive *–ing*. In what follows, I will make two important heuristic assumptions. First, as should already be clear from the discussion in section 5, I assume there is a single nominalizer *–ing* which occurs in R-*ing* Nominals, AS-*ing* Nominals and Synthetic Compounds. Second, I assume that insofar as *–ing* nominals, in both their R- and AS- instantiations, display properties that are distinct from those of *–ation+kin* nominals (in their R–*ation+kin* and AS–*ation+kin* instantiations), these properties can serve as evidence bearing on the properties of the nominalizer *–ing* as a whole.

6.2 –ing is Atelic

That AS-*ing* Nominals are atelic when compared to their AS–*ation+kin* Nominal counterparts has been claimed previously (cf. van Hout and Roeper, 1998; Borer, 1999, 2005b, Alexiadou, 2001). Thus (76) provides evidence that AS-*ing* Nominals bar telic modifiers such as *in few weeks* or *twice*, thereby contrasting minimally with (cf. (77)) (minimal pairs used wherever possible):

76. a. Kim's formulating of several procedures {for the past few weeks/*in few weeks/??twice}
    b. Pat's forming of many committees {for three months/*in three months/??twice}
    c. Robin's dissolving of these chemicals {for three hours/*in three hours/??twice}

77. a. Kim's formulation of several procedures {twice/in two weeks}
    b. Pat's formation of many committees {twice/in two minutes}
    c. Robin's dissolution of these chemicals {twice/in two hours}

Additional evidence is provided by the strong anomaly, and possibly complete ungrammaticality of AS–*ing* Nominals in strong achievement contexts, where activity reading is

not available. The very same effects are attested with bare R-*ing* Nominals (cf. (78)-(80)). Again, no such effects are present for –*ation+kin* nominals (cf. (81)-(82))

78. *this kind of *reaching/*finishing/*discovering/*exploding/erupting

79. a. */#Kim's reaching of the summit
    b. */#Robin's finding of (the) oil
    c. */#Roger's discovering of his wife's secret (and compare with *discovery*)
    d. */#The bulldozer's hitting of (the) bedrockf.

80. a. */#the erupting of Vesuvius */#Vesuvius' sudden erupting
    b. */#the exploding of the balloon */#the balloon's noisy exploding
    c. */#The mysterious appearing of the rabbit */#The rabbit's mysterious appearing

81. this kind of discovery/explosion/eruption

82. a. the eruption of Vesuvius Vesuvius' eruption
    b. the explosion of the balloon the balloon's explosion
    c. the appearance of the rabbit the rabbit's appearance

Note now that -*ing* nominals may be intransitive as in the R-*ing* Nominals in (83), or the AS-*ing* Nominals (84). In all these cases, however, the reading is that of activity, and no culmination is implied. This holds as well for nominals derived from verbs such as *fall, sink,* or *slip*, so-called variable behavior verbs, where in all intransitive –*ing* nominals, the subject, present or understood, is interpreted as an Originator (or internal causer, see fn. 25):

83. the sinking/the falling/the slipping/the dying/the whitening

84. a. The sinking of the ship (under intransitive reading)
    b. The falling of stock prices
    c. The slipping of standards
    d. The laughing of the boys
    e. The dancing of the light spots

Further evidence for the activity, atelic nature of –*ing* nominals comes from the fact that few lexicalized exceptions notwithstanding, they may not pluralize or be marked with the indefinite singular article *a*. Following Mourelatos, (1978), I assume that only telic events may pluralize, a claim otherwise embedded within the assumption that atelic events are mass, while telic events are count (following Bach 1976 and much subsequent work). The failure of –*ing* nominals to pluralize in both their R- and AS- instantiations thus corroborates both their event status and their atelicity. Note that nominals derived with –*ation+kin* display no such systematic restriction:

85. a. *This kind of parentings; *decidings; *formulatings; *terrorizings; *replacings;
    b. Women are reared not to feel competent or gratified by (*a) *questing,* (*a) *competing* and (*an) *outbidding* [of the sort] that collecting … demands. (adapted from (10b))

86. a. The (gradual) promotions/*promotings of these incompetent functionaries (by their superiors)
    b. The (frequent) replacements/*replacings of many humans with few machines
    c. The appointments/*appointings of three musicians to permanent positions (by the management)
    d. The arrivals/*arrivings of the trains

87. this kind of decisions/formulations/replacements

88. a. A promotion/*a promoting of an incompetent functionary (by his superior)
    b. A replacement/*a replacing of a worker with a machines
    c. An appointment/*an appointing of a musician to a permanent position (by the management)
    d. An arrival/*an arriving of a train

6.3 -ing is not Stative (Subject is Understood as Originator)

Note now that establishing that the understood subject of *–ing* is an Originator is tantamount to establishing, first, that *–ing* must have a subject, and second, that the event denoted by *–ing* it is not just atelic, but also not stative, i.e. that the subject is not a theme or an experiencer of some sort.

By way of addressing the obligatoriness of a subject, implicit or explicit, for *–ing* nominals, note the ungrammaticality of (89) (adjectives provided to exclude a gerund reading):

89. a. *R-ing Nominals:* #this kind of (harsh) snowing; #this kind of (heavy) raining
    b. *AS-ing* Nominals: #the constant/harsh raining for several days; #the frequent/hard snowing for several hours

As for the exclusion of stative reading, consider first the clauses in (90). Typically, these are understood as ambiguous between activity and state:

90. a. Charles felt the coat (stative reading; eventive-agentive reading)
    b Jenny smelled the stew (stative reading; eventive-agentive reading)
    c. Corrine touched Gil (stative reading; eventive-agentive reading)

The ambiguity, however, vanishes in the context of *–ing* nominals, where an eventive-Originator reading is the only one available, at times leading to an abnormal construal:

91. EVENTIVE-ORIGINATOR READING ONLY, R-*ING* NOMINALS*:*
    a. this kind of touching; this kind of smelling[30]
    b. Women are reared to be gratified by *frequent smelling* and *constant touching*

92. EVENTIVE-ORIGINATOR READING ONLY, AS-*ING* NOMINALS:
    a. Charles'/the feeling of {#the cold/the coat on his shoulders} (by Charles)
    b. Jenny's/the smelling of the stew (by Jenny)
    c. Corrine's /The touching of Gil (by Corrine)
    d. The wall's/The touching of the fence (#by the wall)

No such effects are found in the R–*ation+kin* Nominals in (93) or the AS–*ation+kin* Nominals in (94) (and compare with the AS-ing correlates):[31]

93. this kind of adherence, knowledge; endurance; resistance; irritation; pleasure

[30] Note that *feeling,* in its R-Nominal context, has a reading which is, in actuality, stative. Arguably, however, this reading is listed, rather than compositionally derived. Note, among various other factors, that it can occur as a count noun – *a feeling; feelings*. AS-Nominals, recall, cannot be listed, and hence, in its AS-Nominal instantiation, *feeling*, as predicted, cannot be stative.

[31] The effects under consideration here are altogether missing in gerunds, which freely allow telicity and stative readings. The behavior of the progressive, however, is similar (although not identical) to that of *-ing* nominals, in barring telic readings and in disfavoring stative ones. This suggests that a unified treatment of progressive *-ing* and nominal *-ing* may be feasible.

A unified treatment of nominalizer *–ing*, progressive *–ing* and gerundive *-ing* is put forth by Pustejovsky (1995). An account unifying, specifically, nominal and gerundive *-ing* is proposed by Portner 1992, Zucchi, 1989, 1993, Alexiadou, 2009 and Sichel, in press, among others. The contrasts between *–ing* nominals and *–ing* gerunds highlighted here, however, suggest that such unification cannot be correct. For more discussion of these issues, see Borer (forthcoming).

94. a. The wall's (persistent) adherence/*adhering to the fence
    b. Guy's definitive knowledge/*knowing of all the answers
    c. Dennis' (patient) endurance/*enduring of the noise
    d. The stain's (sad) resistance/*resisting to cleaning

6.4. Meanwhile Synthetic Compounds

Just like R-*ing* Nominals, recall, Synthetic Compounds are Simple Events:

95. the window breaking/furniture moving/kitten sinking started at 8am, took place in my back yard, and didn't stop until I intervened

In fact, whatever effects were attested for R-*ing* Nominals are directly replicable to Synthetic Compounds. Thus the ungrammaticality of (96a) echoes precisely that of (78) and is contrasted with (96b), arguing specifically for the atelic nature of Synthetic Compounds:

96. a. *this kind of summit reaching/task finishing/oil discovering/bomb exploding
    b. this kind of gold discovery/bomb explosion/volcano eruption

As concerning the availability, or lack thereof, of stative Synthetic Compounds, (97) shows that here as well they pattern exactly like R-*ing* Nominals, in barring stative, non-Originator reading, when possible, and showing non-felicity, when a non-stative reading is hard to construe:

97. a. *STATIVE, ACTIVITY:
    this kind of fence-touching/fabric feeling/stew smelling/stain resisting
    (and compare with *stain resistance*)
    b. NON-FELICITOUS:
    #this kind of music admiring/party hating/ film seeing/ bell hearing/noise enduring/stain resisting
    (and compare with *music admiration; noise endurance; stain resistance*)

Nor are the Synthetic Compounds in (98a) well formed, without coercion, again in contrast with the *–ation+kin* compounds in (98b):[32]

98. a. #fact knowing; #noise enduring; #stain resisting (fabric);
    b. fact knowledge; noise endurance; stain resistance

Summarizing the discussion thus far, I have now established that nominals derived with –*ing*, whether (bare) R-*ing* Nominals, AS-*ing* Nominals or Synthetic Compounds, are atelic activities with an (implicit) Originator. I now turn to the final section, discussing the syntax of Synthetic Compounds.[33]

7. Synthetic Compounds: Structures, *en-Searches* and other relevant matters

I concluded in section 5 that there is little reason to differentiate Synthetic Compounds from so called root compounds. Specifically, in the absence of grammatical event interpretation or any grammatical selection relationship between the head and the non-head, Synthetic Compounds, just like root compounds, exhibit no evidence for functional syntactic complexity of any sort. Insofar as Synthetic Compounds with –*ing* are interpreted as Simple events, I argued,

[32] And likewise, note:

i. a. fence toucher; stew smeller; coat feeler; stain resister (person/spray)
   b. #fact knower; #sick feeler; #sick looker; #stain resister (fabric)

[33] In contrast with nominal –*ing*, adjectival Synthetic Compounds with –*ing* do allow stative reading, attributable, I assume, to the general stative nature of adjectival constructions in general:

i. stew smelling room; music loving critic; sick feeling dog

this does not follow from the presence of functional structure, but rather from the fact that–*ing* is a function relating an Originator and an (atelic) Simple Event.

Consider again, from this perspective, the structures in (61). These are repeated here as (99) and (100), and illustrated with cases of underived terminals, of derived verbs (and non-heads) and adjunct non-heads:

99.	[$_{\text{N-ing/-er}}$	[L]	[$_{\text{N-ing/-er}}$	[L/V]	*ing/er*	]
	i. [$_{\text{N-ing/-er}}$	[*truck*]	[$_{\text{N-ing/-er}}$	[*drive*]	*ing/er*	]
	ii. [$_{\text{N-ing/-er}}$	[production]	[$_{\text{N-ing/-e}}$	[$_{\text{V-ate}}$ orchestrate]	*ing/or*	]
	iii. [$_{\text{N-ing/-er}}$	[fast]	[$_{\text{N-ing/-e}}$	[sink]	*ing/er*	]
100.	[$_{\text{N-ing/-er}}$	[[L]		[L/V]]	*ing/er*	]
	i. [$_{\text{N-ing/-er}}$	[[truck]		[drive]]	*ing/er*	]
	ii. [$_{\text{N-ing/-er}}$	[[production]		[$_{\text{V-ate}}$ orchestrate]]	*ing/or*	]
	iii. [$_{\text{N-ing/-er}}$	[[fast]		[sink]]	*ing/or*	]

The structure in (99) is entirely straightforward, and is the structure typically assigned to, e.g., *heart surgeon, tea merchant,* or *pastry chef*, where the head, presumably, is not derived from a verb (and see, for this structure, Selkirk, 1982, DiSciullo and Williams,1987, and Lieber,2009, i.a.). Prima facie support for (99) comes from the fact that as already noted in section 3.3.1, V-headed compounds do not typically occur in English (verb-particle compounds such as *to black out* being the exception).

Nonetheless, there is one rather compelling reason to adopt the structure in (100), and that is the fact that multiple factors point to the fact that in non-compositional Synthetic Compounds, what is listed as an encyclopedic entry does not have the structure in (99) or any of its sub-constituents, but rather, that of the boxed constituent in the (100), bracketed, furthermore, as V. The ensuing discussion does not only tip the scale in favor of the structure in (100), but also provide independent evidence for the specific claims made here about the relationship between syntactic complexity and compositionality, listedness, and *en-searching.*

Consider again the paradigm in (58), illustrating the presence of listed readings for Synthetic Compounds which are not shared by V-Obj constituents, clausally or within AS-Nominals. Under consideration, recall, were cases such as those in (101), supplemented, now, with *–er* Synthetic Compounds:

101.a.	whistle blowing	whistle blower	#to blow whistle
b.	shop lifting	shop lifter	#to lift shop
c.	type writing	type writer	#to write (a) type
d.	white washing	white washer	#to wash white
e.	copy editing	copy editor	#to edit copy
f.	bottom feeding	bottom feeder	#to feed at the bottom

One of the striking facts about the list in (101) is that the non-compositional meaning exists, in parallel, in both *–ing* and *–er* nominals, but cannot possibly be traced back to any relationship between a verb and its putative argument. Nor is the picture unique to English. Hebrew shows that very same pattern, with non-compositional meaning for Synthetic Compounds frequently patterning together across the equivalents of *–er* and *–ing*, but missing in the clausal instantiations:[34]

[34] As well as in AS-Nominals, cf. (i):

102. a.	*'orex din*	*'arixat din*	*#arax (et ha-) din*
lig:	editor law	lit: editing law	edited (OM the) law
	'lawyer'	'lawyering	lit. only
b.	*melaxex pinka*	*lixux pinka*	*#lixex ('et ha-)pinka*
lit:	chewer bowl	lit: chewing bowl	chewed (OM the) bowl
	psychopant	psychopanting	lit only

Under any account, the non-compositional meaning in (58), (101) and (102) must be listed. The question, however, is how many listings are involved. If the structure is as in (99), (and its Hebrew equivalent), there is simply no constituent which e.g. *shop lifter* and *shop lifting* have in common, and thus the shared meaning is a mere coincidence. Yet such a coincidence is rather hard to reconcile not only with the great frequency of such occurrences, but also with their cross-linguistics occurrence.

Similar logic in support of (100) is pursued by Ackema and Neeleman (2004).[35] Thus A&N observe the great frequency with which verbs that correspond to the affix-less portion of (58), (101) and similar cases comes to exist. (103) is a partial list of their (partial) list, augmented with some specific cases pertinent to the items in (58), (101):

103. to baby sit	to white wash	to play act
to shop lift	to face lift	to line produce
to bottom feed	to head adjoin	to base generate
to carbon date	to color code	to Chomsky adjoin

Marchand (1969) attributes the existence of forms such as those in (103) to a morphological process of back formation, which, effectively, strips a compound such as *baby sitting* of its affixal material, thereby turning it into a verb. Among other factors, he dates the actual historical emergence of many of the complex verbs in (103) (e.g. 1947 for first attested (to) *babysit*) to show that it postdates the existence of the correlating Synthetic Compound (a claim certainly anecdotally supported by the development of e.g. *to Chomsky adjoin* and *to base generate* as verbs in linguistic terminology). Overall, he traces the emergence of complex verbs such as those in (103) to a late trend in Modern English, starting sometime in the 19th century. Insofar as some non-compositional Synthetic Compounds existed, for however long, without a corresponding verbal form, and insofar as some of them still do, it is clear that at least during some time interval, Synthetic Compounds *can* exist such that their non-compositional meaning does not correlate with that of an actually occurring verbal use. Likewise, it strongly supports the diachronic claim that the emergence of the complex verbs in (103) is triggered by the prior existence of Synthetic Compounds with that same non-compositional meaning. The question, then, is how to structurally characterize Synthetic Compounds in general and non-compositional Synthetic Compounds in particular, such that they can plausibly give rise to the complex verbs in (103). If, indeed, 'stripping', however characterized, is involved, and as noted explicitly by A&N, it cannot possibly be stated on the structure in (99), where neither the affix nor the surviving 'stripped' remainder are a constituent. Thus even if the initial structure of Synthetic Compounds *is* as in (99), for 'stripping' to apply, the structure would need to first be reanalyzed to the structure in (100), therefore, per force, allowing that constituent structure into existence in the language.

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i. a. ha-arixa šel ha-din
the-editing of the law (lit. only)
b. ha-lixux šel ha-pinka
the-chewing of the-bowl (lit. only)

[35]A&N consider both (99) and (100) to be morphological ones. While I certainly endorse many of their architectural conclusions, I see little reason to exclude either one of these from the syntax.

But if we now adopt (100), a puzzle emerges. As A&N observe, cases such as those in (103) are virtually non-existent when compositional. English does not allow *to truck drive* or *to window break* or *to tree generate* or *to paper write*. But if the structure of Synthetic Compounds, compositional as well as non-compositional, is as in (100), the contrast is not easy to explain.[36] A&N themselves, arguing in favor of the structure in (100) as well as in favor of N+V compounding, in both English and Dutch, account for the effect as follows. First, they put forth the generalization in (104). Second, to account for the obligatoriness of such further morphological processes in the case of compositional N+V combinations, they appeal to competition and blocking. Effectively, *to drive a truck* wins over *to truck drive*. As e.g. **to sit a baby* does not exist, *to baby sit* is free, so to speak, to emerge:

104. N-V compounds that do not occur independently are licensed by a further morphological process of compounding [.... or] a further morphological process of derivation (p. 58)

For *to truck drive* to compete with to *drive a truck*, as A&N indeed note, crucially presupposes that in Synthetic Compounds, the verbal nexus does assign a role to the non-head. It is precisely because the thematic relationship between *drive* and *truck* are identical in *to drive a truck* and *to truck drive* that the derivations can be compared. Presumably, no such role assignment occurs in the case of e.g. *color code*, as to *color code and to code color* are certainly not synonymous.

Insofar as the explanation proposed by A&N crucially hinges on (a lexical execution) of (21i), it is, in turn, subject to the criticism of all (21i)-based accounts already discussed in some detail in sections 3 and 4. Nor is it clear how, exactly, competition should be framed so as to define *truck drive* and *to drive a truck* as in competition, but not, say, *the sinking of the ship* vs. the *ship's sinking*, or, for that matter, *ship sinking*.

Suppose, then, we consider an alternative. First, let us adopt a modified version of (104), which makes the morphological embedding of N-V compounds obligatory, thus making them, in the relevant sense, 'bound' morphemes:[37]

105. N-V compounds (English, Dutch, Hebrew) must be licensed by further morphological processes of compounding or derivation.

While for A&N the task was to explain the cases in which N-V may occur without affixation, the task here, as defined by the revised version in (105), is to show that in some important sense, the verbal forms in (106) are no longer truly compounds, and hence do not fall under the jurisdiction of (105). As it turns out, in the system developed here, there is one crucial difference between the Synthetic Compounds *truck driving/-er*, *window breaking/-er* and Synthetic Compounds such as *baby sitting, crystal gazing,* or *bottom feeding*. By definition, and because *truck driving* is fully compositional, its encyclopedic meaning is constructed of two distinct *en-searches*, whose meaning is then combined. Not so *baby sitting*, where, under the

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[36] And note in this context that e.g. *proof read* is not synonymous with *to read proofs* , nor is *copy edit* synonymous with *to edit a copy*. *To bartend* and *to handshake*, however, do appear to be genuine counter-examples.

The effect is even more striking in Dutch, which visibly allows N+V structures within complex compounds, as in (ia), but which, just like English, only allows the verbal correlates of non-compositional Synthetic Compounds and blocks compositional ones, as in (ib):

i. a. [$_N$ [$_V$ *appel* *pluk*] *machine*]
apple pick machine

b. **De boerenknecht [appel plukt]* *de hele dag*
thefarmhand 'apple picks' all day long (A&N pp. 57,58, examples (12a), (15a))

[37] And see Borer (forthcoming) for an account for (105).

non-compositional meaning, there is a single *en-search* which spans BABY and SIT, and which is constant across both *–er* and *–ing* instantiations:

106. a. [$_{\text{N-ing/-er}}$ [[*truck*] [*drive*]] *ing/er*]

en-search 1=TRUCK *en-search 2*=DRIVE → [[TRUCK]+[DRIVE]] +*ing/er*

b. [$_{\text{N-ing/-er}}$ [[*baby*] [*sit*]] *ing/er*]

en-search 1=BABYSIT → [BABYSIT]+*ing/er*

Recall now that the encyclopedia, as conceived here, is a reservoir of *all* listed meanings, regardless of internal complexity. Thus (categorized) roots, non-branching terminals, receive their encyclopedic meaning at the very same stage, involving (trivially) a single *en-search* as the jargon term TRANSFORMATION. Insofar as [BABYSIT] is the product of a single *en-search*, encyclopedically, it is neither less nor more complex than [DANCE], but it *is* different from [[TRUCK] [DRIVE]].

Further encouragement, so to speak, for the entry [BABYSIT] to occur as an independent verb emerges from the categorial status of the boxed constituent in (100). While the category of e.g. *drive* may not be self evident, nor, for that matter, is it clear how headedness is determined in the boxed constituent in (100), what *is* clear is that the constituent in its entirety is verbal, as it is in the complement set of *–ing* or *–er*. The emerging picture is, then, that BABYSIT is encyclopedically listed, complete with a [$_{\text{V}}$] bracket, and for all intents and purposes, returned by a single search, and at least encyclopedically speaking, with little to distinguish it from verbalized roots. That it should turn out to actually emerge overtly as a verb without further affixation is thus a natural development. In fact, once Synthetic Compounds such as those in (58) and (101) are in place, the question must be why, at times (e.g. as in the case of *to face lift*) the emergence of such verbal existence is so delayed. We note that even without the statement in (105), and although clearly [[TRUCK] [DRIVE]] is likewise a verbal constituent, its diachronic cycling into a root-like verb does not represent an equally natural extension of the system.

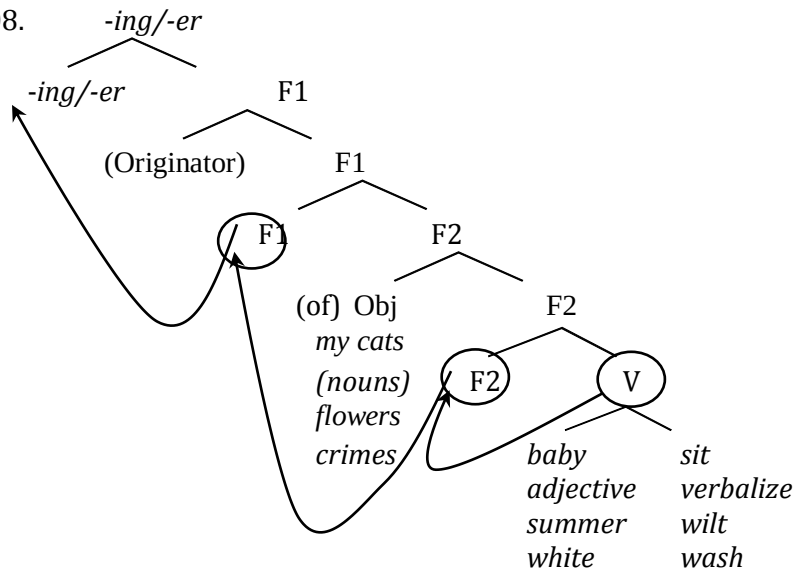
Armed with a structure for Synthetic Compounds, suppose we consider again those Synthetic Compounds which, themselves, can head AS-Nominals. Some examples were already noted (36), (37) and (38). Additional cases of interest are in (107):

107. a. the baby sitting/baby sitter of my cats
b. the backyard verbalizing/verbalizer of adjectives
c. the fast sinker of ships
d. the summer wilting of flowers; the noontime appearing/disappearing of smoke

I argued here as well as in Borer (1999, 2003, forthcoming) that AS-Nominals are always derived from attested verbs. It thus must be the case that there are *attested* verbs (107). Given the impossibility of constructing Synthetic Compounds which contain functional brackets, it also follows that the verbal compound, the correlate of the boxed constituent in (100), must be formed before the verb moves up the functional ladder. It therefore follows that for the compositional as well as non-compositional cases in (107) the non-head merges extremely low in the tree, and that the complex verb in its entirety is then moved through the functional complex. The emerging representation is (108): [38]

[38]There does exist a systematic counterexample to A&N claim that verbs such as those in (103) are always non-compositional. Those involve cases in which the non-head is construed as an adjunct, to wit, *to machine wash, to pan fry, to hand weave, to jump start, mountain-grow* etc. In turn, in what is certainly a curious contrast, Synthetic Compounds with an adverbial or temporal construal for the non-head, while certainly adjuncts, nonetheless do not seem to correlate to very good verbs altogether: *#to quick act; #to*

108.



8. Conclusion

While the empirical focus of this work has been the comparison of AS-Nominals and Synthetic Compounds, from a broader perspective it bears on the division of labor between the lexicon and the syntax, and more specifically, on domains of rule application. From the broadest perspective, at the core of any lexical approach there is an assumption that some listed unit, however defined, is a syntactically atomic unit, but nonetheless a grammatically coherent domain which consists of an array of grammatical instructions to the syntax (as well as to the morphology and to the phonology). More narrowly, in all lexicalist accounts, however derived or executed, the relevant listed unit (may) include a specification of privileged relationship that must hold between that unit and some other constituent, which may be syntactically, rather then lexically realized, i.e. an argument. The claim, as we saw, is not unique to so-called Lexicalist accounts, but is also typical of a host of root-based approaches, who may dispense with listed categorial labels and lexical operations, but not with listed argument selection.

I considered here three distinct instantiations of derived nominals with – AS-Nominals, R-nominals and Synthetic Compounds. I believe the conclusions of this investigation cast serious doubt on a number of claims concerning the properties of listed items as well as on the assumption that the lexicon is an appropriate domain for rule application which affects the syntax. First and foremost, I showed that identical morpho-phonological units, arguably phonological words, may nonetheless have extremely different syntax. The different syntax under consideration was not associated just with the structure in which such 'words' are embedded, or the structure which they may head, but rather, with their actual internal composition. The morpho-phonological unit *lifting*, specifically, had considerably more internal structure when occurring in the context of *the lifting of the package*, then it does in the context of *package lifting*. Specifically, in the former case it has the structure in (109a) while in the latter case it has the structure in (109b):

109. a. $[_N [_{F1} [_{F2} [V]]]]$–*ing*]
b. $[_N [V]$–*ing*]

The distinct structures in (109a,b) correlated directly with distinct broader syntax, with distinct formal semantic properties, and finally, to a very distinct degree of access to meaning listedness. Insofar as this point has been established, it argues strongly against correlating any

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summer wilt. Clearly, more fine grained distinctions are required here, a matter on which the account here as well as that of A&N are silent.

phonological domain for rule application with a uniform syntactic structure, and argues extremely strongly for constructing complex words syntactically. In contextualizing it relative to treatments of words in the past decades, it argues extremely strongly against the Lexical Integrity Hypothesis of Lapointe (1980) as well as its latter day incarnation as the Atomicity Thesis in DiSciullo and Williams (1987).

Beyond illustrating that words, internally, have syntactic constituent structure and thus must be syntactically constructed, I argued explicitly against the listing of any syntactic relations, e.g. those which hold between a head and its arguments, be those heads categorized (e.g. as verbs) or roots. The generalized challenge to any such listing emerged from the direct correlation between a functional, syntactic representation of arguments, the emergence of a grammatical event reading, and the emergence of a strictly compositional reading. Precisely because Synthetic Compounds do not come with functional structure, it was possible to show that they do not have a grammatical event representation, that the non-head cannot, in actuality, be an argument (under any approach), and that non-compositionality may emerge. It is difficult to see how this result can be explanatorily reconciled with the listing of internal arguments, or any other arguments, for that matter.

Importantly, what has been provided is <u>not</u> an argument against listedness as such, nor do I believe in the existence of such (valid) arguments. Any grammatical model which subscribes to the arbitrariness of the sound-meaning pair *must* have a list, indeed, two lists, somewhere, one consisting of sound combinations, the other consisting of (non-rigidly designating) meaning, and alongside these lists, some kind of pair-forming operation correlating a particular sound with a particular meaning. The lexicon-syntax debate has never been about listedness, as such. It has been, and remains, a debate about what is the content of the relevant lists. Specifically, what type of units inhabit the sound list, on the one hand, and what type of 'meanings' inhabits the meaning list, on the other hand. The lexical answer has been, by and large, that the listed sound is equivalent to (some) phonological domain of rule application, and that the listed meaning includes sufficient information to inform its appropriate syntactic merger, however derived. In contrast, the proposal I advance here the 'meaning' component is strictly encyclopedic and devoid of any direct grammatical significance.

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